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64th Lindau Nobel Laureate Meeting

Participant Directory

29 June – 4 July 2014

Lindau & Mainau Island, Germany

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Peter Agre
Johns Hopkins Malaria Research Institute
United States

Werner Arber
University of Basel
Switzerland

Françoise Barré-Sinoussi
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France

Bruce A. Beutler
UT Southwestern Medical Center at Dallas
United States

J. Michael Bishop
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Germany

Peter Agre

Johns Hopkins Malaria Research Institute
United States

Peter Agre was one of the recipients of the 2003 Nobel Prize in chemistry for clarifying how water is transported into and out of the cells of the body. It was long suspected that cells must contain specific water channels, but it was not until 1988 that Agre isolated a membrane protein that he later realised was the channel. A decade later, Roderick MacKinnon's work using X-ray crystallography to examine the structure of ion (salt) channels and how they function earned the second 2003 Nobel chemistry award. Agre's discovery explains, for example, how kidneys recover water from primary urine. It also has implications in animal, bacterial and plant studies.

He was born in 1949 in Northfield, Minnesota, 40 miles south of Minneapolis. Like many Minnesotans, he came from 'Viking' Norwegian stock. His father was a chemistry professor and double Nobel Laureate, Linus Pauling, was often a guest and the family hero. Peter attended Theodore Roosevelt High School and was an Eagle Scout but a school camping trip through Russia brought out a teenage rebellious streak and when his chemistry grades slipped to 'D', he quit school in 1967 and continued at night school, while learning Russian during the day. Finally, he enrolled at Augsburg College and majored in chemistry. After graduating in 1970, he took a year off to tour Asia and the Middle East before entering Johns Hopkins University School of Medicine, where he became fascinated by biomedical research. He also met his future wife, Mary Macgill, there. They got married in 1975 and have three daughters and a son.

After receiving his MD in 1974, Agre trained at Case Western Reserve University Hospital, Hospitals of Cleveland, and in 1978 accepted a clinical fellowship in haematology and oncology at the University of North Carolina. In 1981 Agre returned to Johns Hopkins, becoming an assistant professor in 1983. Working on the blood group antigen Rh, Agre's team isolated two new membrane proteins (approx. 30 kDa) in red cells. After spending 1988–89 on sabbatical to learn DNA technology, Agre decided to explore one further protein. The protein was abundant in kidney tubules and was related to proteins from diverse sources – lens of a cow's eye, fruit fly brain, bacteria, and plants. These clues intrigued Agre but it was John Parker, his former professor at UNC, who suggested it might be the long sought-after water channel. Together with Greg Preston, Agre performed a simple test by doctoring six frog eggs with the protein. Immersing six normal eggs in water had no effect, but the doctored eggs "exploded like popcorn". Presenting their discovery in 1992 the scientists dubbed the protein 'aquaporin' or AQP1. At the last count, biochemists in this field had reached AQP12 in humans, but hundreds of aquaporins are now known in plants and micro-organisms.

Werner Arber

University of Basel
Switzerland

Werner Arber is a Swiss microbiologist who, along with Daniel Nathans and Hamilton Smith of the US, received the 1978 Nobel Prize in physiology or medicine for the discovery of "restriction enzymes and their application to problems of molecular genetics".

In the early 1960s Arber was successful in explaining that bacteria can distinguish between their own DNA and foreign DNA when penetrating by viral infection, bacterial conjugation or DNA transformation into a bacterial cell. Foreign DNA becomes enzymatically cleaved and rapidly further degraded. This is called restriction and the endonuclease in question is the restriction enzyme. The cells own DNA is protected from cleavage by a site-specific nucleotide methylation, called modification. Both the modification and the restriction enzymes become activated on a short specific nucleotide sequence, the recognition sequence, which is the substrate for methylation. In many of these enzyme systems, the DNA cleavage occurs also within the recognition sequence (type II restriction enzymes). In contrast, in many other restriction-modification systems, DNA cleavage occurs more randomly outside of the recognition sequences (type I enzymes). Smith was first in isolating and characterizing type II restriction enzymes. Nathans pioneered the use of these type II enzymes for molecular genetic studies of medical interest. Within a few years, the type II restriction endonucleases became widely used tools in fundamental and applied research on genetic information at the molecular level.

Arber was born in 1929 in Gränichen, Switzerland, and attended the Kantonsschule Aarau. In 1949 he went to the Swiss Polytechnical School in Zürich, gaining his diploma in natural sciences in 1953. He started his postgraduate education at the University of Geneva in electron microscopy. He was introduced to bacteriophage physiology and genetics there, thanks to intensive contacts that the former physics professor, Jean Weigle, provided with the American phage group. In his PhD thesis presented in 1958, Arber showed that in the specialized transducing Lambda phages several viral genes had been substituted by bacterial genes for galactose fermentation. This notion served later as a model for viral gene vectors in genetic engineering.

As a postdoctoral fellow and later as a visiting professor, Arber spent several periods of time in the USA: at the University of Southern California in Los Angeles, at Berkeley, Stanford and MIT. From 1960 to 1970 he worked in research and teaching at the University of Geneva. In 1971 he moved to the newly constructed Biozentrum at the University of Basel where he still has ties as an emeritus professor. Arber devoted most of his research to investigations on the molecular processes behind microbial evolution. Studies on horizontal gene transfer and enzymemediated DNA rearrangements led him to postulate a theory of molecular evolution according to which nature cares actively for the promotion of biological evolution by using products of specific evolution genes as well as several intrinsic non-genetic elements.

Arber married his wife, Antonia, in 1966 and they have two daughters.

Françoise Barré-Sinoussi

Institut Pasteur, Paris

France

Françoise Barré-Sinoussi is a French virologist. Since 1992, she has been the Director of the Regulation of Retroviral Infections Unit at the Institut Pasteur in Paris. In 2008, together with Luc Montagnier, who was the director of her laboratory at the Institut Pasteur in the early 80's, she was awarded the Nobel Prize of medicine for the discovery of the human immunodeficiency virus (HIV) in 1983.

For the past 30 years, she has been continuously working on HIV/AIDS research and strongly involved in promoting integration between HIV/AIDS research and actions in resource limited countries. As she defines herself as a scientist-activist, she has always been committed to fighting for the rights of patients and against the spread of the AIDS disease. In 2009, she with others wrote openly criticizing Pope Benedict XVI for his dismissal of the use of condoms as a prophylactic.

Françoise Barré-Sinoussi was born in Paris in 1947. Since her early childhood she has always been fascinated with the natural world.

In 1966 she entered the University of Paris to study natural science. During her studies, she was eager to gain laboratory experience. Jean-Chermann at the Institut Pasteur accepted to recruit her as a volunteer.

Jean-Claude Chermann was studying the relationship between retroviruses and cancers in mice and proposed to her a PhD project to study the retroviral activity of a synthetic molecule (HPA23) in leukemia induced by Friend virus in mice. Tests proved effective and Barré-Sinoussi was awarded her PhD in 1974.

She then spent a year on a post-doctoral project at the National Cancer Institute of the National Institutes of Health in the US before returning to France to marry her fiancé (in 1978) and to take up the offer of a research position in Chermann's laboratory in Paris working in the department led, at the time, by Professor Luc Montagnier. This research group was one of the few which continued to study the link between retroviruses and cancers, as by this time oncogenes were attracting more attention.

In the early 80's, as the first cases of AIDS started to appear throughout the world, including France, the Institut Pasteur team was approached by a group of French clinicians to investigate whether this new disease could be caused by a retrovirus.

It was Barré-Sinoussi who first observed evidence of reverse transcriptase activity in a culture of infected lymph node tissue from a patient. As this activity declined over time, the addition of fresh lymphocytes in the culture would make it reappear.

The retrovirus the team had discovered was later named human immunodeficiency virus (HIV).

After visiting Africa as part of a World Health Organisation workshop in 1985, Barré-Sinoussi determined to champion her scientific cause on a global scale, starting collaborative efforts and scientific exchanges with African and Asian countries.

Her unit at the Institut Pasteur continues its work towards better comprehension of AIDS pathogenesis and mechanisms of control of HIV/AIDS. In 2006, Barré-Sinoussi was inducted into the Women in Technology International Hall of Fame.

Bruce A. Beutler

UT Southwestern Medical Center at Dallas

United States

Uniquely, one half of the 2011 Nobel Prize for Physiology or Medicine was awarded posthumously, to Ralph M Steinmann, who died three days before the awards were announced. The remaining half was shared by Bruce Alan Beutler and Jules Hoffman for their independent work which, the committee said, 'revolutionised our understanding of the immune system by discovering key principles for its activation.'

They have revealed how the innate and adaptive phases of the immune response are activated and thereby provided novel insights into disease mechanisms. Their work has opened up new avenues for the development of prevention and therapy against infections, cancer, and inflammatory diseases.'

Beutler and his team, based at the University of Texas Southwestern Medical Center in Dallas and the Scripps Research Institute, La Jolla, California, use a technique called 'forward genetics' to examine how the immune system in mammals removes pathogens from the body, and identified the crucial 'toll-like receptor' that identifies invasive microbes.

While researching the biology of lipopolysaccharide (LPS), also known as endotoxin, Beutler was the first to isolate mouse tumour necrosis factor alpha (TNF) and demonstrated its important inflammatory role in endotoxin-induced shock. He then created recombinant molecules designed to neutralise TNF by binding it to bulky immunoglobulin molecules to trigger the immune system. These molecules are now used commercially in the treatment of arthritis, Crohn's disease, psoriasis and other forms of inflammation.

Beutler went on to work out how LPS triggered the immune cells. By cloning the LPS locus, within which mutations had been known since the 1960s to prevent responses to LPS, he identified a 'toll-like receptor' (TLR4) which acted sense the presence of invading microbes bearing LPS. Receptors of the same family, ten of which are now known to exist in humans,, each 'tuned' to detect different kinds of microbes, also initiate inflammation to combat infection, but sometimes shock as well. It was for this work that Beutler won the Nobel Prize, and his team at the University of Texas Southwestern Medical Center continues to search for proteins that protect mammals against defined infections. In the process, they have identified genes required for other functions, including the regulation of iron absorption, hearing and the development of embryos.

Beutler's maternal grandparents emigrated from Kiev, Ukraine, at the turn of the 20th century while his father's family fled Berlin when the Nazis came to power. His grandparents and parents were shaped by their experiences as refugees, Beutler believes, and strong academic performance was encouraged "to show we were as good as the other children". Bruce was born in Chicago, Illinois at the end of 1957 but grew up in a suburb of Los Angeles, California, where he attended Pasadena Polytechnic and developed an early interest in biology from working in the laboratory with his father, Ernest Beutler, who was also a distinguished biomedical scientist, at that time working at the City of Hope Medical Center. Later, both Beutlers chaired separate departments at The Scripps Research Institute. Bruce went on to study biology under geneticist Daniel Lindsley at UC San Diego, graduating at 18, and worked briefly with three people whose expertise would shape his career: mammalian geneticist Susumu Ohno, LPS

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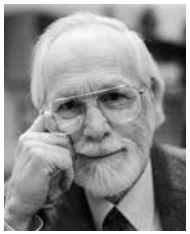


J. Michael Bishop

University of California, San Francisco
United States

John Michael Bishop and Harold Varmus, colleagues at the University of California School of Medicine in San Francisco, shared the 1989 Nobel Prize in physiology or medicine "for their discovery of the cellular origin of retroviral oncogenes". This large family of genes controls the normal growth and division of cells ('onco' is Greek for bulk or mass). Disturbances in these oncogenes can lead to transformation of a normal cell into a tumour cell and result in cancer. The term oncogene was introduced in the 1960s to denote special parts of the genetic material of certain viruses. The first oncogenic virus was discovered by Peyton Rous in 1910. ' Rous sarcoma virus' is a retrovirus, which uses a reverse transcriptase enzyme to turn infected RNA (ribonucleic acid) into DNA (deoxyribonucleic acid), effectively integrating the virus into the body's make-up.

Through their investigation of the Rous sarcoma virus, Bishop and Varmus demonstrated the origin of oncogenes. Their work has increased knowledge about tumour development and the systems that govern the normal growth of cells.

Bishop was born on February 22, 1936 in York, Pennsylvania, the son (one of three children) of a Lutheran minister and had little contact with city life until his early 20s. He attended rural schools but was a keen student and, inspired by the family doctor, entered Gettysburg College to study chemistry, intent on a medical career. He graduated in 1957 and went on to Harvard Medical School. Bishop married his sweetheart from Gettysburg, Kathryn Putman and they have two sons. He also developed a passion for molecular biology and took a course in animal virology. He graduated in 1962 and joined the Massachusetts General Hospital as a house doctor for two years before beginning research at the National Institutes of Health in Bethesda, Maryland. In 1968, after a year's sabbatical to Hamburg, Germany, Bishop joined his former mentor Leon Levintow at UCSF. It was there that he also met Warren Levinson, who was studying the Rous Sarcoma Virus. The trio joined forces but it was Howard Temin and David Baltimore who discovered reverse transcriptase.

Bishop continued his work, however, and was joined in 1970 by Harold Varmus. Together (and aided by Dominique Stehelin, Deborah Spector and Peter Vogt) they used one variant of the Rous virus that contained an oncogenic gene and another which did not in order to construct a nucleic acid probe that identified the oncogene in different species throughout the animal kingdom. They published their findings in 1976. Bishop rose to Professor of Microbiology and Immunology at UCSF and director of the GW Hooper Research Foundation and of the educational Program in Biological Sciences. He has collected numerous awards, mostly with Varmus, and is a member of several American scientific academies and societies.

Elizabeth H. Blackburn

University of California, San Francisco
United States

Rarely has a Nobel award received such media buzz as that of Elizabeth Blackburn, Jack Szostak and Carol Greider. If cracking the DNA code revealed the 'secret of life', Blackburn's discovery of telomerase was heralded as the 'fountain of youth'. The truth, while not quite so magical, is impressive enough. Telomerase is the enzyme that makes telomere DNA – protective 'caps' that allow DNA strands to split without damage during cell division as bodies grow.

Scientists had long suspected the existence of these caps but it was while studying the single-celled Tetrahymena ('pond-scum') that Blackburn discovered that the DNA sequence CCCCAA was repeated several times at the ends of the chromosomes. When Blackburn presented her results in 1980, Szostak suggested they try an experiment by grafting the CCCCAA sequence to previously vulnerable mini-chromosomes in yeast. Sure enough, the telomere protected them from degradation. As the two organisms were not related, this showed a fundamental mechanism common to most plants and animals. Szostak discovered some yeast cells had mutations that caused a shortening of the telomeres. These cells aged rapidly and soon failed.

Blackburn's team set out to explore whether telomere DNA was created by an unknown enzyme. On Christmas Day, 1984, graduate student Carol Greider observed activity in a cell extract. Greider and Blackburn found that the enzyme, which they called telomerase, contained an RNA blueprint of the CCCCAA sequence and proteins, allowing telomerase to build longer telomeres. Blackburn then showed that telomere shortening in Tetrahymena could be caused by mutating telomerase itself.

In humans, telomerase is a two-edged sword. From more recent research, Blackburn now believes that telomere shortening in normal cells of the body can hasten some of the most common diseases of aging. If short telomeres accelerate this aspect of the ageing process, long telomeres seem to slow it down. Future work may attempt to stimulate telomere elongation in diseased cells, such as in anaemia. However, despite media speculation, preventing telomere shortening will not make Methuselahs of us. Conversely, telomerase is often overly active in malignant cancer cells. Therefore, work is under way to explore the effect of targeting telomerase in those cancer cells that have already become malignant.

Elizabeth Helen Blackburn was born in November 1948 in Hobart, Tasmania. One of seven children born to two family physicians, she was encouraged to participate in science from an early age. She completed her BSc (1970) and MSc (1972) in biology at the University of Melbourne, her PhD (1975) from the University of Cambridge in England and did postdoctoral work at Yale in the US before joining the faculty at the University of California, Berkeley in 1978. In 1990 she joined the Department of Microbiology and Immunology at UC San Francisco, where she served as Department Chair from 1993-99 and is now the Morris Herzstein Professor of Biology and Physiology in the Department of Biochemistry and Biophysics. She is also a Non-Resident Fellow of the Salk Institute.

In 2001 President Bush appointed her to the Council on Bioethics, but she was dismissed in 2004 in what is generally believed to be a political move because of her vocal support for human stem cell research. Elsewhere, Blackburn has been widely honoured as (among others) President of the American Society for Cell Biology 1998 and of the American Association for Cancer Research in 2010. In 2007 she was named one of TIME Magazine's 100 Most Influential People and in 2010 was made a Companion of the Order of Australia. She is married to John Sedat, and has a son, Benjamin.

Martin Chalfie

Columbia University
United States

The Nobel Prize has several rules which often leave great work unrecognised. It is not awarded posthumously, for example, and there can only be three recipients for each category.

Thus in 2008 the vital contribution of Douglas Prasher was overlooked by the committee, but not by the recipients.

In 1992 Prasher, a researcher at the Woods Hole Oceanographic Institution in Massachusetts, isolated the gene that caused green fluorescent protein to glow. Sadly his discovery only came at the end of three years of funding by the American Cancer Society and he currently does not even work in the science field, but he freely gave the gene to both Martin Chalfie and Roger Tsien, both of whom invited him to the ceremony to thank him.

Chalfie used the gene to demonstrate the value of GFP as a luminous genetic tag for various biological phenomena by colouring six individual cells in the transparent roundworm Caenorhabditis elegans with GFP. He correctly guessed that, unlike most forms of bioluminescence, GFP required no additional enzyme to create light by chemical reaction. His lab uses the simple nematode to investigate aspects of nerve cell development and function.

Chalfie's interest in GFP was sparked by a 1988 seminar by Paul Brehm about bioluminescent organisms and he has published over 200 papers on the subject including the highly-regarded Green Fluorescent Protein as a Marker for Gene Expression, co-written in 1994 with others including Prasher.

Martin Chalfie was born in Chicago in January 1947 and went to Harvard in 1965. He initially intended to study mathematics but soon switched to biochemistry, although he admits to having doubts about his ability and hedged his career bets with studies in law, theatre and Russian literature.

After graduating in 1969 he took several part-time jobs, including teaching and selling couture for his parents' dressmaking company before joining a research lab at Yale in 1971. His success there, including his first publication, encouraged him to return to Harvard where he gained his Ph.D under Robert Pelman in 1977.

He performed post-doctoral research on C. elegans at the Laboratory of Molecular Biology in Cambridge, England, with (2002 laureates) Sydney Brenner and John Sulston. In 1982 Chalfie joined the faculty of Columbia University in New York where he performed his Nobel-winning work, aided by his wife and colleague Tulle Hazelrigg. Hazelrigg was among the first to attach GFP to other proteins, allowing scientists to watch where individual proteins go within a cell simply by watching for the telltale green spark.

Chalfie was elected to the National Academy of Sciences in 2004 but another telling accolade was the Harold S Ulen trophy he received as captain of the Harvard swimming team for his 'leadership, sportsmanship and team cooperation' – qualities he displayed by freely passing on his work to other researchers, just as he had received the baton from Douglas Prasher.

Steven Chu

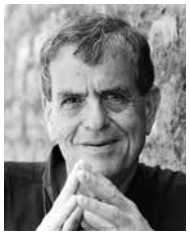
Stanford University
United States

Steven Chu was born in St. Louis on February 28, 1948 and studied at the University of Rochester, where he received his bachelor's degree in mathematics and his master's degree in physics. He then went on to the University of Berkeley in California to work on his Ph. D., which he obtained in 1976. After two more years as a research fellow at Berkeley, he joined Bell Laboratories in Murray Hill, New Jersey, working in the technical department until 1983, when he became head of the quantum electronics research department of AT&T Bell Laboratories at Holmdel, New Jersey. Presently he is Professor of Physics and Applied Physics at Stanford University (1987), where he holds the Theodore-and-Frances-Geballe professorship and has been head of the Physics Department since 1990. He is a visiting professor at Harvard (1988) and the College de France (1990).

Chu was awarded the 1997 Nobel Prize in Physics along with his American colleague William D. Phillips and Claude Cohen-Tannoudji from France, for developing "methods to cool and trap atoms with laser light".

At room temperature the atoms and molecules of air move vigorously and in completely disorderly fashion with velocities of around 4000 km/h. At lower temperatures they slow down so that they can be observed more closely, but they tend to condense so that the distances between their particles become too small to be studied in detail. Experiments in a vacuum are helpful, since the gases do not turn into liquids or solids, but even at -270¡C the particles continue to move too fast (ca. 400 km/h). Velocities of less than 1 km/h, which would allow measurements using sophisticated methods on free hydrogen atoms, are only achieved at one millionth of one degree above absolute zero (-273.15¡C).

The three scientists developed methods to cool and trap atoms with laser light. Atoms irradiated by a laser are slowed down by the impact of the laser photons. In 1985, Chu installed three pairs of lasers facing each other around a vacuum chamber. By using the Doppler effect, he succeeded in lowering the temperature to approx. 240 millionths of one degree above absolute zero, slowing the atoms down to approx. 30 cm/sec. Chu's team coined the expression "optical molasses" to describe the movements in a viscous medium. Still, the atoms "dropped" out of the molasses before they could be studied. Phillips combined Chu's method with a technique he developed for trapping sodium atoms by means of magnetic fields ("magneto-optical trap" or MOT). A further refinement of the method by Cohen-Tannoudji succeeded in lowering the temperature to 0.18 millionth of a degree, reducing the velocity to approx. 70 m/h or 2 cm/sec.



Aaron Ciechanover

Technion - Israel Institute of Technology

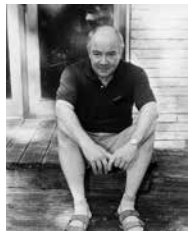
Israel

Aaron Ciechanover is a biochemist who, in 2004, shared the Nobel Prize in Chemistry with fellow Israeli Avram Hershko and Irwin Rose of the US 'for the discovery of ubiquitin-mediated protein degradation'. Scientists already knew how most proteins are produced but what prevented cells from being overloaded by stockpiled proteins? In the early 1980s Ciechanover, Hershko and Rose discovered how redundant proteins were broken down by a regulated system.

Ciechanover was born in 1947 in Haifa, in what was then the British Protectorate of Palestine (it became Israel the following year) and his Polish parents moved there in the 1920s with their families. Aaron and his elder brother Joseph were encouraged to study from an early age, and it was Joseph who bought Aaron his first microscope at the age of 11. Ciechanover majored in biology at school, and went on to receive his MSc in 1970 and his MD in 1975 from the Hadassah Medical School of the Hebrew University in Jerusalem. After three years military service as a combat physician in the Israel Defense Forces, he joined Avram Hershko's laboratory in the Faculty of Medicine at the Technion (Israel Institute of Technology) in Haifa in 1976, where he received his D.Sc. in 1981.

With two fellowships (from the Leukemia Society of America and the Israel Cancer Research Fund), Ciechanover went on to carry out postgraduate studies under the supervision of Harvey Lodish at MIT. Three years later, in 1984, he returned to Israel to join the faculty of medicine at the Technion where he continued his research with many students, fellows and physicians, and where he is currently a Distinguished Research Professor in the Center for Cancer and Vascular Biology in the Rappaport Faculty of Medicine and Research Institute. In 2000 he received the Albert Lasker Award for Basic Medical Research and in 2003 the Israel Prize for Biological Research. Among many esteemed institutions, he is a member of the Israeli Academy of Sciences and Humanities, the Pontifical Academy of Sciences of the Vatican and the USA National Academy of Sciences (Foreign Associate). He has been married to Menucha, a physician (geriatrician) and a graduate of Tel Aviv University School of Medicine since 1975. They have one son, Yitzhak – Isaac. Sadly, his parents did not live to see his success – Aaron's mother died in 1958, and his father in 1964.

In the late 1970s and early 80s, Ciechanover, Hershko, and Rose worked together and discovered that cells destroy redundant proteins in a phased process. A molecule called ubiquitin ("as it was thought to be ubiquitous – everywhere") attaches to a target protein and accompanies it to a proteasome – a complex of enzymes that break the protein into shorter peptides that are then further degraded into amino acids, the basic components of which proteins consist. Only proteins carrying an ubiquitin molecule are admitted, and the ubiquitin detaches itself to be reused. Their work later made it possible to explain the cell control processes such as cell division, DNA repair, the mode of action of the immune system, and the way the cell maintains the quality of its proteins. Diseases, such as certain malignancies and neurodegenerative disorders, as well as inflammatory diseases, can result when protein degradation does not work properly, and knowledge of the process has already led to the development of a powerful anti-cancer drug, and others are in the pipeline.



Johann Deisenhofer

University of Texas

United States

Johann Deisenhofer received the 1988 Nobel Prize in chemistry with fellow German biochemists Hartmut Michel and Robert Huber for unravelling how a membrane-bound protein active in photosynthesis is built up. At the time the trio was working at the Max-Planck Institute in Munich.

Plants use the energy from light to build organic matter by a process called photosynthesis, creating the most basic foodstuff in the world's food chain – vegetation. Furthermore, the plants produce oxygen, which allows bodies to burn the organic matter. Photosynthesis, according to the official Nobel review of the 1988 chemistry award, is "the most important chemical reaction on earth". The conversion of energy into photosynthesis and cellular respiration takes place through the transport of electrons via a series of proteins, which are bound in special membranes. These proteins are difficult to obtain in a crystalline form, but in 1981 Michel succeeded, allowing him, along with Deisenhofer and Huber, to study their structure. A simpler form of photosynthesis, which leads to the formation of organic material without liberation of oxygen, is found in certain bacteria.

Deisenhofer was born in Zusamaltheim, Bavaria, in 1943, and grew up on the family farm which, traditionally, he was to inherit, but he had no interest in farming. Instead, after his basic primary school education, he was sent to a series of schools from 1956, culminating at the Holbein Gymnasium in Augsburg. In 1965, after 18 months of military service, he entered the Technische Universität in Munich to study physics. Having concentrated on solid state physics, Deisenhofer switched to biophysics for his PhD, joining Robert Huber's new group at the Max-Planck-Institut in 1971, initially located in Munich but then moved to Martinsried in 1972.

Deisenhofer worked with Wolfgang Steigemann on the crystallographic refinement of bovine pancreatic trypsin inhibitor, and wrote a popular paper in 1975. He obtained his PhD in 1974 and Huber offered him a postdoctoral position, which became permanent in 1976. In 1982, Hartmut Michel reported his success with the crystallisation of the photosynthetic reaction centre from Rhodopseudomonas viridis. Deisenhofer joined the project to determine the three-dimensional structure of this molecule. Their success brought a flurry of offers, and Deisenhofer accepted a post as professor of biochemistry at the University of Texas Southwestern Medical Center in Dallas in March 1988, and as Investigator at the Howard Hughes Medical Institute. At Howard Hughes he met Kirsten Fischer Lindahl, who he married in 1989.

Sir Martin J. Evans

Cardiff University
United Kingdom

Stem cells are a key component in animal tissue renewal, as they are capable of replicating themselves as well as creating different cellular offspring. Work (largely theoretical) on their use dates back 100 years. In the 1950s, Leroy Stevens developed a strain of mice with a high incidence of spontaneous teratomas. Further work, including that of Barry Pierce, showed that the wide diversity of different cell types in these tumours arose from embryonic stem cells. Evans obtained a batch of these '129Sv' mice in the early 1970s out of the tumours embryonal carcinoma (EC) cells grew in tissue culture. These were able to be grown into all kinds of cell types, including skin, nerve, cardiac muscle, etc.

Evans saw the potential in using these EC cells not only for cell culture studies but also for creating genetically manipulated mice. Together with Richard Gardner in Oxford he succeeded but found that the mice carrying EC derived cells developed multiple tumours and could not contribute to the germline. In 1980 Evans teamed up with embryologist Matt Kaufman to combine cell culture and embryo manipulation and soon found the sought-after pluripotential cells. These were the embryonic stem (ES) cells that became critical for the success of gene targeting. Evans and Kaufman published their report on ES cells in Nature in July, 1981, pointing out the possibility of using ES cells for gene modification. Evans' team was able to demonstrate the introduction of foreign DNA into the mouse germline in October, 1986, concluding that "cultured embryonic cells provide an efficient means for the production of transgenic animals". Evans' mice have proved invaluable as the 'genetically modified mice' of modern medical research, used by fellow laureates Capecchi and Smithies in their targeted gene "knockout" experiments.

These experiments allow scientists to establish the roles of individual genes in health and disease, including cardiovascular and neurodegenerative diseases, diabetes and cancer.

Martin John Evans was born on the first day of 1941 in Stroud, Gloucestershire. He studied at Christ's College, Cambridge, before going on to University College, London in 1963, where he earned his PhD in 1969. By then he was already working at UCL as a lecturer in anatomy and embryology. From 1978–1999 he worked in the department of genetics at Cambridge University and during this time he began working with Kaufman. Since 1999 he has been a professor of mammalian genetics and the Director of the School of Biosciences at Cardiff University in Wales.

His wife Lady Judith (granddaughter of Welsh artist Christopher Williams) beat Sir Martin to the awards, gaining an MBE (Member of the Order of the British Empire) in 1993 for her services to practice nursing. Evans himself was knighted on his birthday in 2004. The couple has one daughter and two sons.

Edmond H. Fischer

University of Washington
United States

Edmond Henri Fischer shared the 1992 Nobel Prize in Physiology or Medicine with Edwin Krebs, a colleague at the University of Washington, Seattle, for their discoveries concerning reversible phosphorylation, a biochemical mechanism that governs the activities of cell proteins. Protein interactions are strictly controlled. One of the most important regulatory mechanisms is phosphorylation and dephosphorylation of proteins. Both these processes are in turn regulated by enzymes, allowing fine control. The process regulates things as diverse as mobilisation of glucose from glycogen, prevention of transplant rejection and development of a cancer form, such as chronic myeloid leukemia. Fischer and Krebs purified and characterized the first enzyme of this type; a protein kinase, sparking an active and wide ranging new area of research.

Fischer was born in Shanghai in 1920 to Austro/French parents. His maternal grandfather was a journalist for L'Aurore, which published Emile Zola's "J'accuse...!" denouncement of the French government in the infamous Dreyfus Affair. His grandfather later went to Shanghai where he founded the first French newspaper published in China and helped to establish l'École Municipale Française where Edmond first went to school. At 7, Edmond and his two older brothers were sent to a Swiss boarding school and in 1935 he entered Geneva's all boys Collège de Calvin and was also admitted to the Geneva Conservatory of Music, studying piano under Johnny Aubert.

During the war years, Fischer studied biology and chemistry and went on to study under Kurt Meyer, Head of the Department of Organic Chemistry. Fischer earned a PhD in 1947 and stayed on as a researcher until 1953. In that year he fulfilled his ambition to go to the United States, initially intending to join Caltech, but instead accepting an invitation to join the faculty at the University of Washington, Seattle, becoming a full professor in 1961. He soon teamed up with colleague Edwin Krebs to work on glycogen phosphorylase. The duo made their discoveries in the mid-1960s while studying reversible phosphorylation – the attachment or detachment of phosphate groups to cell proteins – and were the first to purify and characterize one of the enzymes involved in the process.

Fischer has two sons from his first marriage to Nelly Gagnaux, who died in 1961, and a stepdaughter from his second wife Beverley Bullock, whom he married in 1963 (†2006). Aside from the Nobel Prize, Fischer has received several other awards, many of them jointly with Ed Krebs and was elected to the American Academy of Arts and Sciences in 1972 and to the National Academy of Sciences in 1973.

Walter Gilbert

Harvard University
United States

Born on March 21, 1932 in Boston as the son of an economist teaching at Harvard University, Walter Gilbert majored in physics, graduating as a B.Sc. emeritus in 1953 and obtained his master's degree in 1954. In 1957, he was awarded a Ph.D. in mathematics at Cambridge University. Following a post-doctoral fellowship and after working for a year as a research assistant to the physicist Julian Schwinger (1965 Nobel Prize), both in Harvard, Gilbert was appointed Assistant Professor at the Department of Physics there in 1959.

His acquaintance with the molecular biologist James Watson (1962 Nobel Prize for Medicine) inspired Gilbert to move away from elementary physics and to study the elementary building blocks of organic life. Asked by Watson to help him isolate an unstable nucleic acid called mRNA, which was thought to act as a carrier of genetic information, Gilbert soon developed into one of the most outstanding experts in the field of molecular biology. In 1964, he moved to the Biophysics Department as an Assistant Professor. In 1968 he was appointed Professor for Biochemistry and became an American Cancer Society Professor of Molecular Biology in 1972.

After much varied and successful research, Walter Gilbert was awarded the 1980 Nobel Prize for Chemistry together with the biochemists Frederick Sanger (GB) and Paul Berg (USA). The three scientists received their prize for their fundamental studies in the field of genetic surgery. Gilbert and Sanger developed, independently of one another, methods for determining the exact sequence of nucleic acids in deoxyribonucleic acids. Gilbert and Sanger used restriction enzymes to dissect the DNA double helix into smaller parts and marked the ends radioactively. Following further dissection, the researchers obtained so-called sub-fragments. The molecular elements were then broken down even further using chemical degrading solutions.

Finally, they were able to determine the exact position of each nucleic acid. Thanks to Gilbert's method, it is possible to pinpoint the positions of the 100,000 to 200,000 human genes in the DNA strand exactly and to find out what their composite molecular sequences are. By automating this "gene sequencing" process, scientists are now able to analyse not just single genes but entire human chromosomes consisting of between 2000 and 5000 genes. Gilbert has been Institute Director at the Department of Cellular and Developmental Biology at Harvard University since 1987.

Jules A. Hoffmann

University of Strasbourg
France

Pathogenic microorganisms (bacteria, virus, fungi, and parasites) pose a constant threat to humans and animals. To combat these our bodies have developed a sophisticated immune system that builds swollen barriers and creates armies of antibodies to tackle the invaders and kill off any infected cells.

But how does our defence system work? The winners of the 2011 Nobel Prize for Physiology or Medicine were lauded by the awards committee for having 'revolutionised our understanding of the immune system by discovering key principles for its activation'.

The sentries of our front line 'innate' immune system are the 'receptor' proteins. Finding them, what triggers them, and how they activate the immune system opens a wealth of opportunities in healthcare and medicine, and was the subject of Jules Hoffmann and (independently) Bruce Beutler's research. They shared half the prize, the remaining half going to Ralph Steinman for his discovery of dendritic cells, which activate and regulate the reinforcements of 'adaptive immunity', creating antibodies tailor-made to tackle and remove specific microorganisms. Uniquely, Steinman's award was made posthumously, after he died three days before the announcement.

In his Nobel Lecture, Hoffmann insisted on the crucial contributions of his many co-workers over the years when this research was being done, and namely on those of Jean-Marc Reichhart, Charles Hetru and Bruno Lemaitre.

While Beutler and associates performed their research using mice, the Hoffmann group experimented on Drosophila fruit flies, many of which bore genetic mutations. Among these were some with mutated Toll – a gene previously known to be important in embryonic development. When the Hoffmann group infected fruit flies with bacteria or fungi, they discovered that Toll mutants died because they could not mount an effective defense. They concluded that the Toll gene was involved in sensing pathogenic microorganisms and triggering the immune system.

Jules Alphonse Hoffmann was born in 1941 in Echternach, Luxembourg, where he received his early education before moving to France to study biology and chemistry, gaining his PhD under Pierre Joly at the University of Strasbourg in 1969. While there, he worked as a research assistant for the National Centre for Scientific Research (CNRS), with which he remained associated throughout his career, eventually establishing an Immune Response and Development in Insects unit in 1978 and serving as director for the CNRS Institute of Molecular and Cellular Biology from 1993. He retired from CNRS in 2006 but retained a professorship at the University of Strasbourg.

He inherited from his father a keen interest in insects and specialised in this field. From early success in the 1970s and '80s building on Joly's work with locusts, Hoffmann began to focus on the insect immune system and had rapid results, finding two protein peptides in blowflies which targeted bacteria. Previously, similar peptides were only known in mammals.

In 1996, while studying immune responses in fruit flies, Hoffmann and his team found that mutations in the Toll signaling pathway left the flies more susceptible to fungal infection. This meant the Toll pathway, named from the German for 'amazing' and previously known mainly for its contribution to

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Robert Huber

Max Planck Institute of Biochemistry
Germany

"Photosynthesis is the most important chemical reaction on earth". This is the beginning of the official Nobel press release for the 1988 chemistry award, which was shared by three scientists for their determination of the three-dimensional structure of a photosynthetic reaction centre.

Robert Huber, Hartmut Michel from the Max-Planck Institute (MPI) of Biochemistry in Martinsried and MPI for Biophysics in Frankfurt am Main and their fellow German, Johann Deisenhofer, based in the US, received the award for unravelling the full details of how a membrane-bound protein is built up. Most schoolchildren know that plants use the energy of light to build organic substances by a process called photosynthesis but don't always appreciate that this is, in effect, how the most basic foodstuff in the world's food chain is created. The energy for life processes is then produced largely in the combustion of the organic substances by the oxygen in the air in cellular respiration; simply put, oxygen in the air allows bodies to burn calories and this oxygen is produced by plants through photosynthesis.

The conversion of energy in photosynthesis and cellular respiration takes place through transport of electrons via a series of proteins, which are bound in special membranes. These proteins are difficult to obtain in a crystalline form but in 1982 Michel succeeded, allowing him, along with Deisenhofer and Huber, to study their structure. A simpler form of photosynthesis, which leads to the formation of organic material without liberation of oxygen, is found in certain bacteria.

Robert Huber was born in Munich in 1937 and had a younger sister. He entered the Humanistische Karls-Gymnasium in 1947 with a sketchy education due to the war, but was fascinated by chemistry and read all the textbooks he could get. In 1956 he moved to the Technische Hochschule in Munich and earned a Chemistry degree in 1960. He went on to study crystallography under W Hoppe achieving his PhD in 1963. In 1971 he became the director at the Max-Planck Institute for Biochemistry, but remained associated with the Technische Universität in Munich, where he became a professor in 1976. At the Max- Planck Institute, Huber's team studied proteins, often in collaboration with scientists and industry elsewhere with a focus on proteins of medical interest and use in plant protection. They discovered and documented the role of flexibility for protein structure and function. They also developed methods that are used in many laboratories in the world today to quantify the protein's structure through crystallography. He co-founded two Biotech companies located in Martinsried, PROTEROS offering services in Structural Biology and SUPPREMOL developing a new therapeutic protein modulating the immune response in autoimmune diseases. He serves as a scientific advisor in other companies and as editor of the Journal of Molecular Biology.

After his retirement in 2005, he has taken up posts at Cardiff University and at the Universität Duisburg-Essen and will spearhead the development of Structural Biology at the university on a part-time basis. Huber has four children with his former wife Christa.

Sir Tim Hunt

Cancer Research UK
United Kingdom

An adult human comprises roughly 100 000 billion cells all originating through division from a single fertilised egg cell. To do this the cell swells, duplicating its chromosomes to split into two equal cells. The 2001 award in physiology or medicine was divided evenly between Tim Hunt and Paul Nurse, both of the Imperial Cancer Research Fund (ICRF), UK, for their individual discoveries concerning molecules that regulate the cell cycle, and American Leland Hartwell for his discoveries of a specific class of genes that control the cell cycle. This may open new possibilities for cancer treatment, as defects in cell cycle control may lead to the type of chromosome alterations seen in cancer cells. In the early 1980s Hunt discovered the first cyclin molecules, so named because the levels of these proteins vary during the cell cycle. The cyclins bind to the CDK (cyclin dependent kinase) molecules, regulating the CDK activity and selecting the proteins to be phosphorylated. He showed that cyclins are degraded at each cell division, an important mechanism for cell cycle control.

Tim Hunt was born in 1943 at Neston in the Wirral, near Liverpool, but grew up in Oxford, where his father worked at the Bodleian Library. His education began oddly with latin lessons from a governess, and the infants department of the Oxford High School for Girls before moving to the Dragon School, where he first became fascinated by biology. At 14, he entered Magdalen College School, where his interest in science grew – he even dissected his brother's pet rabbit when it died – and attended regular lectures in the city. In 1961 Hunt entered Clare College, Cambridge, to read natural sciences. He joined the department of biochemistry in 1964, working on the control of translation of mRNA. In 1966, he visited Irving London at the Albert Einstein College of Medicine in New York for further studies, and joined him full time after gaining his PhD in 1968.

Hunt returned to Cambridge and continued to work on RNA throughout the 1970s, and began teaching summer courses at the Marine Biological Laboratory, Woods Hole, Massachusetts, to look at changes in protein synthesis in sea urchin and clam eggs after fertilisation. In 1979, he helped Joan Ruderman and Eric Rosenthal with experiments on the translational control of maternal mRNA; the major mRNAs concerned later turned out to be the A and B-type cyclins. By 1982, Hunt felt he had exhausted the potential of sea urchin eggs, but it was then that he performed a simple protein experiment that led to the discovery of cyclins and their degradation. In 1990, Hunt joined ICRF, (now Cancer Research UK) in London. He became a fellow of the Royal Society in 1991 and a foreign associate of the US National Academy of Sciences in 1999. He was knighted in 2006.

Brian K. Kobilka

Stanford University

United States

Robert Lefkowitz and Brian Kobilka were awarded the 2012 Nobel Prize in Chemistry for revealing the workings of an important family of receptors: G-protein–coupled receptors (GPCRs).

Every cell in your body is covered with GPCRs, tiny membrane proteins that enable it to sense its environment and allowing it to adapt to new conditions. The Kobilka laboratory has been investigating several aspects of GPCR biology. Their primary focus has been adrenergic receptors, which are GPCRs for adrenaline that form the interface between the sympathetic nervous system and the cardiovascular system, and play a critical role in the regulation of cardiovascular function.

Scientists knew that hormones such as adrenalin had powerful effects at a cellular level, and suspected that cell surfaces contained some kind of sensor for hormones, but for years their exact nature remained a mystery. In 1968 Lefkowitz attached a radioactive iodine isotope to various hormones, and used it to detect several receptors in the cell membrane. In the 1980s Brian Kobilka joined the team in the Lefkowitz lab tasked with isolating the gene that codes for the β-adrenergic receptor. They succeeded, and researchers realized that there was a whole family of GPCRs that look alike and function in a similar manner. Members of this large family mediate the senses of sight, smell and taste, and respond to most hormones and neurotransmitters, including adrenalin, histamine, dopamine and serotonin. In fact, about half of all medications use GPCRs, making it important to understand them.

This understanding took a great leap forward in 2011, when Kobilka – now heading up his own research team - captured an image of the β-adrenergic receptor at the exact moment that it is activated by a hormone on the outside of a cell and sends a signal to a G protein on the inside of the cell. This image, using x-ray crystallography, is the result of decades of research as GPCRs are notoriously difficult to work with. The team's success paved the way for similar work to determine the molecular structure of several other GPCRs. Kobilka's team, based at Stanford University School of Medicine in California, continues to research adrenergic, muscarinic and opioid receptors today.

Brian Kent Kobilka was born in 1955 to a family of bakers in Little Falls, Minnesota. He attended St Mary's Roman Catholic school and the local high school before studying biology and chemistry at the University of Minnesota, Duluth and gaining his MD at Yale. He performed his residency in internal medicine at Barnes Jewish Hospital in St Louis, Missouri, before joining Robert Lefkowitz's team at Duke University in Durham, North Carolina. In 1989 he moved to Stanford and was a Howard Hughes Medical Institute investigator from 1987-2003. Kobilka is the recipient of several honours, and joined the National Academy of Sciences in 2011. He is co-founder of ConfometRx, a biotechnology company focusing on GPCRs.

Brian Kobilka is married to physician Tong Sun Thian, whom he met in biology class at university, and who often works at his lab. They have two children, Jason and Megan.

Jean-Marie Lehn

University of Strasbourg

France

With Americans Donald Cram and Charles Pedersen, Lehn received the 1987 Nobel Prize in chemistry for developing molecules that can 'recognise' each other and form specific complexes – and for syntheses of molecules that mimic biological processes. Many biological events rely on the ability of molecules to form highly specific complexes, including signal substances bound to receptors and antibodies bound to antigens. Chemists have dreamed of mimicking such processes and of developing synthetic analogues.

In 1967, Pedersen (1904–89), a research chemist at Du Pont, synthesised cyclic polyethers, which he named crown ethers. These compounds had remarkable properties when it came to binding selectively specific metal ions. Lehn built on the related properties of natural cyclic antibiotics as well as on the work of Pedersen, and in 1969 developed more selective cavity-containing bicyclic compounds, which he called cryptands that form cryptate inclusion complexes. Lehn and Cram (1919–2001) each developed sophisticated organic compounds. Thus, for example, Lehn produced an artificial receptor molecule for acetylcholine, which is a mediator in nerve signal transmission in humans and animals. Lehn developed these studies of receptor-substrate molecular recognition processes into the general concept of supramolecular chemistry, extending beyond molecular chemistry and concerning the chemical entities bound through intermolecular interactions.

A baker's son, Lehn was born in Rosheim, Alsace in 1939. The eldest of four sons, he had a classical education at the Collège Freppel in Obernai but he also became interested in science. At the University of Strasbourg, he studied organic chemistry, receiving a BSc and PhD before going on in 1963 to perform post-doctoral work in the laboratory of R.B. Woodward at Harvard, where he took part in the synthesis of Vitamin B12 and took a course in quantum mechanics. Returning to Strasbourg, he was made an assistant professor. It was known that electrical impulses in the nervous system depend on ion distributions across membranes, and that natural antibiotics make membranes permeable. It is Lehn's search for non-natural chemical entities capable of affecting such processes that eventually developed into supramolecular chemistry. In 1970 Lehn was made a full professor and in 1979 he was elected to the chair of Molecular Chemistry at the Collège de France in Paris.

Throughout his career he regularly served as a visiting professor, for instance at Harvard, the ETH in Zurich and at Cambridge, Barcelona and Frankfurt Universities. His work led to the concepts of molecular programming and is of value in polymer and nano technology. Other research included artificial photosynthesis and the storage of solar energy. In 1998, he set up a research group at the Nanotechnology Institute in Karlsruhe. He was also founding chairman of the journal "Chemistry", a European Journal, and in 2002 created the Institut de Science et d'Ingénierie Supramoléculaires (ISIS). He has also served as president of the International Organization for Chemical Sciences in Development, helping chemists in developing countries. He married Sylvie Lederer in 1965 and they have two sons.

Barry J. Marshall

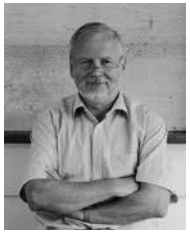
The University of Western Australia
Australia

Ask most people what causes a stomach ulcer and they'll guess at stress and gluttony. In fact, as Australians Barry Marshall and Robin Warren discovered as recently as the 1980s, it is an infectious disease caused by bacteria. Warren first observed small curved bacteria colonizing in the lower part of the stomach (antrum) in about 50% of biopsies. He noted that signs of inflammation were always present in the gastric mucosa close to where the bacteria were seen. Marshall joined Warren and together they eventually succeeded in cultivating the previously unknown bacterial species Helicobacter pylori from these biopsies. The organism was found to be present in almost all patients with gastric inflammation, duodenal ulcer or gastric ulcer. It is now known that Helicobacter pylori causes more than 90% of duodenal ulcers and up to 80% of gastric ulcers.

Barry James Marshall was born in Kalgoorlie, a prosperous mining town in Western Australia in 1951 and moved to Perth at the age of seven. He had a boisterous childhood with his brothers and sisters, involving homemade explosives but luckily also read his mother's collection of medical and nursing books. He attended Newman College and the University of Western Australia (UWA) where he received a Bachelor of Medicine, Bachelor of Surgery in 1975 and completed his internship and residencies in internal medicine at the Queen Elizabeth II Medical Centre (Sir Charles Gairdner Hospital), in Perth.

In 1979 Marshall was appointed as a registrar in medicine at the Royal Perth Hospital. There he met pathologist Robin Warren in 1981 and together the pair studied the presence of spiral bacteria in association with gastritis. Marshall's contract was not renewed after 1982 and he left to join the Fremantle Hospital, where he continued his work in the face of global skepticism. Showing the boisterous attitude of his youth, in 1984, having failed to infect piglets, Marshall drank a petri-dish of the bacteria and soon developed gastritis. He returned to the Royal Perth Hospital (1985-86) but was then invited to work commercially with Procter and Gamble in the US. They also funded a laboratory for Marshall at the University of Virginia (1986-96), before he returned to Australia. He held a Burnet Fellowship at the University of Western Australia from 1998-2003 and continues research related to H. pylori at UWA.

During the 1990s, Warren and Marshall's work was recognized with a flurry of awards. After the Nobel award, an Australian documentary was made in 2006 about Warren and Marshall and they were both made Companion of the Order of Australia in 2007. Marshall met his wife, Adrienne, as a psychology student at UWA. They married in 1972 and have four children.



Hartmut Michel

Max Planck Institute of Biophysics
Germany

German biochemists Hartmut Michel, Robert Huber and Johann Deisenhofer (now based in the US), received the 1988 Nobel Prize in chemistry for unravelling how a membrane-bound protein active in photosynthesis is built up. At the time the trio all worked at the Max-Planck Institute in Munich. Plants use the energy of light to build organic matter, creating the most basic foodstuff in the world's food chain – vegetation. Furthermore, plants produce oxygen, which allows bodies to burn the organic matter. "Photosynthesis", says the official Nobel press release of the 1988 chemistry award, "is the most important chemical reaction on earth". The conversion of energy in photosynthesis and cellular respiration takes place through the transport of electrons via a series of proteins, which are bound in special membranes. These proteins are difficult to obtain in a crystalline form, but in 1981 Michel succeeded, allowing him, along with Deisenhofer and Huber, to study their structure.

Michel was born in Ludwigsburg, Germany in 1948. He was an active, outdoors child and a good pupil and joined a circulating library, reading several educational books per week. After his military service, he entered the University of Tubingen in 1969 to study biochemistry, graduating in 1974, and working under Dieter Oesterhelt at the Max-Planck-Gesellschaft in Tubingen and the University of Wurzburg, where he obtained his PhD in 1977. While exploring ways to produce light-driven amino acid uptake, Michel found that a sample of delipidated bacteriorhodopsin yielded solid, glass-like aggregates when stored in a freezer. Thus he was convinced that it should be possible to crystallise membrane proteins, which was considered impossible at the time. With Oesterhelt's help, Michel soon produced a two-dimensional membrane crystal of bacteriorhodopsin and the first real three-dimensional crystals in April 1979. The pair joined the Max-Planck-Institute for Biochemistry near Munich, where Michel worked with Hans Deisenhofer, a member of Robert Huber's department, an expert in X-ray crystallographic protein structure analysis.

He also spent four months at the Medical Research Council in Cambridge, England performing X-ray experiments and improving the crystallisation method. Back in Munich, Michel crystallised several other membrane proteins, mainly photosynthetic ones, achieving his first success with the reaction centre from the purple bacterium Rhodopseudomonas viridis in 1981. The following year Michel was joined by Johann (Hans) Deisenhofer in the reaction centre project and the pair became fast friends and colleagues. In 1987 Michel became a department head and director at the Max-Planck-Institute for Biophysics in Frankfurt am Main. He has received various prizes and awards, several with Deisenhofer and Huber. Michel is married to Elena Olkhova.

Ferid Murad

George Washington University
United States

Ferid Murad shared the 1998 Nobel Prize in physiology or medicine with Robert Furchgott and Louis Ignarro for the discovery that nitric oxide (NO) acts as a signalling molecule in the cardiovascular system, prompting blood vessels to relax and widen. The discovery that the gas was produced naturally represented a whole new mechanism for biological signalling. Today NO (nitric oxide not to be confused with N_2O – nitrous oxide or 'laughing gas') is used to regulate blood pressure and fight infection. It helps prevent the formation of thrombi, activates nerve cells and helps kill bacteria and parasites. It is used to treat heart and lung conditions (Alfred Nobel was once prescribed nitroglycerin to treat chest pain – he declined), shock, cancer (by inducing cell death to combat tumours) and impotence (Viagra was a spin-off of this research). Murad, now based in Houston, was the person, who first discovered in 1977 that nitroglycerin worked by releasing nitric oxide.

He was born in Whiting, Indiana in 1936, the son of Albanian immigrant, Jabir Murat Ejupi (his name was registered as John Murad by immigration officials). His father and mother, an American who eloped with him at age 17, ran a restaurant to put their children through college. Ferid went to DePauw University in Greencastle, Indiana from 1954–58 where he obtained his MD and in 1965 he received his PhD in pharmacology from Case Western Reserve University. He served his internship and residency (1965–67) at Massachusetts General Hospital, followed by three years as a clinical associate in the Heart Institute of NIH. In 1970 he was invited to join the University of Virginia to develop a new Clinical Pharmacology Division in the Department of Medicine.

Having previously worked on cyclic adenosine monophosphate (AMP), Murad moved on to cyclic guanosine monophosphate (GMP). In 1977, he showed that nitroglycerin and several related heart drugs induce the formation of nitric oxide in the body and that the gas acts to increase the diameter of blood vessels in the body. It was particularly surprising since NO is totally different from any other known signal molecule and highly unstable.

In 1981 Murad moved to Stanford as Chief of Medicine of the Palo Alto Veterans Hospital. He left in 1988 to join Abbott Laboratories and in 1993 quit Abbott to found a new biotech company, Molecular Geriatrics Corporation. The business had a faltering start and in 1997 Murad went back to academia as chairman of the newly combined department, Integrative Biology, Pharmacology and Physiology at the University of Texas- Houston. Murad is now director of the Institute of Molecular Medicine at UT and has no plans to retire. He married fellow student Carol Ann Leopold in 1958 and they have four daughters and a son.

Erwin Neher

Max Planck Institute for Biophysical Chemistry
Germany

Erwin Neher was born in Landsberg am Lech, Bavaria, in March 1944 and raised in Buchloe, 70km (40 miles) west of Munich. His mother was a teacher and his father an accountant in a local dairy, so family life for Erwin and his two older sisters was not so much affected by the war. He attended a catholic school in Mindelheim, where physics and mathematics became favourite subjects. Tying these to his interest in living things, the young Erwin decided to become a biophysicist. In 1963, he entered the Technical University in Munich, studying physics, and in 1966 won a scholarship to study in the US at the University of Wisconsin, where he worked on low angle X-ray scattering. He returned to Munich in 1967 with an MSc, seeking a more biology-oriented PhD project, preferably related to nerve excitation. He joined the Max Planck Institute of Psychiatry, where Hans Dieter Lux was investigating synaptic mechanisms in snails. It was as a result of the problems using voltage-clamp on snail neurones that Neher and Lux came up with the idea of patch-clamp, using small suction pipettes, to measure the electrical flow.

It was also there that Neher first met Bert Sakmann, with whom he received the Nobel Prize in Physiology or Medicine. They were parted when Sakmann went to London to work with Bernard Katz, but met again at the Max Planck Institute for Biophysical Chemistry, now in Göttingen, in 1973. Neher was working with single ion channel recording in artificial membranes; Sakmann had experience on the neuromuscular junction. The pair agreed to collaborate, aiming at the measurement of single ion channel currents, which involved developing and refining the patch-clamp technique until they were using a pipette one-thousandth of a millimetre in diameter, fitted with an electrode to detect the flow of ions through a single channel in the cell membranes.

Despite Neher's postdoctoral move to the University of Washington in Seattle and, later, to Yale University, the pair continued to liaise and published their single channel records, and the patch-clamp technique, in 1976. Neher returned to the Max Planck Institute that year and he and Sakmann were invited to run 'Young Investigator Laboratories', attracting postdoctoral fellows and perfecting and expanding their technique. Their discoveries enabled the development of specific drug therapies for such diseases as diabetes, cystic fibrosis, epilepsy, and cardiovascular and neuromuscular disorders. In 1983 Neher was made director, and Sakmann head, of the Institute's membrane biophysics department. The pair have received numerous awards, often shared, including the Gottfried Wilhelm Leibniz Prize, the highest honour awarded in German research. Neher met his wife, Eva-Maria, in the laboratory. They married in 1978 and have five children.

Bert Sakmann

Max Planck Institute of Neurobiology

Germany

Bert Sakmann was born in Stuttgart on June 12, 1942. He studied medicine in Tubingen, Freiburg, Berlin, Paris and Munich. After his taking the state examination in Munich, he joined the Max-Planck-Institute for Psychiatry there in 1967 and worked in the Department for Neurophysiology with Prof. Otto Creutzfeldt. From 1971 to 1973 he was a "postdoctoral fellow" and worked with Prof. Sir Bernard Katz (Nobel Prize in 1970) in London. In 1974 he graduated as Dr. Med. with a thesis topic titled "Electrophysiology of neural Light Adaptation in the Retina of a Cat."

It was at this time that he started his co-operation with Erwin Neher in the Department for Neurobiology (headed by O. D. Creutzfeldt) of the Max-Planck-Institute for Biophysical Chemistry. Both of them were members in a team working on membrane physiology. They developed new methods for recording minute membrane currents by means of which they were able to observe exactly how electrical signals are conveyed from cell to cell. In 1982 Sakmann qualified as a professor at Göttingen with his paper entitled "Observation of the Interaction of Transmitter and Receptor on a Molecular Level: High-Resolution Current Measurements on small Membrane Areas of Protozoans and Cell-free Membrane Fragments".

In 1983 he became a scientific member of the Max-Planck-Institute and, together with Neher, was in charge of the new team for "membrane biophysics". In 1985 he became the director of the department for cellular physiology at the Max-Planck-Institute which mainly dealt with the study of the molecular foundations of signal transmission in the central and peripheral nervous system. In 1989 Sakmann went to the MPI for Medical Research in Heidelberg as director of the department for cellular physiology where he was appointed professor in theoretical medicine shortly afterwards. Together with Erwin Neher, he received the Nobel Prize in Physiology or Medicine 1991 "for their discoveries concerning the function of single ion channels in cells". Bert is married to his wife, Christiane, and they have two sons and a daughter. Christiane is a highly successful ophthalmologist specializing in pediatric ophthalmology.

Randy Schekman

University of California at Berkeley

United States

Not that it need be a total surprise; as is often the case, Schekman had also previously received the Albert Lasker award – a reliable barometer of Nobel potential – which he shared in 2002 with James Rothman, one of his fellow Nobel laureates, for their independent work on the internal traffic system in cells. They shared the Nobel Prize with Thomas Südhof.

Inside every microscopic cell is a hive of activity, as ribosomes constantly produce new proteins, which are then stored in a network called the endoplasmic reticulum. Vesicles (liquid-filled sacs within the cell) then carry proteins to the Golgi apparatus (another organelle within the cell), which processes the proteins and dispatches them to perform specific tasks around the body. Schekman's interest lay in how these proteins are transported safely and accurately to their destination.

He gained an early interest in mathematics and mechanical science from his engineer father, but his sister's early death from leukaemia switched his focus to biology. His mother also died of cancer and Schekman has vowed to use his share of the Nobel prize money to fund the Esther and Wendy Schekman Chair in Basic Cancer Biology at UC Berkeley in their memory.

Randy Wayne Schekman was born in Saint Paul, Minnesota, at the end of 1948 but grew up in California, attending Western High School in Anaheim and gaining his BA in molecular science at UCLA in 1971. Initially intending to pursue a medical career, he was instead inspired by a year working in a laboratory at the University of Edinburgh and returned to America to study biochemistry at Stanford under 1959 Nobel laureate Arthur Kornberg, gaining his PhD in 1975. He first became interested in how proteins move within cells during a postdoctoral fellowship with John Singer but at the time it was difficult to study vesicles in mammal cells in the laboratory. So, moving to the University of California, Berkeley in 1976, Schekman decided to use yeast, a one-celled microorganism which could be easily genetically manipulated yet has a cell structure similar to those of higher organisms, including humans.

Gradually Schekman unpicked the mechanics of vesicle formation, selection of protein cargo, and movement to the correct path outside the cell, and identified 50 genes involved in the process and the order and role each played. One of the most important genes he found, Schekman says, is the SEC61 gene, which encodes a channel to allow secretory proteins to pass into the endoplasmic reticulum lumen. When this gene is mutant, proteins fail to enter the secretion assembly line, causing diseases in humans that may include Alzheimers.

He was promoted to Associate Professor in 1982 and Professor in 1984. In 1991 he was named as a Howard Hughes Medical Institute (HHMI) Investigator. He is also a foreign member of the Royal Society, the National Academy of Sciences, and the American Philosophical Society. Schekman is also devoted to the promotion of science in as open a manner as possible. He is a former editor-in-chief of Proceedings of the National Academy of Sciences and in 2011 he was appointed as editor of eLife, an open-access journal published by the HHMI, Max Planck Society and the Wellcome Trust. He has since criticised the 'tyranny' of high-profile science publications such as Nature, Cell and Science which he says artificially restrict the number and nature of articles published. The prestigious nature of the titles appeals to a certain snobbery among academic institutions, who then submit work they deem most likely to attract kudos and funding. He has taken a lead by declaring his laboratory would no longer submit material to the closed-access 'lottery' of the triumvirate of journals.

Randy Schekman is married to Nancy Walls, with whom he has two adult children.

Brian P. Schmidt

The Australian National University
Australia

Man has always been fascinated by the stars, mapping them and calculating our place in the heavens. Since the birth of the Big Bang theory almost a century ago, man's desire to unravel the ever-expanding universe has grown. It was that desire that led Brian Schmidt to win the Nobel Prize. He shares half the award with his American colleague Adam Riess. The other half was awarded to Saul Perlmutter, also American, whose team was working in the same field. What the three men (and their associated teams) discovered was that the universe's rate of expansion, far from slowing down as you might expect billions of years after the Big Bang, is actually accelerating. In doing so they confirmed a theory first considered by Albert Einstein in 1917 but which he dismissed as being so unlikely that he dubbed it his 'greatest blunder'.

It was, as is often the case, a blunder that led to the Nobel-winning discovery. For his PhD thesis, under Robert Kirshner at Harvard, Schmidt mapped type II supernovae (exploding stars that can give off as much light as an entire galaxy) to measure the Hubble Constant – the accepted rate of expansion of the universe. Schmidt initially set out, with Nicholas Suntzeff, Adam Riess and others, to continue this work, expecting if anything to trace a deceleration in the expansion. Their work matched that of Saul Perlmutter's team. But between them the rival teams found more than 50 supernovae whose light, based on 'known' calculations about the Big Bang, was dimmer than expected. With so many supernovae giving this unexpected reading the scientists realised the Universe must have, over the past 5 years, sped up in its expansion, rather than slowing down as expected. Like Einstein, he admitted: "It seemed too crazy to be right. We were a little scared."

This acceleration is thought to be powered by 'dark energy', about which little is known but which is thought to constitute about three quarters of the universe. The Schmidt and Perlmutter teams announced their results in 1998. Having reached the same conclusions independently, the corroborative evidence rocked the world of astrophysics and gave scientists a whole new universe of possibilities to explore.

Brian Schmidt was born in Missoula, Montana, USA in February 1967. When he was 13 the family moved to Anchorage, Alaska, where he attended Bartlett High School, graduating in 1985. The only child of a fisheries biologist he had an early interest in science. As a child he wanted to be a meteorologist but after a summer of volunteering at the National Weather Service he realized it was not for him and set his sights on the stars. Originally, Schmidt regarded astronomy as a hobby, but at the University of Arizona he gained bachelor degrees in physics and astronomy in 1989 before progressing to Harvard for his MA (1992) and PhD the following year. At Harvard, Schmidt married economics student Jenny Gordon and, after serving as postdoctoral fellow at the Harvard-Smithsonian Center for Astrophysics, the couple moved in 1994 to her homeland of Australia. There Schmidt was granted funds by the Australian National University to help organize the international High-z Supernova Search Team. This team, in addition to Schmidt in Australia, included astronomers in Chile (including co-founder Suntzeff), the United States (including Laureate Riess), and Europe. Currently leading the SkyMapper telescope project and the associated Southern Sky Survey, Schmidt has received many accolades, including the Australian Malcolm McIntosh Prize and Harvard's Bok Prize in 2000, the Pawsey Medal in 2001, India's Vainu Bappu Medal in 2002 and he shared the Shaw Prize (2006) and Gruber Cosmology Prize (2007) with Adam Reiss and Saul Perlmutter. In 2008 he was made a fellow of the Australian and United States National Academies, and in 2012 he was made a fellow of the Royal Society. Schmidt and his family live on a farm near Canberra and own the respected Maipenrai winery, a bottle of which he presented to King Carl XVI Gustaf of Sweden at the Nobel ceremony in Stockholm.

Hamilton O. Smith

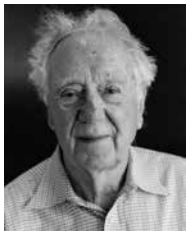
Johns Hopkins University
United States

Hamilton Othanel Smith was awarded the Nobel Prize in Physiology or Medicine in 1978 for the discovery and use of 'type II' restriction enzymes that break DNA molecules into useful pieces for individual study. The prize was shared with his colleague Daniel Nathans at Johns Hopkins University School of Medicine, in Baltimore, USA and Werner Arber of the University of Basel in Switzerland.

Smith was born in 1931 in New York to a pair of Floridian scholars. In 1937 the family moved to Champaign-Urbana, Illinois, where Hamilton and his brother built a basement laboratory, funded by newspaper rounds. He attended University High School, finishing his science course early and went on to the University of Illinois but in 1950 transferred to the University of California, Berkeley, where he obtained a BA in mathematics in 1952. He received his medical degree from Johns Hopkins University in 1956. He proceeded to Barnes Hospital in St Louis for an internship where he met and married nursing student Elizabeth Bolton. They have four sons and a daughter. In 1957 Smith was called up in the Doctor's Draft and served with the Navy in San Diego for two years.

With no war going on, he found time to study genetics in San Diego in more ways than one – from books and by fathering his first son. He continued his (academic) studies in 1959 at the Henry Ford Hospital in Detroit, Michigan, concentrating on the genetics of bacteriophages (viruses that infect bacteria). In 1962 he joined Myron Levine at the University of Michigan, studying salmonella. In 1965 they discovered the gene, which controls the phage infection mechanism, now known as the "int" gene. During 1966–67, Levine worked with Werner Arber in Geneva and told Smith of Arber's research on the action of protective enzymes in bacteria, such as the restriction enzyme, so-called for its ability to restrict the growth of an invading bacteriophage by cutting its DNA to pieces.

In 1967, Smith joined Johns Hopkins University as an assistant professor of microbiology under Daniel Nathans. In the spring of 1969 Smith discovered the restriction enzyme in the bacteria Hemophilus influenza. This was dubbed type II, as an advance on previously known enzymes which cut DNA at random points. The type II's predictability allowed scientists to cut DNA at a precise point. Nathans used this to explore the possibility of using restriction enzymes to dissect the genomes of DNA tumor viruses. In 1975–76, Smith worked with Max Birnstiel in Zurich, Switzerland, on histone gene arrangement and sequence. In 1995 he and a team at The Institute for Genomic Research sequenced the first bacterial genome (Haemophilus influenza). He later played a key role in the sequencing of the human genome at Celera Genomics, which he joined when it was founded in 1998.



Oliver Smithies

University of North Carolina at Chapel Hill
United States

The biological blueprint of our bodies is carried in our DNA; packaged in pairs of chromosomes. Exchange of DNA sequences within the chromosomes – a process now called homologous recombination, first recognized almost 100 years ago by Thomas Hunt Morgan – increases genetic variation in the population. Oliver Smithies and, independently, Mario Capecchi, both saw that homologous recombination could be used to modify specific genes in mammalian cells. Work progressed well in cultured cells but stalled somewhat until 1986, when Martin Evans perfected embryonic stem (ES) cells from laboratory mice, which could be used to transfer the modified DNA into the animals' inherited germline.

The first reports, in which homologous recombination in ES cells was used to generate gene-targeted mice, were published in 1989. Gene targeting is often used to inactivate single genes. Such gene "knock-out" experiments have allowed scientists to establish the roles of individual genes in health and disease, including cardiovascular and neurodegenerative diseases, diabetes and cancer. Smithies used gene targeting to develop mouse models for inherited diseases, such as cystic fibrosis and the blood disease, thalassemia.

Smithies was born in Halifax, England in 1925 and attended the local Heath Grammar School. He developed an early interest in science from playing with radios and telescopes and once admitted he was inspired by a comic strip featuring an inventor that he read as a child. He studied at Balliol College, Oxford receiving a BA in physiology in 1946 and a second bachelor's degree in chemistry. He received a DPhil in Biochemistry in 1951. From 1953–60, Smithies worked in medical research at the University of Toronto, Canada, before taking up a post at the University of Wisconsin-Madison, where he rose to Professor of Genetics and Medical Genetics and met his first wife, Lois Kitze.

It was also there that he carried out the first stages of his Nobel-winning research regarding gene targeting. He later married another scientist, Nobuyo Maeda, and when she gained a post at the University of North Carolina at Chapel Hill, Oliver moved with her in 1988. The duo set up a lab where the second stage of his Nobel work was carried out and Smithies became Excellence Professor of Pathology and Laboratory Medicine at UNC. He has also worked at the Duke University Institute for Genome Sciences and Policy. Before winning the Nobel Prize, Smithies had already received several awards and is a member of the United States National Academy of Sciences, American Academy of Arts and Sciences, the American Association for the Advancement of Science and the US Institute of Medicine. Despite being color-blind, Smithies is a licensed private airplane pilot who once owned three airplanes and still enjoys flying his glider.

Thomas A. Steitz

Yale University
United States

Each year more than two million patients are infected by antibiotic-resistant bacteria in the US alone and over 90,000 die. To sidestep the problem of resistance, scientists are focusing on ribosomes - large, complex particles within each cell that translate DNA into proteins, each one tailor-made to perform any of the tens of thousands of jobs the body requires.

Understanding their structure and function allows biochemists to develop new antibiotics that disrupt bacterial ribosomes. Thomas Steitz, Ada Yonath and Venkatraman Ramakrishnan, shared the 2009 Nobel award for using X-ray crystallography to generate 3D models that show how different antibiotics bind to the ribosome.

Thomas Arthur Steitz was born in Milwaukee, Wisconsin, in August 1940. The oldest of five children he admits he was an average scholar in high school until he faced competition from his younger brother. He eventually graduated 8th in a class of over 300.

A keen chorister and saxophone player, Steitz almost opted for a music career, but instead gained a scholarship to Lawrence College, where he majored in chemistry and got his first taste of biophysics in a two-week conference at MIT.

In 1962 he progressed to Harvard, intending to study nucleic acids, but after witnessing a 3-D slide show of the first atomic resolution protein crystal structure (myoglobin) given by Max Perutz (Nobel, 1962), Steitz joined a team under William Lipscomb (Nobel, 1976) studying protein crystallography.

The process was laborious, collecting up to 5,000 X-ray reflections in a week and using a 32K IBM computer to map the protein structure – today's data collection facilities at synchrotrons can measure the millions of reflections needed for ribosome structures in 10 minutes.

Steitz faced more computer restrictions in Cambridge, England, where he did his postdoctoral research from 1967-70. The team had to borrow the astronomy department's machine for calculations, but he gained more insight in discussions with the likes of Francis Crick, Sydney Brenner and Fred Sanger.

Returning to the US he worked briefly at UC Berkeley before moving to Yale University, Connecticut, where he was joined by his wife and fellow professor Joan – they have a son, Jon, born in 1980.

Steitz helped create the Yale Center for Structural Biology and is now a Sterling Professor of Molecular Biophysics and Biochemistry and an Investigator with the Howard Hughes Medical Institute at Yale University.

With increased funding – and better computers – Steitz tackled ever greater projects, starting with his best known structural models of yeast hexokinase. Later, he mapped the structure of an aminoacyl-tRNA synthetase complexed with transfer RNA. During the 1980s his team determined the first structure of a DNA polymerase, mapped the catabolite gene activator protein (CAP) and in 1991 produced a model of CAP bound to DNA.

The final link in 'Crick's Central Dogma' (the process of DNA makes DNA makes RNA makes protein) was the structure of the ribosome. Steitz's team finally built a 3D model in 2000 and determined the binding sites of many antibiotics. It was for this work that he earned the Nobel Prize.

Roger Y. Tsien

University of California San Diego
United States

Roger Y. Tsien has said that he is "doomed by heredity to do this kind of work", which says a lot for a man who is very distantly descended from King Qian Liu (Tsien Liu) of Wuyue in China. Tsien's modest claim, however, refers to the extraordinary number of respected engineers, from chemists to rocket scientists, in his extended family. Indeed, he often refers to his own work as 'molecular engineering'.

He was born on February 1, 1952 in New York City and grew up in Livingston, New Jersey, where he attended the local high school. His first early success was at the age of 16, when he won the national Westinghouse Talent Search with a project analysing how metals bind to thiocyanate. He gained a National Merit Scholarship to Harvard, graduating with honours in chemistry and physics in 1972. He then moved to Churchill College in Cambridge, England on a Marshall Scholarship to study physiology, receiving his Ph.D. in 1977 and staying on as a research fellow at Gonville and Caius College until 1981.

Returning to the US, Tsien joined the faculty at the University of California in Berkeley but in 1989 switched to the University of California, San Diego as Professor of Pharmacology, Chemistry and Biochemistry, and an investigator at the Howard Hughes Medical Institute. At Cambridge and Berkeley, Tsien developed molecules to track and control the levels of calcium inside cells, regulating nerve impulses, muscle contraction and fertilisation. But the move to UCSD made it possible to explore signals transmitted through more complex biochemical, such as cAMP (cyclic 3',5-adenosine monophosphate) and the wider range of macromolecular interactions, and realized that genetically encoded fluorescent molecules like Green Fluorescent Protein (GFP) could be the key.

Like Martin Chalfie, he acknowledges the generosity of Douglas Prasher: "I called him up, and to my amazement he was willing to give out the gene", Tsien says. Armed with the gene that created GFP in the Aequorea victoria jellyfish, Tsien's team found ways to adapt the protein and red relatives from corals to improve their practical use by scientists. Introducing several variants of the protein made it possible to track and monitor a range of molecular processes simultaneously, in all sizes and types of cells, without disrupting cell function.

He was a co-founder of Aurora Biosciences Corporation, which used GFP for high-throughput drug screening and of Senomyx, a company using such screening technology to discover flavour modifiers.

Tsien has received numerous awards for his work and is a member of the Institute of Medicine, American Academy of Arts and Sciences, US National Academy of Sciences and Britain's Royal Society. Together with O. Shimomura and M. Chalfie he received the Nobel Prize in Chemistry 2008 "for the discovery and development of the green fluorescent protein, GFP"

He married Wendy Globe Tsien in 1982.

Sir John E. Walker

Medical Research Council
United Kingdom

John Ernest Walker is a British chemist, who shared one of the two 1997 Nobel Prizes in Chemistry with American Paul Boyer for their explanation of the enzymatic process that creates adenosine triphosphate (ATP). The other prize went to Jens Skou of Denmark for the first discovery of an ion-transporting enzyme, Na+, K+-ATPase. ATP is a carrier of energy in all living organisms – transporting the fuel value of food to power various biological functions – everything from building new cells, to movement, to transmission of nerve messages. It was first discovered by German chemist Karl Lohmann in 1929. During 1939–41 Fritz Lipmann (medicine laureate, 1953) showed that ATP was the universal carrier of chemical energy in the cell, and in 1948 it was first synthesised chemically by Scotsman Alexander Todd (chemistry laureate, 1957).

Boyer began his studies of ATP in the 1950s, using isotope techniques to find how the ATP-producing enzyme "ATP synthase" functions and how it uses energy to create new ATP. He and his team at UCLA used biochemical data to propose a mechanism for how ATP is formed from adenosine diphosphate (ADP) and a third inorganic phosphate. Walker and his colleagues at the Medical Research Council Laboratory of Molecular Biology, Cambridge, determined the structure of the enzyme and confirmed Boyer's theory.

Walker was born in Halifax, Yorkshire in 1941 and grew up in Rastrick, attending Rastrick Grammar School, specialising in physical sciences and mathematics. In 1960 he went on to St Catherine's College, Oxford, and received a BA in Chemistry in 1964. He stayed on at Sir William Dunn School of Pathology, Oxford, and was awarded a D.Phil. in 1969, after which he worked abroad at the University of Wisconsin, USA and at the CNRS at Gif-sur-Yvette and the Institut Pasteur, France. In 1974, he attended a research workshop in Cambridge on the Sequence Analysis of Proteins, where he met Fred Sanger (chemistry laureate, 1958), who invited him to join the Protein and Nucleic Acid Chemistry Division (PNAC) at the Medical Research Council. He has been there ever since, becoming senior scientist in 1982, and this is where he carried out his award-winning work.

His early work involved RNA/DNA and the genetic code in mitochondria. In 1978, he began to apply protein chemical methods to membrane proteins. The enzymes from the inner membranes of mitochondria had hardly been studied from a structural point of view. Therefore, Walker began a structural study of ATP synthase from bovine heart mitochondria and eubacteria. These studies resulted in a complete sequence analysis, and in the atomic structure of the enzyme, giving new insights into how ATP is made in the biological world. Walker has received several international awards, and in 1995, was elected a Fellow of the Royal Society.

He married Christina Westcott in 1963 and they have two daughters.

Arieh Warshel

University of Southern California
United States

For many people, computers are a great way to insult strangers or look at pictures of cats, but for others they can be an invaluable tool, able to perform millions of calculations in the time it has taken you to read this.

Chemists have long been in need of such a tool. Chemical reactions involve bond breaking where electrons leap from one atom to another, and it is almost impossible for chemists to describe such processes by the very fast programs that treat the atoms and bond as classical balls and sticks. On the other hand it is possible to use quantum mechanical program electronic structure calculations, but such calculations are too expensive to be used in describing reactions in large molecules and proteins.

What Arieh Warshel, and his colleagues and fellow laureates Martin Karplus and Michael Levitt, achieved – starting back in the 1960s when computers were still primitive by modern standards – was the creation of a computer program that took the best of both classical and quantum physics and merge them into a working system.

These 'multiscale models' can, for instance, simulate how a drug couples to its target protein in the body. The computer performs detailed theoretical calculations at a quantum level only on those atoms in the target protein that interact with the drug. The rest of the protein is 'painted in' using classical physics.

Scientists can now let computers perform most of the work in accurately predicting chemical processes in very large systems saving time, energy and the materials used in conventional laboratory experiments. Inevitably, such cost-saving software has proved invaluable not only in the medical/pharmaceutical fields but in industrial research, whether by enhancing the performance of catalytic converters on cars or translating the study of natural photosynthesis to improvements in photovoltaic cells for solar panels.

Warshel was born in November 1940 at Kibbutz Sde-Nahum in the Beit She'an Valley in northern Israel (then the British Mandate of Palestine). He served in the tank regiment of the Israeli army during both the Six-Day War of 1967 and the 1973 Yom Kippur War, rising to the rank of captain. He still bears a scar on his right ear from a bullet graze.

He juggled his military duties with his academic studies at the Technion in Haifa, where he elected to study chemistry based on an off-the-cuff suggestion by a friend. He went on to receive his BSc degree, summa cum laude, in 1966 – the same year he married his wife Tamar, with whom he has two daughters. He earned his MSc (1967) and PhD (1969) in chemical physics at the Weizmann Institute of Science in Rehovot, working under the institute's director Shneior Lifson, who won the 1969 Israel Prize for his consistent force field method, one of the major theories behind systematic computer modeling of large molecules. From 1969-72 Warshel performed post-doctoral work at Harvard in the US, where he worked with Karplus, an expert in quantum mechanics, to describe the structure and vibration of the retinal molecule. by using quantum and classical models, but without coupling them. He then returned to the Weizmann Institute and also worked at the Laboratory of Molecular Biology in Cambridge, England, where he was reunited with Levitt, a biophysicist he had met during his PhD. Together in 1976

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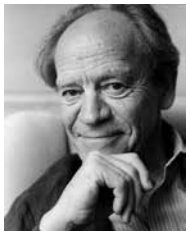


Torsten N. Wiesel

The Rockefeller University
United States

Torsten Nils Wiesel shared one of the two 1981 Nobel Prizes in Physiology or Medicine with David Hubel for their studies of how visual information is transmitted to and processed in the visual cortex of the brain. The other award was given to Roger Sperry for his work on brain function.

Wiesel was born in Uppsala, Sweden in 1924, the youngest of five children and was raised in a mental institution near Stockholm where his father was chief psychiatrist. For most of his youth, Wiesel admits he was a lazy student, more interested in sport than academic learning, but he became interested in psychiatry and the nervous system.

Wiesel received his medical degree from the Karolinska Institute in Stockholm in 1954, after which he taught in the institute's department of physiology and worked in the child psychiatry unit of the Karolinska Hospital. He began a fellowship in ophthalmology at Johns Hopkins University Medical School in 1955 and became an assistant professor there in 1958. The following year he became an instructor in pharmacology at Harvard Medical School, beginning a 24-year career with the university. He became a professor in the new department of neurobiology in 1968 and its chairman in 1971. David Hubel joined the laboratory in 1968 and teamed with Wiesel. They used cats and monkeys as their subjects in the investigations that identified specialized functions of individual cells in the brain's visual cortex and mapped the functional architecture of cells in the visual cortex. They also studied the development of the visual cortex and the role of innate and experiential factors. This research has had important clinical implications, including a more effective treatment of congenital cataracts.

In 1983, Wiesel moved to The Rockefeller University as a Vincent and Brooke Astor Professor and as head of the Laboratory of Neurobiology, establishing a new neurobiology laboratory, and working with Charles Gilbert, also from Harvard, on the circuitry of primary visual cortex. In 1991 Wiesel became president of Rockefeller University. During his term lasting until 1998, he was instrumental in the recruitment of 16 new faculty members, the establishment of six interdisciplinary research centres and the formation of the collaborative relationship between the Aaron Diamond AIDS Research Center and Rockefeller University.

Wiesel has also been very active as a global human rights advocate. He is a founding member of the International Human Rights Network of Academies and Scholarly Societies. He served for 10 years as chair of the committee on human rights of the National Academy of Sciences. He is currently on the board of the Hospital for Special Surgery, the Pew Charitable Trust's global environmental committee and on the Population Council. In addition, Wiesel serves on the scientific review committees of the Merck and Steinbach Foundations.

Wiesel has retained his Swedish nationality. He has been married four times: to Teeri Stenhammar, Ann Yee (with whom he has a daughter), to Jean Stein, and to his current wife Lizette Mususa Wiesel. Since 1998 Wiesel has turned his attention to international science advocacy. In 2000, he became secretary general of the Human Frontier Science Program, established to support international, innovative and interdisciplinary basic research in the life sciences. He was chairman of the Board of Governors of the New York Academy of Sciences from 2000 to 2006. He is a founding member of the Israeli-Palestinian Science Organization, a non-profit alliance established in 2004 to support collaborative research between scientists in Israel and Palestine. Wiesel currently serves on the scientific advisory boards of research institutes in Japan, China, India, Brazil and Italy.

Kurt Wüthrich

The Scripps Research Institute
United States

Kurt Wüthrich received one of the two 2002 Nobel Prizes in Chemistry "for his development of nuclear magnetic resonance spectroscopy for determining the three-dimensional structure of biological macromolecules in solution". The other award was shared by John Fenn (USA) and Koichi Tanaka (Japan) for their development of mass spectrometric methods for biological macromolecules.

Wüthrich was born in Aarberg, Switzerland in 1938 and grew up in the farmland area of Lyss in the Bernese Lake Region. The rural environment provoked an interest in natural science and he is a keen sports fisherman. He had intended to become a forest engineer, but then discovered science and competitive sports at the high school in the nearby bilingual city of Biel/Bienne. As a result, he studied chemistry, physics and mathematics at the University of Bern before obtaining his PhD in organic chemistry in 1964 under Silvio Fallab at the University of Basel. From 1965–67 he worked at the University of California, Berkeley with Robert Connick, where he first used the new technique of nuclear magnetic resonance spectroscopy to study the hydration of metal complexes. This was followed by two years with Robert Shulman at the Bell Telephone Laboratories in New Jersey, where he was put in charge of one of the first superconducting NMR spectrometers and started studies of his haemoglobin ('haemoglobin KW') and other proteins.

Wüthrich returned to Switzerland in 1969, joining the ETH Zurich (Federal Institute of Technology), and rising to professor of biophysics by 1980. He collaborated with Richard Ernst and others on developing two-dimensional NMR experiments and established the Nuclear Overhauser Effect (NOE) to measure distances within proteins. It was partly for this work and his leadership in NMR spectroscopy generally, that Wüthrich received the Nobel Prize.

NMR spectroscopy has many uses in natural sciences and is invaluable in understanding protein and nucleic acid structure and function. The ability to rapidly analyse proteins in detail has led to increased understanding of the processes of life. By creating images of protein molecules in solution, scientists can understand their function in the cell. The technique has revolutionised the development of pharmaceuticals and is being used in foodstuff control and early diagnosis of cancer. Wüthrich continues to work in the field, maintaining his Zurich laboratory and, since 2001, working at The Scripps Research Institute in La Jolla, California. While working as a ski instructor in his early 20s, Wüthrich met schoolteacher Marianne Briner. They were married in 1963, obtained their sports degrees (Eidgenössisches Turn und Sportlehrer-Diplom) at the University of Basel. They have two children, a son, Bernhard Andrew, and a daughter, Karin Lynn.

Ada E. Yonath

Weizmann Institute of Science
Israel

If proteins are the 'building blocks' of life, then ribosomes are the factories that produce them. They are large, complex particles within each cell that translate the genetic information into tens of thousands of proteins, each with a specific task to perform within the body.

Owing to the fundamental role of ribosomes, many antibiotics target them. Therefore, understanding their structure and function can help biochemists develop new antibiotics to disrupt bacterial ribosomes and so fight the growing problem of bacterial drug resistance.

The 2009 Nobel Prize for chemistry was shared between three scientists, Venkatraman Ramakrishnan, Thomas A. Steitz and Ada E. Yonath, each of whom has contributed to our knowledge of the "...structure and function of the ribosome". All three published papers based on data collected at the US Department of Energy's Advanced Photon Source at the Argonne National Laboratory, where Yonath led two research groups from the Weizmann Institute in Israel and the Max Planck Institute in Germany.

Using x-ray crystallography, the two teams of Yonath and Ramakrishnan calculated the atomic structure of the small ribosomal subunit known as 30S, from the bacterium Thermus thermophilus, while other researchers (including Steitz) reported on the larger 50S subunit from the bacterium Haloarcula marismortui. The process involves firing x-rays at the target crystals of the studies compound, in this case ribosomes, and then working back from the angle of diffracted rays to calculate the atomic structure of the microscopic target by mapping the position for every atom. The ribosome is the largest and most complex component of a cell that has been studied in this way.

For Yonath, the award is the culmination of decades of pioneering work - in 1970 she established Israel's first protein crystallography laboratory and in 1979 pioneered the crystallization of ribosomal particles; a task considered formidable at that time. Twenty years later, by determining the structures of both ribosomal subunits from eubacteria that serve as pathogen models, she has elucidated the actions of several antibiotics targeting the ribosome.

Ada Yonath was born in Jerusalem in 1939 to Zionist immigrants. After her father, a grocer and rabbi, died, the family moved to Tel Aviv where Ada attended Tichon Hadash High School. After military service, she entered the Hebrew University of Jerusalem, receiving a BS in chemistry in 1962 and an MS in biochemistry in 1964 before earning a PhD in X-Ray crystallography in 1968 at the Weizmann Institute of Science in Rehovot. Moving to America, Yonath worked at the Carnegie Mellon University and MIT together with F.A. Cotton and the 1976 Nobel Laureate in Chemistry, Harvard Professor William Lipscomb Jr. From 1979-84 she was a group leader at the Max Planck Institute for Molecular Genetics in Berlin and headed their research unit in Hamburg from 1986–2004 as well as the Mazar Center of Structural Biology (1988-2004). She has been a professor at the Weizmann Institute since 1988, heading the Kimmelman Center for Biomolecular Structure and Assembly since 1989. She has also served as visiting professor at the University of Chicago, is a member of various scientific and education panels and is a scientific adviser to the US and Finnish governments.

Yonath has received several awards, including the first European Crystallography Prize in 2000, the Israel Prize for chemistry in 2002 and shared the Wolf Prize in Chemistry with George Feher.

She has one daughter (Dr. Hagith Yonath) and a granddaughter, Noa.

Rolf M. Zinkernagel

University Hospital Zurich
Switzerland

Rolf Martin Zinkernagel was born on 6 January 1944 in Riehen near Basel, Switzerland. He obtained an M.D. degree from the University of Basel in Switzerland, and earned a Ph.D. at the Australian National University in Canberra, Australia. After some clinical training, he worked on immune responses against infectious diseases first at the Institute of Biochemistry, University of Lausanne from 1970 – 72 under the direction of H. Isliker and learned about immunology and immune-chemistry as well has how frustrating experimental lab work can be. Subsequently from 1973 – 75, he went to the National University of Canberra, Australia and spent time in the lab studying immunity to infectious diseases.

From 1975 to 1979, he was at the Scripps Clinic and Research Foundation in La Jolla, California. He studied cellular immunity against virus infections that protects against infections but also damages host tissue and causes disease. In 1979, he came to the University of Zurich, Institute of Pathology, to head the group of experimental pathology and experimental immunology. During the past 20 years, his group has made important contributions to our understanding of antibodies that protect against infections and control viruses not only during acute disease but also in chronic infections.

It was in Canberra together with P.C. Doherty that he discovered how immune cells recognise virus infected and tumour cells. This work earned them the Nobel Prize in Medicine or Physiology in 1996 "for their discoveries concerning the specificity of the cell mediated immune defence".

He is on the editorial board of 10 scientific journals, in review boards of international institutions and a member of several scientific associations and learned societies. In the past ten years, he has made efforts in furthering the public understanding of science, gene technology and of the need of animal experimentation in science and biomedical research. He advises a number of biomedical small upstart companies scientifically and is member of the Swiss Science and Technology Council.

Harald zur Hausen

German Cancer Research Center
Germany

German virologist Harald zur Hausen was awarded half of the 2008 Nobel Prize for his discovery of the role of human papilloma viruses (HPV) in cervical cancer. Ultimately his work led to the introduction in 2006 of a vaccine to combat HPV.

Zur Hausen was born on March 11, 1936 and grew up in the city of Gelsenkirchen-Buer. He earned a place at the University of Bonn where he studied medicine and after passing his preliminary medical examination, continued his studies at Hamburg and the Medical Academy in Düsseldorf, where he completed his MD thesis in 1960.

After two years as a medical assistant, during which he developed an interest in gynaecology and obstetrics, he joined the University of Düsseldorf as a laboratory assistant, exploring virus-induced chromosomal modifications. Seeking greater scientific knowledge, zur Hausen moved to the US in 1965 to work at the Philadelphia Children's Hospital with German virologists Werner and Gertrude Henle.

The Henles' laboratory was working on the newly discovered Epstein-Barr virus (EBV) and zur Hausen helped demonstrate that a cancer virus (EBV) can transform healthy cells (lymphocytes) into cancerous cells. He became an assistant professor at the University of Pennsylvania but in 1969 returned to Germany to head a research team at the University of Würzburg, where he soon succeeded in proving that EBV DNA persists in every tumour cell in Burkitt's lymphoma.

In 1972 he moved to the University of Erlangen-Nuremberg as chairman of the newly established Institute of Clinical Virology and began to examine the established theory that cervical cancer may be caused by a virus. Herpes simplex was the main suspect but the team drew a blank and concentrated instead on links to the papilloma virus in genital warts. Initial tests were inconclusive but the team published a preliminary report of their work in 1974 and eventually identified several HPV types.

In 1977 zur Hausen was appointed chairman of the Institute of Virology of the University of Freiburg. He took most of his team with him, including Lutz Gissmann and Ethel-Michele de Villiers, who would later become his wife.

In 1979 they isolated the first DNA from genital warts, HPV-6. By 1983 they had reached HPV-16, which they discovered was present in around half of cervical cancer cases. The following year they isolated HPV-18, accounting for a further fifth of cases.

Incredibly, pharmaceutical companies at first dismissed zur Hausen's suggestion of developing a cancer vaccine, one firm saying there was 'no market' for it. Fortunately this view later changed and the HPV vaccine became available in 2006.

From 1983-2003 zur Hausen served as the Scientific Director of the German Cancer Research Centre. He acted as Editor-in-Chief of the International Journal of Cancer from 2000 to the end of 2009.

CONTINUED CVS

Beutler

...expert Abraham Braude and later with herpes simplex virus specialist Patricia Spear. From 1977-81 Beutler attended medical school at Chicago, where he met and married Barbara Lanzl, with whom he has three sons. Despite missing lab work, after graduating he followed his father's advice to work as an intern at the University of Texas Southwestern Medical Center in Dallas. In 1983 he moved to the Rockefeller University in New York where he returned to lab work with a vengeance and had early success with isolating a lipolytic hormone then known as cachectin, which he showed to be identical to TNF, and an important component of the body's response to LPS.In 1986 Beutler returned to Dallas to set up his own lab at the Howard Hughes Medical Institute. It was there that he started his Nobel-winning work but progress was slow and not helped by the breakdown of his marriage in 1988. In 1998 just as the HHMI was losing patience, the team discovered TLR4 but, despite this success, funding ended in 2000. Beutler then moved his team to The Scripps Research Institute in California. There they continued their work and collaborated with other groups, notably those led by Shizuo Akira and fellow Laureate Jules Hoffman, who was carrying out similar work with fruit flies. In 2011 Beutler returned to Dallas where at UT Southwestern he has developed a Center for the Genetics of Host Defense.

The Nobel Prize crowns half a decade of recognition and awards for Beutler, and it is fitting that his father, who died in 2008, lived to see many of these.

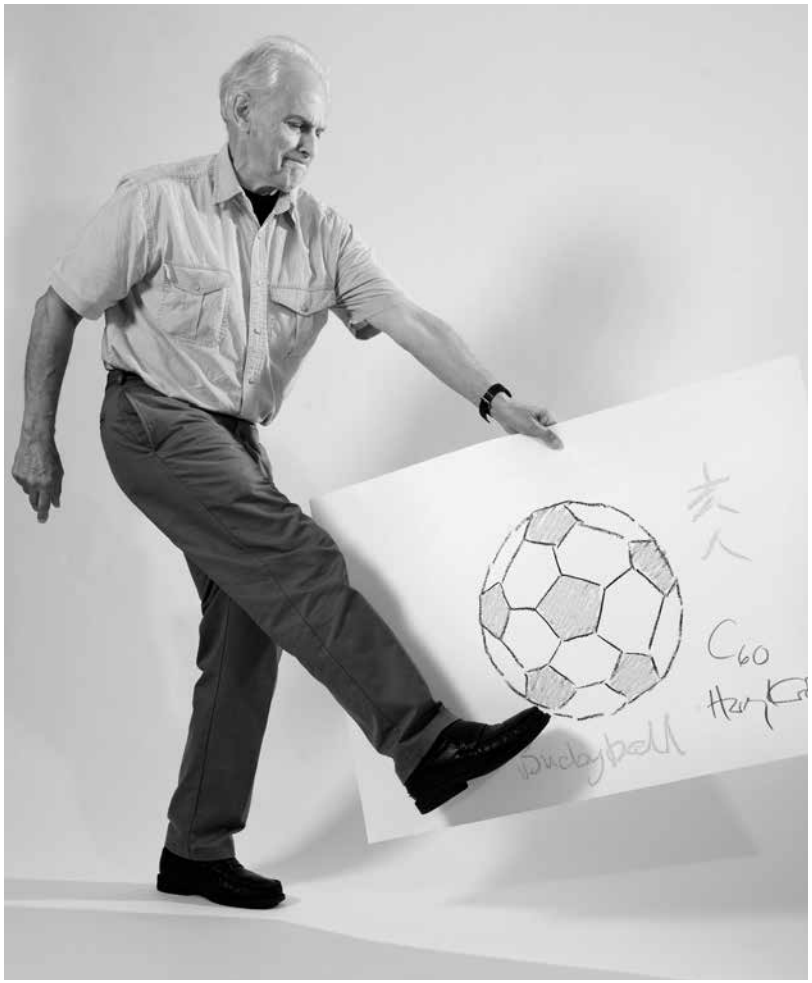
Hoffmann

...embryonic development, also serves as a sensor, detecting infectious microorganisms and alerting the immune system to produce antimicrobial peptides. Hoffmann's work prompted others to search for Toll-like receptors in mammals, leading to better understanding of the immune system and advances in treatment of anything from microbial infection to inflammatory diseases such as Crohn's and cancer.

Hoffmann is a former President of the French National Academy of Sciences and a member of other academies including Germany, Russia and America. Among other awards he shared the 2007 Balzan Prize with Bruce Beutler, the 2004 Robert Koch Prize with Beutler and Shizuo Akira, the 2010 Keio and the 2011 Gairdner Prizes with Shizuo Akira and the 2011 Shaw Prize with Beutler and Ruslan Medzhitov. He is married to his long-time co-worker, Daniele. They have two children, both in academic careers, and four grand-children.

Warshel

...they published the first computerized model combining the accuracy of quantum mechanics with the speed of molecular mechanics (QM/MM) of an enzymatic reaction, thus allowing for the study of chemical processes in solution and in proteins. The classical protein description used in that work was based on a computer program they had originally written as students in 1967. Also in 1976, Warshel moved to the US to join the chemistry faculty at the University of Southern California in Los Angeles where he is now Distinguished Professor of Chemistry and Biochemistry and Dana and the David Dornsife Chair in Chemistry.. His interest in enzymes, which control almost all chemistry in the body, continues to this day, studying how proteins transfer signals within a cell.



SKETCHES OF SCIENCE

Exhibition

Japan, OIST Okinawa Institute of Science and Technology | May – June 2014
Japan, Tohoku University | July – September 2014
Korea | October – November 2014
USA, UC Davis | December – February 2015
Deutschland, Hannover Messe | April – Mai 2015

YOUNG SCIENTISTS

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Indonesia

Iran, Islamic Republic of

Ireland

Israel

Italy

Japan

Young Scientists

Young Scientists

Elisabeth Achilles

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Fellow of the Helmholtz Association of German Research Centres

Scientific & Research Interests: a) neurology b) psychiatry c) (neuro-)psychology d) (neuo-)physiology e) cognitive neurology f) motor cognition g) apraxia h) non-invasive neuromodulation i) neurorehabilitation j) stroke - functional magnetic resonance imaging k) learning

Research Motivation: I enjoy the intellectual challenges of science. I am especially interested in basic and clinical neuroscience and its diverse scientific and medical as well as psychological and philosophical aspects which raise my curiosity.

Salim Acimi

University of Regensburg, Germany
Germany
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Clinical research, especially in the realms of cardiology

Research Motivation: I have always been captivated by how closely interconnected medicine and science are. Because by understanding and appreciating the beauty of the human body and its diseases we can learn how to influence it- ultimately for the betterment of the patient.

Joanna Adamczak

PhD
Max Planck Institute for Neurological Research, Germany
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Fellow of the Max Planck Society

Scientific & Research Interests: 1) Non-invasive imaging of regenerative processes after cerebral ischemia 2) In-vivo observation of angiogenesis and neurogenesis after cerebral ischemia 3) Stem cell therapy for cerebral ischemia 4) Longitudinal magnetic resonance imaging and bioluminescence imaging of cell transplants

Research Motivation: "Der unermeßlich reichen, stets sich erneuernden Natur gegenüber wird der Mensch, soweit er auch in der wissenschaftlichen Erkenntnis fortgeschritten sein mag, immer das sich wundernde Kind bleiben und muß sich stets auf neue Überraschungen gefaßt machen." Max Planck

Agnieszka Adamska-Venkatesh

Max Planck Institute for Chemical Energy Conversion, Germany
Poland
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Fellow of the Max Planck Society

Scientific & Research Interests: Electron Paramagnetic Resonance, Fourier Transform Infrared Spectroscopy, Electrochemistry, iron-sulfur clusters, hydrogen splitting and production, enzyme mechanisms.

Research Motivation: Learning science deals with understanding the mechanisms which drive the known and unknown of the pangeatic universe. I have always been intrigued by these processes and been preparing myself to investigate and understand them. This quest for me is very enjoyable and I am very passionate about it.

Avital Adler

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Israel
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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Neuroscience; Learning and memory; Synaptic plasticity; Imaging; Electrophysiology; Cortical information processing; The role of the Basal Ganglia sub-cortical circuit in reinforcement learning. The mechanisms underlying learning and memory in the mouse cortex.

Research Motivation: I am fascinated by our brain and its complicated cognitive functions, especially mechanisms underlying learning and memory. I'm driven by the sense of discovery and by unraveling functions of the brain as well as its dysfunctions.

Chrysanthi Ainali

Phd in Bioinformatics
Life Technologies, Germany
Greece
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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: Translational Medicine, Comparative Genomics, Protein Interactions, Predictive Disease Model, Functional Genomics in Complex Disease, Data mining and Machine learning of large heterogeneous datasets, Systems Biology

Research Motivation: The end of the Human Genome Project was the starting point on the path to genomic medicine, bringing challenges in the field of genomic analysis. Enabled by those challenges, my motivation is to bridge the gap between medicine and informatics to better interpret the genome and improve human health.

Robert Akpata

Dr.
University Hospital of Düsseldorf, Germany
Benin
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: Infectious diseases and Public health.

Research Motivation: Infectious diseases are the leading cause of death in Africa. My strong will is to contribute to finding the best ways to prevent or manage them efficiently, thus taking a great part in the development process, since diseases are one of the biggest obstacles to development.

Amal Aldarwesh

PhD Student
King Saud University, Saudi Arabia
Saudi Arabia
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Fellow of the King Saud University, Ministry of Higher Education of Saudi Arabia

Scientific & Research Interests: Ocular cell biology, pharmacology and retinal cell signalling mechanism underlying visual field loss in glaucoma utilizing human retina explant culture model (Human Retinal Organotypic Cultures; HORCs).

Jawara Allen

B.S
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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: As a physician scientist, I hope to explore the interaction between pathogens and our immune system. I am particularly interested in the involvement of the gut microbiome in the development and progression of both infectious and noninfectious diseases, in the U.S and abroad.

Research Motivation: The summers I spent in Argentina and at NYU sparked my passion for science. Taken together, these experiences allowed me to think about medicine and research from a more global perspective, emphasizing the importance of translational research with a direct impact on the lives of individuals.

Naif Almontashiri

MSc, PhD candidate
University of Ottawa; Heart Institute, Canada
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Fellow of the King Saud University, Ministry of Higher Education of Saudi Arabia

Scientific & Research Interests: Cardiovascular Genetics and biology. Genome wide association studies (GWASs) and functional analysis of polymorphisms that increase the risk of heart disease in vivo and in vitro. Coronary artery diseases proteomics. Cardiovascular epidemiology. Mitochondrial genetics and biology.

Research Motivation: Science to me is the bridge between our thoughts and real life needs. I do science because I believe that what I do matter to the field and one day my science will shine and progress the field further. I take science as full brain and body job and by doing so I'm sure science will pay me back.

Donat Alpar

PhD
The Institute of Cancer Research, London, United Kingdom
Hungary
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Fellow of bayme vbm vbw

Scientific & Research Interests: Cancer genetics; application of Darwinian evolutionary approach to reveal heterogeneity, phylogenetic structure and sub-clonal dynamics of human tumors; non-invasive tumor monitoring; single-cell genomics; understanding treatment resistance.

Research Motivation: Cancer is a leading cause of death around the World. My intention is to contribute to the understanding of cancer development and progression in order to unveil Achilles-heels of treatment resistance mechanisms that could potentially be targeted by modern treatment strategies.

Ahmad Altarifi

Doctorate
Jordan University of Science and Technology, Jordan
Jordan
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Fellow of the Jordan University of Science and Technology/JUST

Scientific & Research Interests: I am interested in understanding the peripheral and central mechanisms of pain. My goal is to enhance current pain management and identify targets for new analgesics. Future interests include studying Water pipe (hooka) in animals and humans, due to its recent widespread use, especially among youth.

Research Motivation: Engaging in an academic environment, where I can teach and positively change new generations. I discovered that science can give me the chance to cross borders outside my country and interact with every scientist across the world. In science, I can learn everyday new things and build new friends.

Mike Althaus

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Physiology and Pathophysiology of Lung Electrolyte and Fluid Homeostasis; Membrane Physiology; Epithelial Ion Transport Physiology; Molecular Structure and Regulation of Epithelial Sodium Channels; Electrophysiology.

Research Motivation: I am fascinated by the complexity of molecular processes which together allow function of a cell, organ, organism and, eventually, biological system. Breaking down such processes and identifying physiological mechanisms which control the processes of life is an exciting and amply rewarding journey.

Cleidson Alves

Ph.D
Massachusetts General Hospital - Harvard Medical School, United States
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Supported by the Brazilian Academy of Sciences and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Molecular and cell Biology, Molecular basis of carcinoma progression and metastasis, Tumor heterogeneity, Tumor stem cells, Cell dormancy, Non-coding RNAs, Epigenetics.

Research Motivation: I truly believe that science is the most important tool that mankind developed to understand our reality and improve the way we interact with our world. The freedom of creativity, the joy of a discovery, the feeling of contributing to the understanding of the natural world are great motivators.

Christina Amrhein

Bachelor of Science (BS)
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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research ranges from Fullerene chemistry & the creation of novel nanoscale structures, in particular nanotubes, to interstellar chemistry of carbon chain molecules. My current research proj. involves the incorporation of carbon nanofibers into microcellular foams via high internal phase emulsions

Research Motivation: My desire to constantly expand my knowledge on the ever growing scientific wealth of information readily available is a large part of my motivation for science. One of my aspirations is to be able to share science & learning initiatives with parts of the world that have no access to these resources.

Vaishnavi Ananthanarayanan

Ph.D.
Max Planck Institute of Molecular Cell Biology and Genetics, Germany
India
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Fellow of the Max Planck Society

Scientific & Research Interests: Single-Molecule Biophysics, Cell and Molecular Biology, Advanced Light Microscopy, Cytoskeleton.

Research Motivation: The passion to question and to learn is the reason I am in science. To quote Carl Sagan, "Somewhere, something incredible is waiting to be known".

Thomas Andreska

Master of Science (Neuroscience, Dev. Biology)
Department for Clinical Neurobiology - University of Wuerzburg, Germany
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Fellow of the Wilhelm Sander-Stiftung

Scientific & Research Interests: Neurosciences, Developmental Biology, Neural induction, Learning and memory, Synaptic plasticity, -integration and -connectivity, Stem cell techniques, cellular reprogramming, Super resolution microscopy, live cell imaging, high quality MRI for scientific model organisms

Research Motivation: My motivation is based on excitement and the discovery of the new. Following up ideas and thoughts, see them become a hypothesis step by step and after a long way finally become the truth. Thus providing one small piece of a puzzle that may help patients is the reason why I became a biologist.

Elisa Araldi

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Cholesterol Metabolism, non-coding RNAs, Macrophage Biology, Inflammation, Extracellular vesicles

Research Motivation: Science is where reasoning meets creativity, where paying attention to details leads to understanding of the big picture and where ordinary is to dare thinking outside the box. I hope to be a scientist that lets imagination and curiosity drive my research and pushes the boundaries of knowledge.

Nina Ardjomandi

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: We are working in the field of Bone Tissue Engineering, characterizing mesenchymal stem cells from the human periosteum, developing suitable biomaterials that enhance osteogenesis and neovascularization for the regeneration of critical size defects in Oral- and Maxillofacial Surgery.

Research Motivation: I am highly motivated to push the exciting field of regenerative medicine forward with my projects and to develop new concepts for treatment.

Francesca Aredia

PhD student
Institute of Molecular Genetics CNR, Italy
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Fellow of the Fondazione Cariplo

Scientific & Research Interests: Cancer biology, chemoresistance, cell death, cell survival.

Research Motivation: I do science because I firmly believe that everything can be explained. I am fascinated with mechanisms that regulate the biological processes: it is captivating to observe how life is regulated by a precise program and, at the same time, is revolutionized by a single event. This is amazing!

Juan Pablo Arroyo

MD PhD
Yale University, United States
Mexico
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Supported by the Mexican Academy of Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Fulid and electrolyte physiology, renal biomarkers

Research Motivation: Understanding how water and salt that are relatively simple and yet wonderfully complex have such a big impact on health and disease.

Markus Aswendt

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Fellow of the Max Planck Society

Scientific & Research Interests: Molecular neuroimaging of stem cells and regeneration of neurological disorders.

Research Motivation: For me, science is the ideal way to gain and apply knowledge, skills and creativity. Most importantly, my science is more than an end in itself and finally contributes to the understanding and cure of neurological disorders.

Kathryn Atwell

MSci
Microsoft Research Cambridge, University of Oxford, United Kingdom
United Kingdom
kathryn.atwell@dtc.ox.ac.uk
Fellow of Microsoft Corporation

Scientific & Research Interests: Developing computer models of biological systems; particularly cell-based mechanical models. Developing tools for researchers. Interdisciplinary work combining biology and computer science. Currently researching the regulation of stem cell proliferation in the C. elegans germ line.

Research Motivation: I do science because I want to bring something new to the world, either new ideas, new knowledge or new technology. So much has already been accomplished by humankind and so much progress made through the scientific method; so it seems to me we should keep on pushing forward.

Hug Aubin

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cardiovascular biology as well as cardiovascular tissue engineering and it`s translation into clinical praxis.

Research Motivation: 1) Through medical research you can change people`s life 2) Nature and its biology is a world full of wonder, which we should strive to explore and understand 3) Research was and will always be the key to medical progress and it's our responsibility to guide and promote it.

Martina Aumayr

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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Virus-host interaction at a cellular level, nuclear magnetic resonance spectroscopy, crystallography, protein chemistry, kinetic studies, antivirals.

Research Motivation: Working on the edge of science fascinates me every single day. My motivation for science is driven by the idea to push the boundaries of human knowledge a little bit further and to contribute with my work to the development of an antiviral therapy.

Meghan Azad

PhD
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Supported by the Natural Sciences and Engineering Research Council of Canada and Microsoft Corporation

Scientific & Research Interests: Early-life origins of chronic disease: impact of environmental exposures and role of the gut microbiome. Using longitudinal cohorts and administrative databases, I study the development of allergic and metabolic disorders. I am also interested in knowledge synthesis methodology (meta-analysis).

Research Motivation: I am motivated by the thrill of discovery, and by the potential for my research to improve population health. I am passionate about conducting rigorous and meaningful research with the ultimate goal of informing evidence-based decisions in healthcare policy and practice.

Haya Azouz

Medical Student
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Supported by The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Hydroxybenzoic acids, their nutritional values, and cardiovascular diseases; Academic Medicine Career; Skull parietal bone metastasis exhibiting primary papillary thyroid carcinoma: a case report; Impact of Relaxin on TGFB intracellular cascade; Psoriasis; Atopic dermatitis; insomnia

Research Motivation: I am very passionate about research, about discovering the underlying mechanism of a known phenomenon. When it comes to science, I have never restricted my fields of interest. Rather, I enjoy drifting from basic to clinical, from survey-based studies to case reports, and from single to group work.

Bénédicte Babayan

PhD
Sorbonne Universités, Institut de Biologie Paris Seine, France
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: I am interested in how the brain constructs representations of the world and uses them to navigate. For my PhD I am combining cell imaging and computational neuroscience to identify the network of structures and the learning processes mice use when learning a path.

Research Motivation: The way nature functions has always intrigued me - always wanting to understand how it works and why sometimes it does not. This is why I decided to train as a scientific researcher, to myself understand better the functioning of the brain and hopefully contribute to the general comprehension of it.

Marina Babic Cac

Ph. D.
German Rheumatism Research Centre Berlin - Leibniz Institute, Germany
Croatia
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Fellow of the Leibniz Association

Scientific & Research Interests: Autoimmune diseases, CD4+ T cells, immune receptors, regulation of the immune response, innate and adaptive immunity

Research Motivation: In science, despite all the obstacles and disappointments, it is that one result that makes you happy, that makes you laugh and dance, that is the one that matters. That feeling that you are winning, that you are the first at something, that is what keeps me going on and that is why I do science.

Lennart Bach

Dr.
GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany
Germany

Fellow of the Helmholtz Association of German Research Centres

Scientific & Research Interests: Marine Biogeochemistry; Phytoplankton; Photoysnthesis; Carbon cycle; Ocean acidification; Climate change.

Research Motivation: It is great fun to find solutions for all kind of different problems!

Yousef R. Badran

MD
University of Jordan, Jordan
Jordan
yousef_badran@hotmail.com
Fellow of the German Cancer Research Center

Scientific & Research Interests: B cell immortalization; Primary immunodeficiencies; Pseudomonas aeruginosa multidrug resistance

Research Motivation: It opens a door for adding to current practice and genereal knowledge; instead of being just recipients, it gives one the opportunity to be actively involved! It also offers an unmatched thrilling mixture of mystery, excitement and hardwork.

Anjana Badrinarayanan

Ph.D.
Massachusetts Institute of Technology, United States
India
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Supported by the Human Frontier Science Program and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: DNA damage response and repair, Chromosome organization, DNA replication and segregation, Microbiology, Cell cycle regulation, Fluorescence microscopy

Research Motivation: I am fascinated by how cells regulate various metabolic processes to ensure the maintenance of life. I am currently investigating chromosome dynamics and DNA damage repair in tractable microbial systems.

Prakash Bajgain

Higher Secondary Education Board (HSEB)
Nobel Academy, Nepal
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Fellow of The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Physics and its components; Psychology; Hows does Science interrelates to Human mankind; What are the affect and change made by the science for our society; The advantage and disadvantage of new invention to our society and community; Relation between eastern mysticism and modern Physics.

Research Motivation: "An investment in knowledge pays the best interest". Wealth without work, Pleasure without conscience; Science without humanity, Knowledge without character, Politics without principle, Commerce without morality. Worship without sacrifice. He who is fixed to a star does not change his mind.

Cristina Balbás Martínez

M.Sci.
Spanish National Cancer Research Centre, Spain
Spain
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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: Molecular landscape of bladder cancer, NGS, non-cohesive functions of STAG2-cohesin, PARP inhibitor synthetic lethality.

Research Motivation: What initially drove me into science was the curiosity to understand how living organisms work. As I deepened my learning, I further restricted my field of interest to focus on the molecular mechanisms underlying human disease, specifically cancer.

Ágnes Balogh

University of Debrecen, Institute of Cardiology, Hungary
Hungary
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Fellow of the Unfallkrankenhaus Berlin

Scientific & Research Interests: Cardiomyocytes; Myocardial contractility; Myofibrillar protein alterations; Postinfarction remodeling.

Research Motivation: The better understanding of the patophysiology of the diseases can help us to treat and cure the patients in any fields of medicine.

Sebastian Bandholtz

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Supported by the Boehringer Ingelheim Deutschland GmbH and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Islet biology, diabetes and GPCRs.

Research Motivation: Understand the unknown and find the right mechanism.

Katrin Bartl-Pokorny

Mphil
Medical University of Graz, Institute of Physiology, Austria
Austria
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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Developmental science, eye-tracking, typical and atypical language acquisition, developmental disabilities, rare genetic disorders.

Research Motivation: Already early in my scientific education I became fascinated to study complex processes of early human development. The chance to extend my knowledge everyday and to share exciting findings with a community of like-minded people all over the world motivates me to do what I like most, explore.

Tomáš Bartoň

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Fellow of the German Academic Exchange Service

Scientific & Research Interests: Critical care medicine, mechanisms of septic shock and multiple organ failure (MOF), heart rate variability (HRV) and baroreflex/chemoreflex - sensitivity as markers of the tonus of the autonomic nerve system (ANS) and their alterations in septic shock and MOF, complexity of the HRV - signal.

Research Motivation: It is fascinating to explore, how the human body reacts to extreme biological situations like septic schock and MOF and which functions of the ANS are altered in this situations. I would like to better understand the pathophysiological mechanisms of these diseases and improve the clinical results.

Anna Bartosik

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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings in Memory of Joachim Sorger

Scientific & Research Interests: My main scientific interests are in the area of cell biology. I'm currently working at the interface of cell signaling pathways and trafficking machinery. I would like to understand how endocytosis regulates transduction of signal within the NF-kB pathway that is critical both in health and disease.

Research Motivation: Ever since I was fascinated by cell biology research and how we can apply scientific knowledge in clinics. I decided to contribute to this field by studying biotechnology and then focusing my research on basic cell biology. I believe that advances in basic research are medicine driving force.

Michal Bassani-Sternberg

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Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Mass spectrometry, immunology, Human Leukocyte Antigen (HLA) class I peptidomics, proteomics, biomarkers, bioinformatics, immunotherapy, cancer, virus infection.

Research Motivation: During the last years I have been dealing with one of the most challenging tasks in the biomedicine field- to find good biomarkers and therapeutic targets for cancer. I have been privileged to employ state of the art mass spectrometry based proteomics and computational platforms.

Daniel Bear

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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Neurobiology, sensory physiology, neural circuit organization and function, gene expression and regulation, evolution of sensory systems and behavior.

Research Motivation: I believe that evolution is the unifying principle for biology and for my research: I hope to begin to understand how an organism's senses, neural circuits, and behavior are adapted to its environment--in particular, how these facets of the nervous system are governed by its genetic makeup.

Julia M. Becker

Student of Veterinary Medicine
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: So far, I have worked on candidate gene sequencing for obesity in Labrador retriever dogs and on the Equine Metabolic Syndrome in donkeys. In general, I am interested in comparative medicine and animal models for human diseases, pharmacology, neurology, cardiology and immunology.

Research Motivation: Being a curious and accurate person, I always try to get to the bottom of things and do not like to settle for the easiest explanation. As science is a dynamic process consisting of learning and teaching, both of which I really enjoy, working in research seems very challenging and rewarding to me.

Katherine Beckham

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Fellow of the AKB Stiftung

Scientific & Research Interests: I am interested in bacterial pathogenesis, and particularly in the virulence factors used by pathogens during the disease process. The inhibition of such factors as a novel approach to treating bacterial infections offers a promising alternative to the dwindling supply and traditional antibiotics.

Research Motivation: I am excited to learn more about host-pathogen interactions with the hope that we can find novel and effective ways of treating infections.

Natalia Bednarz-Knoll

Ph.D.
University Medical Center Hamburg-Eppendorf, Germany
Poland

Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Oncology, translational research, prostate and breast cancer, tumor cell dissemination, tumor progression, metastases, circulating tumor cells, tumor - stromal cell interactions, cancer stem cell, tumor cell plasticity, epithelial-mesenchymal transition, BRCA1, ALDH1, EGFR, ERB2, genetic aberrations

Research Motivation: To enjoy the beauty and complexity of nature. To understand as much as possible, even if it is just a small piece of big puzzles. To observe and conclude, and in this way having the opportunity to help to treat cancer.

Anowara Begum

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Supported by The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Emerging public health issues in south east Asia: double burden diseases and behavioral changes, maternal and child health,adolescent health and nutrition.

Research Motivation: Science excites me as I find new truths every day that I never knew whereas research is a way to exercise it. Courses like public health challenges and research method in epidemiology captivated my interest for research. Working with new projects thrills me as I can explore and learn new techniques.

Luca Bello

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Fellow of the Fondazione Cariplo

Scientific & Research Interests: Neuromuscular Disorders, Genetics, Genotype-Phenotype Association.

Research Motivation: My motivation for science is the challenge to translate our growing knowledge about the sequence and function of the human genome into clinical benefit for people burdened with neuromuscular disorders, whose medical needs remain highly unmet.

Mariko Bennett

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Fellow of the Alcoa Foundation

Scientific & Research Interests: Neuroscience, immunity, microglia, glia, development, and neurological disease.

Research Motivation: Some future physician-scientists grow up in a family of doctors. I grew up in a family of patients. With this type of intimacy, I was intrigued by the complexity of brain function and the implications of dysfunction. I wanted to understand more - and still do.

Sophie Heloise Bennett

B.A.
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Fellow of the AKB Stiftung

Scientific & Research Interests: My primary interests lie in understanding the neural basis of learning and cognition. In particular, I am interested in understanding how impaired plasticity disrupts cognition in neuropsychiatric diseases.

Research Motivation: I am motivated to understand how disrupted neural processes lead to neuropsychatric diseases in the hope of developing new treatments for such diseases.

Michael Bergin

BPhty (Hons)
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Fellow of the Australian Academy of Science

Scientific & Research Interests: Motor adaptation to pain; Motor learning; Bayesian decision theory; Movement variability; Nonlinear variability; Behavioural neuroscience; Computational modelling; Pain models.

Research Motivation: Complex and adaptable movement allows us to interact with the world. However, pain and musculoskeletal conditions limit our capacity to do so. My primary career goal is to solve how the nervous system adapts to pain and to better understand what goes wrong when adaptation fails.

Hanna Bergmann

Master of Science
Technical University of Munich, Institute of Clinical Chemistry, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Decision making of the innate immune system; autoimmunity; immune regulation in the intestine; cancers caused by chronic inflammation; how the immune system promotes essential steps in tumor progression such as invasion and metastasis.

Research Motivation: Learn more about the etiology and underlying mechanisms of diseases with aberrant immune responses in order to prevent or treat these diseases more effectively.

David Berry

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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Intestinal microbiology, Novel imaging methods, Stable isotope probing, Microbial evolution, Interactions in complex ecosystems, Computational and statistical methods in biology.

Research Motivation: I am fascinated by microorganisms - the "unseen majority". Microbes mediate many globally important biogeochemical cycles and also affect our health and nutrition. I focus on how microbes act and interact in the complex ecosystem of the human intestinal tract.

Daniela Bertinetti

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cyclic nucleotides (cNMPs), cyclic dinucleotides (c-di-NMPs, CDNs), signal transduction, cNMP dependent kinases, PKA, PKG, Diabetes mellitus, Parkinson's disease, LRRK2, Plasmodium falciparum, Surface plasmon resonance (SPR), Fluorescence polarisation (FP), Isothermal titration calorimetry (ITC)

Research Motivation: My motivation for science is to challenge every day with unexpected results and find new interdisciplinary solutions together with scientists all over the world. At the end I am proud that I contribute to a better understanding of how life works and hopefully this helps us to make the world smarter.

Jan Bewersdorf

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: In-vivo Imaging and Immunology

Research Motivation: Having the chance to see something nobody has ever seen before is the most thrilling part of science and it makes you forget all the setbacks on the long way to a successful experiment.

Georg Beyer

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Chronic pancreatitis, Autoimmune pancreatitis, Endoscopic management of pancreatic fluid collections

Research Motivation: Science has changed my perspective on medicine in both, theory and patient care more than any textbook could ever have. Putting molecular mechanisms of the human biology in context of disease and potential therapies is a challenging part of my life which I would not want to miss.

Raghav Bhargava

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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My research interests are in the field of disease prevention and treatment. In this century where in mortality is mainly due to non communicable diseases, I wish to work on the prevention and eradication of heart disease by development of relevant vaccines and novel therapies.

Research Motivation: Working in one of the busiest hospital in Asia as a third generation doctor, I have been exposed to disease and poverty at close quarters. I feel that advances in science are the key for a healthier population. Innovations in science can touch many and I wish to make a change in my country.

Payel Bhattacharjee

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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My research interest is focused on pathophysiology of neurodegenerative disorders, molecular mechanism that regulate protein-protein interactions leading to deposition of fibrils on cells and neuropharmacology of peptide-based drugs for neurodegenerative disorders.

Research Motivation: The mysteries of neuroscience augmented my zeal for unraveling the facts hidden therein. I feel excited reading books and learning techniques. Afterwards, I find my imaginations turning into reality during experimentations. It rejuvenates my process of thinking with immense pleasure.

Jaikrit Bhutani

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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: 1. Bio-psychosocial model of health and various diseases especially metabolic disorders. 2. Neuro-endocrinological factors affecting disease outcomes. 3. Compassion fatigue and burnout amongst healthcare professionals.

Research Motivation: Scientific temper is rightly perceived as a panacea for the mankind, more so in modern difficult times. The psychosocial aspects affecting disease outcomes have been studied but in view of the advances in neuro-endocrinology having scientific basis makes learning of science more interesting.

Nicole Bieberstein

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: My research focuses on the regulation of gene expression. I'm especially interested in the dynamic interplay between chromatin, transcription and pre-mRNA splicing constituting a regulatory circuit, which ensures that the proper mRNA isoform is expressed at the right time and in the right cell type.

Research Motivation: For me science is like solving a puzzle. I enjoy the intellectual challenge to put all the small pieces of evidence together and to come up with new models and hypothesis that can be tested. Furthermore, I believe that basic research is the foundation for medical progress.

Alexander Biederstädt

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Fellow of McKinsey & Company, Inc.

Scientific & Research Interests: Regenerative cardiology and stem cell therapy in ischemic cardiovascular disease; Non-invasive cardiac imaging modalities in analyzing cardiac function, perfusion and viability; Tumor immunology and the role of regulatory T-cells in tumor immune evasion; Innate immunity; HIV gene therapy;

Research Motivation: My motivation to go into science was to understand the underlying mechanisms of disease and help devise new therapeutic approaches, thus have a lasting impact on patients and society as a whole. In this regard, I enjoy working in a challenging and inspiring environment with international scope.

Katarzyna Bienkowska

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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Simultaneous multi-modal brain imaging (PET/fMRI/MRS). Metabolic foundation of intrinsic brain activity using rs-fMRI, magnetic resonance spectroscopy of GABA and Glu and PET. Investigating neurotransmitter-pathways regulation, considering brain overall and specific glucose and oxygen metabolism.

Research Motivation: My motivation for science is to understand molecular foundation of brain constant activity and its changes in the course of mental and neurodegenerative disorders. For me science is a great adventure and it allows me to constantly solve challenging and fascinating questions.

Muhammad Shahdaat Bin Sayeed

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Pharmacogenetics, Nanomedicine, Engineering of advanced nanosystems for drug delivery, Neuroscience

Research Motivation: To contribute in human healthcare by discovering something which has never been discovered.

Rares-Mircea Birlutiu

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Supported by the Government of Romania and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Ophthalmology-retina and vitreous body surgery, macular degeneration; Virology-HIV/AIDS, HPV; Infectious diseases -antibiotic resistance mechanisms.

Research Motivation: To be at the starting point in medical research (a wide field with many unknowns' sides) is difficult. Although I did not have access to a high-level of scientific research, I believe that I started to learn the mysteries of this area, which has made me want to continue on this blessed path.

James Birrell

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Fellow of the Max Planck Society

Scientific & Research Interests: Structural, functional and spectroscopic proterties of hydrogenases and other metalloproteins.

Research Motivation: I am at heart a very inquisitive person and as such scientific research is provides the perfect environment for me to indulge in this. In particular, I find the molecular mechanisms by which biological systems operate a truly endless puzzle where one can become completely engulfed in fascinating questions with remarkable and often unexpected answers.

Johannes Birtel

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Fellow of McKinsey & Company, Inc.

Scientific & Research Interests: Gastroenterology, Microbiology, Inflammatory Bowel Disease, Ophthalmology.

Research Motivation: Making a substantial difference was my main source of motivation when I decided to study medicine. My experience in practical medicine and research have shown me how intriguing it is to enter unfamiliar settings thereby confronting major challenges and forming good solutions.

Annalen Bleckmann

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Germany
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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: My research interest is in understanding oncogenic pathways using bioinformatics methods for analysis and integration of high-dimensional omics-data based on own in vitro experiments. I apply these methods in the cancer research area and develop risk prediction models for individualized treatment.

Research Motivation: To me clinical research which combines science with clinical duties is ideal. Working with patients leads to many scientific questions which I am highly motivated to solve.

Hanibal Bohnenberger

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Mass Spectrometry based quantitaitve Proteomics and Phosphoproteomics, especially of microdissected FFPE samples. Lung cancer, espacially small cell lung cancer. Diagnostic and therapeutic options of cancer.

Research Motivation: Cancer is one of the leading causes of death worldwide. Therapeutic options are often limited and patients and relatives are suffering a lot from pain, fear and uncertainty during therapy. By investigating the proteomic network of cancer I'd like to give hope to patients suffering from cancer.

Henrik Boije

Ph.D.
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Fellow of the Jörnvall Foundation, Sweden

Scientific & Research Interests: Neural development, Retina development, Zebrafish, Fate assignment, Lineage, Proliferation.

Research Motivation: The thrill of understanding nature combined with the knowledge of being the first to fully understand something is truly addictive. I enjoy the intellectual freedom of academic science and believe that a life of continuous learning is a happy one.

Simon Bomken

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am a clinical trainee looking after children and young people with cancer. My specific interest is young people with lymphoma. My research focuses on novel drug target identification, validation and testing. This includes the pre-clinical modelling of disease to allow assessment of new drugs.

Research Motivation: Whilst we are pretty successful at treating lymphoma in young people, the treatments we use are associated with many immediate and long-term side effects. Furthermore, treatments for higher risk disease are limited. I want to help develop new drugs which are more effective and safer to use.

Julie Bonano

B.S. (M.D./Ph.D. Candidate)
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Behavioral Pharmacology, Neurochemistry of Addiction, Quantitative Structure-Activity Relationships (QSAR), Drug Design.

Research Motivation: Science is the key to understanding our world and improving our future. I am motivated for science and research because I find excitement in journeying into the unknown, testing the boundaries, and thinking in innovative ways. It is my hope that my research contributes to the betterment of society.

Mohanish Borana

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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Protein self assembly, Aggregation based Conformational Diseases, Chemical Biology for Targeted Drug Delivery, Bio-nanotechnology for Biomaterials and Biosensing.

Research Motivation: Development of biopharmaceutical and biomolecules based drug delivery, in my opinion, are possible solutions to many of the today's healthcare issues. My motivation for science is to provide alternatives to the present day drug delivery methods and contribute to the betterment of the society.

Lukasz S. Borowski

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Supported by the Foundation for Polish Science and the Foundation Lindau Nobel Laureate Meetings in Memory of Joachim Sorger

Scientific & Research Interests: My reseach is mainly focused on RNA biology. So far I have been involved in scientific projects concerning RNA decay in human mitochondria. Currently my main goal is to identify and characterise different protein complexes involved in RNA metabolism in human cells.

Research Motivation: I find that the more we discover, the more there is to be discovered, especially when it comes to biological science.These processes occurring in a single cell for example are highly complex and they are still not fully, explicitly known.

David Borton

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Ecole Polytechnique Federale de Lausanne, Switzerland
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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: To engage engineers, neuroscientists, mathematicians, and clinicians to create and apply state-of-the-art neural interfaces, kinematic sensors, and biochemical sensors for studying neuromotor disease and injury.

Research Motivation: I am driven by the potential for technology to transform lives and unravel the tapestry of humanity by accelerating the study of brain function and dysfunction.

Luke Boulter

PhD
MRC Human Genetics Unit, United Kingdom
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Supported by the European Science Foundation (ESF) and Microsoft Corporation

Scientific & Research Interests: My lab is investigating what signals regulate adult tissue homeostasis and growth in early life. We are also studying how these signals are responsible for regulating regeneration and carcinogenesis in the adult. We are particularly interested in using the liver as a model of these processes.

Aaron Bradshaw

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: I am interested in unravelling the molecular and cellular mechanisms of neural cells in health and disease. Specifically, I am interested in modelling disorders of the nervous system such as Parkinson's Disease and neuroinflammation in cell systems with aims to identify aetiopathogenic mechanisms.

Research Motivation: Are we discovering, or mapping, logical strcutures onto the world of Biology? The more I study, the more I ask myself this question and am motivated by it. I enjoy presenting data structures and enjoy the feeling of reward associated with technical mastery. The joy of talking about science.

Nady Braidy

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Fellow of the Australian Academy of Science

Scientific & Research Interests: Alzheimer's disease, Neurodegeneration, Metabolomics, Proteomics, Astrogliomas, Longevity, Excitotoxicity, Sirtuins, Animal Models, Oxidative Stress, Antioxidants, Telomeres, Cellular Signalling, Neuroimaging, Ageing, Gerontology, Environmental Toxins, Dementia, Cognition.

Research Motivation: I hope to identify mechanisms in Alzheimer's disease pathology – using the genes that have been linked to longevity – in order to understand the relationship between normal ageing and Alzheimer's disease.

Charles Breeze

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Supported by the European Commission - Marie Curie Actions and the W. Simon and Alice I. Newman Fund

Scientific & Research Interests: Genomics and epigenomics of complex traits and diseases, EWAS, GWAS, Bioinformatics.

Research Motivation: I welcome the chance to design and deploy novel epigenetic approaches to the research questions that are important to me (e.g. "what are the regulatory genetic and epigenetic variants underlying predisposition to common disease?").

Teon Brooks

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Fellow of Mars, Incorporated

Scientific & Research Interests: My research focuses on the neurobiology of language, specifically it focuses on the storage and retrieval of word representations in the brain. Relatedly, I am very interested in how we remember information, namely semantic memory, and how we access these memories when recalling them.

Research Motivation: When I was 6, my uncle bought me my first computer. l was fascinated by it, so of course, I took it apart to figure out how it worked. The brain, to me, is nature's computer. We learn language so naturally but its mechanics are not well understood. This mystery of how we store and use it drives me.

Christoph Brüser

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Supported by The Association of German Engineers and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Biomedical Signal Processing and Data Analysis, Novel Sensors and Measurement Techniques for Unobtrusive Patient Monitoring, Ubiquitous Personal Health Systems.

Research Motivation: The opportunity to be among the first to work on new emerging topics which pose truly unique challenges, as well as the satisfaction of solving complex technical problems on the interface between medicine and engineering together with an interdisciplinary team.

Floryne O. Buishand

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cancer Stem Cells, Endocrine Pancreatic Cancer, Monoclonal Antibodies in Clinical Oncology, Flow Cytometry, Organoid Cultures, Mouse and Zebrafish Xenograft Models, Chorioallantoic Membrane Assays, Drug Screening Models, Comparative Oncology, Array Comparative Genomic Hybridization, DNA Sequencing.

Research Motivation: It is my goal to identify deficits in cancer therapies, and to generate and transfer fundamental experimental solutions to the clinic. Being a veterinary-physician-scientist, working at both the bench and bedside in the cancer field, enables me to improve patient care in a highly efficient manner.

Judith Büntzel

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I interested in the intracellular trafficking of peroxisomal membrane proteins, which are involved in early steps of peroxisome biogenesis. I look into mechanisms that influence their targeting.

Research Motivation: I want to treat my future patients in the best way possible. But despite many advances in the field of medicine, there are also many questions. A lot of diseases are not understood yet. For finding new or good treatment I want and I have to understand the pathomechanism behind their illness.

Julia Burkhart

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Fellow of the Leibniz Association

Scientific & Research Interests: Platelets and cardiovascular disorders, mitochondrial homeostasis, method development for mass spectrometry-based proteomics.

Research Motivation: Since I started studying pharmacy it was my goal to find and develop treatments against the major threats to human health. I am fascinated with the interdisciplinary and intercultural environment in research, as this allows and requires converging different perceptions with high degree of freedom!

Rebecca Burrell

PhD
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Fellow of Microsoft Corporation

Scientific & Research Interests: Cancer, Genomic Instability, Cell Cycle, DNA Replication and Repair, Mitotic Chromosome Segregation, Tumour Heterogeneity, Cancer Evolution.

Research Motivation: As a dual medicine/biology student, I am interested in disease processes, and what these reveal about normal biology at the cellular and organismal level. I am particularly interested in mechanisms maintaining the genome, and in understanding how tumour heterogeneity contributes to cancer evolution.

Miriam Butler

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I'm very interested in the molecular mechanisms that underlie diseases, especially in relation to cancer. During my internships I have worked on the signaling pathway NPMALK–PI3K–CD44 in Anaplastic Large Cell lymphoma and on molecular mechanisms of therapy resistance in Acute lymphoblastic leukemia

Research Motivation: Experiencing diseases like cancer from nearby and observing that you almost always lose the battle against them, this is something I want to change - I want to study the underlying mechanisms to unravel a part of the complex puzzle of cancer ensuring a better treatment for patients in the future.

Lesly Calderon Dominguez

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Supported by the Human Frontier Science Program and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Immunology, Neurobiology, Transcription.

Research Motivation: What excites me the most about science is that I am constantly learning. Studying the logic behind biological phenomena, the continuous process of asking and looking for answers to try to understand them better, are all things I am very passionate about.

Miguel Campodonico

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Fellow of the AKB Stiftung

Scientific & Research Interests: Systems Biology, Pathway prediction Algorithms, Cancer Metabolism, Pharmacogenetics, Systems Pharamacology.

Research Motivation: Pursuit of truth for a better way of living.

Melissa Cantley

PhD
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Australia
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Fellow of the Australian Academy of Science

Scientific & Research Interests: Bone loss diseases - periodontitis, rheumatoid arthritis. Haematological malignacy multiple myeloma. Osteoclasts and osteoblasts. Histone deacetylase inhibitors - Specific targeting inhibitors. Role of Histone deacetylase enzymes in disease process, inflammation and bone loss.

Research Motivation: Medical Research is always challenging and rewarding allowing you to continually learn and be at the fore front of new discoveries. The human body is fascinating - understanding disease processes and the search for treatments is what makes medical science so interesting.

Julie Caramel

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INSERM, France
France
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: Cancer, Melanoma, Epithelial-Mesenchymal-Transition, Cancer Stem Cells, Mouse models of cancer, Resistance to treatment.

Research Motivation: My research is dedicated to cancer, most specifically melanoma, the most agressive skin malignancy. My projects focus on the role of CSCs and epithelial-mesenchymal transition in tumor progression and resistance to treatment, with the aim of translating our basic research data into the clinic.

Magdalena Cardenas Rodriguez

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Supported by the Academia Nacional de Ciencias del Uruguay and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research interest has been focused in the area of cellular/molecular/developmental biology. I had studied the molecular basis of a human genetic disease caused by defects in primary cilia. I'm interested in cellular processes such as intracellular transport and cell communication.

Research Motivation: I'm interested in trying to understand cellular processes that are still not known in their full details. I really like the synergy that is generated from the collective work in science and the potential benefit that it has to human life.

Grady Carlson

PhD Student
Ohio University, United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Glycoconjugate mediators of cell signaling and cell trafficking in cancer metastasis. Adhesion of tumor cells in hemodynamic flow to vascular endothelial cells that line the interior of blood vessel walls. Targeting cancer biomarkers.

Research Motivation: My goal is to help make cancer a survivable disease. Scientific research drives progress in medicine. By researching glycoconjugate mediators of cancer metastasis and new ways to target cancer biomarkers I may discover novel methods for mitigating cancer metastasis to improve cancer survival rates.

Etienne Caron

Ph.D.
ETH Zurich, Switzerland
Canada
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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: MHC peptidomics, Immunology, Mass spectrometry, Systems Biology, Proteomics, Genomics, Bioinformatics, Vaccinology, Exopolitics.

Research Motivation: The feeling of discovering new biological processes that nobody else has ever seen before is a great motivation for me in Science. The feeling that I have an impact in the society is also a great source of motivation.

Alessandra Maria Casano

EMBL - Heidelberg, Germany
Italy
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Supported by the European Molecular Biology Laboratory (EMBL) and Microsoft Corporation

Scientific & Research Interests: Origin, establishment and maintenance of the resident macrophage population of the brain, the microglia. Particularly, investigating the mechanisms underlying the microglial migration and colonization of the brain at early stages of embryonic development.

Research Motivation: My motivation for Science is Science itself. Science is curiosity, the key to explore, understand and appreciate the world around us. Science is challenging and entertaining. Through an endless learning and teaching process, it surprises when least expected.

Maria Castaneda Bueno

Ph.D.
Yale University, United States
Mexico
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Supported by the Mexican Academy of Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Kidney physiology, hypertension, epithelial transport.

Research Motivation: Generating knowledge is an extremely rewarding experience, even if you do it at the smallest level. I have always admired the great researchers that have made big contributions that completely change the way we see things.

Betül Çelebi Saltik

PhD
Hacettepe University, Health Science Institute, Department of Stem Cell Sciences, Turkey
Turkey
betul.celebi@hacettepe.edu.tr
Supported by the The Scientific and Technological Research Council of Turkey (TÜBİTAK) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: I am interested in working and undestanding hematopoiesis/megakaryopoiesis in human bone marrow vascular and endosteal niches. In this aspect, I focused on human Stem Cell Sciences (Bone Marrow and Umbilical Cord Blood Hematopoietic/Mesenchymal Stem Cells), Bioreactors, Tissue Engineering.

Research Motivation: This program will allow me to come together with people that I take a role model and to give the motivation to move forward on the road of science.

Yun Shen Winston Chan

Ph.D.
Genome Institute of Singapore, Singapore
Singapore
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Fellow of the National Research Foundation (NRF), Singapore

Scientific & Research Interests: I have a strong interest in stem cell biology and gene regulation. My research focuses on pluripotent stem cells which is an exciting primary cell model for dissecting early developmental processes and disease modelling, and an excellent resource for cell base therapies.

Research Motivation: Science is a nurturing ground for knowledge discovery and innovation. Mother nature never fails to make us feel ignorant time and again. Those are the humbling moments which i feel like a fresh undergraduate ready to learn and explore once again. This thrill of exploring the unknowns keeps me going.

Lesley Chapman

University of Rochester, Medical Center, United States
United States
lesley_chapman@urmc.rochester.edu
Fellow of the Alcoa Foundation

Scientific & Research Interests: CD4+ T-cell host immune response; Non-coding RNAs (microRNAs and long non-coding RNAs); Malaria.

Research Motivation: The process of scientific discovery is an exciting journey. With the potential to improve human health at the heart of this journey, this process makes for an exciting source of motivation for me to continue to contribute to the process of scientific discovery.

De-Ming Chau

Phd
Universiti Putra Malaysia, Malaysia
Malaysia
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Supported by the Academy of Sciences Malaysia and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: cancer research, infectious disease research, biochemistry, molecular biology, genetics, assay development, high throughput assay, drug discovery, chemical biology

Sheng Chen

M.D candidate
Zhejiang University, China
China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Stroke, Subarachnoid Hemorrhage, Innate Immunity, Inflammation, Apoptosis, Ion Channel, Neurobehaviour, Translational Stroke Research.

Research Motivation: Subarachnoid hemorrhage (SAH) is a serious, life-threatening type of stroke. As a physician, I know there is no effective therapeutic strategy for the patients with SAH. My motivation is to better understand the pathophysiology of SAH, which is most important to improve the outcome of SAH.

Zuojia Chen

Ph.D
Institut Pasteur of Shanghai, China
China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Regulatory T cells, Foxp3 regulation, Protein post-translational modification, Inflammation.

Stanley S. H. Cheuk

M.Sc.
Karolinska Institutet, Sweden
Hong Kong
stanley.cheuk@ki.se
Fellow of the Croucher Foundation

Scientific & Research Interests: Human Immunology, Tissue inflammation, Genetics, Evolution.

Research Motivation: The joy and excitement of asking interesting questions and answering them by performing experiments.

Minghao Chia

B.Sc.
Genome Institute of Singapore, A*STAR, Singapore
Singapore
chiaminghao@gmail.com
Fellow of the National Research Foundation (NRF), Singapore

Scientific & Research Interests: Epigenetics, metastasis, tumor - stromal interactions, RNA methyltransferases, mouse models of cancer.

Research Motivation: Scientific research is both a quest for knowledge and a service to Mankind; scientific progress has led to therapies for erstwhile untreatable diseases. Doing science trains me to think creatively and critically; learning science helps me to appreciate Nature in all her beautiful complexity.

Hamimi Chiraz

Pasteur Institute, France
Algeria
chiraz_hamimi@hotmail.com
Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Immunology, virology, medical research.

Research Motivation: Science research is a very exciting field. As a scientist, we are always looking for innovation to help science advances. It is very important to work and know that our research could help in the improuvement of patient treatment or that can help to cure the patients to offer them a better life.

Young-Dan Cho

Ph.D.
School of Dentistry, Seoul National University, Korea (South)
Korea (South)
cacodm@hanmail.net
Fellow of The Korean Academy of Science and Technology

Scientific & Research Interests: Bone regeneration, Epigenetics.

Research Motivation: I am a dentist-scientist. On the needs of the basic research to apply to the clinic, I have studying the basic research and trying to know more.

Youngjoon Choi

Ph.D.
Frankfurt University, Germany
Korea (South)
mycochoi@gmail.com
Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Phylogeny, diversity and evolution of many fungi; Speciation strategy of plant-pathogenic fungi; Co-evolution of pathogenic fungi and host plant; DNA barcoding for fungi.

Research Motivation: A broad spectrum of biological areas is closely connected to each other. My main motivation is to share invaluable experiences and opinions of Laureates and other young scientists how they have found a connecting link among the areas and crossed the line with any different view on their works.

Hon Fai Choi

Ph.D.
MIRALab - University of Geneva, Switzerland
Belgium
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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: Biomechanics, biomimetics, musculoskeletal physiology, computational modelling, biomedical engineering and data analysis.

Research Motivation: My research motivation stems from curiosity to understand the abilities of the human and animal body to generate and coordinate complex movements and how these abilities become impaired in disease.

Pakawat Chongsathidkiet

MD
Chulalongkorn University, Thailand
Thailand
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Supported by the National Science and Technology Development Agency, Thailand and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Neurosurgery and Neurosciences, Basic Science and Translational Research: Molecular Genetics, Targeted Therapy in Brain Tumor: Glioblastoma, Brain Cancer Research; Epigenetics, DNA Methylation, LINE-1.

Research Motivation: I desire to become a doctor who shares the responsibility of a clinician, a researcher and a professor at the same time. Practicing medicine itself saves thousands of lives, research discovery possibly millions; however, without passing on the wisdom, I would never have fulfilled my responsibility.

Priyamvada Chugh

Ph.D. (ongoing)
University College London, United Kingdom
India
priyamvada.chugh.12@ucl.ac.uk
Fellow of the AKB Stiftung

Scientific & Research Interests: Morphogenesis, cellular biophysics, cell shape change, cell division, cell migration, cell mechanics, cytoskeleton, actin cortex properties, stem cell & cancer cell mechanics, plasma membrane dynamics, endocytosis, molecular evolution, super-resolution microscopy, electron microscopy, microfluidics

Research Motivation: The fractal-like nature of scientific enquiry where every question leads to another one amazes me and keeps me going. Also what I look forward to are the exciting moments before an experimental result reveals itself and the ability to spread this fascination to layman via public outreach activities.

Derek Clouthier

B.Sc.
Department of Immunology, University of Toronto, Canada
Canada
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Fellow of the Canadian Student Health Research Forum (CSHRF)

Scientific & Research Interests: Immunology, viral infections, T cell biology, targeting T cell co-signaling molecules for therapy of viral infections.

Research Motivation: I am driven to contribute to the generation of novel and therapeutically useful findings. In the long-term, I am motivated by the prospects of communicating and/or commercializing scientific research.

Sibylle Cocciardi

Diplom Biologin
University Clinic Ulm, Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Acute myeloid leukemia, somatic and germline mutations, clonal evolution, exome sequencing, targeted sequencing, mutation detection techniques.

Research Motivation: I always found it fascinating how our human body works. However, I also find it terrifying how it can be affected by many awful diseases. The reason I'm doing science is to better understand the human body and to be able to contribute to better outcomes and a happier life of patients.

Charlotte Coles

DPhil Biochemistry
German Center for Neurodegenerative Disease (DZNE), Bonn, Germany
United Kingdom
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Supported by the Human Frontier Science Program and the W. Simon and Alice I. Newman Fund

Scientific & Research Interests: Mechanisms of cell signalling, receptor protein tyrosine phosphatases (RPTPs), cytoskeletal architecture and dynamics, neuronal polarisation, nerve regeneration, structural biology, X-ray crystallography, electron microscopy, light microscopy, molecular and cellular neuroscience.

Research Motivation: Trained as a structural biologist and now working in a cellular neuroscience research group, I am excited by the integration of structural, molecular and cellular based techniques in the study of cell signaling mechanisms, especially in the context of the nervous system.

Joana Côrte-Real

PhD
Nikolaus-Fiebiger-Center for Molecular Medicine, University of Erlangen-Nürnberg, Germany
Portugal
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Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in understanding the role of particular micro-RNAs in the development and differentiation of B cells into antibody-secreting plasma cells. For this purpose, I have participated in the generation of transgenic animal models (e.g. complete miR-148a knock out), currently under analysis.

Research Motivation: I am fascinated by the complexity of the immune system. Through my scientific studies, I aspire to contribute to the unraveling of its intricacy and, ultimately, to the advance of medicine.

Noemie Courtejoie

Master's Degree in Biology
Ecole Normale Superieure (Ulm), France
France
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: My major interests are fundamental virology, epidemiology and evolutive genetics. I would like to combine these fields to study the interactions between viruses, their hosts and the environment, in order to work on the emergence of infectious diseases.

Research Motivation: I have always been fascinated by the complexity of life, and I am thrilled by the idea of solving some of its mysteries. Besides, in the context of emerging human diseases, insights into the co-evolution of the organisms involved can have direct consequences on public health, which motivates me.

Roxanne Croze

Masters of Arts, Cell Molecular Developmental Bio
University of California, Santa Barbara, United States
United States
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Fellow of Mars, Incorporated

Scientific & Research Interests: I am interested in regenerative medicine, in particular utilizing the potential of stem cells to create novel therapeutics, specifically for ocular diseases. In addition, I want to understand the mechanism of action of various small molecules for potential treatment options in several diseases.

Research Motivation: I am motivated to do science by the combination of two personality traits. My compassion towards people and wanting to help alleviate pain and suffering. Second, my intense desire for understanding why and how things work in the human body and following our interactions with a specific environment.

Andrea Cuentas Condori

B. Sc.
Universidad Peruana Cayetano Heredia, Peru
Peru
cuentas.condori@gmail.com
Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Cellular processes in disease, cell migration, cytoskeleton.

Research Motivation: When my mother was diagnosed with cancer, I realized that current knowledge about the disease was not enough to defeat it. This event influenced me deeply and ignited my desire to contribute in the understanding of diseases at the cellular level.

Cheryl Cui

Ph.D. Candidate
Harvard-MIT Division of Health Science and Technology, United States
Canada
cherylc@mit.ed
Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Cellular Engineering, Molecular Design, Immunology and Cancer Biology.

Research Motivation: Innate curiosity is what drives me in answering questions in biology and medicine. Inspired by many brilliant minded scientists, I hope to push the frontier of science to help the ones in need.

Partha Dabke

Kasturba Medical College, Manipal University, India
India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Metabolic medicine and genetics, Newborn screening, Developing low cost biochemical investigations for diagnosing metabolic disorders as an attempt to facilitate better management of these diseases, especially in developing countries, Paediatrics.

Research Motivation: The intricacies of human body, in health and in disease are what motivate me to study the science behind it, understand its importance and strive to make a difference. Converting my research interests into practicality for the benefit of mankind's health is what drives me further to explore science.

Elfriede Dall

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University of Salzburg, Austria
Austria
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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Recombinant protein production and purification, biochemical characterization, X-ray crystallography, proteases.

Research Motivation: What motivates me for science is that I have a high desire to understand the very basic principles of life. I would like to contribute to this understanding by studying life at the sub microscopic level. Proteins are the real workers inside our cells and are therefore of special interest to me.

Pablo Damasceno

PhD Student
University of Michigan, United States
Brazil
damascus@umich.edu
Fellow of the AKB Stiftung

Scientific & Research Interests: Entropy, Self-Organization, Pattern Formation, Nanoscience, Consciousness, Brain, Networks, Origin of Life.

Research Motivation: The amount of symmetry and regularities presented by Nature have always fascinated me. Understanding what kind of physical laws can give rise to the emergence of such ordered beauty have been my biggest motivation to do science and multidisciplinary research.

Daphne Dambournet

PhD
UC Berkeley, United States
France
dambournet@berkeley.edu
Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cell biology, Intracellular trafficking, Stem cells

Research Motivation: For me science is a puzzle. I like the way I have to think everyday about how to solve a problem and which experiment will be the most appropriate. Although we can sometimes predict the outcome, there will always be an unexpected result that will encourage me to keep going and solve this new problem

Shangyu Dang

B.S.
School of Life Sciences, Tsinghua University, China
China
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Supported by Siemens AG

Scientific & Research Interests: Structural biology, crystallography, biophysics and biochemistry.

Valerie Darcey

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Georgetown University, United States
United States
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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: Nutritional neuroscience; Omega-3 fatty acids and adolescent neurocognitive development; Prevention and treatment of substance/alcohol use disorders; Neurobiological basis of food choice and eating behaviors; Prevention and treatment of obesity/disordered eating.

Research Motivation: Scientific advances are propelled by interdisciplinary approaches. I've found the intersection of nutrition and neuroscience to be an under utilized resource in the study, prevention and treatment of neurocognitive and behavioral disorders.

Joseph E. Darling

Syracuse University, Department of Chemistry, United States
United States
jodarlin@syr.edu
Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: Protein posttranslational modification; Enzyme selectivity and catalytic mechanisms; Rational inhibitor design targeting enzymes with undefined structures; Integral membrane protein expression/purification; Identifying molecular interactions involved in biological recognition

Research Motivation: I have observed some of the greatest problems of our world, and I believe science is the most powerful tool to develop solutions to address these challenges. I believe the pinnacle of humanity is our ability to learn, and I deem science the means through which new knowledge can best benefit us all.

Shradha Das

Phd- ongoing , Masters completed in 2011
Phd - MPI-CBG ; Masters - TU Dresden, Germany
India
das.shradha@gmail.com
Fellow of the Max Planck Society

Scientific & Research Interests: Genetics, Developmental Biology, Biophysics, RNA Biology.

Research Motivation: Diversity and complexity in biological life forms has inspired me to take a multidisciplinary scientific approach in order to study the precise coordination of events that leads to a functional organism.

Maia Datunashvili

Master equivalent diploma
Ilia State University, Georgia
Georgia
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: Animal Model of Depression, Opioids, Behavior and Sleep-Wakefulness Cycle. Absence Epilepsy, HCN Channels and Ih Current.

Research Motivation: Depression is one of the main affective disorder in developed countries. Sleep disturbances are common symptoms of depression. I'm also interested in how opioid balance is changed in depressive rats. We hypothesized that in absence epilepsy HCN channel function is disrupted.

Sarah Davis

Bachelor of Science
University of Tennessee, United States
United States
sdavis8o@utk.edu
Fellow of the Alcoa Foundation

Scientific & Research Interests: Fungal pathogenesis, innate immunity, microbial genetics.

Research Motivation: My motivation is that our studying of basic biological systems may give us tools and insight on how to treat a variety of diseases as well as improving diagnostics, ultimately improving the quality of life.

Jacob Degner

Ph.D.
European Molecular Biology Lab, Germany
United States
Jacob.degner@embl.de
Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Dissecting the mechanisms that underlie the regulation of gene expression and understanding how population-genetic variation in gene expression leads to more complex organismal phenotypes.

Research Motivation: I really enjoy the process of science, teaching others what I know, and continually learning new things.

Anindita Deka

Ph.D pursuing
Cotton College, Gauhati University, India
India
aninditadeka9@gmail.com
Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Cancer Immunology, Cancer chemoprevention--primary and secondary, Cancer vaccines, Association of HPV and Head and neck cancer.

Research Motivation: Science has the potential to solve mysteries, explore dynamics of nature and assist creations for human upliftment. I personally accept facts well supported by valid logical reasons. I believe science and scientific research can benefit nature and mankind to its highest level.

Inge de Krijger

MSc
Netherlands Cancer Institute, Netherlands
Netherlands
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Supported by the European Molecular Biology Organization (EMBO) and Microsoft Corporation

Scientific & Research Interests: After finishing my Master in Molecular Life Sciences I started with a PhD project at the Netherlands Cancer Institute. My research interests focuses on telomere dysfunction and its role in genomic instability and malignant conversion.

Research Motivation: I think it is essential to study the complex processes taking place in cells in order to understand the molecular mechanisms facilitating conversion of a normal cell into a cancer cell. Better understanding of these processes will uncover novel therapeutic possibilities to fight cancer.

Jane Devos

Ph.D.
Max Planck Institute for Developmental Biology, Germany
France
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Fellow of the Max Planck Society

Scientific & Research Interests: Heritability of epigenetic variation using a population epigenomics approach. Interdependence between genetic variation, epigenetic polymorphisms and environmental conditions based on spatio-temporal data from different wild populations of Arabidopsis thaliana.

Research Motivation: Huge curiosity for biological events. Exchange, collaborate and communicate with scientists and students from all kind of fields. Stimulating interdisciplinary environment, dynamic!

Maria del Sol Diaz de Leon Guerrero

M. Sc.
Instituto de Biotecnologia, UNAM, Mexico
Mexico
soldiazdeleong@gmail.com
Supported by the Mexican Academy of Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Neuroscience, Neurogenesis, Neuro-immune interaction, Neuroinflammation, Genomics, Hypothalamus development and function.

Research Motivation: My motivation for studying science has always been improving and increasing our knowledge of how things work. Currently I am interested in how the CNS and immune system interact and regulate each other, and how this communication can be disrupted during the development of disease.

Dan Dominissini

Ph.D.
The University of Chicago, United States
Israel
dandominissini10@gmail.com
Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Nucleic acids, RNA, chemical modifications of nucleic acids, RNA methylation, N6-methyladenosine, RNA structure, sequencing technologies, RNA imaging, three-dimensional genome organization, subnuclear structures.

Research Motivation: The greatest satisfaction in science is putting your mental abilities combined with hard work to get a glimpse of the intricacies lying at the heart of life. I aspire to find original research subjects overlooked by others that can extend and transform our current concepts of biological reality.

Gabriele Domschke

Heidelberg University, Germany
Germany
gabriele_domschke@web.de
Supported by the Klaus Tschira Stiftung gGmbH and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cardiology, Immunology, Lipid Metabolism, Macrophages.

Research Motivation: As a future medical doctor I wonder about the pathophysiologic aspects of diseases. Translational medicine gives me the opportunity to investigate the causes of these diseases at the the bench and develope tools to diagnose and potentially treat patient I see in the clinic or on the ward everyday

Paul Donlin-Asp

B.S.
Emory University, United States
United States
pdonlin@emory.edu
Fellow of the Alcoa Foundation

Scientific & Research Interests: mRNA localization, mRNA and protein associated complexes, neuronal biology, motor neuron disease, transport, synaptic function, neuromuscular junction.

Research Motivation: My motivation for pursuing a career in science is driven by a passion for understanding how cells work, and how disruptions in essential cellular processes such as the regulation of RNA metabolism manifest in disease.

Jan Rafael Dörr

M.Biochem
Charité-Universitätsmedizin Berlin, Germany
Germany
jan.dorr@gmail.com
Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cancer development and therapy, cellular senescence, cancer metabolism, cancer immunology, cancer signaling pathways.

Research Motivation: The challenge to bridge the gap between bench and bedside in oncology by translating the improved molecular understanding of cancer development, therapy and resistence, particularly with regard to metabolism, epigenetics and immunology, into novel and clinically successful treatment strategies.

Katja Dove

Bachelor of Science
University of Washington, United States
Germany
kkd5@uw.edu
Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Mechanisms of posttranslational modifications by the Ubiquitin machinery, Nuclear Magnetic Resonance, Structure and Function of Enzymes involved in Signal transduction.

Research Motivation: As a little girl, I have always wondered: where does knowledge come from? Books were never a good enough answer as they are just containers filled up by authors. But knowledge is a moving target, and I became fascinated by what we DON'T know yet. Now I'm addicted to the process of discovery.

Katheryne Downes

M.P.H.
University of Maryland- College Park (UMD-CP), United States
United States
katheryne.downes@gmail.com
Fellow of Mars, Incorporated

Scientific & Research Interests: High-risk pregnancy (gestational diabetes/hypertension; placental disorders: previa/accreta/abruption and birth outcomes); maternal-fetal placental interface; cesarean delivery and adverse outcomes; fetal intrauterine growth restriction; preterm birth; low birth weight; global public health.

Research Motivation: Many of the mechanisms in pregnancy/ birth remain poorly understood and in many areas of the world, childbirth remains a significant source of morbidity and mortality. I am fascinated with this unique physiologic time period and also have a strong desire to improve global maternal-child health.

Barbara Drobits

PhD
CeMM-Center for Molecular Medicine/Medical University of Vienna, Austria
Austria
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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Innate immunity; pathogens, systemic inflammation, infectous diseases, macrophage polarization.

Research Motivation: I was always fascinated how the body defends itself against pathogens and the processes whereby this system goes awry leading to auto-immunity or chronic inflammatory disease. My major scientific goal is to decipher how immune- cells and mechansims orchestrate together to restore homeostasis.

Natalia Dudzinska

Master of Pharmacy
Martin-Luther-University Halle-Wittenberg, Institute of Pharmacy, Department of Pharmaceutical Technology and Biopharmaceutics, Germany
Poland
dudzinska.natalia@gmail.com
Fellow of the German Academic Exchange Service

Scientific & Research Interests: Development of innovative solid dosage forms. Searching for alternative excipients. Coating techniques. Development of pellet formulations. Dissolution testing.

Research Motivation: We all are, were or will be patients in the future. Medicines are always involved in our lives. Therefore it is very important to improve our medical knowledge.This improvement is only possible via continuously research and development. Everything what we do is for the patients, for their better live.

Sylvain Durand

Ph.D.
CNRS, France
France
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: Microbiology, Molecular Biology, Non-coding RNA, Ribonucleases

Research Motivation: After 10 years of research in microbiology, I am always fascinated by complexity of bacteria and excited by new discoveries made every day in science. This meeting represents for me a unique opportunity to interact with the best scientists from all over the world.

Carolina Echeverría

Bsc
Universidad de las Américas, Ecuador
Ecuador
iib-udla@udla.edu.ec
Fellow of Laureate Education, Inc.

Scientific & Research Interests: Molecular oncology, Human variome project, stem cells, chromosomal alterations, gene therapy, gene expression, bioinformatics.

Research Motivation: What motivates me is the fact that someday soon we can break the barriers between research and the state. Research is not a priority for my country and the challenge for us as researchers becomes larger and difficult, despite the lack of support, we have had excellent results.

Bahareh Eftekharzadeh

Pharm.D
Institute for Research in Biomedicine, Spain
Iran, Islamic Republic of
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Supported by The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Neurodegenerative diseases, Alzheimer's disease, Parkinson disease, Protein misfolding, Protein aggregation, PolyQ diseases, Nuclear Magnetic resonance of Ex vivo materials, In vivo imaging, 2P microscopy, Structural Biology and Biophysics behing protein folding.

Research Motivation: It started from memory and AD, human is based on his memories..I have been following the story of neurodegenerative diseases since almost 10 years and I want to continue my research in this field until I can explain the disease mechanism, protein aggregation related to it and cell specificity role.

Syed Yasin Shahtaz Emanee

Dr.
Gauhati Medical College, India
India
yasin_beta@yahoo.co.in
Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Neuropsychiatric physiology and interventions, Transplant medicine, especially brain tissue transplant, Physioloy and medical and surgical techniques in extreme environmental conditions like space, Application of higher mathematical models for better solutions of public health problems.

Research Motivation: Carl Sagan said that We are a Way for the Cosmos to know itself. For me, science is that Way, the medium that connects the real and metaphysical worlds. The universe is our science and we are the science of the universe. The greatest contentments come with a Conscious and Careless Curiosity.

Maheswara Reddy Emani

Ph.D.
Turku Centre for Biotechnology, Finland
India
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Supported by the Academy of Finland and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cancer and Stem cell biology.

Research Motivation: I have completed my Ph.D. in cancer stem cells from NCCS, India. My interest to words stem cell biology, has lead me to choose postdoctoral opportunity in hESCs. My aim is to be a professional scientist to conduct research in stem cell biology for future development of new stem cell based therapies.

David Engelmann

Ph.D.
Rostock University Medical Center, Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Tumor Progression, Metastasis, DNA Damage, Chemoresistance, RB/E2F Pathway, p53 Pathway, Cancer Cell, Gene Expression Analysis, long non-coding RNAs, Apoptosis, VEGF Pathway, Angiogenesis, Epithelial-to-Mesenchymal-Transition, Cancer Stemness, Systems Biology;

Research Motivation: It is fascinating how fast knowledge in all scientific areas is increasing exponentially. In medical biology, unraveling novel molecular networks of cancer cause the collapse of paradigms and often put well-known "players" into a completely different context. That is why cancer research is exciting.

Tone Bull Enger

Norwegian University of Science and Technology, Department of Laboratory Medicine, Children's and Women's Health, Faculty of Medicine, Norway
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tonebullenger@gmail.com
Fellow of the Norwegian University of Science and Technology (NTNU)

Scientific & Research Interests: Internal medicine, intensive care medicine, cardiac surgery, extracorporeal membrane oxygenation, inflammation, genetic predispositions.

Research Motivation: I have a genuine interest in understanding how we derive to what we know. My curiosity about the world around us brought me into the world of science. I don't only want to practice medicine, but also contribute to evolve medicine.

Amy Engevik

Bachelor of Science
Biola University, United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Gastrointestinal damage and repair mechanisms, peptic ulcer.

Research Motivation: My motivation for attending the Lindau meeting is to interact with young researchers and established scientists to enhance my training with scientific advice, novel research approaches and new collaborations.

Gökhan Ertaylan

PhD
Luxembourg Centre for Systems Biomedicine, Luxembourg
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Supported by the Fonds National de la Recherche Luxembourg and Microsoft Corporation

Scientific & Research Interests: Personalized Medicine: Biomarker Identification via Multiplexed Longitudinal Patient Information, Applied Genomics in Public Health, Clinical Bioinformatics. Regenerative Medicine: Stem Cells in Embryonic Development & Cancer. Expertise: Next Gen. Sequencing, ChipSeq, RNASeq and Gene Reg. Network.

Research Motivation: I am working towards the vision that fundamental research should never be separated from the applications. In this respect I believe fundamental research has come a long way and there is a paradigm shift around the corner that has the potential to redefine our healthcare and clinical practice.

Kathrin C. J. Eschmann

M.Sc.
Saarland University, Department of Psychology, Experimental Neuropsychology Unit, Germany
Germany
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Neuro-cognitive psychology of memory, cognitive control, learning and related diseases; Neurofeedback; EEG and fMRI; Neuropsychoanalysis.

Research Motivation: The fascination of exploring something unknown which helps to gain a better understanding of the brain and provides knowledge for the treatment of related diseases.

Diego A. Espinosa

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Fellow of the AKB Stiftung

Scientific & Research Interests: Vaccines, Malaria, Parasitology, Immunology.

Research Motivation: Working on malaria has made me aware of the tremendous burden this disease represents, especially to those in need. My main motivation for science is thinking that my research could possibly contribute to the ideal of global eradication.

Cristina Espinosa Molina

PhD
Institut Català de Ciències Cardiovasculars (ICCC), Hospital de Sant Pau, Spain
Spain
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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Calcium signaling, E-C coupling, Phosphorilation, Oxidation, Genomics-Proteomics, Cardiology, Atrial Fibrillation, Patch-clamp, Confocal, Cell culture.

Research Motivation: I know I want to work on Science since I was 7 years old. So, I make exactly what I dreamed to do when I was a child.

Sofia Espinoza

M.Phil.
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I'm interested in interdisciplinary research. At the Pollard laboratory we use approaches from cell biology, biophysics and biochemistry to study actin-driven cellular processes such as cell motility, cytokinesis, etc. I'm currently studying regulation of the Arp2/3 complex, a key actin regulator.

Research Motivation: I enjoy the process involved in generating knowledge. Although challenging, I have fun designing experiments, analyzing the data and understanding more about an specific phenomenon. I also find exchanging experiences and information with other researchers an exciting part of doing science.

Rianne Esquivel

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Fellow of Mars, Incorporated

Scientific & Research Interests: Biofilm formation and regulation, host-pathogen interactions, pili and flagella, electron microscopy, mass spectrometry, archaea.

Research Motivation: By carrying out basic research I am able to answer questions that can have long term biomedical impacts. The discoveries we make in the lab provide a foundation of knowledge for further translational work that I hope can ultimately result in cures or preventative vaccines to disease.

Benjamin Ettle

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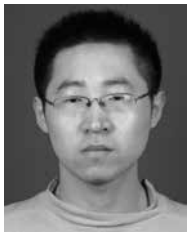
Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Molecular mechanisms of neurodegenerative diseases; Role of oligodendrocytes and oligodendrocyte progenitors in synuleinopathies (multiple system atrophy, Parkinson's disease).

Research Motivation: To be part of the scientific community and to contribute to the progress in understanding and tackling human diseases.



Yujiang Fang

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China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Human Embryonic stem cells and neural development.

Research Motivation: In my opinion, the purpose of doing scientific research is serving public health. I hope that my findings can be applied into clinical trials and finally cure some diseases, this is always a dream in my mind ever since my childhood, and I believe it will come true eventually.

Gianluca Farrugia

Ph.D.
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Fellow of the University of Malta

Scientific & Research Interests: My research interests include mitochondrial dysfunction, oxidative stress and apoptosis in budding yeast cells and in mammalian cells. I'm particularly interested in mechanisms of aspirin-induced apoptosis in yeast and mammalian cells.

Research Motivation: To put it simply, my prime motivations for scientific research are my curiosity and fascination with both the natural world and human biology. I'm full of questions as to how things work and what causes things to go wrong, such as in cancer and neurodegenerative conditions.

Wojciech Fendler

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Supported by the Foundation for Polish Science and the Foundation Lindau Nobel Laureate Meetings in Memory of Joachim Sorger

Scientific & Research Interests: My main field of interest is biostatistics and their application of in medicine. Having finished medical studies I have pursued a career in molecular medicine aimed at identification of biomarkers in monogenic diabetes. Right now I oversee the activities of a research team of 7 junior scientists.

Research Motivation: I like the constant challenges and opportunities of development science provides. Working in a mixed field of statistics/molecular medicine I enjoy the interdisciplinary knowlegde gathered every day. Furthermore, being a young scientist in Poland is a still a new career with interesting options.

Michele Ferrara

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Fellow of the Fondazione Cariplo

Scientific & Research Interests: Cancer research, cancer cachexia, skeletal muscle atrophy, stem cell biology, and regenerative medicine.

Research Motivation: My passion for medicine stemmed from a severe disease I experienced in my childhood. I decided to study medical biotechnology, to investigate the cause of diseases, with the hope to improve human health by discovering new diagnostic/prognostic targets, and by designing novel therapeutic approaches.

Eleonora Festen

PhD

University Medical Centre Groningen, University of Groningen, Netherlands

Netherlands

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am currently laying the foundations for the rest of my scientific career by building a database for research in inflammatory bowel disease, taking a statistics and epidemiology training from the Harvard Medical School, and working as a post-doctoral researcher for the LifeLines population study.

Research Motivation: The only way to help the medical field forward is to invest in research: your patients benefit from your daily care, but investing a similar amount of time in research might make a greater difference for them in the long run.

Silke Feuerriegel

PhD

Research Center Borstel, Germany

Germany

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Fellow of the Leibniz Association

Scientific & Research Interests: I am interested in resistance mechanisms against tuberculosis drugs by using sequencing technologies, selection of resistant mutants and drug susceptibility testing. Beyond I am involved in the development of new diagnostic tests for resistance determination and differentiation of Mycobacteria.

Research Motivation: I always wanted to know how the human body works and how we are able to fight diseases. Working on tuberculosis and knowing that millions of people are affected by this devastating disease worldwide, motivates me to do my research and to try to contribute making patient lives more acceptable.

Guntur Fibriansah

Dr.

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Fellow of the National Research Foundation (NRF), Singapore

Scientific & Research Interests: My research interests are in the pathology of dengue virus and other viruses infection and the neutralization mechanism by antibodies and other molecules that can facilitate the development of suitable vaccines and therapeutics.

Research Motivation: I have always really enjoyed problem solving & making new discoveries. That first got me interested in science. I find it a personal challenge to understand how pathogens can infect us & to find therapeutics to either prevent the infection or ameliorate the symptoms.

Brian Finan

PhD

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Supported by acatech - Deutsche Akademie der Technikwissenschaften and Microsoft Corporation

Scientific & Research Interests: Obesity, Diabetes, Metabolic Syndrome, Drug Design, Drug Discovery, Pharmacology.

Research Motivation: To discover therapeutics that have a transformative impact on treating human disease with a particular interest in pharmacotherapies for the metabolic syndrome.

Bruno Miguel Fontinha

Ph.D

Max F. Perutz Laboratories, University of Vienna, Austria

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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Role of inner brain photoreceptors in perceptual decision making, Learning and memory formation in vertebrate brain, Hebbian-like plasticity adaptations, Cortical neuronal connectivity.

Research Motivation: Curiosity and obsession with details that need research and smart thinking to understand them. The walls-free research community that is built on mutual respect and admiration. The notion that there is no"applied" without the "fundamental" knowledge. The joy of figuring out nature's way of thinking.

Stephanie Forkel

PhD

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I am driven by three passions, i) neuroanatomy in the healthy and pathological brain, ii) state-of-the art neuroimaging methods, and iii) improving clinical patient care long-term. These are complemented by a fascination for historical neurology textbooks and the aim to make those available again.

Research Motivation: "The beginning of all sciences is the astonishment that things are as they are" (Aristotle).

Genevieve Forster

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Fellow of the Alcoa Foundation

Scientific & Research Interests: I am interested in reducing global chronic disease burden in humans, livestock, and pets with nutritionally sustainable dietary interventions and am particularly focused on cancer prevention. I am also very interested in ethics, research integrity, and improving my ability to communicate science.

Research Motivation: My passion is health – maintaining and promoting it, regardless of species. I am excited about the possibilities a One Health approach to medicine has to improve quality of life and the opportunities we have to relieve suffering.

Andreas J. Forstner

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: My area of research is the molecular analysis of neuropsychiatric diseases, with a focus on the analysis of affective disorders (bipolar disorder, major depression).

Research Motivation: I have always been interested in science since the identification of disease causing mechanisms provides the chance to help a lot of patients. In the field of human genetics, the identification of disease causing genes might be the first step for the development of novel therapeutic approaches.

Veronica Fortino

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Fellow of the Alcoa Foundation

Scientific & Research Interests: My research interests include adult stem cells, diabetes and in particular diabetic neuropathy, neuropathic pain, neurogenesis, and regenerative medicine. I am also interested in collaborations with other researchers in this area and learning the up and coming trends of the stem cell field.

Research Motivation: My motivation for scientific research is that I want to improve people's quality of life. While life expectancy has increased, illnesses and diseases may make those increased years painful and unhappy. I want to help people not only live longer lives, but enjoy the extra years they are living.

Stephanie I. Fraley

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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Host-pathogen interactions, small / micro RNA, cell motility, three-dimensional model systems, digital nucleic acid profiling technologies, integrative systems biology.

Research Motivation: "Research is an expression of faith in the possibility of progress. The drive that leads scholars to study a topic has to include the belief that new things can be discovered, that newer can be better, and that greater depth of understanding is achievable."--Henry Rosovsky

Jolien C. Francken

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Fellow of the Max Planck Society

Scientific & Research Interests: Cognitive Neuroscience, Philosophy, Cognition, Perception, Language, Philosophy of Mind.

Research Motivation: In my research, I try to understand the neural mechanisms underlying visual perception, one of our most fundamental cognitive functions. Since I believe all human beings are intrinsically curious, I want to share this knowledge with everybody else, by focusing on education and science communication.

Flavia Frattini

MSc
Werner Reichardt Centre for Integrative Neuroscience; International Max Planck Research School -Tübingen, Germany
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: My research interests include the investigation of molecular pathways and anatomical biomarkers associated with sensorimotor pathologies and the development of pharmaceutical strategies to restore sensorimotor deficits.

Research Motivation: To contribute for the understanding of neuropathologies in the sensorimotor system and specially for the development of efficient interventions to restore sensorimotor function, e.g., restoration of healthy processing of nociceptive, tactile and motor information after peripheral lesions.

Annika Frauenstein

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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Mass Spectrometry based Proteomics, DNA Damage Response, Immunology

Research Motivation: I enjoy being a scientist as this means to be challenged by riddles every day. The process of solving a riddle leads to a better understanding of the initial question and there is nothing more motivating than solving a riddle.

Andreas Frei

PhD
ETH Zurich and Stanford University, United States
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Fellow of Swiss Re

Scientific & Research Interests: Mass spectrometry and mass cytometry-based proteomics.

Research Motivation: The freedom to persue my crazy ideas all day long. The fact that I even get paid for it. The possibility to gain new insights into the inner workings of our universe. The potential of such new knowledge to drive the economy and change people's lives for the better.

Nele Friedrich

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Epidemiology of endocrine and metabolic diseases, Biomarker research, Growth hormone, Insulin-like growth factor I, Metabolomics, Nuclear magnetic resonance spectroscopy

Research Motivation: Clinical epidemiology appeals to me as it combines opportunities to work in multidisciplinary collaborations with (inter)national research institutes, demands an academic background in mathematics and enables me to assume responsibility in clinical studies.

Robin Fropf

Bachelor of Science
University of Wisconsin at Madison, United States
United States
rfropf@gmail.com
Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: It is increasingly clear that systems-level neural processes such as sleep are essential for appropriate and persistent memory refinement. However, the molecular bases for these interactions remain unclear. I hope to clarify how some of these brain-wide phenomena connect on a molecular level.

Research Motivation: I am interested in how our brains encode and process the information that enables individuals to respond to their environment, define specific preferences, and generate unique personalities. My excitement about scientific discovery drives me to pursue advances in our understanding of brain function.

Gilad Fuchs

M.Sc.
Weizmann Institute of Science, Israel
Israel
gilad.fuchs@weizmann.ac.il
Supported by the Weizmann Institute of Science (Israel) and Microsoft Corporation

Scientific & Research Interests: Transcription elongation, Epigenetics, Chromatin, Histone modifications, Nascent RNA sequencing.

Research Motivation: I feel that I have the privilege to do research in an era that everything is testable in molecular biology. All it demands is to be a bit creative and very optimistic. I find this fact highly motivating and challenging.

Christian Fuchsberger

Ph.D.
European Academy of Bozen/Bolzano, Italy
Italy
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Fellow of the Accademia Europea Bolzano

Scientific & Research Interests: Genomics, Statistical Genetics, Diabetes, Bioinformatics, Isolated populations, Sequencing, Gene mapping, GWAS, Biomedicine.

Research Motivation: I love science as it allows me to make a difference in people's lives.

Mayako Fujihara

Ph.D.
Smithsonian Conservation Biology Institute, United States
Japan
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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: Reproductive Biology for Conservation of Endangered Animals.

Research Motivation: My research interest is to study reproductive mechanisms that will lead to enhancing genetic management of wildlife. The goal of my research activity is to establish this research area in Japan where such study has been rarely conducted yet and save the rare animals in the country and overseas.

Jonathan Fuller

BMSc
University of Toronto, Canada
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Supported by the Natural Sciences and Engineering Research Council of Canada and Microsoft Corporation

Scientific & Research Interests: Philosophy of medicine; philosophy of science; evidence-based medicine; evidence-based policy; chronic disease care; person-centered medicine; medical education.

Research Motivation: Research is a wonderful, creative enterprise that enriches our understanding of our world. I firmly believe that the keys to an advanced, sustainable and just society lie in the natural and social sciences, as well as the arts and humanities.

Caroline Funk

Dr. med.
University of Heidelberg, Biochemistry Center, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I am interested in the molecular mechanisms that underly faithful chromosome segregation during mitosis and how related defects contribute to cancer development and progression. I am currently investigating the role of CLASP proteins during mitosis in the model organism S. cerevisiae.

Research Motivation: I have always been fascinated by the possibility to contribute to the knowledge that we have about nature and medicine. This interest was strengthened by my work in the hospital during my medical studies that gave me the opportunity to experience how advances in science actually can help patients.

Luciano Furlanetti

Master Doctor
Albert-Ludwigs University of Freiburg, Germany
Brazil
furlanettil@gmail.com
Fellow of the German Academic Exchange Service

Scientific & Research Interests: Neuromodulation, Brain Tumors, Skull Base Surgery, Hydrocephalus

Research Motivation: After concluding the residence program in neurosurgery, I decided to specialize and deepen my knowledge in basic research in the field of neurosciences, focused on neuromodulation, restoration and repair, aiming to combine clinical practice and preclinical research.

Salvatore Fusco

Professor on Contract
Università Cattolica Medical School, Italy
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salvatore.fusco@rm.unicatt.it
Fellow of the Fondazione Cariplo

Scientific & Research Interests: The role of nutrients in control of brain function. The epigenetic modifications induced by nutrients in the brain and their transgenerational transmission. The metabolism-related brain modification and their involvement in cognitive impairment underlying neurodegenerative diseases.

Research Motivation: I think that the mind is like a matter modelled by environment and I look for the marks of this shaping. I immagine science as the search for novel windows to open rather than for doors to close.

Joyonna Gamble-George

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Vanderbilt University School of Medicine, United States
United States
joyonna.c.gamble-george@Vanderbilt.Edu
Fellow of the Alcoa Foundation

Scientific & Research Interests: (1) Neurophysiologic Aspects of Cardiovascular Disease; (2) Neuroimmune System Dysfunction in HIV-Related Dementia and Neurodegenerative Disorders; (3) Molecular and Neurobiological Basis of Psychiatric Disorders; (4) Animal Models for Anxiety and Depression; and (5) Mental Health Disparities

Research Motivation: My motivation for science stems from volunteering at a hospital, where I interacted with veterans affected by posttraumatic stress disorder (PTSD). Due to their affliction with PTSD, my desire to scientifically understand interactions between psychiatric disorders and drug treatment was increased.

Francesca Gandini

Master's Degree
University of Pavia, Italy
Italy
francesca.gandini01@universitadipavia.it
Fellow of the Fondazione Cariplo

Scientific & Research Interests: Human evolution, population genetics, ancient and modern migrations, evolution of the human genome, mitochondrial genomics.

Research Motivation: What really pushes me forward and keeps me willing to learn is, more than anything else, curiosity. I'm curious about mostly everything, I feel good when I learn something new, thus adding a small piece to the puzzle of knowledge.

Shuvadeep Ganguly

MBBS
All India Institute of Medical Sciences (AIIMS), New Delhi, India
India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: 1) Understanding immunological pathophysiology of neurological and neuropsychiatric diseases. 2) Role of immunomodulators as potential targets for therapy or diagnosis or prognosis of neuropsychiatric disorders. 3) Use of recent technologies (RTMS, DBS) in treatment of neuropsychiatric diseases.

Research Motivation: It was my parents & teachers whose encouragement inspired me to take up medicine as my career choice. I was taken in awe to learn increasingly complex cellular mechanisms central to "life". Delving deeper into its secrets to unravel potential insights is what excites & motivates me for research.

Juan Carlos García-Cañaveras

MSc
University of Valencia-IIS La Fe, Spain
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Fellow of Microsoft Corporation

Scientific & Research Interests: Metabolomics, Hepatology, Lipidomics, LC-MS Hepatotoxicity Development of target LC-MS/MS analysis methods.

Research Motivation: My first motivation in science is to broaden my understanding about human physiology. Therefore I aspire to contribute to add new findings to science, especially related to the field of biomedicine in order to develop new tools to help physicians to advance in the diagnosis and treatment of disease.

Harshit Garg

MBBS
All India Institute of Medical Sciences New Delhi, India
India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: I am mainly interested in tumor pathogenesis and the complex signaling network which tunes the behaviour of a normal functioning cell into a malignant one. I have worked on glial tumors and studied the Notch signaling pathway. I have studied role of neoadjuvant chemotherapy on breast carcinoma.

Research Motivation: A science project in your middle school can do all. Rational thinking, logical reasoning, the questions of why? when? and how? suddenly engraves the gyri and sulci of your brain. The cycle of trying-failing-retrying to find out answers for mankind to lead disease free comfortable life is my motivation

Veronica Garvia

MD
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Supported by The OPEC Fund for International Development (OFID)

Scientific & Research Interests: My interest in research is fundamentally in the area of microbiology and immunology.

Research Motivation: Medicine is an ever changing science and each change rests on newer scientific discoveries improving on the previous technique or method. I recognize the fluid nature of medical discoveries and comprehend that for a physician to excel in clinical care, firm rooting in scientific thinking is a must.

Maximilian Gassenmaier

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cancer Stem Cells, Melanoma, Dermatology

Research Motivation: The main impetus for science is my own curiosity and the attempt to find answers to everyday clinical questions. What I find exciting about research is that you can make things possible that were thought to be impossible yesterday.

Claudine Gauthier

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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Cerebral physiology, Functional Magnetic Resonance Imaging, vascular health, aging, calibrated fMRI, cerebral oxidative metabolism, hypertension, cerebral blood flow.

Research Motivation: In my scientific career, I chose to study biochemistry and neuroscience since these fields contribute not only to our knowledge of the functioning of living organisms, but can also lead, through medical applications, to the improved living conditions of all.

Elena Georgieva

Honors Bachelor of Arts
Max-Planck Institute of Colloids and Interfaces & Freie Universität Berlin, Germany
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: I am working on a fragment-based drug design project utilizing biophysical techniques such as NMR and Reflective Interference Contrast Microscopy (RICM). In the long term I am developing targeted drug delivery methods with nanoparticles or liposomes against viruses, bacteria, and/or cancer.

Research Motivation: Science, and research in particular, is my tool to answer the “How? and Why?” of any (medical) question. It gives me an opportunity to help and work with people, to accumulate and transfer useful knowledge to following generations, and to make independent, sensible, and educated life-choices.

Nicoleta Gherghe

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Universitatea ”Dunarea de jos” Galati, Romania
Romania
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Supported by the Government of Romania and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Surgery!

Research Motivation: My interest in science comes from wanting to know more, from the need to change something for those who hear "there's nothing more we can do",from the desire of trying to solve some problems more efficiently, problems that even in the modern era of technology we can't solve.

Louise Giam

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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: The complex ability for neurons to establish synapses with other cells gives rise to the extraordinary abilities of the brain. I am interested in the functional roles of entire families of transmembrane proteins in mediating synaptic processes and am using calcium activity as the readout.

Research Motivation: I spent my PhD delving into lithographic techniques, as it concerns transistors. Recently I have directed my attention to understanding how neurons form connections and what drives the brain’s computational power. I hope some of our insights will lead to future advances in medicine and health.

Anna F. Gilles

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Developmental Biology, Evolutionary Developmental Biology (Evo-Devo), Evolution of Posterior Growth, Gene Targeting, CRISPR/Cas9.

Research Motivation: While the principle of Darwin's theory is well acknowledged, we still do not know enough about the connection between genes and evolution - what genetic changes underlie certain evolutionary events? This fundamental question, often controversially debated, is the main motivation of my research.

Michael Glatza

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Biomedical Sciences, Neuroscience, Neurodegenerative Diseases, Parkinson's Disease, LRRK2, Disease Modelling, Phenotypic Screening, Drug Development, Target Deconvolution, Human Induced Pluripotent Stem Cells.

Research Motivation: I don't care if people tell you that you cannot save the world, cure cancer, or win the Nobel prize...they said the same about the moon landing, air travel and the iPhone. I want to look back at my life and be able to say that my work made a difference, and had an impact on the course of this world.

Sarah Glim

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Germany
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Cognitive and Behavioral Neuroscience.

Research Motivation: To me, science is about the possibility to comprehend what surrounds me, about an exciting quest for knowledge, and about the precious opportunity to improve the world I am living in. In the end, I want to gain a better understanding of life while meeting my responsibilities towards society.

Mark Glover

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United Kingdom
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Fellow of the Unfallkrankenhaus Berlin

Scientific & Research Interests: Hypertension and its pathogenesis by thiazide-sensitive reabsorption of sodium chloride in the distal convoluted tubule of the kidney. The Mendelian disorders of Gordon and Gitelman syndromes and the adverse effect of thiazide-induced hypoantaremia in particular.

Alexander Goedel

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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Stem cell biology, developmental biology, heart development in embryology, disease modelling.

Research Motivation: How can one single cell build up something as complicated and beautiful as a human organism starting from scratch? This question initially brought me into research and still is what keeps me going.

Sencer Goklemez

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Supported by the The Scientific and Technological Research Council of Turkey (TÜBİTAK) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Effects of Histone Methyltransferases(such as Suv39H1) on Induced Pluripotent Stem Cell Formation Efficiency. Chemical Reprogramming of Mouse Embryonic Fibroblasts and Human Fibroblasts. mTOR signaling pathway and associated diseases. Usage of pancreatic stellate cells in pancreatic cancers.

Research Motivation: Since childhood,I was interested in natural phenomena and as I learned more,my curiosity about the interactions of genes and proteins grow,as these relations are critical in many diseases.Science enables me to satisfy my curiosity and become a medical doctor who is capable of interdisciplinary work.

Maike Gold

Ph.D.
University of Marburg, Department of Neurology, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Microglial cells, Alzheimer's Disease, Neuroinflammation.

Research Motivation: I am curios, I enjoy research and I tend to broaden my knowledge constantly. I want to contribute to a better understanding of physiological and pathophysiological mechanisms in the human body.

Vladimir Golkov

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Supported by the Deutsche Telekom Stiftung

Scientific & Research Interests: Medical imaging, image processing, machine learning, bioinformatics, mathematics, magnetic resonance imaging, diffusion MRI.

Research Motivation: Improving the quality and affordability of medical technology.

Renata Gomes

PhD
University of Oxford, United Kingdom
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Fellow of the Bert L. and N. Kuggie Vallee Foundation, USA

Scientific & Research Interests: I'm interested in the following topics: Cardiovascular Regeneration, Vascular Disease, Diabetes, Proteomics, Nanotechnology, Special Microscopy, Molecular Biology, Pharmacology, Pathology, MRI, Pre-clinical testing, MicroRNAs. I work heavily within translation systems for cardiovascular regeneration

Research Motivation: I became a Scientist because I wanted to be able to feed my curiosity, innovate and also help society. Therefore I strive to create better solutions and inventions which could eventually devise a key for a better future. Improve quality of daily life's yet not aiming for immortality.

Iria Gomez-Touriño

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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Immunology, Molecular Biology, Proteomics, Cell Biology, Autoimmunity, Diabetes

Research Motivation: I always loved Biology and to try to understand how the human body works: that's why I decided to pursue a career in Health Sciences. I really enjoy working in a field as autoimmune diseases where the results of our work could potentially help others to have a better quality of life.

Laura Gonzalez-Moragas

Ph.D. student
Materials Science Institute of Barcelona (ICMAB-CSIC), Spain
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Fellow of Microsoft Corporation

Scientific & Research Interests: Interaction of nanoparticles with the model organism Caenorhabditis elegans. In vivo behavior and properties of nanomaterials for biomedical applications. New drug delivery systems. Bioengineering. Biomaterials. Cell therapy.

Research Motivation: I enrolled in the degree of Pharmacy to understand the underlying mechanisms behind diseases as a tool to develop cures for them. I am very interested in emerging fields with great potential in therapeutics and diagnosis, including bioengineering and nanotechnology.

Marilia Grando Soria

MD
Hertie Institute for Clinical Brain Research, Germany
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: I have a strong general interest in Neurosciences. Nowadays I am focused in unveiling the intrinsic and extrinsic pathways involved in central nervous system regeneration. More striking, how these pathways may be manipulated to drive regeneration after injury in order to reach clinical application.

Research Motivation: Curiosity and dissatisfaction with shallow explanations. I feel that working in science allows me not only to satisfy my personal curiosity about things, but also to use the knowledge to contribute to a better society.

Simon Grassmann

First State Exam of Medicine
Department of Clinical Pharmacology, Germany
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Fellow of the Wilhelm Sander-Stiftung

Scientific & Research Interests: I am mainly focused on T cell physiology in the context of tumor immunology. My main fields of interest are T cell anergy and T cell homing in models of adoptive T cell transfer.

Research Motivation: I would like to find out the mechanisms by which cancer tissues suppress the host´s immune response and develop therapeutic approaches to overcome this suppression. Mostly I would like to help establishing T cell therapies for real human patients.

Christine Grienberger

Ph.D.
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I am interested in elucidating the fundamental rules of information processing within neuronal networks. Using hippocampal place cell activity, a model for memory formation, I am studying the interactions within pyramidal neuron-interneuron-microcircuits and their impact on the animals' behavior.

Research Motivation: As a medical student, I realized that the pathomechanisms of many neuropsychiatric diseases are rather poorly understood. I hope that my work will contribute to a better understanding of neuronal function in the healthy brain, a crucial initial step towards addressing pathologies later on.

Konstantinos Grintzalis

Ph.D.
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Fellow of the Alexander S. Onassis Public Benefit Foundation

Scientific & Research Interests: Metabolomics, Systems Biology, Oxidative Stress, Biochemistry, Cell Biology.

Research Motivation: A scientist is a person who asks questions and develops approaches to get the answers. I find very interesting cutting edge research because it is a pure action of altruism and evolution of thinking. I find appealing the freedom and expression of ideas in academia environment to promote science.

Julia Gross

Ph.D.
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Fellow of the German Cancer Research Center

Scientific & Research Interests: Cell Biology; Cancer; Extracellular Vesicles

Research Motivation: Curiosity

Iris Grossman

M.Sc.
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Supported by the Weizmann Institute of Science (Israel) and Microsoft Corporation

Scientific & Research Interests: The relationship between enzyme structure and its mechanism of action, and the effect of a reaction in the molecular level on physiological conditions in health and disease. In particular, I'm interested in enzymes that form disulfide bonds and their effect on ECM remodeling and cancer progression.

Research Motivation: I am motivated by the challenges presented by scientific research. Science is so overwhelming and diverse, that every time I solve one small problem, at least ten new questions are raised. Science is one of the few fields where one can never know enough, and that is what drives me to study it more.

Theresa Gross-Thebing

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Developmental and cellular biology, RNA localization, RNA biology, germ cell specification and migration, zebrafish as a model organism.

Research Motivation: My motivation is driven by the chance to gain new knowledge about what has never been known before. Studying and visualizing events actually not visible to the naked eye is most fascinating to me and the complexity of developmental processes are one of the most beautiful things i have ever seen.

Espen Elias Groth

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Supported by The Association of German Engineers and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Molecular biology and immunology of the lung, systems biology. Clinical care and research - internal medicine.

Research Motivation: Contemporary medicine often fails to offer adequate treatment options for patients suffering from chronic inflammatory diseases. Seeking after mechanisms of pathogenesis is crucial in terms of identifying new approaches to treatment, whilst concurrently improving our knowledge of the human organism.

Rachel Guest

MB BS
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Fellow of Microsoft Corporation

Scientific & Research Interests: I am interested in the regeneration of adult tissues from stem cells during injury and how the normal regenerative process can become aberrant and promote cancer. In particular I study this process in the liver where the stem cell compartment can contribute to tumour formation.

Research Motivation: My clinical work as a surgeon is my main motivator for undertaking scientific research. Working with patients with liver cancer who have very limited treatment options is a huge drive to better understand the underlying biological mechanisms of the disease in order to develop new treatments.

Charlene Guillot

Master
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: I'm currently working on the regulation of adhesion in proliferative tissues. I first studied adhesion remodeling during cell division and cytokinesis and now I'm trying to understand how Adherens Junctions are formed/remodelled/maintained in a mutant situation in Drosophila melanogaster.

Anuroopa Gupta

Pursuing Ph.D.
B.V.Patel Pharmaceutical Education and Research Development (PERD) Centre, India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Genetics of infectious diseases, Pharmacogenetics, Whole genome Sequencing.

Research Motivation: My passion for medical science and inquisitiveness for human genetics motivated me to pursue the scientific research in the field of human genetic variations. This is just a beginning, a baby step towards unraveling the mystery of science which can be attained through determination and dedication.

Dennis Gürgen

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I am fascinated by the infinite complexity of biochemical processes in the heart and kidneys constantly adapting throughout lifetime to ensure functionality. Understanding how evolutionary conserved mechanisms might be targeted and utilized for treatment of patients in the future is my biggest aim.

Research Motivation: Nobel Laureates are the best possible people one could think of to inspire young researchers. Having the privilege to interact with them personally was part of my motivation till now. The hope that my research might contribute to better therapies in the future will motivate me from now on even more.

Pardes Habib

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Neurodegenerative diseases, CNS immune defense system, Immune cell types, Anti-inflammatory and neuroprotective effects of female, gonadal steroids, general interest in basic and medical science.

Research Motivation: Since my childhood I have been dedicated to science in order to communicate an advance in knowledge and to serve the society. For me science is the best way to satisfy my intellectual curiosity and to engage in challenging and creative puzzle solving and to bring my ideas into reality.

René Hägerling

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Fellow of the Max Planck Society

Scientific & Research Interests: Vascular cell biology, lymphangiogenesis, angiogenesis, microscopy (confocal, two-photon microscopy, Ultramicroscopy), embryogenesis (organ & vessel development), mouse genetics, mouse imaging models, genetic basis of lymphatic anomalies/lymphoedema in humans, role of lymphatic vasculature in cancer

Research Motivation: The understanding of the nature of life and its underlying biological and chemical principles are the driving forces behind my fascination for science. Unlocking life's secrets and contributing to our understanding of these processes is what motivates me to do science and why science means passion for me.

Benedict R. Halbroth

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Supported by the European Commission - Marie Curie Actions and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: I have a broad interest in the field of medical sciences. Particularly, I am fascinated by immunological research, including infectiology, cancer research, vaccinology, and immunotherapy. My current research focuses on the development of new types of adjuvanted malaria vaccines.

Research Motivation: My motivation for science is my fascination with human nature and its complexity: it is my strong desire to investigate and understand its functioning. Also, scientific work in a translational field such as vaccinology is highly motivating, as findings in the lab could potentially save many lives.

Stephan Halle

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Medicine, infectious diseases, immunology, virology. Preclinical science: 2-photon microscopy, confocal microscopy, flow cytometry, genetic manipulation of viruses, mouse models of infection and immunity. General interests: the scientific method, critical evaluation of evidence.

Research Motivation: How can we gain knowledge about mechanisms of disease? How can we ever "understand" the behavior of complex system to prevent diseases and treat patients successfully? These fundamental questions remain unanswered in nearly all domains of medicine today.

Ross Hamilton

PhD
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Fellow of the Australian Academy of Science

Scientific & Research Interests: My current research focuses on identifying polyps within the colon that can progress towards colorectal cancer. I am particularly interested in sessile serrated adenomas, a polyp with a relatively fast progression rate towards carcinogenesis. I hope to develop biomarkers to identify the polyps.

Research Motivation: Ever since I was a kid, I have been interested in science. I had a chemistry set at age 6 and a microscope at age 10. It was my way of making sense of the world and I guess I never grew out of it. My motivation is to contribute new knowledge that will helps others and drive science forward.

Xiaoran Han

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Molecular Biology, Cell Biology, Compound Screening, Bioinformatics

Research Motivation: Since I was a little child, being a scientist has always been my dream. With the great development of China, it's an honor to contribute my own effort. It's believed that 21st century is the century of Biology, so I have no hesitation to choose Biology as my major when attending college.

Julia Hankins

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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Systemic Autoimmunity, Immune Regulation, Embryonic Stem Cell Development.

Research Motivation: Science is teeming with possibilities and is composed of mysteries that, once answered, will have great impact. It explains how microscale interactions yield systemic consequences which have striking significance in human health.

Liangliang Hao

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: I am fascinated to decipher the gene regulatory network in disease and translate bourgeoning technologies into diagnosis, treatment, and prevention of genetic disorders. Specifically I am interested in non-coding RNAs, gene therapy, novel biomaterials and cell engineering.

Research Motivation: Many findings of Nobel Laureates have led to revolutionary modes of treatment and deeply inspired my interest in deciphering the biochemical mechanisms for gene regulation. I will strive to utilize this knowledge for development of technologies to aid in mechanistic and therapeutic discoveries.

Rae-Anne Hardie

Ph.D.
Garvan Institute of Medical Research, Australia
Canada

Fellow of the Australian Academy of Science

Scientific & Research Interests: Cancer genomics, mitochondria, mtDNA, cancer metabolism, metabolomics, nutrient transporters, infectious disease, genetic markers of disease, immunology.

Research Motivation: My interests lie in genetics of cancer and infectious diseases, especially those which have the greatest need for improvement in therapy such as HIV and pancreatic cancer. I am interested in finding targets for precision medicine to improve patient outcomes.

Natarajan Harivenkatesh

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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My current areas of research interest include pharmacogenomics & personalized medicine, clinical pharmacokinetics, pharmacovigilance and drug development.

Research Motivation: During bedside clinical rounds in medical college, I realized that patients have many unmet medical needs which ought to be addressed by intense research. My professors encouraged me to pursue career in research. I am committed to pursue my career in clinical research with dedication.

Md. Anayet Hasan

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Supported by The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Molecular Biology, Medical or Clinical Biotechnology, Pharmaceutical Biotechnology, Vaccine and Drug Development.

Research Motivation: Since childhood, DNA fascinated me and I wanted to better understand the things it encoded and how the molecules collaborated to describe such complex living beings. Science Fictions, science related books and my honorable teacher Adnan Mannan motivates me a lot for scientific research.

Zainul Hasanali

B.S. Chemistry
Penn State Hershey College of Medicine, United States
United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Epstein-Barr Virus, Leukemia, Lymphoma, Intracellular Signaling, Drug Discovery and Development, Epigenetics, Stem Cells, Tissue Engineering.

Research Motivation: I want to know the truth about the Universe, and science is the never ending quest for that truth. I want to see humanity do things that are impossible, cure cancer, find limitless renewable energy, spread our civilization throughout the stars. The truth is that the impossible just needs more study.

Chie Hashimoto

Ph.D
University of Erlangen-Nurnberg, Germany
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Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I was interested in protein-protein interaction, thus I studied protein X-ray crystallography at the university. Now I'm trying to synthesize protein mimic to develop drugs or biomedical tools using techniques of peptide chemistry, protein semi-synthesis and template-assembled protein synthesis.

Research Motivation: I've been working on anti-HIV peptides, AIDS vaccines and biomedical tools detecting HIV strains. To develop preventive and definitive therapy for HIV-infection and AIDS are needed all over the world. My dream is to help sufferers of diseases. I believe in myself to make my dream come true.

Rebecca Hasler

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University of Bern (Switzerland), University of Liechtenstein
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Supported by the Principality of Liechtenstein and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Epidemiology, Traumatology and Sports medicine, Emergency medicine.

Research Motivation: Research questions arise from daily clinical practice by questioning current concepts and treatment methods. Contributing to clinical work by providing new evidence to some of these questions and maybe one day improve patient survival by new evidence is a strong motivation.

Hiroko Hatano

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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: I hypothesize that HLA class I functions as antigen presentation, either in peptide selection and binding or in other aspects, and the binding to other molecules on the surface of immune cells promotes inflammatory bone diseases, which include DSO (Diffuse Sclerosing Osteomyelitis) of the mandible.

Research Motivation: As an oral maxillofacial surgeon, I met patients who suffered from DSO. This encouraged me to keep my project going. My research goal is to understand the mechanisms causing inflammation, particularly in DSO, and to translate this understanding into new diagnostic tools and new patient therapy.

Audrey Hay

master degree
Université Pierre et Marie Curie, France
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: I am interested in cortical networks dynamics, especially how subtpypes of neurons are recruited to generate fast or persistent responses.

Research Motivation: One of the most striking process of our brain is its powerful ability to stock and retrieve information. I decided to pursue a scholarship in neuroscience to investigate and try to better understand the cellular basis of memory.

Graham Heap

MBBS PhD
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Pharmacogenetics of serious adverse events and treatment response; Inflammatory Bowel Disease genetics; Functional characterisation of GWAS variants

Research Motivation: The goal of my research is to translate genetic variants that affect a patient's response to medications into the clinic to avoid giving patients drugs that may not be efficacious or that may have serious side effects.

Andreas Heim

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University of Konstanz, Department of Biology, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Molecular Biology with a focus on the regulatory networks that control cell division.

Research Motivation: I am fascinated by the investigation of so far unknown molecular mechanisms, especially in the regulation of eukaryotic cell division. It is important to decipher the regulatory networks of this complex process to understand and treat a variety of diseases and I hope I can contribute to this.

Leonhard M. Henkes

Diploma in Biology (Dipl. Biol.)
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Biological or synthetic nanopores, cation channels, small viral ion channels, ion transport and selectivity, molecular simulation, theoretical nanopore systems, reference interaction site model.

Research Motivation: I have always been fascinated by the variety of natural phenomena and the effortlessness with which they occur. To understand these processes in their molecular detail to support the development of further applications inspires me.

Robert Hennig

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Nanotechnology, Nanoparticles, Age-related macular degeneration, Diabetic Retinopathy, Active Targeting

Research Motivation: The motivation that drives me to do research and science is mostly the curiosity to find things out combined with the possibility to help solving the world's big and small problems.

Esteban Hernandez-Vargas

PhD in Applied Mathematics
Helmholtz Centre for Infection Research, Germany
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Fellow of the Helmholtz Association of German Research Centres

Scientific & Research Interests: My research lies at the interface between control theory, mathematics and biology. I focus mainly on mathematical modelling of: Viral dynamics: Influenza and HIV; Ageing: Immunosenescence

Research Motivation: Our society is facing new challenges, not only economical but also in health. I strongly believe that SCIENCE is the key to open the door for the future solutions that our societies need.

Brandon Hill

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Fellow of the Alcoa Foundation

Scientific & Research Interests: My research interests are in bioengineering, virology, and nanotechnology. Currently there are several challenges associated with the development of novel drug delivery systems. Therefore my dissertation project focuses on engineering HSV-1 and iron oxide nanoparticles for targeted drug delivery.

Research Motivation: My motivation for science stems from a passion for research and a desire to gain a profound understanding of biological processes on the molecular level. Such knowledge gained from my Ph.D. mentor (Dr. Carol Duffy) has given me an opportunity to contribute to the advancement of scientific research.

Henning Hintzsche

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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Genetic toxicology, Mutagenicity testing, Effects of non-ionizing radiation on biological systems.

Research Motivation: Curiosity

Angelique Hoelzemer

MD
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: After my MD, I began my graduate work studying the responses of NK cells to HIV. The complexity of the immune system with many remaining concepts yet to discover is very inspiring to me. The intimidating nature of the HIV vaccine field is both challenging and motivating.

Research Motivation: I cannot find a simpler way to describe the essential drive to do research than with a quote from Marie Curie: "A scientist in his laboratory is not a mere technician: he is also a child confronting natural phenomena that impress him as though they were fairy tales."

Caroline Hoppe

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: My research interests are still very broad but fall within the field of developmental biology. Research on intracellular signal transduction and communication in hand with their complex regulatory networks fascinates me.

Research Motivation: The passion to discover yet unknown principles of life, health and aging and seeing how the extensive amount of details fit together into a bigger picture are the driving force of my studies and my motivation for science.

Balazs Horvath

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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: Cardiac cellular electrophysiology and intracellular signaling.

Research Motivation: My motivation is to understand how do cardiomyocytes work. I want to know what kind of changes are happening to them in heart related diseases. I study them to get insight how do heart rhythm disturbances can develop.

Susanne Horvath

Dr. techn.
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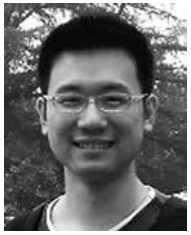
Fellow of the German National Academy of Sciences Leopoldina

Scientific & Research Interests: My research interests are focused on the structural and functional interplay of protein complexes that determine the architecture of mitochondria. The intricate and highly regulated cooperation of membrane-shaping protein complexes to maintain mitochondrial morphology and function fascinates me.

Research Motivation: For me science is like art: First there is a vision in my mind which is painted on several sheets of paper. Executing the experimental designs leads to exciting observations and allows me to sculpture a model. This challenging process from an idea to a specific knowledge is pure pleasure.



Wentao Hou

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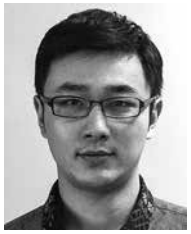
Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Membrane protein purification, crystallization and structure study.

Research Motivation: One of the reasons for the appearance of drug resistance pathogens is that some membrane proteins can pump antibiotics out of the bacterium. Thus, solving the structures and determining their substrate recognition sites are of great significance. I want to find the answer through my study.



Jiajie Hou

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I have long-standing interest in liver cancer associated cell death, inflammation and immunity, which not only underlies the mechanisms of liver cancer initiation and progression in response to the microenvironment, but also may serve as promising therapeutic targets to achieve future breakthroughs.

Research Motivation: In my opinion, the meaningful research project should be from patients and for patients. Thus, I will unceasingly escalate my clinical skills and scientific thinking, and devote myself to consummate the understanding of human cancer, and translate the outcomes of cancer research into clinical use.

Jana Hroudová

Ph.D.
First Faculty of Medicine, Charles University in Prague, Czech Republic
Czech Republic
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Mitochondria, mitochondrial dysfunctions, mitochondrial DNA mutations, depression, affective disorders, neurodegenerative diseases and aging, psychotropic drugs.

Research Motivation: I applied with a challenge to the possibility to meet and to be inspired by the best scientist and young colleagues from all over the world. The Nobel Laureate Meeting will be a wonderful experience. It will encourage me in my future work.

Huili Hu

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am major in epigenetics and also interesting in early mammalian development and human diseases such as mental retardation, immuno disorder and cancer.

Research Motivation: I love sicence for it is a feeling to do scientific work just like climbing or sailing to discover novel area and find something new. The progression from hypothesis to experimant charms me more than the results. I work hard to be a young scientist.

Thanh Duc Hua

Ph.D.
AutoUni, Volkswagen AG, Germany
Germany
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Supported by Volkswagen AG

Scientific & Research Interests: General medicine, health service / medical care research, public health, occupational medicine, gene variations.

Research Motivation: My professional goal is to specialize in occupational medicine and to do research in this preventive field of medicine because of its less attention in Germany in spite of its importance.

Chun-Hao Huang

B.S.
Memorial Sloan-Kettering Cancer Center, United States
Taiwan
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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: Cancer Biology, Cancer therapeutics, Mouse model, RNAi technology, Genome editing.

Research Motivation: My lifelong ambition is to understand cancer and design effective treatments. Since college, I have had a longstanding interest in the path of cancer evolution that dictates a tumor's subsequent response to therapy and creates unique vulnerabilities for therapeutic opportunities.

Tabish Hussain

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Supported by the Pakistan Institute of Engineering and Applied Sciences (PIEAS) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Medicine, Intensive and Critical Care, Anesthesia, Cardiovascular Medicine. Particularly interested in Obstetric and Cardiothoracic anesthesia. Hemodynamic changes related to anesthesia. Post operative pain control and the patient controlled analgesia. Intensive care updates like ARDS etc.

Research Motivation: Medical sciences especially the intensive care medicine including infection control, fluid balance, nutrition and electrolyte management, sepsis, ventilator associated complications so as to find the best outcome of my patients to enhance survival and decrease the related morbidity and mortality.

Julie Hussin

PhD
Wellcome Trust Center for Human Genetics, United Kingdom
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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research covers areas of evolutionary biology, medical genomics and statistical genetics. I study population and disease cohorts to understand how genetic variation modulates the expression of phenotypes, in order to ultimately use genomics as a powerful tool to improve personalised medicine.

Research Motivation: I was raised by two mathematicians who have been role models and instilled in me confidence and the love of science. Since the beginning of my academic training, my goal is to try answering important questions in genetics through collaborations with researchers from different scientific backgrounds.

Maria Iakovleva

Post-graduate
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Fellow of the Saint-Petersburg State University, Russia

Scientific & Research Interests: Clinical Psychology, Psychosomatics, Adherence to Long-term Therapies, Abnormal Psychology, Psychophysiology.

Research Motivation: I always considered the science to be a fascinating activity, which allows us to orientate ourselves in the variety of world phenomenon and solve its puzzles. Science is the best way of contribution to the development of our society, to its prosperity. Science is a good way for personal growth.

Alexandr Ilyaskin

Ph.D
Universität Erlangen-Nürnberg, Institut für Zelluläre und Molekulare Physiologie, Germany
Russian Federation
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: Electrophysiology, fluorescent microscopy, biophysics of membrane water and ion transport, cell volume regulation, mathematical modeling and bioinformatics.

Research Motivation: Science abolishes borders between nations. It allows an investigator to be a pioneer and to shed light on the problem, which remained terra incognita for a long time. And in addition, science satisfies the curiosity, which is the fundamental distinguishing feature of a human being.

Pooja Jadiya

M.Sc.
CSIR-Central Drug Research Institute, India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My research interest are aimed at elucidating the functional genomics and epigenetic approaches towards understanding the mechanistic aspects of human neurodegenerative diseases associated with ageing particularly with a focus on age-related pathway such as autophagy, sirtuin, AMPK and others.

Research Motivation: At school and university my biology courses passionated my interest the most towards the science. I always have curiosity to know each fact behind the captivating detective story of each discovery. Great passion for research boosted – up my motivation towards being an outstanding scientist in future.

Devanshi Jain

PhD
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Supported by the Human Frontier Science Program and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Genetics, Molecular Biology.

Research Motivation: I am intrigued by the molecular nature of DNA damage response and how it is governed with respect to chromatin structure. On a more philosophical note, I find the pursuit of scientific answers to be extremely fulfilling.

Sohee Jeon

MD
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Korea (South)
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Fellow of The Korean Academy of Science and Technology

Scientific & Research Interests: Retina, Stem cell

Research Motivation: I am an ophthalmologist. I finished 2 years of clinical fellowship at retina service, and then started stem cell research to find a hope for degenerative retinal diseases. Medical practice is a quite empirical field. But a great progress in medicine always come from science.

Anand Jeyasekharan

MBBS, PhD
National University of Singapore, Singapore
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Fellow of the National Research Foundation (NRF), Singapore

Scientific & Research Interests: Biomarkers of genetic instability in cancer. Cellular regulation of DNA repair. Interaction of DNA repair pathways with the immune system. Cell surface markers of DNA damage as endoscopic adjuncts for early diagnosis of cancer.

Research Motivation: I am fascinated by how we know so much and yet far too little in cancer biology, and why only few of these leaps in basic research actually make it to clinical practice.

Angela Maria Jimenez

PhD Candidate
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Cancer cell biology, tissue engineering, 3D cell culture, molecular biology, microfluidics, and protein design and characterization.

Research Motivation: I'm fascinated by the opportunity to ultimately improve people's quality of life through medical related research. This drive for research has been ignited from my scientific training and interaction as well as my own personal experience.

Mads Jochumsen

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Supported by The Danish Council for Independent Research and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Neurorehabilitation, motor learning, brain plasticity, biomedical signal processing, brain-computer interfaces, neural engineering, neuroprosthetics.

Research Motivation: My motivation to be a scientist is to work in a relatively unexplored area that may have a large impact on a lot of people world wide. It is exciting to work in a rapidly evolving area and to see at first-hand the progress that is being made.

Akshara Jogi

Bachelor of Medicine & Surgery
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India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Genetic Mapping studies, Gene Therapy and Therapeutic use of stem cells in Endocrine and metabolic disorders and , in Endocrine and Neuroendocrine neoplasias.

Research Motivation: Science refers to a system of acquiring knowledge which uses tools like observation and experimentation. I also like to explore new things with these tools and have strong desire to serve 'have not ' class in my country India by means of my knowledge of medical Science .

Noah Johnson

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Fellow of the Alcoa Foundation

Scientific & Research Interests: Growth Factor Therapies, Controlled Release Systems, Bioactive Drug Delivery, Cardiac Repair, Wound Healing, Bone Regeneration

Research Motivation: As a biomedical engineer I am poised at the intersection of medicine, engineering, and the natural sciences. My research involves the development of translational medical technologies which I hope will save lives or improve the quality of life for patients.

Ana Jorge Finnigan

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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Tyrossine hydroxylase, dopamine, catecholamines, Parkinsons Disease, neurodegeneration, neurotransmitter diseases, cellular biology, regulation of cellular localization, microscopy, protein regulation, pharmacological chaperones

Research Motivation: During my journey in Science I have always travelled in the companionship an intense curiosity about how living creatures work, a love for the unknown and for new challenges... and maybe a bit of stubbornness, all of which have contributed to my passion for science.

Hanna Jöst

Dr
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Fellow of the Leibniz Association

Scientific & Research Interests: Emerging Infectious Diseases, Virology, Public Health

Research Motivation: Exciting job that brings you together with interesting people.

Kristin Junge

Ph.D.
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Fellow of the Helmholtz Association of German Research Centres

Scientific & Research Interests: Influence of pre- and perinatal vitamin D status on epigenetics and allergy development. Influence of environmental exposures on a) allergy relevant hematopoietic stem cells b) adipocyte derived mesenchymal stem cells. Influence of nutritional compounds on lipid metabolism and atherogenesis.

Research Motivation: Detect mechanisms or interactions which allow the prevention/decrease of high prevalent civilization diseases such as obesity or allergies.

Jerónimo Jurado

PhD
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: My interest is neurobiology, I am fascinated by adult neurogenesis. It is amazing to understand neural stem cells (NSC) regulation and how new functional neurons contribute to cognitive functions. Understanding the generation of new neurons and NSC physiology would be a huge step in brain knowledge.

Research Motivation: My motivation in science started several years ago due to the endless desire to learn, I love to know why things occur. In addition, it is very challenging for me thinking that my work could help people in their lives. Finally, I believe that try to understand and cure diseases is very rewarding.

Anna Kaczmarek

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Human genetics, translational medicine, disease modifying genes, neurodegenerative diseases, neuroscience, neurotransmission, animal models of human disorders

Research Motivation: I came to science wishing to contribute to research on the edge of translational medicine where the final goal is to help people in need who hope and wait for our findings to improve their lives and offer cure or diagnosis.I always try to see this bigger picture whenever lab struggles seem too hard.

Aimilios Kaklamanos

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Fellow of the Alexander S. Onassis Public Benefit Foundation

Scientific & Research Interests: Immunometabolism. More spesifically, the interplay between TNF signaling and physiology/pathophysiology in mouse models, especially regarding metabolism and metabolic diseases like Diabetes Melitus and metabolic syndrom. Secondarily, animal models of IBD.

Research Motivation: Humanity suffers from thousands of diseases.To cure them, one must first deeply understand the mechanisms underlying not only their pathophysiology, but also the physiology of the human organism. In other words, scientific knowledge apart from making us wiser, will help us survive and develop.

Sonja Kapffer

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Immunology, innate and adaptive immune system, pathogenesis of autoimmune diseases (e.g. Glomerulonephritis), microRNAs.

Research Motivation: There are still many aspects of the human body and its ability to cope with all kinds of pathogens that remain unclear or poorly understood. To shed light on even small pieces of these complex mechanisms fascinates me about research and science.

Alexandra Keefe

B.A.
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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: I'm interested in the cellular/molecular interactions that regulate development and regeneration. I'm currently studying how signals from macrophages help regulate stem cell and/or fibroblast functions during muscle regeneration, and how these functions are impaired in muscular diseases or with age.

Research Motivation: Our knowledge of clinical medicine has stemmed from basic research discoveries into the cellular and molecular mechanisms regulating biology and disease. I want to continue to ask the most intriguing basic science questions, with the hope that new insights can continue to expand on this knowledge.

Yu Kigoshi

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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: Cellular Protein quality control, Regulation of Ubiquitination systems, Protein degradation, Cellular stress, Neurodegenerative disorders.

Research Motivation: As a child, I was always curious about how things worked. In science, I am continually exposed to new ideas, discoveries and questions, which arouse my curiosity. As a scientist, this curiosity along with the realisation that science can help solve problems facing humanity (diseases) motivates me.

Edyta Kisielnicka

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Mechanisms that regulate amounts of macromolecules in a cell are an interesting and poorly explored area of biology. Besides the understanding of synthesis and degradation dynamics, we need better quantitative characterization of biological systems for the progress of medicine and biotechnology.

Research Motivation: My motivation for science comes from a sheer curiosity and desire to understand the phenomena around us. As a biotechnologist by training, I appreciate the long-term impact of research on solving global problems and improving the quality of human life.

Sarah Kittel-Schneider

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Bipolar disorder, adult ADHD, molecular psychiatry, cell models, stem cell research, genetics, biomarkers

Research Motivation: Neuroscience is a fascinating field with a lot of things still to discover. And also being confronted with patients suffering from psychaitric disorders every day in my clinical work, I would like to improve diagnostic procedures and therapeutic options in the future.

Elise Klein

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Fellow of the Leibniz Association

Scientific & Research Interests: Numerical cognition, mental arithmetic; Acalculia, Aphasia, Developmental Dyscalculia, Neglect; Learning and neuronal plasticity in children and adults; Neuroimaging (fMRI, DTI, VLBM, VBM); Transcranial direct current stimulation (tDCS), eye-tracking

Research Motivation: I am a post-doctoral neuroscientist (MD, PhD) trying to understand the mechanisms of knowledge acquisition and how humans perceive and process information. My major field of interest is numerical cognition because it offers the opportunity to investigate a large range of psychological questions.

Anja Knäbel

Diplom

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Germany

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Supported by the Deutsche Bundesstiftung Umwelt and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Environmental Science; Aquatic ecotoxicology; Environmental modelling; Pesticide exposure and risk assessment

Research Motivation: For me, science means understanding, and every scientific project is a small part of the great attempt to understand the mechanisms of life and our universe. For this reason I am extremely interested in connecting with people from different disciplines. And that is what motivates me to participate.

Manuel Koch

Dr

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Germany

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Fellow of the Max Planck Society

Scientific & Research Interests: Stem cell biology, cancer biology, infection biology, microbiology, immunology, neurosciences.

Research Motivation: My main motivation for science is my curiousness. I am fascinated by the cleverness of nature in dealing with biological problems and that we are able to understand and make use of it. Importantly, that knowledge does not only satisfy the scientists, but leads to solutions for future challenges.

Michael Kock

M.Sc. Chemistry

International Max Planck Research School for Microbiology Marburg, Germany

Germany

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Fellow of the Max Planck Society

Scientific & Research Interests: Host/Pathogen-Interactions, Microbial adhesion & Microbiology, Chromatography & Bioanalytics, Structural Biology, Protein/Ligand-Interactions, Biophysics & -chemistry, Microscopy, Synthetic and Applied Microbiology

Research Motivation: The major motivation is to see nature at work and to be impressed by its complexity and uniformity. I like to design experiments, conduct them and see if they prove you wrong or right in your assumptions. I think science helps us to understand nature and to use this knowledge for us.

Johannes Kohl

PhD

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Supported by the European Molecular Biology Organization (EMBO) and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Neural circuits, super-resolution imaging, pheromone processing, single-cell expression profiling, innate behaviors, sensory processing, trans-synaptic viral tracing, in vivo electrophysiology, two-photon calcium imaging

Research Motivation: My scientific experience has always been shaped by working in multidisciplinary teams. It is this open and collaborative nature of problem solving that makes me passionate about science. I believe that the big questions of our time can only be tackled by international and interdisciplinary efforts.

Rebekka Kohlmann

Dr. med.

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Clinical Microbiology, Clinical Virology, Hospital Hygiene, Infectious Diseases, Clinical Immunology, Next Generation Sequencing, Interaction of Human Microbiome and Clinical Disease, Association of Infection and Tumor Growth, Antibody Repertoire Profiling

Research Motivation: I love to do research since this offers me the possibility to improve current diagnostics and treatment by transfer of research work into clinical medicine. Furthermore, I appreciate the ability to be continuously learning and to pass on knowledge during university teaching.

Thomas Köhnke

MD

University of Munich, Department of Internal Medicine III, Germany

Germany

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Fellow of the Wilhelm Sander-Stiftung

Scientific & Research Interests: Cancer, Cancer immunotherapy, Acute myeloid leukemia

Research Motivation: As a physician, I value the opportunity to make a difference in patient's lives. I am therefor very pleased to be able to work in the exciting field of cancer immunotherapy, where recent advances in basic and translational research are beginning to impact the prognosis of cancer patients.

Vasiliki Koliaraki

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BSRC "Al. Fleming", Greece
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Fellow of the Alexander S. Onassis Public Benefit Foundation

Scientific & Research Interests: Molecular and Cellular Biology, Biochemistry, Immunology, Cancer Biology, Genetics, Intestinal inflammation and carcinogenesis, Mesenchymal cell biology

Research Motivation: The perpetual curiosity about how nature works, how living organisms are born, grow, get sick and die, the ability to continuously learn something new and the prospect of producing new knowledge which could affect people's lives is my main motivation for science and research.

Catherine Kegakilwe Koofhethile

Masters (MSc Immunology)
University of KwaZulu-Natal, South Africa
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Fellow of Festo AG & Co. KG

Scientific & Research Interests: My PhD project involves characterizing mechanisms of viral control amongst HIV-1 clade C chronically infected individuals who are able to naturally control HIV infection and determining what accounts for the loss of control in some individuals. This has direct relevance to HIV vaccine design. HIV.

Research Motivation: What motivated me in to doing a PhD is mainly my passion for research science, curiosity, and the urge to fill in the gaps in knowledge regarding unanswered questions related to public health especially research on global health topics such as cures for HIV/AIDS, TB, Malaria, Cancer and many others.

Idit Kosti

MSc
The Technion - Israel Institute of Technology, Israel
Israel
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Supported by the Weizmann Institute of Science (Israel) and Microsoft Corporation

Scientific & Research Interests: Computational Biology, Bioinformatics, Systems Biology, Gene Expression Regulation, Gene Regulatory Networks, Alternative Splicing, Epigenetics, DNA Methylation, Histone Modifications.

Research Motivation: My motivation for science comes from endless curiosity, love for the long path of the research process and the hope my research will applicable and expand human knowledge at the same time.

Mikhail Kostylev

Yale University, United States
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Fellow of the Jörnvall Foundation, Sweden

Scientific & Research Interests: The idea of minimization of bias in life science research appeals to me greatly. The use of high-throughput, top-down functional assays to study complex, interwoven molecular networks to understand such emergent biological phenomena as organismal ageing or neurodegeneration is my modus operandi.

Research Motivation: The emergent phenomenon of life being able to understand itself is a source of marvel. Studying biology makes me feel entwined with the great fabric of life and empowers me with ability to see the true beauty in all the interconnected layers of life's organization - from molecules to biosphere.

Mehreen Kouser

Ph.D.
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Fellow of Mars, Incorporated

Scientific & Research Interests: Since we are a sum of our experiences and memories that are formed during these experiences, I am interested in finding cures for the diseases of the nervous system particularly that affect cognitive function and memories.

Research Motivation: My passion for science has led to the realization that biomedical research provides an opportunity to improve the well-being of those who endure the inequalities and misfortunes of our world by finding cures for the ailments they suffer from.

Jernej Kovač

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Supported by the Slovenian Academy of Sciences and Arts (SASA) and the Foundation Lindau Nobel Laureate Meetings in Memory of Joachim Sorger

Scientific & Research Interests: Human Genetics and Cytogenetics, Epigenetics, miRNA, Gene Regulation, Neurodevelopmental and Endocrine Pathology and Biochemistry.

Research Motivation: The thrill of discovery and exploration of unknown. Research of Life and its basic principles.

Elzbieta Kowalska

Dr. sc. nat.
Max F. Perutz Laboratories, Austria
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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Contribution of non-coding RNAs to direct epigenetic influences upon gene expression, temporal transcription control executed by the circadian clock, RNA folding in vivo and its impact on ribonucleoprotein (RNP) complex formation and function.

Research Motivation: The pleasure to study everyday a yet unknown part of nature and provide answers. The activities of a scientist unite professions as diverse as adventurer, journalist, engineer and teacher. And if I can answer that one question there are three new ones arising from it. It is a ceaseless pleasure.

Patrycja Kozik

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Immunology, Cell Biology, Immunotherapy, Dendritic Cells, Antigen Cross-presentation, Protein Trafficking.

Research Motivation: What motivates me is a chance to contribute to our understanding of how the intricate machinery inside the cells works, as well as hope that this knowledge might help to develop new medicines and novel therapeutic strategies in the future.

Krystin Krauel

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Platelets, Bacteria, Immunolgy, Antibody responses, Heparin-induced thrombocytopenia.

Research Motivation: Working in science and research fascinates me, cause there is the chance to discover new findings, which cannot be found in textbooks yet. Even if your findings answer only one single question and leaves open others, by publishing and sharing with the scientific community, this contributes to the general progress like a piece in the puzzle. Especially I like to work at the interface between basic research and medical relevance. It pleases me to imagine that my work might be relevant for prevention and treatment of diseases.

Veronica Krenn

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Italy
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Fellow of the Max Planck Society

Scientific & Research Interests: Cell cycle; Chromosome segregation; Fluorescence microscopy;

Research Motivation: I have always been fascinated by life and biology. My curiosity for knowledge and the excitement about new questions are the driving forces of my everyday research.

Kai Kretzschmar

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University of Cambridge, Cambridge Stem Cell Institute and Department of Genetics, United Kingdom
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cell and Developmental Biology, Adult Stem Cells, Mammalian Skin, Hair Follicle Biology, Wnt/beta-catenin Signalling, Stem Cell-Niche Cell Interactions, Epithelial-Mesenchymal Interactions, Epithelial Tumours, Cancer Stem Cells, Lineage Tracing

Research Motivation: I am motivated to pursue a career in science because it enables critical thinking and open mindedness. The freedom to study certain aspects of life and to gain knowledge through research has been very inspiring to me. I hope that my research on stem cells will be beneficial for society in future.

Katja Kroker

PhD
Boehringer Ingelheim Pharma GmbH & Co KG, Germany
Germany

Supported by the Boehringer Ingelheim Deutschland GmbH and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Synaptic plasticity; Neurocircuits and their manipulation in the disease state

Research Motivation: A general curiosity in how things function, connect and work together.

Dilja Krueger

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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Neuroscience, mouse models of autism and related neurodevelopmental disorders, synapse development, mouse cognition and behavior.

Research Motivation: Biology holds many exciting mysteries, but to me the most fascinating is the brain. No other organ is more complex or better defines our experience of the world surrounding us. My primary research interest lies in understanding the mechanisms underlying disorders of brain development such as autism.

Julija Krupic

PhD
University College London, United Kingdom
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: I did my first degree in Physics, and was amazed to discover how much I could apply from that discipline to the challenges I face in biological systems. My research focuses on how location in an environment is represented in the brain and how this representation guides an animal's behaviour.

Paola Kuri

M. Sc.
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Supported by the European Molecular Biology Laboratory (EMBL) and Microsoft Corporation

Scientific & Research Interests: Cell differentiation/cell type specification; Developmental biology; Immunology; Live imaging techniques; Model organisms

Research Motivation: Scientists stand at the edge of what is known and try to see what lies beyond. This and the fact that I was captivated by life sciences and its mysteries drew me to research. Certainly, it is a challenging and frustrating career, but such is the cost of traveling through uncharted territory.

Christina Kyrousi

MSc
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Fellow of the Alexander S. Onassis Public Benefit Foundation

Scientific & Research Interests: 1) Neuroscience 2) Cortical development 3) Adult neurogenic niche orchestration 4) Embryonic and adult neural stem cells proliferation through symmetric or asymmetric divisions 5) Embryonic and adult neural stem cells differentiation decisions towards neuronal and glial lineage.

Research Motivation: Ever since in high school I was appealed to evolutionary + molecular biology having read popular books by Dawkins, Gould, Smith and others. Then as a researcher I became interested in developmental biology + neurobiology. Basic research attracts me most but I appreciate the importance of application.

Arnaud L'Omelette

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Mauritius
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Supported by the Ministry of Tertiary Education, Science, Research and Technology of Mauritius and Festo AG & Co. KG

Scientific & Research Interests: Medicine, surgery, physiology, pre-eclampsia, hypertension, essential hypertension, proteinuria, diabetes mellitus.

Research Motivation: Learning and working in science helps with the understanding of life and designing of a better future. Research is for me a way to approach newer ways and to acquire the knowledge to improve everyday life. I have embraced the world of research and have worked in research since last year.

Emanuele La Corte

MS
University of Milan - DISS / Foundation IRCSS Neurological Institute "Carlo Besta", Italy
Italy
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Fellow of the Fondazione Cariplo

Scientific & Research Interests: Neuroscience and Neurosurgery, Minimally Invasive Neurosurgery, Neuroendoscopy, Skull Base Surgery, Virtual Reality, Intraoperative Fluorescence. My research interest mainly lies in minimally invasive approaches to the skull base and the application of innovative technologies in neurosurgery.

Research Motivation: Intellectual curiosity is the spirit that drives me daily towards solving doubts and augmenting my scientific knowledge. I am really devoted to the biomedical research because I strongly believe that it is the basis to provide the best available treatment to improve patient's health and outcomes.

Eleni Ladikou

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Supported by the European Students' Conference of the Charité Berlin and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: The role of estrogen signalling in chronic lymphocytic leukaemia, Gene and protein expression in haematological B-cell malignancies, Discovering of new potential therapeutic targets in haematological B-cell malignancies, Mode of action of steroid hormones (estrogen).

Research Motivation: What excites me about pursuing a career in science is that it sharpens my creativity and problem solving skills. The feeling that my own work can potentially make a difference in an expert field and patients lives is extremely motivational. Research is "challenge, enthusiasm and inspiration".

Weizhong Lan

MD
University of Tuebingen, Germany
China
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: Ocular optics; how the ocular growth is guided by vision; how to improve the vision quality and vision limit.

Research Motivation: As a ophthalmologist, I realize that there are still a lot of ocular disorders which can not be cured by the current interventions. This is due to the pathogenesis of many of these diseases are far from clear. I believe, without doubt, the exclusive solution for this conundrum is through research.

Gilad Landan

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Israel
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Supported by the Weizmann Institute of Science (Israel) and Microsoft Corporation

Scientific & Research Interests: Genome Evolution, Mobile Elements, Nuclear Regulation, Cell Specification, Strange Biology

Research Motivation: My own ignorance. Some people like to create things, which is great. At some point, though, one may know every corner and crevice. I prefer to spend my time with the unknown, asking questions – and thankfully these can never run out. It's like infinity ice cream.

Tobias Lange

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: My main interest is the development of xenograft mouse models of human cancers that reflect the entire metastatic cascade. I am particularly focused on the question of how aberrant cell surface glycosylation contributes to EMT and extravasation as two critical steps of metastasis formation.

Agnieszka Latosinska

MSc
Biomedical Research Foundation, Academy of Athens, Greece
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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in understanding the molecular mechanisms of bladder cancer invasion and discovering putative diagnostic/ prognostic biomarkers for disease aggressiveness. I apply innovative sample preparation methods and quantitative proteomic technologies for the analysis of clinical samples.

Research Motivation: I am amazed by the complexity of life. Scientific research offers the opportunity to make discoveries and understanding cellular functions at the molecular level. I hope my findings in bladder cancer biomarker research will be applied in the clinical setting, thus improving and saving patients lives.

Lilian Deborah Lax

MD
University of Heidelberg, Faculty of Medicine, Germany
Germany
lilianlax@gmail.com
Supported by the Gerhard C. Starck Stiftung and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Tissue Engineering, 3D Printing, Cardiac Imaging, Diastolic Dysfunction, Calcific Aortic Valve Disease

Research Motivation: I believe that in today's world scientific research and inter-disciplinary exchange are the basis for the progress of society. I want to be part of a community that strives for creativity and innovation, that is not afraid to raise important questions and works hard to find answers to them.

John Lee

BA

Drexel University College of Medicine and School of Biomedical Engineering, Science & Health Systems, United States

United States

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Fellow of the Alcoa Foundation

Scientific & Research Interests: As a future physician-scientist, I am interested in Neuroengineering applications to modern medicine, where robotics, gene therapy, neuroscience, and neurology can work together to treat spinal cord injury. My current work also focuses on cortical plasticity, studying how brain maps adapt to injury.

Research Motivation: Of all the frontiers we have yet to explore – ocean depths, exoplanets in deep space – I think the most fascinating is the human brain. I believe that by understanding better how our minds work through neuroscience and neurology, we can appreciate more the universe around us.

Namgyu Lee

Master

POSTECH (Pohang Institute of Science and Technology), Korea (South)

Korea (South)

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Fellow of The Korean Academy of Science and Technology

Scientific & Research Interests: Roles of Sirtuins (SIRT6, SIRT7) and VRK1 in cancer Cancer >Cellular Senescence, Cancer metabolism, Companion Diagnosis, Circulating Tumor Cell, Biomarkers

Research Motivation: My research topic is 'Roles of sirtuins in cancer'. Cancer is the leading cause of death. Though human have been studying on cancer, many questions are still remained to understand cancer. Therefore, I want to put my efforts to understand mechanism of cancer.

Bomy Lee Chung

MIT - Massachusetts Institute of Technology, United States

United States

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Fellow of Mars, Incorporated

Scientific & Research Interests: Medicine; biomedical engineering; chemical engineering; pharmaceutical; drug delivery; nanotechnology; nanoparticles; cardiovascular disease; biomedicine; inflammation; biology; entrepreneurship;

Research Motivation: Anything and everything I do, I do to learn, and I hope to share that knowledge with others. I am motivated for research and for science because I believe they are not only the way of seeking answers about the world around us but also of improving the world for everyone in it.

Nicolas Lehrbach

PhD

Massachusetts General Hospital, Department of Molecular Biology, United States

Australia

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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Genetics, gene expression, detoxification, stress responses, C. elegans.

Research Motivation: My goal is to understand how inherited genetic information specifies development and function of complex multicellular organisms. Investigating this with genetic model organisms is both a fascinating intellectual challenge, and can lead to important insights into the biology underlying human health.

Heike Leutheuser

Dipl.-Phys.

Digital Sports Group, Pattern Recognition Lab, Department of Computer Science, University Erlangen-Nuremberg, Germany

Germany

Heike.Leutheuser@cs.fau.de

Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Biomedical Signal Processing, Pattern Recognition, Data Mining, Physiological Data Analysis

Research Motivation: Acquiring new knowledge and adapting new methods to current problems.

Romain Levayer

PhD

Institute for Cell Biology, University of Bern, Switzerland

France

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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Developmental biology, morphogenesis, cell mechanics, quantitative description of cell signaling and cell decision making, cell competition and cell death.

Research Motivation: My main motivations for Science are a fascination for living matter, a great curiosity for any natural phenomenons, and a certain taste for the esthetic of nice demonstrations. I do also appreciate physics and mathematics, especially when they can provide new prospectives in biology.

Mariia Levchenko

BSc

University Medical Center Göttingen, Germany

Ukraine

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Yeast biology, biochemistry, membrane proteins, mitochondria, mitochondrial disorders, cellular respiration, autophagy, mitophagy, protein degradation, signalling.

Research Motivation: Life is a process of the interaction between biomolecules and the sum of chemical reactions. Even feelings, such as love or hate, have a biochemical basis. This is why I am fascinated with science. Trying to compose my own picture of life mechanics, that's what keeps me inspired!

Yongyin Li

Ph.D.

Southern Medical University, China

China

yongyinli@foxmail.com

Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Immunologic mechanism of virus infection.

Research Motivation: I have experience both in clinical and scientific research, I deeply realize the importance of translational medicine, and I hope I could do some scientific research that can benefit the humankinds.

Jianfeng Li

Ph.D.

Fudan University, China

China

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Gene and chemotherapeutic co-delivery system; linear-dendritic copolymer as drug delivery platform; glioma targeting drug delivery system

Research Motivation: To bring health to people who suffer from cancer.

Li Liao

Master of Medicine

Fourth Military Medical University, China

China

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in the mechanism of stem cell dysfunction during aging, and my on-going research is designed to investigate the function of mesenchymal stem cells in osteoporosis during aging and its key signaling regulation.

Research Motivation: After entering the university, I became more and more attracted by the secrets of life. Hundreds and thousands of mysteries distributed everywhere in the field of life science. I want to understand more about Ilfe, and I do enjoy the process to find something amazing and unexpected from unknown.

Hester Lingsma

PhD

Erasmus MC, Netherlands

Netherlands

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Epidemiology, Quality of Health Care, Applied statistics

Research Motivation: My motivation for science is in the combination of personal challenge and societal impact. I enjoy the daily intellectual challenge, and the collaboration with many bright and inspiring colleagues. And at the same time it is rewarding to contribute through science to solving societal problems.

Christoph Lippert

PhD

Microsoft Research, United States

Germany

Lippert@microsoft.com

Fellow of Microsoft Corporation

Scientific & Research Interests: My research is focused on machine learning and statistics in genomics and healthcare. I am especially interested in method development for and interesting new applications of genome-wide association studies. In this area I have been working on mixed models that correct for population structure.

Research Motivation: I love learning new things everyday. The best way for me to achieve this is by working and collaborating with smart people, especially on multidisciplinary projects between maths and science.

Dominik J. Lisowski

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Germany
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

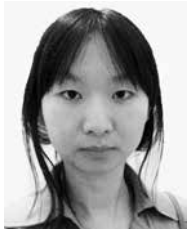
Scientific & Research Interests: Tumour Immunology, Innate and Adaptive Immunity, Immune Regulation, Immune Pharmacology

Dustin J. Little

University of Toronto, Canada
Canada
d.little@mail.utoronto.ca
Fellow of the Canadian Student Health Research Forum (CSHRF)

Scientific & Research Interests: Glycobiology, infectious diseases, antibiotic resistance, polysaccharides, crystallography, enzyme catalysis, drug discovery

Research Motivation: I have a passion for understanding antibiotic resistance and searching for new ways to prevent bacterial infections. I believe this field of study is extremely important as antibiotic super-strains are emerging as a huge threat to human health.



Yan Liu

MSc
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China
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Fellow of the AKB Stiftung

Scientific & Research Interests: I'm interested in the neural circuits in the adult brain during learning and memory. Working memory deficit is a core cognitive feature in psychiatric disorders such as schizophrenia and autism. In the neurexin mouse model, I'll investigate changes in the PFC neural circuitry using patch clamping.

Research Motivation: Knowing the unknown is a great pleasure. With the advances in science and technology, I believe it's possible to understand the brain a little better than before everyday. Now doing research gives me new motivations, I feel responsible to know what I'm doing as a scientist, as the eye for the public.

Hongtao Liu

M. S.
School of Medical , Tsinghua University, China
China
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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: Signal transduction via G Protein and GPCR function.

Research Motivation: Science is not a job, also not a tool, but it can bring fun and what you want. There is a movie line: "Everything has a plan, and I love it when a plan comes together." I believe, it must be the most crazy moment when your idea comes true, whatever your tears and sweater.

Ido Livneh

M.Sc
Technion, Israel
Israel
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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: Ubiquitin Proteasome System; a) Regulation of the proteasome b) UPS cross-talk with autophagy c) Monoubiquitination d) Ubiquitin-like proteins

Research Motivation: The excitement of turning the light on where nobody has done before. Understanding the most basic mechanisms underlying the "human manual". Unravel biochemical basis of disease.

Sarah Lockie

PhD
Monash University, Australia
Australia
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Fellow of the Australian Academy of Science

Scientific & Research Interests: I investigate how the brain regulates body weight. This includes eating, and energy expenditure, especially heat production. Additionally, I am interested in the rewarding and motivational aspects of eating. My work examines how these processes break down in obesity and anorexia/cachexia syndrome.

Research Motivation: I undertook my PhD hoping it would guarantee an interesting career and it certainly has so far. I am pleased to be doing work that will hopefully help people with metabolic diseases, but I'm excited and motivated by the answering the interesting scientific questions we ask.

Felix F. Loeffler

Ph.D.
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Supported by Suedwestmetall and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Peptide Microarrays, Antibody Profiling and Diagnostics, Infectious Diseases, Biophysics, Biotechnology.

Research Motivation: Deeply impressed and inspired by international and interdisciplinary scientific work, I want to participate in research that provides for important benefits to society. My motivation arises from the opportunity to advance diagnostics, vaccines, and therapies in health care.

Mary Lopez-Perez

Ph.D.
Caucaseco Scientific Research Center, Colombia
Colombia
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: My goals are directed to understanding the malaria parasite biology and host-parasite interaction. I have been working on cell death in the malaria parasites, characterization of invasion pathways used by P. falciparum field isolates, malaria immunopathogenesis and P. vivax malaria vaccine candidate

Research Motivation: During my undergrad formation I had the chance to live in malaria endemic regions in Colombia and those experiences increased my interest in malaria work. After many years performing research, my interest in science continues increasing with the objective of impact an important public health problem.

Yi Lu

Ph.D.
QIMR Berghofer Medical Research Institute, Australia
China
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Fellow of the Australian Academy of Science

Scientific & Research Interests: My research involves developing and applying statistical and bioinformatics tools for gene mapping studies in a broad range of diseases including cancers, eye diseases and mental health disorders. Ultimately I am interested in better understanding genetic architecture underlying complex diseases.

Research Motivation: My greatest motivation for science is rooted in the possibility of translating our own research outcome to help patients, by providing more effective prevention, early diagnosis and personalised treatment (okay, I am aware that translation may take a long while, nevertheless...).

Michal Lubas

PhD
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Supported by the Foundation for Polish Science and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Long noncoding RNA, pervasive transcription, RNA metabolism, RNA-protein interactions, lymphoma, cancer

Kerstin Ludwig

PhD
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Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: My research focus is to identify genetic factors that contribute to orofacial clefts, a frequent craniofacial birth defect with multifactorial etiology. I would like to understand how lip and palate are formed during embryonic development, and how genetic factors interfer at any of these processes.

Research Motivation: Research in the field of human genetics gives me the chance to combine biological expertise in the context of medicine, in order to understand how the human genome functions.

Xiaowei Ma

Ph.D.
National Center for Nanoscience and Technology, China
China
maxiaowei@sina.com
Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: The biological effects of nanomaterials and nanotoxicity. Biomedical application of nanomaterials (disease treatment, imaging agents, drug delivery). The fate of nanomaterials in the blood system and their interaction with blood cells.

Research Motivation: I've always been very passionate about research and want to pursue an academic career in the future. I hope someday my study can benefit human health as well as practicing clinical medicine.

Ji Ma

Master of Medicine
The Fourth Military Medical University, China
China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Regulation mechanism of tumor gene RhoA and tumor suppressor gene NDRG2 on breast cancer angiogenesis. The synergy and molecular mechanism of metformin and tamoxifen in ER-positive breast cancer.

Research Motivation: In the new century, the world is requiring better trained and more highly educated people than ever before in history. In order to make more contributions to the society and, at the same time, satisfy my keen interest in science, I choose medical research as my career.

Nancy Madigu

M.sc
Jomo Kenyatta University of Agriculture and Technology, Kenya
Kenya
ojemo@yahoo.com
Fellow of Festo AG & Co. KG

Scientific & Research Interests: Molecular Biology, Nutritional Biochemistry and Community health.

Research Motivation: Developing countries bear the biggest burden of diseases some of which can be prevented and/or treated. But the persistent nature of the diseases/disorders points towards the need of new scientific ideas and innovation. Only scientists have proved to solve and I believe will still resolve the mystery.

Ahmed Mahmoud

Ph.D.
Harvard University, United States
Egypt
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Fellow of Microsoft Corporation

Scientific & Research Interests: Regenerative Biology, Heart Regeneration, Stem Cells, Evolutionary Biology, Beta-Cell Maturation.

Research Motivation: Unraveling the mysteries of biological systems and how diseases evolve has been the main drive for my passion for science. Pursuing a career in science allows me to be part of the great scientific community, thus contribute to humanity by alleviating the suffering of people.

Daniele Maiolo

Ph.D.
University of Brescia, Italy
Italy
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Fellow of the Fondazione Cariplo

Scientific & Research Interests: Nanomedicine, Nanobiotechnology, Nanoparticle Bio interface, Angiogenesis, Extracellular Vesicles, Ligand Receptor Interaction, Cellular Signalling, Cellular Trafficking

Research Motivation: One of the motivations that drives me to do research is the curiosity to understand how nature works and the love to find and solve scientific questions. Science makes you feel like you were surfing waves on an unexplored beach. This is why I love science and windsurfing.

Laure Mancini

Master's degree in cell biology and development
Ecole Normale Supérieure of Paris, France
France
laure.mancini@ens.fr
Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: Multidisciplinarity is essential today to lead a scientific project. Accordingly, I chose to combine my skills as a developmental biologist with my huge interest in neurology and biophysics, in order to be able to understand in depth the mechanisms of development.

Research Motivation: I love science because it makes me feel useful for the community. I want to do fundamental research to be a part of the community that builds scientific knowledge. Moreover, I like the fact that a researcher has to combine technical and manual work with intellectual thinking.

Thomas Marichal

PhD
University of Liege, Belgium
Belgium
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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: Cellular and Molecular Immunology using animal models of health and disease. In particular, adaptive type 2 immunity and allergies, with a special focus on dendritic cells, mast cells and basophils, as well as type E "allergic" immunoglobulins.

Research Motivation: What drives my passion for basic research in life sciences is that it represents a first step in opening new avenues for understanding human health and treating human diseases. In addition, collaborating with scientists from all around the world greatly stimulates and motivates me.

Nagore Isabel Marín Ramos

MSc, PhD Student
Complutense University of Madrid, Spain
Spain
nagorenim@gmail.com
Fellow of Microsoft Corporation

Scientific & Research Interests: The biochemical study of molecular interactions and metabolic processes underlying diseases, always trying to apply this knowledge to drug development, especially in the area of antitumor drugs.

Research Motivation: I see research as a challenging, creative and cooperative work, in which each step you take is different from the past and full of renovated eagerness. The pressing necessity of more active and selective drugs to fight cancer is the best driving force I could ever imagine for my daily work.

Maria Markoulli

Ph.D
University of New South Wales, Australia
Australia
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Fellow of the Australian Academy of Science

Scientific & Research Interests: My research focus is on the ocular surface and the impact disease processes can have on its integrity. Specifically, we are trying to understand how diabetes impacts the ocular surface resulting in recurrent corneal ulcers, infection and potentially loss of vision.

Research Motivation: My motivation is to identify problems that impact on people's lives, such as the ocular complications of diabetes, conduct the cross-disciplinary research to solve these problems and then pass on this knowledge to students, peers and the public.

Zila Martinez-Lozada

M. Sc.
Cinvestav, Mexico
Mexico
champizi@hotmail.com
Supported by the Mexican Academy of Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Genetics and Molecular Biology applied to Neuroscience. Mainly my research focus is the participation of glia in the synapsis tripartite and the elements involved in it. Until now my main topic has been the characterisation of glutamate transporters as signal molecules entities.

Research Motivation: I've always been curious and I love how science answers questions about the universe and about how our bodies work. I believe that to found the cure of mental illnesses first, we need to know how our cells communicate in the complex and amazing machine that our brain is and I want to be part of it.

Alice Matimba

PhD
University of Zimbabwe, College of Health Sciences, Zimbabwe
Zimbabwe
alicepn@yahoo.com
Fellow of the Bert L. and N. Kuggie Vallee Foundation, USA

Scientific & Research Interests: genomics, molecular medicine, systems biology

Research Motivation: To understand molecular mechanisms underlying inter-individual variation, health disease and response to medicine

Lauren Matlock-Colangelo

M.S.
Cornell University, United States
United States
lem44@cornell.edu
Fellow of Mars, Incorporated

Scientific & Research Interests: Biosensing, Electrospun Nanofibers, Microfluidics, Lab-on-a-chip devices

Research Motivation: I am motivated to pursue a career in science because I am passionate about the development of affordable and accessible sensors for use in clinical and research applications. I am particularly interested in using novel materials (ex. nanofibers) to facilitate better sample preparation and detection.

Rachel Matt

B.S. Chemistry/Biochemistry
University of Montana, United States
United States
rmatt@stanford.edu
Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I study the allosteric regulation of G-protein coupled receptors, and hope to extend our knowledge of crystal structure to dynamic information and timescales of conformational transitions. I find this exciting because the project has great relevance both in basic biology and translational fields.

Research Motivation: I intend to contribute to the understanding of human disease using research methods from both physical and biological disciplines and to develop treatments through translational research.

Christopher Mayack

Ph.D.
Martin Luther University, Germany
United States
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Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in the metabolic factors involved in the evolution of social behavior. I am curious about the physiological trade-offs and constraints that exist when responding to energetic stress across different levels of sociality.

Research Motivation: At first I was drawn to the natural history aspect of biology, I enjoyed learning about different animals. Now I am driven more by the evolutionary mechanistic questions I am interested in. I am also motivated by knowing that my research will contribute to a larger body of scientific knowledge.

Leah Mayo

M.S.
University of Chicago, United States
United States
mayoleah@gmail.com
Fellow of the Alcoa Foundation

Scientific & Research Interests: Human behavioral pharmacology, in combination with brain imaging techniques (functional magnetic resonance imaging, positron emission tomography), genetic approaches, indices of physiological state, and measures of behavior and cognition.

Research Motivation: My motivation for science is to understand how variation in neurobiology, physiology, genetics, behavior, and cognition can influence response to drugs of abuse, and in turn, vulnerability to developing problematic drug use.

Paolo Mazzola

M.D.
University of Milano-Bicocca, Department of Health Sciences, Italy
Italy
paolo.mazzola@unimib.it
Fellow of the Fondazione Cariplo

Scientific & Research Interests: Alzheimer's Disease and other dementias, Neurodegeneration, Geriatric medicine, Orthogeriatrics and ostheoporosis, Delirium and geriatric syndromes, Epidemiologic research, Palliative medicine, end-of-life care in the elderly. Animal models of geriatric conditions, preclinic research.

Research Motivation: I always wanted to increase my knowledge, and often desired to contribute, albeit in small steps, to science. I hope that love for science, so clearly expressed by many young scientists worldwide, will prompt the institutions and the media to promote research. From small steps to giant strides.

Jordan McCall

M.P.H.
Washington University in St. Louis, United States
United States
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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: I seek to understand the brain circuitry underlying stress-induced states such as anxiety, pain, and addiction. To do so, I develop optoelectronic brain interfaces to use in conjunction with in vivo optogenetics to examine noradrenergic locus coeruleus circuitry in these behaviors.

Research Motivation: The joy of discovery may sound trite, but the idea of finding novel solutions to previously unsolved problems is inherently motivating for me. Science is the perfect fit for my personality, offering an avenue for constant discovery and innovation with the hopes of improving our world in the end.

Fergus McCarthy

PhD
University College Cork, Ireland
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Fellow of the Irish Research Council

Scientific & Research Interests: Maternal health, Pregnancy outcomes, Developmental Origins of Disease, Basic Sciences, Clinical Medicine, Obstetrics and Gynaecology; Epidemiology, Clinical Education

Research Motivation: To research and develop tests that predict, and interventions that prevent, adverse maternal and fetal outcomes; To improve pregnancy outcomes and long term childhealth; To leave the world in a better place than I found it.

Kyle McCracken

B.S.
University of Cincinnati, United States
United States
mccrackenkw@gmail.com
Fellow of the Alcoa Foundation

Scientific & Research Interests: Developmental biology, endoderm patterning and organ specification, stem cells, in vitro stem cell differentiation, tissue engineering, regenerative medicine

Research Motivation: I am interested in understanding and investigating biological processes and mechanisms, and how they relate to human health and disease.

David McIlwain

PhD
Stanford University, United States
Canada
davemcilwain@gmail.com
Fellow of the AKB Stiftung

Scientific & Research Interests: I am interested in identifying targets for therapeutic intervention of cancer and immune responses. Specific interests include understanding mechanisms of protease mediated cell signalling, uncovering factors controlling antiviral immunity, and analysing systems level biology of single cells.

Research Motivation: I have a drive to understand the world around me, and am motivated by the pleasure of finding things out. I can think of no better, or more rewarding, career than being allowed to creatively explore human physiology and disease with the aim of improving people's lives.

Pedro P. Medina

PhD
UniversiCNIO (Spain), Yale University (CT), University of Granada, Spain
Spain
pedromedina@ugr.es
Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Gene Expression Regulation, Molecular Biology of the Cancer, Non-coding RNAs, MicroRNAs, Chromatin-remodelling complexes, Tumor supresor genes, Oncogenes, Animal Models

Research Motivation: Since very young I was interested in biomedicine research. I thought that as a clinical doctor I could do a big impact in society curing hundreds or thousands of patients during my lifetime. However, as biomedical researcher I could contribute to do a bigger impact in the society that may endure longer.

Monika

PhD
Yong Loo Lin School of Medicine, Singapore
India
mehta1990.2008@gmail.com
Fellow of the AKB Stiftung

Scientific & Research Interests: I am mainly interested in completely understanding the molecular mechanism of TCR signalling as the normal development of the T cell receptor (TCR) repertoire depends on processes of positive and negative selection which requires careful regulation of TCR signal strength.

Research Motivation: My motivation for science is that doing science makes me happy and gives me internal satisfaction which is most important for me. I can always learn new and news and there is no end. Even in the end there will be something which is not yet known and that drives my passion for science. I just love it.

María José Mendiburo

Ph.D.
Max F. Perutz Laboratories, Austria
Chile
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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in nuclear organization and epigenetics, and how they impact gene expression and genome stability.

Research Motivation: The main reason why I decided to do science was simply a fascination with nature and the feeling that I could contribute to its understanding. It is a challenging task, but that is what makes it so much fun.

Stefanie Menges

University Hospital Erlangen, Germany
Germany
stefanie.menges@uk-erlangen.de
Fellow of the Wilhelm Sander-Stiftung

Scientific & Research Interests: Molecular mechanisms of neurodegenerative diseases, the role of novel alpha-Synuclein mutations, oxidative stress and mitochondrial dysfunction in Parkinson's disease

Research Motivation: Tackling challenging tasks every day and contributing to the progress in achieving the primary common goal to understand the human body and to implement this knowledge in novel options to cure diseases by developing, sharing, and realizing ideas - this is what motivates me for science and research.

Felicitas Merz

Dr. rer. med.
University of Leipzig, Institute of Anatomy, Germany
Germany
felicitas.merz@medizin.uni-leipzig.de
Fellow of the Helmholtz Association of German Research Centres

Scientific & Research Interests: My research is focused on cancer, especially glioblastoma. We established an organotypic culture system for primary human tumor tissue and started to analyse effects of drugs and irradiation. Next, we want to investigate and overcome resistance mechanisms of cells surviving the treatments.

Research Motivation: My motivation for science has two main aspects: first, as a scientist you have a high level of freedom in choosing your projects and collaborations, so you can actively shape your working life. Second, I hope that some of my work will be meaningful enough to make a difference in the future.

Alexandra Meuter

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Ludwig-Maximilians-Universität München, Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Tumor Biology, Genetics, Breast Cancer, Gynecologic Cancers, Reproductive Endocrinology and Infertility

Research Motivation: The most powerful motivator for science is the curiosity hidden inside of me. I am particularly fascinated by the complexity and cleverness of cancer cells. Science and research offer countless opportunities for creative, innovative work potentially leading to new discoveries and better patient care.

Bechara Mfarrej

M.Sc.
Universita' Vita Salute, Ospedale San Raffaele, Italy
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Supported by the European Commission - Marie Curie Actions and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Therapeutically-induced immune tolerance and cell-cell interactions in a murine islet transplantation, and in vitro generation of IL-10-producing regulatory T cells for therapeutic use in immune-mediated diseases and transplantation in humans.

Research Motivation: The door to research was opened to me by a passionate professor at university. The rationale and methodology behind scientific research match the way I see things around me. My passion for science grew with the years, knowledge, effort and experience.

Kaja Milanowska

Ph.D.
Adam Mickiewicz University, Poland
Poland
kaja@genesilico.pl
Supported by the Foundation for Polish Science and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: New Generation Sequencing - bioinformatic analysis of data from high-throughput methods. Programming, algorithms and developing programs for bioinformatic analysis.

Research Motivation: The most interesting things are those yet to be discovered. That is my motivation. I like discovering, understanding and learning new things.

Přemysl Mladěnka

Ass.Prof.
Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Czech Republic
Czech Republic
mladenkap@faf.cuni.cz
Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Cardiovascular pharmacology, in particular drugs affecting coronary heart disease (treatment of acute myocardial infarction, anti-platelet drugs, vasoactive drugs), iron and copper chelators, flavonoids and other polyphenols

Research Motivation: Cardiovascular diseases have been remaining the main cause of morbidity and mortality. So the research in this field may contribute to better understanding of pathophysiology and could possibly lead to novel rational therapies. On the other hand, possible adverse effect must be always considered.

Erika Moen

M.S.
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Fellow of Mars, Incorporated

Scientific & Research Interests: By studying and applying discoveries in the fields of genomics, epigenomics, and transcriptional networks, I am interested in advancing precision medicine. With my current and future research, I aim to work towards optimizing treatment strategies for cancer patients at the level of the individual.

Research Motivation: I became interested in biomedical research because of my desire to have a positive impact on patient health. With the advances in technology and communication, I believe that now is an exciting time to be in science, and I feel privileged to be a part of the effort to improve cancer treatment.

Purusottam Mohapatra

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KIIT University, India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: I am studying the involvement of different signaling cascades in cancer progression, metastasis and cancer stem cell maintenance. I have some knowledge and great interest in advanced microscopy. In future I would like to explore some research areas of carcinogenesis and developmental biology.

Research Motivation: I am always attracted towards different biological events. I believe good science leads to a bright future of mankind. I know that I am heading towards an exciting future where I will become a part of new scientific resolutions.

Fabian Mohr

Master of Science
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: DNA Cytosine Methylation and Hydroxymethylation, Acute Myeloid Leukemia, Induced Pluripotent Stem Cells, Embryonic Stem Cells, Adult Stem Cells, Hematopoiesis, Cancer

Research Motivation: Natural curiosity, the challenge to understand complex matter, creating meaningful and substantive knowledge

Remco Molenaar

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Netherlands
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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Molecular Cell Biology, Oncology, Cell Metabolism, Genetics

Research Motivation: Doing things that no one has done before and extending the limits of human understanding...every day.

Maria Molina

Dr.
Freie Universität Berlin, Germany
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Fellow of the Bert L. and N. Kuggie Vallee Foundation, USA

Scientific & Research Interests: Nanogels, Nanomedicine, Anticancer Therapy, Polymers, Drug Delivery Systems

Research Motivation: Since I come from Argentina, a developing country, my motivation for studying sciences was to improve the living conditions of the people. Produce science and new technologies for the people and for the development of the country.

Michelle Monasky

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Universitá Vita-Salute San Raffaele, Italy
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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cardiovascular science, with emphasis in signaling to the sarcomeric proteins. Functional response and molecular mechanism in animal models of diastolic dysfunction, hypertrophy, pressure overload, ischemia/reperfusion, and post-ischemic cardiac remodeling. Experience in drug mechanism discovery.

Research Motivation: Having realized the limitations of science and medicine, I am working to seek creative innovations to understand heart dysfunction during a heart attack episode, hoping that this translational research will one day improve the patients' outcomes.

Anastasios Moressis

PhD
Friedrich Miescher Institute for Biomedical Research, Switzerland
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Fellow of the Alexander S. Onassis Public Benefit Foundation

Scientific & Research Interests: Neurobiology of learning and memory, molecular neurogenetics, olfaction, neural circuits, computational neuroscience, neuromodulation

Research Motivation: I consider as my source of motivation in research, the joy of discovery and the challenges involved in trying to answer the fundamental question that defines our very existence: how our memories are formed and how our intelligence emerges from the billions of neurons that constitute our brain.

Dimitrios Mougiakakos

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Cancer Immunology, Cancer Metabolism, Transplantation Immunology

Research Motivation: During my studies and my efforts to become a physician as good as possible I realized - especially when I started my clinical curriculum - how many questions still remain unanswered. Ever since I sought out to combine my clinical work with research.

Janis A Müller

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: HIV, AIDS, Virology, Restriction Factors, Antiviral Therapy, Microbicides, Gene Therapy, Vaccination, Immunology, Amyloid, Amyloid Fibrils, Alzheimer's Disease, Degenerative Diseases, Confocal Microscopy, Fluorescence Microscopy, Electron Microscopy, Nanotechnology, Cathepsin, CXCR4, IFI16

Research Motivation: I am generally fascinated how the laws of nature work together to form life. My high interest in how the human body functions drove my decision to study Molecular Medicine. I aim to understand its physiology and malfunction and ideally to develop new strategies to prevent or cure diseases.

Fabian Müller

Msc
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Fellow of the Max Planck Society

Scientific & Research Interests: Computational Epigenetics

Research Motivation: In my view, the Lindau Meeting takes the best of many worlds to advance research by creating a stimulating environment for exchanging and discussing ideas.

Ammara Mushtaq

Medical Student
Dow University of Health Sciences, Pakistan
Pakistan
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Supported by the Pakistan Institute of Engineering and Applied Sciences (PIEAS) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Infectious diseases, Internal Medicine, Medical Education.

Research Motivation: I believe good mentorship is crucial to academic success. I have had the fortune of being mentored by some of the leading and eminent scientists and through this meeting, I look forward to learn, exchange notions, and engage in a scholarly discourse with highbrows who have executed the best science.

Michael Myoga

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Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Auditory Neuroscience, Synaptic Transmission, Synaptic Plasticity, Neural Circuits, Calcium Imaging, Electrophysiology, Two-photon Fluorescence Microscopy, Optogenetics.

Research Motivation: I have long been fascinated with the brain, arguably the most complex and enigmatic structure in the body. My love of music sparked a specific interest in the auditory system, which we understand much less compared to other sensory systems.

Sundar Naganathan

PhD
Max Planck Institute of Molecular Cell Biology and Genetics, Germany
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am generally interested in employing a top-down approach to understand the diverse strategies that different species utilize to accomplish morphogenesis. From this, one can then attempt to get a hold on the evolutionary constraints that shape up organisms.

Yoshihisa Nakahata

Ph.D.
National Institute for Physiological Sciences, Japan
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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: Neurophysiology, Electrophysiology, Live cell imaging

Research Motivation: In my understanding, science is a way of illustrating the world. And it is the most interesting process to reveal hidden phenomena, connections, mechanisms and principles. I do hope to contribute elucidating the unrevealed principles of neural reorganization after the brain injury.

Kyohei Nakamura

MD
Tohoku University, Department Hematology and Rheumatology, Japan
Japan
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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: During my first 2 years in Ph.D., I was involved in NK-cell biology, focused on tumor-induced regulation of NK-cell. And now I am studying inflammasome, which plays key roles in inflammatory disease. I would like to reveal the complex crosstalk between tumor and inflammation in future.

Research Motivation: I am a physician specializing in hematology and rheumatology. I have faced many patients who suffer from currently untreatable cancer or autoimmune diseases. I sincerely wish to contribute to patient care through research.

Dhanya Nambiar

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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Carcinogenesis, Radiation Biology, Cancer Prevention

Research Motivation: As a student science inspires me as it brings new challenges and unanswered questions every single day. Each experiment I do for me is like a wrapped gift box to be opened. It intrigues and brings in a sense of anticipation. Added to this, it nurtures and benefits the society.

Nazia Nasir

Master of Sciences (M. Sc)
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My interests include structural determination of membrane proteins and macromolecular complexes of biologically significant molecules along with their biochemical characterization. I would further like to expand my comprehension on other structural biology tools, beyond X-ray crystallography.

Research Motivation: Despite being aware of the challenges and the length of time involved in research, I chose to pursue my PhD in biological sciences for the mere satisfaction of my urge to understand nature at the molecular level, and also to be able to provide a stepping stone towards the path of better health.

Danny Nedialkova

PhD
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Fellow of the Max Planck Society

Scientific & Research Interests: RNA biology, RNA modifications, Translation Regulation, Cotranslational Protein Folding, Protein Quality Control, Viral Replication, Virus-Host Interactions, Viral Enzymes

Research Motivation: Throughout my scientific career, I have been driven by curiosity and the will to understand the principles governing fundamental molecular processes in cells. I enjoy the thrill of discovery, as well as finding ways to surmount the various challenges research presents.

Bożena Nejman-Faleńczyk

Ph.D.
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Supported by the Foundation for Polish Science and the Foundation Lindau Nobel Laureate Meetings in Memory of Joachim Sorger

Scientific & Research Interests: Molecular analysis of phage and bacteria development, Molecular diagnostic methods of microbial pathogens and Bacterial small noncoding RNA regulators

Research Motivation: In my case, the motivation for science can be expressed by words of Albert Einstein: "We still do not know one thousandth of one percent of what nature has revealed to us. Look deep, deep into nature, and then you will understand everything better."

Ben Newland

PhD
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am interested in creating and analysing new materials for applications in future Parkinson's disease therapies. At present there is a lack of any disease modifying therapies. Material science may play a future role in improving transplant survival, neuroprotection, or brain repair.

Research Motivation: Since my mother's diagnosis (Parkinson's disease), I have become increasingly more interested in PD, deciding over the last two years to dedicate myself to PD research. I want to strive towards an end product, or end accomplishment (be it greater understanding or knowledge) without losing direction.

Shyh-Chang Ng

Ph.D.
Harvard University, United States
Singapore
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Fellow of the National Research Foundation (NRF), Singapore

Scientific & Research Interests: Stem cell biology, Cellular metabolism, Obesity, Diabetes and Cancer, Regenerative medicine

Research Motivation: My goal as a scientist is to make regenerative and anti-aging medicine a reality, using my expertise in cellular metabolism.

Kim Tien Ng

MSc
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Supported by the Academy of Sciences Malaysia and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: 1) Evolutionary history of RNA viruses e.g HIV-1, Hepatitis C virus, respiratory viruses 2) Small animal models such as humanized mice to study host-viral interactions. Through understanding of the evolutionary history and host-viral interactions, effective treatment measure can be made possible.

Research Motivation: To assist the development of effective preventive measures and treatment, alleviating the disease burdens and improving the quality of life. Motto: Making bench to bedside possible.

Katarzyna Niespodziana

Ph.D.
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Poland
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Fellow of the Austrian Federal Ministry of Science and Research

Scientific & Research Interests: Viruses, immune responses, viral strategies of immune evasion, development of innovative approaches to prevent, diagnose and treat infectious diseases.

Research Motivation: Curiosity and eagerness to explore are my major stimuli. They are in everyone, but they are more prominent in some than in others. Some are never satisfied with the status quo and, thanks to them humanity keeps moving toward progress so that tomorrow is always better than today. This keeps me going.

Ivana Nikić

PhD
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Supported by the European Molecular Biology Laboratory (EMBL) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: chemical biology, click-chemistry, super-resolution microscopy, in vivo microscopy, cell biology, neurobiology

Research Motivation: Curiosity is my main driving force for doing science. Exploring the unknown and learning more are both stimulating and rewarding. That is why I enjoy working in a research lab environment where new ideas are being born and exchanged constantly.

Petra Nnamani

Ph.D
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Fellow of Festo AG & Co. KG

Scientific & Research Interests: Research is focused on the development and characterization of biocompatible and biodegradable systems for drug delivery (e.g. antimalarials and antibiotics) involving micro and nanoparticle systems as well as macro-systems (polymeric films) for buccal mucosa and wound healing applications.

Research Motivation: Any sort of challenging work and as long as I feel I am fulfilling a greater purpose in helping to make the world a better place. To me personal growth is a very important motivating factor especially when I set goals that track my progress to mastery. Joy, team work and positive outcomes add to it.

Tracy Norman

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United States
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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: Gait biomechanics and neuromechanics, Human gait transitions, Neural control of interlimb coordination during locomotion, Lower limb amputee gait, Lower limb prosthesis and orthosis design and use, Electromyography, Gait rehabilitation

Research Motivation: My current research investigating human gait transitions and interlimb coordination contributes to the basic science knowledge regarding locomotor control. It also has applications to gait training and rehabilitation, locomotion of legged robots, and powered prostheses design.

Janin Nouhin

MSc.
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Fellow of the AKB Stiftung

Scientific & Research Interests: HIV, Immunology, Virology, Molecular Biology, Bioinformatics, Public Health, and Resource Limited Settings.

Research Motivation: I have been addicted by three main questions: Who are we?, Where do we come from? and Where are we going? Many theories can explain or answer to these questions. However, I am personally interested in "mechanism" and "interactions" between each element occurring in any events of the nature.

Mun Peak Nyon

PhD
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Malaysia
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Protein structural biology, mass spectrometry proteomics, protein folding, NMR, X-ray crystallography

Research Motivation: Scientific research is vital to the advancement of mankind. It is limitless and interdisciplinary on nature. It is said that to answer one scientific question at least 10 more must be asked, which is why it is so satisfying when an answer is discovered.

Fionn O'Brien

Ph.D.
School of Pharmacy, University College London, United Kingdom
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Fellow of the Irish Research Council

Scientific & Research Interests: Drug delivery, pharmacokinetics, drug formulation, nanoparticle-based drug delivery systems, oral drug absorption, blood-brain barrier, pharmacology, neuropsychopharmacology, psychiatry.

Research Motivation: I am motivated by a desire to develop drug delivery strategies to improve outcomes in intractable diseases. My Ph.D. studies focused on drug transport across the blood-brain barrier, while my current research is centred on nanoparticle-based oral drug delivery systems.

Colette O'Shaughnessy

PhD
The University of Birmingham, United Kingdom
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: My research interests are focused on basic and clinical immunology to infectious diseases, in particular nontyphoidal salmonella and TB. I am interested in vaccine development and the translation of laboratory findings into novel vaccines.

Research Motivation: I am driven by a desire to do research that makes a difference and contributes to improving global health through the development of novel vaccines. I enjoy the many challenges and opportunities that a career in science brings.

Victoria Ohla

MD
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Supported by The Association of German Engineers and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Neurooncology and Stereotactic Neurosurgery

Research Motivation: The challenge of pushing the boundaries of our thoughts and knowledge has been the most compelling motivation for me in science. It is up to ourselves to read the brilliance of nature and utilizing the data of our experiments in order to have an improving impact in the field of medicine.

Jasmine A. Oliver

B.S.
University of South Florida, United States
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Fellow of Mars, Incorporated

Scientific & Research Interests: Advances in Medical Imaging, Positron Emission Tomography (PET), Computed Tomography (CT), Medical Physics, Image Processing, Texture Analysis, Radiation Therapy Treatment, Cancer Treatment

Research Motivation: My motivation for science is to improve patient treatment and quality of life for cancer patients and survivors. My research allows me to explore the limitations and techniques used in medical imaging devices that directly contribute to patient treatment planning.

Gani Oruqaj

MD, PhD Candidate
Institute for Anatomy and Cell Biology, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Role of peroxisomes in idiopathic pulmonary fibrosis, lipid metabolism and ROS in pathogenesis of this devastating disease. Regulation of peroxisomes by TGF-b1 signalling. BLM model and inflammation impact on peroxisome proteins. Peroxisome proliferation role in ameliorating fibrotic response.

Research Motivation: I am very privileged and honored to be part of this great event in medical science. The meeting will give me an opportunity to become acquainted with other young colleagues and most importantly meeting the prominent Nobel Laureates. I will have the chance to benefit and learn from their experience.

Anna Oszmiana

Master of Science
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Supported by the European Molecular Biology Organization (EMBO) and Microsoft Corporation

Scientific & Research Interests: Immunology, Cell-cell communication, Superresolution miscroscopy, Single Molecule Localization Methods, Nanoclustering of receptors

Research Motivation: I believe that each person can make a difference to the world, but only if we realize what we are passionate about since great achievements come from passion and dedication. In my research work I face new questions everyday and do my best to answer them and make my small contribution to the society.

Tobias Otto

Ph.D.
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Fellow of the Körber Foundation

Scientific & Research Interests: Role of microRNAs during mouse development and in tumorigenesis. Cancer Biology, Mouse Models of Human Cancer, Neuroblastoma, Lung Cancer, Pancreatic Cancer, Myc family of transcription factors, Aurora-A, microRNAs.

Research Motivation: What motivates me is the prospect of understanding how tiny molecules such as microRNAs contribute to tissue development, how disruption of their function can lead to disease, and how they can be exploited for novel therapeutic approaches in cancer, cardiovascular and neurodegenerative diseases.

Marielle Ousset

PhD
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Supported by the Fonds National de la Recherche Scientifique, Belgium and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Stem cells, Developmental Biology and homeostasis, Cellular dynamics, Glandular epithelium, Tumor hypoxia, DNA repair

Manami Oya

The University of Tokyo, Japan
Japan
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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: I'm majoring in cell physiology. I would like to reveal molecular mechanisms which regulate hormone secretion from various organs. My new interest is relationships between emotion and hormone. I think hormone probably acts on brain and regulates our emotion.

Research Motivation: My curiosity motivates me for research. In our body, there are many mechanisms which regulate various physical activities to maintain our homeostasis. Most of those mechanisms have not been elucidated yet. I'm curious about those mechanisms and I have a enthusiasm to reveal them.

Alice Lucia Panariti

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Fellow of the Fondazione Cariplo

Scientific & Research Interests: Pulmonary patho-physiology, role of hypoxia on the remodeling of cardiopulmonary tissue, cellular physiology, interaction of nanoparticles with biological membranes

Research Motivation: The opportunity to meet Nobel Laureates represents for me an enriching chance for both professional as well as personal growth. According my professional background and research experiences, it is an honour for a young postdoctoral scientist like me to participate in the 2014 Lindau Meeting.

Juan Pablo Pánico-Molina

Bachelor in Sciences
Universidad Nacional Autónoma de México, Mexico
Mexico
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Supported by the Mexican Academy of Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cell Biology, Biomedicine, Calpain protein family, Environmental Toxicology, Arsenic, Glucose Homeostasis

Research Motivation: Science should be one of the most important mainstays of the modern civilization, principally due to the impact that scientific research has over medicine, quality of life of the people and environment.

Margarita Papulova

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Russian Federation
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Supported by Siemens AG

Scientific & Research Interests: Metabolic syndrome, nutrigenetics, genetics, metabolomics, dyslipidemia, preventive pediatrics, pharmacogenetics

Research Motivation: Three main reasons motivating me in science are a desire to change our lives by bringing in new ideas, an aspiration to improve my experience and an interest in the laws and logic of science.

Sophia J. Parker-Manuel

PhD
Justus-Liebig-Universität-Gießen, Institut für Parasitology, Germany
United Kingdom
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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Biochemistry, Molecular Biology, Functional genomics, Protein-Protein interactions, Parasitology, Neglected Tropical Diseases, Schistosoma mansoni, Identification of potential drug targets

Research Motivation: I am fascinated by biology. I am motivated by the possibility of contributing to new treatments for neglected tropical diseases, schistosomiasis in particular.

Jyotsana Parmar

Ph.D.
Indian Institute of Technology Bombay, India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: I am trying to understand the mechanism, regulation and dynamics involved in DNA packaging inside nucleus and its effect on transcriptional regulation. This study is very interesting as the positioning and dynamics of nucleosomes in promoters and gene regions are supposed to control transcription.

Research Motivation: The liberty of asking questions and finding reasons motivates me to do science. General principles of physics and chemistry allow me to tackle basic biological questions, which are still not clear. The learning process itself is very aspiring and always encourages me to assimilate new concepts.

Leopold Parts

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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: Genetic basis of heritable traits, Genetic screens, Genome modification, mRNA abundance variation, Protein level variation, Stochasticity in cellular phenotypes, Computational biology and Probabilistic modelling

Research Motivation: I am driven by the joys of discovery and communication. It is rewarding to finally see the first data with actual signal after painfully setting up an experiment. A wonderful way to be every day is to talk to students, share insight with colleagues, and read and write about how the world works.

Hirak Patra

PhD
Linkoping University, Sweden
India
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: My research interest is in the field of nano-biology with experimental feedback and try to develop new nanotechnologies that will help me to understand the basic existing problems in natural and medical science, as an independent investigator in an academic institution.

Research Motivation: To contribute to the mankind by virtue of quality research and personal dedication in the field of biochemical sciences and nanotechnology. I'm confident that my passion for the research and development, together with my skills and experience will enable me to make a significant contribution.

Marina Pavlidou

Ph.D.

Forschungszentrum Jülich, Institute of Complex Systems (CS-6) / Structural Biochemistry, Germany

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Supported by acatech - Deutsche Akademie der Technikwissenschaften and Microsoft Corporation

Scientific & Research Interests: protein biochemistry, membrane proteins, phage display, drug discovery, neurodegenerative diseases

Research Motivation: The answer to the most pressing matters of our society will come through scientific research. My field of research combines biophysics and biochemistry with possible applications in medical and industrial biotechnology and gives me the opportunity to contribute to creative solutions for the future.

Vinay Pawar

M.Tech

Helmholtz Center For Infection Research, Germany

India

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: My interest and expertise are in field of microbiology, immunology, biofilm related infections, nanotechnology and animal experiments.

Research Motivation: I have natural inclination towards science & research with great interest in microbiology & medicine. I have good experience on bacterial infections through various projects. My aim is to contribute significantly to this field by pursuing PhD and also to do further research in this area.

Luca Pellegrinet

Ph.D.

University of Cambridge, Department of Biochemistry, United Kingdom

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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: I am a molecular biologist and after conducting a Ph.D. in the stem cell field, I am now working in cancer biology. My research focuses on defining the molecular mechanism of action of the main nodes in the oncogenic and tumour-suppressor network.

Research Motivation: Since a child I do remember myself as always been attracted into look what inside of things, and trying to disassemble every object passed in my hands. I kept my motivation into searching for mechanisms and explanations for what we "see" and direct my energy into life sciences.

Alexandre Peluffo

Master in Genetics

Ecole Normale Supérieure and Université Pierre et Marie Curie, France

France

Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: I am interested in all aspects of evolutionary biology. More specifically in the evolution of development and the genetics of evolution. I work on this subject using drosophila species as a model system and by focusing on the morphogenesis of appendages linked to speciation.

Research Motivation: I see in science 4 great opportunities: trying (at least having the impression) to answer the question that drives me: why things are the way they are (the evolutionary approach), connecting with others through knowledge (the scientific currency), dissecting the complexity of the world and having fun!

Tingying Peng

Technical University Munich, Germany

China

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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Molecular imaging, microscopy image processing and quantitative analysis, machine learning for medical applications and mathematical modeling of physiological process

Research Motivation: Currently my motivation for science is two-fold: research and translate the state-of-art technology in one domain to the other, in my case, from engineering to biomedical fields and I enjoy free discussion and exchange of ideas in academia without taking commercial interest into account.

Osnat Penn

Ph.D.

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Israel

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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Hominid-specific gene duplications - evolution, expression, and association with brain development and disease

Research Motivation: I am passionate about science in general, and evolution and genetics in specific. The rapid advance of genomic sequencing technologies and the vast amount of data they produced motivate me to harness the power of computers to study our genome, how it evolved, and how mutations in it lead to disease.

Alessia Perino

Ph.D.
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Supported by the European Molecular Biology Organization (EMBO) and Microsoft Corporation

Scientific & Research Interests: G protein-coupled receptors, TGR5, bile acids, cell signaling and molecular biology, obesity and diabetes, cardiovascular, inflammation

Research Motivation: Science is my job but I can consider it also as a hobby. I enjoy doing science and I am excited from learning and discovering something new every day.

Nico Pfeifer

Dr. rer. nat.
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Germany
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Fellow of the Max Planck Society

Scientific & Research Interests: Developing new statistical learning methods to answer new biomedical questions. Application areas include HIV, HCV, Influenza, and epigenetics. Method interest: integration of heterogeneous data sets, improving interpretability of non-linear estimators, and efficient learning methods for big data.

Research Motivation: I have a keen interest in understanding how mechanisms work and contributing to important medical research like HIV vaccine/drug resistance research with the goal of preventing, treating or curing diseases. This is accompanied by my fascination for building better statistical learning methods.

Olga Pivovarova

Ph.D.
German Institute of Human Nutrition Potsdam-Rebrücke, Germany
Russian Federation
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Fellow of the Jörnvall Foundation, Sweden

Scientific & Research Interests: Molecular biology, cell biology, metabolic diseases, diabetes, obesity, nutrition, system biology

Research Motivation: I'm very interested in the nature around me and its mechanisms. In my opinion, a carrier of scientist is one of the most creative and challenging work stimulating personal growth and advancement.

Tino Pleiner

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Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cell Biology and Biochemistry: Structure and Function of the Nuclear Pore Complex (NPC), Phage Display, Alternative Protein-binding Scaffolds, Nanobody Discovery from Alpaca Immune Libraries

Research Motivation: Science is fun and I feel very privileged to be able to do it. My curiosity is motivating me every morning to jump out of my bed and to start a new day of experiments. I especially enjoy the process of communicating science with others to obtain novel insights and valuable feedback.

York Posor

Dr. rer. nat.
University College London, United Kingdom
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Fellow of the Leibniz Association

Scientific & Research Interests: Cell biology, Phosphoinositides, Phosphoinositide 3-kinases, in particular class II PI3Ks

Research Motivation: Science to me has proven to be rewarding on different levels. The fascination of discovery allows for an exciting everyday work experience. Furthermore, with this work I contribute to the fundamental biological understanding that underlies medical progress - and thereby to social welfare.

Anja Possart

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Supported by Suedwestmetall and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in how plants have developed the capacity to adapt to an ever-changing environment during evolution. Through comparative molecular and physiological analysis of mosses and seed plants, I aim at understanding the evolution of processes that enable plants to perceive and access light.

Research Motivation: Plants constitute the source of all food production. As sessile organisms they have a particular need to adapt to their environment. With my work I want to contribute to a better understanding of the cellular and molecular processes that underlie plant development and adaptation.

Kanlaya Prapainop

DPhil (Oxon)
Mahidol University and Centre for BioNano Interactions (UCD, Ireland), Thailand
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am interested in developing nanomaterials for cell-specific targeting, for studying interactions between nanoparticles and other cells, and for studying enzyme behaviour in nanocompartments.

Research Motivation: I see nanotechnology as a cutting edge tool for drug delivery and targeting. This research area is relatively new, therefore, lots of fundamental questions remain to be answered. It also requires exchange of knowledge and skills and collaborations in order to drive this field forward.

Lucia Prieto Godino

PhD
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Development and evolution of the brain. For my research at the moment I use as a model the olfactory system of closely related Drosophila species. To gain a deep insight into this question I combine molecular biology, genomics, eletrophysiology, imaging techniques and behaviour.

Research Motivation: I am thrilled about discovering the way the brain works and evolves. When I am about to find out the result of an interesting experiment, my heart beats faster, it is one of the most exciting experiences I can imagine! Besides this, I believe that humanity advances through scientific discoveries.

Olga Prokopets

PhD
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: GPCR signaling and G-protein subtype selectivity, Fluorescence microscopy, Receptor Pharmacology, Cell signaling, Molecular mechanisms of Pharmacological Action, Molecular Biology and Biochemistry, Cancer Biology, Target therapy, Protein Purification, Recombinant proteins

Research Motivation: To be a scientist is to be a dedicated researcher; to have a calling. It is not a profession but a lifestyle. I find the opportunity of continuous self-education, personal fulfillment and development as the main criteria of any scientific work.

Valeria Prystopiuk

Master of Science
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Fellow of bayme vbm vbw

Scientific & Research Interests: Cell's Nanomechanics, Atomic Force Microscopy (AFM), BioAFM, Correlative Microscopy, Cytoskeletal Rearrangements, Mechanosensing, Vascular Physiology

Research Motivation: I strongly believe that better understanding of fundamental biological processes will help to answer critical and important questions of health problems and thus will make people happier. This is the main reason why I decided to devote my life to science and research.

Luciana M. Pujol Lereis

Ph.D.
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Argentina
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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: I am interested in studying the aging process and age-related diseases. Specifically, I focus on the role of lipids in oxidative stress processes and changes in lipid profiles with age and disease. I am also interested in the autoimmune and inflammatory response against oxidized lipid products.

Research Motivation: I have always had a motivation for understanding and questioning our surroundings. Thus, I followed a scientific career to better understand life processes and to contribute myself to the general scientific knowledge, and to the sustainable development of our globalized society.

Muhammad Asif Qureshi

PhD
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Pakistan
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Supported by the Pakistan Institute of Engineering and Applied Sciences (PIEAS) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Tumour Immunology and Medical Education

Helin Räägel

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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Cell polarity, Actin cytoskeleton, Tissue mechanics, Tissue architecture

Research Motivation: The discoveries made by researchers shape the future of the world by unraveling the fundamental processes of life. My own research, for example, aims at identifying the processes of how single cells make up a functional tissue, using liver as a model system.

Sreejith Rajasekharan

Ph.D. candidate
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My research interest is to study molecular and cell biology of pathogen-host/vector interactions during infectious diseases. I am interested in identifying the interactions that allow the pathogens to remodel and take control of the host cell and illuminate new arenas of disease intervention.

Research Motivation: A research-based career has been my ambition since my bachelors. However, science (Biology in particular) has been my favorite subject even before high school. I cannot recall what lead to this favoritism but even today any topic of discussion in any branch of Biology interests me.

Mayyasa Rammah

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Supported by the European Commission - Marie Curie Actions and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: I am interested in studying the molecular, genetic and cellular mechanisms underlying physiological processes that when altered lead to the emergence of human illnesses particularly those of global impact like cancer, diabetes and cardiovascular disease.

Research Motivation: Advances in basic & applied biosciences are tremendous, yet more remains to be done. Millions still get incurable cancer. HIV still ravages entire countries. Heart disease & diabetes treatment can still be improved. This motivates me to be part of a scientific community improving the human health.

Dragan Rangelov

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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: As both daily life and neuroscience show, human representational abilities are immense. Even a simple object, e.g. a book, can be represented in numerous, often redundant ways, e.g. as heavy or exciting. I investigate mechanisms that reduce this redundancy and result in adaptive behaviour.

Research Motivation: The diversity of human thought and action never stops surprising me. Being able to explain and predict how people feel and behave is a deeply satisfying experience for me. Science, in particular neuroscience, offers me a chance to pursue my interest in explaining human cognition and actions.

Moritz Rapp

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LMU, Division of Clinical Pharmacology, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: The aim of my research is to investigate fundamental mechanisms of tumor immunology and autoimmune disorders with the purpose to contribute to the development of new therapeutic approaches. In particular, I am working with regulatory T cells and other cell subsets of the adaptive immune system.

Research Motivation: My motivation for science is being involved in the new and exciting field of immunotherapy. It is my aim to make a crucial contribution to the challenging fight against cancer and other life-threatening diseases by developing new immunotherapeutic approaches.

Saima Rasheed

Ph.D.
H. E. J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Pakistan
Pakistan
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: As a young scientist I'm interested in the research focusing on diabetes including antiglycation, enzyme inhibition and antioxidant studies. Having vast experience in biochemical assays development and designing. Along with these, I am also working in the field of protein crystallography.

Research Motivation: I consider myself to be a scientist, not only a lab scientist, but someone who tries to apply her research for the betterment of mankind. I find my motivation for applying science for life. Most importantly applying state-of-the-art technologies from lab to the betterment of humanity.

Sutheera Ratanasirintrawoot

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Supported by the National Science and Technology Development Agency, Thailand and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Pluripotent stem cells, stem cell biology, cancer biology

Research Motivation: I hope our scientific finding in stem cell biology can contribute to the knowledge and technical skills needed to translate our understanding to bedside. Additionally, I hope we can make an impact on the society by promoting better understanding in the public sphere which would help ensure that well.

Catharina Reimers

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: neurosciences, electrophysiology, ion channels, venomous animals

Research Motivation: Working in the field of medical research is a great chance to contribute to the scientific progress. In my opinion every single person's work is an important piece of information. And I think we only can improve human knowledge – and thus health – if we put all these pieces together.

Jennifer Remus

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Fellow of the Alcoa Foundation

Scientific & Research Interests: I'm interested in the effect of chronic stress on the nervous system, and how changes in the neuroimmune system contribute to behavior.

Research Motivation: My motivation for science stems from my curiosity and want to understand how the human body works. I find asking questions and devising experiments to examine those questions both exciting and fulfilling!

Kirsty Renfree Short

PhD
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Fellow of the Australian Academy of Science

Scientific & Research Interests: Virology, immunology, respiratory disease

Research Motivation: My hope is to reduce the worldwide burden of influenza virus infection. In particular, I hope that by further understanding the pathogenesis of influenza virus my research will help provide the basis of new therapeutics that target, in particular, individuals that are at a high risk of infection.

Patricia Resa-Infante

PhD
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Fellow of the Leibniz Association

Scientific & Research Interests: The major goal of my research has been focused in understanding the mechanism of action of influenza virus. Although new data are rapidly accumulating in this area, some questions regarding the replication process are still remaining.

Research Motivation: My experience as a researcher has shown me that collaboration and communication are basic in science. I believe it is essential for scientists to share their knowledge and experience with others and, similarly, learn from other peers.

Natalia Hasel Revelo Nuncira

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Neuroscience, cell biology, mechanisms of membrane trafficking, synaptic transmission, STED microscopy, development of new tools for high-resolution microscopy

Research Motivation: As a scientist my main interest is to unveil how cells interact with their environment and with other cells by using high-resolution microscopy. I would like to study the cellular processes involved in membrane trafficking, with deeper insights into synaptic vesicle recycling at sensory synapses.

Douglas Rice

M.S.
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Molecular Imaging, SPECT Imaging, Optical Imaging, PET Imaging, Cancer Imaging, Cell Death Imaging, Bacterial Infection Imaging, Brown Adipose Tissue Imaging, Nanoparticles, Theranostics, Photothermal Light Therapy, Bacterial Spore Decontamination, Nuclear Medicine, Cancer Therapeutics.

Research Motivation: My motivation for scientific research comes from my love for people and my desire to improve the world health care system. Medical research is a very gratifying and rewarding profession. There is nothing more enjoyable than studying the beauty of life in all its forms.

Richard Rogers

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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research interests concern exploring mammalian social behaviors involved with monogamy, and bi-parental care of the young. My current honors thesis seeks to elucidate the involvement of the ventral medial hypothalamus in male parental behavior using a Prairie Vole model.

Research Motivation: I have always felt drawn to the study of brain and behavior, as neuroscience is my calling, but my true passions lie in the expansion and proliferation of scientific understanding. My motivations are driven by a desire to educate young scientists on the complex biochemical mechanisms within the mind.

Brittany Rohrman

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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: Point-of-care Diagnostics, Global Health Technologies, Microfluidics, Lab on a Chip, Isothermal Amplification, Nucleic Acid Detection, Infectious Diseases, Neglected Tropical Diseases, HIV/AIDS

Research Motivation: In college, I majored in physics because of my desire to understand the natural world. Along the way, I realized that I wanted to apply my knowledge to help solve human problems. I decided to pursue a PhD in bioengineering to develop new medical technologies that can improve and save lives.

Johanna Roostalu

PhD
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Fellow of the Bert L. and N. Kuggie Vallee Foundation, USA

Scientific & Research Interests: In vitro reconstitution of cellular processes, microtubules and microtubule associated proteins, molecular motors, cell division

Research Motivation: It is not very original, and others have said it before, but as a scientist I have an opportunity to see and do things that nobody has seen or done before every day; a chance to be curious and solve puzzles for a living; and amazingly, by doing so, contribute to the improvement of public health.

Susanne Roth

MD
Brandeis University, United States
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Immunology and tumor biology

Research Motivation: Improving our understanding of (patho)physiological processes, which could enable the development of better therapeutic strategies.

Maria Rusan

Medical Doctor
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Supported by The Danish Council for Independent Research and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My main research focus has been in infectious diseases of the ear, nose and throat, in particular severe infections requiring hospitalization. More recently I have become interested in the role of HPV in head and neck infections and in the development of head and neck squamous cell carcinoma.

Research Motivation: I am driven by the hope that my research will contribute to more targeted therapies that will improve patients' prognoses and decrease morbidity. I am optimistic about the potential of novel, genomics-based approaches in the implementation of precision medicine.

Femke Rutters

PhD

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am a research biologist interested in genetic, endocrine, and behavioral factors involved in development of body weight and Type 2 Diabetes.

Research Motivation: I am currently a research fellow at the VUmc on a project that brings together several scientific disciplines (genetics, psychology, epidemiology) with the aim of connecting behavioural factors such as sleep to type 2 diabetes and cardiovascular disease.

Dina Safina

MSc.

Ruhr University Bochum, Germany

Russian Federation

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Fellow of the Jörnvall Foundation, Sweden

Scientific & Research Interests: Neural and pluripotent stem cells, cell differentiation and transdifferentiation, developmental neurobiology, conditional knock-out systems, lipoprotein metabolism, regeneration, inflammatory bowl diseases, epilepsy, neurodegenerative diseases

Research Motivation: My general motivation for science is driven by the curiosity to investigate life objects and especially the molecular basis of life, health and disease. I enjoy the methodical part of my work as well as scientific communication, teaching and participation in science-related events.

Antonia Sagona

Ph.D.

University of Warwick, School of Medicine, United Kingdom

Greece

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am interested in cell cycle regulation, cell division, cytokinesis specifically and in identifying the reason why and how faulty cell division leads to aneuploidy and formation of cancer. Additionally, to find out what other cellular mechanisms lead to the same result and how all these are linked.

Research Motivation: My motivation is to accomplish via my research to give answers to crucial questions, such us how cancer is formed and under which conditions. Understanding the molecular biology of cancer will hopefully take us a step further to the design of new drugs for cancer and to the cure of the disease.

Sunil Kumar Saini

Ph.D.

Jacobs University, Bremen, Germany

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cancer Immunotherapy, MHC class I associated antigen presentation at pre-clinical and clinical level. Drug Discovery: Target identification, lead optimization, biochemical and cellular assay development. Setting up new assay technologies and screening platforms for small molecules and peptides.

Research Motivation: I believe in transferring the knowledge gained via basic research to applied science. In particular, research related to therapeutic applications drive me the most.

Christina Sakellariou

MSc

King's College London, United Kingdom

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am a first year PhD student at King's College London working in a cancer immunology group. My focus is on the immunoregulatory processes that occur in the prostate cancer microenvironment and how the development of novel immunotherapeutic agents could reverse this immune tolerance.

Research Motivation: Life motivates me! At the end of an experiment, it is always satisfying to realise that you are a step closer in the bench to the bedside route and to the better treatment of patients.

Adriana Sanchez-Danes

Ph.D.

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Supported by the Fonds National de la Recherche Scientifique, Belgium and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cell biology, developmental biology, stem cells, cancer, skin cancer, skin development and homeostasis, basal cell carcinoma, cellular dynamics, induced pluripotent stem cells, Parkinson's Disease

Research Motivation: Since I was young , I have always been very curious and questioned my teachers and parents the reasoning behind how and why things work. For me science is like a big puzzle and as researchers we have a role to play making its pieces fit together perfectly.

Stefano Sandrone

Master of Science
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Neuroplasticity, neuroimaging, connectional neuroanatomy and history of neuroscience

Research Motivation: I love science because it is an amazing mix of inspiration, passion and resilience that fires my synapses. It is a continuous learning process where our ideas challenge other people's ideas to push the boundaries of knowledge and have a positive impact on our lives.

Caroline J. Sands

PhD
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Fellow of Microsoft Corporation

Scientific & Research Interests: Targeted and exploratory high-throughput metabolic phenotyping, computational medicine, data modeling and interpretation, quality control assessment, patient and population based biomarker discovery and validation, mass-spectrometry, nuclear magnetic resonance spectroscopy

Research Motivation: Increasing our understanding of the human body in health and disease, ultimately to develop metabolic phenotyping based patient-personalised medicine is a major research goal for me. I am also inspired by discussion and collaboration with others, and as such, am thrilled to be attending this meeting.

Javier Santos-Aberturas

Ph. D.
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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Molecular Biology, Microbiology, Secondary Metabolism, Antifungals, Synthetic Biology, Directed Evolution.

Research Motivation: In my opinion, basic and applied research are the most important and straighforward ways in which creativity can serve the interest of society. I consider that the discovery of new antibiotics is my main working field, so the implications of my research for human health are quite easy to explain.

Víctor Sarachaga

Ms
German Cancer Research Center (DKFZ), Germany
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Fellow of bayme vbm vbw

Scientific & Research Interests: Virus-host interactions, regulation of gene expression, non-coding RNA, epigenomics

Research Motivation: My main motivations to work in science are two: making contributions to understand the biological processes that govern living being nature, specially humans, and trying to apply these contributions to improve the society's quality of life.

Joyatee Sarker

M. Eng.
Purdue University, United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Systems Biology, Mathematical Modeling, Hematopoietic Stem, Cell Transplants, Medical Informatics, Bioinformatics

Research Motivation: I would like to use hospital care data to predict and prevent diseases in patients. Copious amounts of healthcare data are collected every day. Lots of useful information is contained within these data, and I would like to use mathematical tools to help society learn how best to interpret the data.

Sean Saunders

Ph.D.
Trinity College Dublin, Ireland
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Fellow of the Irish Research Council

Scientific & Research Interests: Immunology, Pathology, Innate Immunity, Allergy, Atopic dermatitis/Eczema, Asthma, Fibrosis, Autoimmunity, Lymphoid neogenesis

Research Motivation: Striving towards an understanding of the complicated interplay between genetic susceptibility and environmental factors in the initiation of disease, and attempting to address these basic mechanisms of pathology, is what motivates my interest in science and research.

Nasa Savory

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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: Aptamer development for biosensing applications in theranostics: aptasensors, aptamers, enzyme labelling, biomarker discovery, cancer diagnostics, rapid and simple biosensors, genetic algorithms, molecular evolutions

Research Motivation: Science and technology make people's lives much healthier, safer, and happier. I am doing science to achieve new knowledge and technologies to improve our future.

Sutthipong Sawasvirojwong

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Supported by the National Science and Technology Development Agency, Thailand and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I'm interested in intestinal ion transport in physiological and pathological condition. My projects focus on pathophysiology and regulation of intestinal Cl- transport during secretory diarrhea from cholera. My other interest involves with biology of cholera toxin responsible for cholera diarrhea.

Research Motivation: Science is like a puzzle game which is fun and very interesting. The right question, good plan and logical thought are tools to solve my curiosity. Being the first person who discovers new knowledge is impressive feeling. It is always great when your little achievement is benefit to mankind.

Myriam Scherer

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Fellow of the Wilhelm Sander-Stiftung

Scientific & Research Interests: Molecular Virology, Innate and Intrinsic Immunity, Structural Biology with Focus on Protein Crystallography

Research Motivation: The opportunity to develop own ideas and hypotheses, discuss and test them together with an interdisciplinary team of scientists, and ultimately contribute to fundamental discoveries highly motivates me to work in the field of natural sciences.

Axel Schmidt

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Neuroscience, Electrophysiology, Ion Channels, Pharmacodynamics, Membrane and Protein Interaction

Research Motivation: The fact that I enjoy working in science really drives me. To achieve scientific findings you have to take a hard way, which is paved with unpredictable obstacles. I think this challenge can be mastered with plenty of flexibility and creativity. In my opinion this is a very tempting approach.

Hannah Schneider

Dr. cand. med.
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Tumor pathophysiology/biology, biomarkers for cancer therapy, mechanisms of angio- and lymphangiogenesis and metastasis.

Research Motivation: I want to be able to form my own research path on new interesting and challenging subjects and translate findings into clinical reserach. Furthermore, I find it very important to foster interest in medical research among medical students and to network with other researchers yet as a undergraduate.

Juliane Wilhelmine Schott

Diploma in Molecular Medicine
Hannover Medical School, Institute of Experimental Hematology, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Virology (basic and applied), retroviral vectors and gene, therapy, cell-based therapies, transient gene delivery modes, reprogramming and iPS cells, cell fate modification, viral immune evasion strategies, immunotherapy, chimeric antigen receptors, vaccine development

Research Motivation: Research enables to work directly at the front to new knowledge and fascinating developments, to contribute to understanding the nature of life and diseases, and to learn from biological processes to derive novel treatment strategies and turn harmful agents, such as viruses, into therapeutic tools.

Kai Michael Schubert

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Role of the AMPK in the cardiovascular system and brain and remodeling of microvessels, internal elastic lamina, podocytes

Research Motivation: I try to understand the "cognitive effortlessness" of mankind: We tend to believe in things because they were always done like this: "What you see is all there is." But there is more and bias is everywhere and we have to review things again and again.

Christian R. Schultze-Florey

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Psychoneuroimmunology, impact of grief on the immune system, complicated grief

Research Motivation: Identifying underlying mechanisms of (psychoneuroimmunologic) diseases, implementing them into clincial practice and thus contributing to well-being.

Elisa Schulz

Diploma
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Supported by the Deutsche Bundesstiftung Umwelt and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Flavonoids are secondary plant metabolites with interesting functions e.g. in plant stress. To investigate, whether and how they play a crucial role in plant adaptation to cold and UV radiation I analyze natural accessions of Arabidopsis as well as transgenic lines changed in flavonoid metabolism.

Research Motivation: During my studies in biology and as a PhD student I got enthusiastic about crucial achievements in science and the passion of renowned scientists to reach these milestones. Due to that, I have a strong desire to disclose the secrets of nature and to make them usable for human life.

Marcel Schulz

Dr. rer. nat.
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Supported by acatech - Deutsche Akademie der Technikwissenschaften and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Systems Biology, non coding RNAs, Sequence Analysis, Epigenetics, Computational Clinical Diagnosis, Ontologies, Machine Learning

Research Motivation: My fascination for genetics has a long history. I am happy to be a researcher in times where sequencing human genomes, chromatin state, expression and DNA variation is becoming routine. One of my big research goals is to unite these different genome-wide assays to help understand human disease.

Katharina Schwarz

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Fellow of the Fraunhofer-Gesellschaft

Scientific & Research Interests: Multi-disciplinary field between airway research, aerosol research and inhalation toxicology: lung physiology, airway research, (particle-based) lung diagnostics, particle-lung interaction, respiratory deposition, pulmonary drug delivery, aerosol physics, aerosol measurement, exposure assessment

Research Motivation: My interest in science is driven by the aim to understand relations in natural and life sciences and to translate this knowledge from basic research into beneficial applications, especially in healthcare. In this context, social responsibility poses an important motivation for devotion to research.

Takara Scott

PhD Candidate
Morehouse School of Medicine, United States
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Fellow of Mars, Incorporated

Scientific & Research Interests: My current research focuses on how obesity causes deleterious effects on mitochondrial vascular cell function that may ultimately lead to clinical events such as atherosclerosis, myocardial infarction or stroke. Future interests are: stem cell, nanotechnology, cancer therapeutics and prevention.

Research Motivation: I often pondered, how can I generate novel scientific findings that positively impact the human race as many Nobel Laureates have done? My decision to become a biomedical scientist and unwavering need to help others enabled me to understand the research demands and commitment to life-long learning.

Sanaz Sedaghat

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Supported by The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Incidence and prevalence of chronic kidney disease has increased in recent years. There is a complex interplay between vascular system and kidney function. My research interest is the link between kidney function, neurovascular and cardiovascular disorders.

Research Motivation: My motivation for science originates from my scientific curiosity I always had. Our research, at the first glance might appear far away from real life application; however, I believe that each step we make in science has a life changing role.

Rebecca Segrave

Doctor of Psychology (Clinical Neuropsychology)
Monash University, Australia
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Fellow of the Australian Academy of Science

Scientific & Research Interests: My research combines neuroscience, brain stimulation and neuropsychological methods to investigate the biology of depression and develop new antidepressant treatments. I am interested in all aspects of science that relate to cognitive and emotional processing, brain stimulation and neuromodulation.

Research Motivation: I find much of my motivation for science in two simple areas: the thrill of new discovery and a strong desire to take research findings from the lab to the clinic to improve the lives of people with brain related illnesses.

Frederik Seiler

MD
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Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Respiratory cell and molecular biology, innate immunity, infection biology, clinical respiratory and critical care medicine

Research Motivation: For me as a young physician, doing research is the great chance to go beyond individual care and participate in shaping the future of both medicine and society.

Kilian Semmelmann

M.Sc.
Ruhr-University Bochum, Germany
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Using the Internet as a research method, visual attention in children and adults, visual foraging

Research Motivation: Science is the key of advancing human mankind - every single step may seem so small, but taken together, it is in our hands to allow us to evolve and create a better tomorrow. This idea keeps me motivated and provides me with the bigger picture of the "why" behind my graduate work.

Kashif Shafique

Dr.
School of Public Health, Dow University of Health Sciences, Karachi, Pakistan
Pakistan
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Supported by the Pakistan Institute of Engineering and Applied Sciences (PIEAS) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Cancer Epidemiology, Use of Addictive Substances and Health Outcomes, Epidemiology of Chronic Diseases in Developing Countries

Research Motivation: Human achievements are attained through systematic inquiry of physical and natural world by observing and intervening. Perhaps the most remarkable discovery is the understanding of human's own structure, physiology and how does it alter during disease process.

Ahmed Shamia

MBBS
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Palestinian Territory, Occupied
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Fellow of the AKB Stiftung

Scientific & Research Interests: Human Genetics, Medical Education, Nutrition, Traditional Medicine

Research Motivation: My motivation for science has flourished since I started medical school, every lecture that discusses mechanism of disease or drug therapy has inspired me to search and read more. Science is not just a tool to discover disease processes but it is also a means to admire the creator of the universe.

Abhinay Sharma

Ph.D.

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Supported by the Alexander von Humboldt Foundation, Germany and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Vaccinology, microbiology, drug and vaccine delivery systems, bacteriology, pathophysiology, proteomics, genomics, parasitology and cell biology

Research Motivation: Searching for solutions for infectious diseases

Anastasia Shchendrygina

PhD student

I.M. Sechenov First Moscow State Medical University, State Educational Institution of Higher Professional Training of the Ministry of Health Care, Russian Federation

Russian Federation

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Supported by the Lomonosov Moscow State University and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My specific area of research involves vascular system, microcirculation, endothelial function and their changes in patients with cardiovascular diseases. I am also interested in mathematical modeling and its application in bioprocess.

Research Motivation: I have always had a fascination for science. Science for me is mind sports. It is very exciting to start with an idea and follow it though research process and find out something new. Furthermore, possibly improving human's health is a great motivation for doing medical research.

Guangsen Shi

Bachelor

Nanjing University, China

China

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Circadian clock, neuroscience

Aleksei Shmonin

Ph.D.

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Russian Federation

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Supported by The Nobel Foundation, Sweden

Scientific & Research Interests: Medicine, neuroscience, neurology, stroke medicine, cerebrovascular disease, pathophysiology, experiment models of diseases, laboratory medicine, neuroprotection, preconditioning, personal medicine, rehabilitation, animal assisted therapy, chaperones.

Research Motivation: I love science because it can explain everything in life. It allows us to know where things come from and how we act, and so much more! Plus, it is never-ending; meaning that there is always something new to discover because the topic of science is so huge.

Xu Shuangnian

Master of Medicine

Third Military Medical University, China

China

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Protein post-translational modifications in leukemogenesis and future target drugs.

Research Motivation: There is no greater calling in life than that of medical science. By devoting myself to the preservation of life, I can fullfil my life-long personal dream while serving the needs of mankind.

Owen Siggs

Ph.D.

Wellcome Trust Sanger Institute, United Kingdom

Australia

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Immunology & Genetics.

Research Motivation: To understand the function of our genome, and ideally to use this understanding to improve human health.

Anna M. Sigmund

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University Hospital Essen, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Innate immunology, pathogen recognition, Toll-like receptors, signaling, immune responses, virology.

Research Motivation: I am fascinated by the complex processes in immunology and I enjoy thinking and discussing with colleges about scientific problems. It's great to be a part of new discoveries! During my work in the lab I enjoy the variety of experiments. Research is never boring and always brings new challenges.

Steven Simmons

Bachelor of Arts (B.A.)
Temple University, United States
United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Current and past research interests: neurobiology of nicotine addiction; learning, memory and addiction; neurogenesis, learning and drug use; intracellular signaling; receptor subtypes, pharmacokinetics and addiction; preclinical pharmacotherapy modeling; affect and drug self-administration.

Research Motivation: My motivation initiated from introduction to neuron structure and function. I am focused on societal improvement by way of improving disease outcomes (e.g. addiction). I am interested in continuing preclinical research on the neurobiological bases of disease states and medical neuropharmacology.

Ishwar Singh

M.SC.
University of Rajasthan, Jaipur, India
India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: Immunohematology & Regenerative Medicinal Biology and Genomics & Molecular Biology

Research Motivation: Throughout the age of understanding, I ever feel lots of happiness to serve myself for the human welfare. Innovative researches are overcoming problems of mankind. Therefore, I am keen to contribute in science resolving the issues concerned with health & education of the society.

Ragnhild Skogseth

MD
Haraldsplass Deaconess Hospital, Kavli Research Institute for Dementia and Geriatric Medicine, Institute of Clinical Medicine - University of Bergen, Norway
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Supported by The Nobel Foundation, Sweden

Scientific & Research Interests: Neurodegenerative dementia, dementia with Lewy bodies, Alzheimer's disease, Parkinson's disease dementia, cerebrospinal fluid analysis, clinical research, geriatric medicine.

Research Motivation: To take part in increasing the knowledge about neurodegenerative dementia, which is crucial to develop treatment. It fascinates me that we still do not know what makes those proteins misfold. Seeing the impact on the lives of patients and careers as I do as a physician makes better treatment urgent.

Jelena Skuljec

Ph.D.
Hannover Medical School, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Allergic asthma - basic and translational research, mechanisms of immune tolerance and therapeutic approaches, monocyte and macrophage biology in health and disease, lung immunology

Research Motivation: Fascination with nature was my driving motor for starting the scientific road. Discovering cellular and molecular mechanisms of diseases and developing new therapeutical approaches is my present career ambition.

Jarrett Smith

BS - Biology
Johns Hopkins Medical Institution, United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Cell polarity, post-translational modification, designing new bio-technologies

Research Motivation: I think just wanting to be truly great at something is plenty of motivation and science is an attractive place to apply that obsessive personality. Also, having a basic question like how a cell decides what is "here" or "there" and then coordinates that with the rest of the cell is conceptually fun.

Richard Smith

Bachelor's degree
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United States
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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: I am interested in understanding how neurotransmitter systems in the brain, known as neuromodulators, regulate the physiology of networks involved in sensory processing, cognition, and behaviors.

Research Motivation: Although the nervous system is intensively studied, we still know very little about its many mechanisms and how it actually works. Every day I enjoy the challenges and nuisances of being a sensory neurophysiologist and adding a little more information to this puzzle.

Katarína Smolková

PhD.
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Czech Republic
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Mitochondrial physiology, cancer cell metabolism

Research Motivation: I love nature. And I was lucky to run into the most exciting field of research, mitochondrial physiology. My interest for scientific work stems from my wish to understand biological processes in cell and I hope my work will help me to understand better the nature itself.

Sheila Xinxuan Soh

B.A.
Duke-NUS Graduate Medical School, Singapore
Singapore
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Fellow of the National Research Foundation (NRF), Singapore

Scientific & Research Interests: Chronic myeloid leukemia, drug resistance, blast crisis, epigenetics

Research Motivation: I am excited about the potential of science to improve medicine. I hope that the problems I encounter as a clinician in future will provide opportunities for scientific inquiry and helping patients beyond those under my direct care.

María Soler Artigas

MSc
University of Leicester, United Kingdom
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Study of genetic variation underlying complex traits and diseases. In particular genetic association studies of lung function, both focusing on common and rare variation.

Research Motivation: What motivates me for science is an essential tool for understanding the world, and in particular life. I find especially attractive working in a multidisciplinary field, since I think this understanding is only possible by combining and connecting perspectives from different fields.

Ahmed Osama Soliman

Bachelor of Pharmacy
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Fellow of Ministry of State for Higher Education and Scientific Research of Egypt

Scientific & Research Interests: Genetics and gene therapy are of my greatest interests, also nanomedicine, pharmaceutical drug innovation and modelling, polymers, biochemistry and biomedical science in general.

Research Motivation: Innovative thoughts, reading about novel treatment or technique to deal with a disease, are the greatest causes of my curiosity, which always push me forward to know more and be rich with the latest studies and research that help me a lot to advance, as a whole science is my passion.

Alina Solomon

MD, PhD
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Supported by the Academy of Finland and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Epidemiology and public health, Alzheimer's and other late-life cognitive disorders

Research Motivation: As a medical doctor, my motivation for science comes from meeting patients with Alzheimer's and other cognitive disorders. Their questions and stories drive me to do research, and to work on translating research findings into clinical practice.

Xinyang Song

PhD candidate
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Inflammation, Innate immunity, Microbiota, Cancer, Metabolism

Research Motivation: The motivation why I am doing science is quite simple: the real scientific passion comes from doing it. I hope I could become an independent scientist in the field of bio-medical research and devote myself entirely to public health promotion and disease prevention.

Sian Siu, Jaslyn Soo

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Cancer Research Initiatives Foundation (CARIF) and University of Malaya (UM), Malaysia
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Supported by the Academy of Sciences Malaysia and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Cancer, breast cancer, cancer biology, cancer stem cells, tumorigenesis, cancer metastasis, drug resistance, cancer genetics.

Research Motivation: To sum it in one word: curiosity. To me, science is like solving a maze: through problem solving, determination, creativeness and fun! You come out at the other end! Nonetheless, science has the power to improve lives and affect future advancements, e.g. medical treatments, government policies, etc.

Angela Spence

PhD
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Fellow of the Australian Academy of Science

Scientific & Research Interests: Exercise-induced cardiac and vascular adaptations in humans, endurance exercise training, resistance exercise training, imaging modalities: Magnetic resonance imaging, echocardiography, Doppler ultrasound. Cognitive, cerebrovascular function following exercise training

Rubens Spin-Neto

PhD
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Supported by the European Science Foundation (ESF) and Microsoft Corporation

Scientific & Research Interests: Diagnostic imaging, computed tomography, radiology, bone biology, bone substitute materials.

Research Motivation: To wake up every morning with the real possibility of seeing something that no one ever saw before is amazing. Finding ways of using the newly-found to change - and enhance - people's life is a daily challenge. Is exactly the mix between amazing and challenge that motivates me to be a scientist.

Giancarlo Sportelli

Ph.D.
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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: PET monitoring in hadron therapy, PET data acquisition architectures, FPGA-based digital systems, SiPM technology, Tomographic image reconstruction, Heterogeneous parallel programming

Research Motivation: Science is my way to express curiosity and creativity by focusing on real life problems. I love to study the efforts of people in the past to develop a better society, and I am excited to join them to give my own contribution.

Ralitza Staneva

Master
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: I am interested in the fields of cancer and stem cell biology, which have recently bloomed with exciting new paradigms. I am currently working on cancer cell invasion. More largely, my work addresses general questions about cell migration and interactions with the microenvironment.

Research Motivation: What motivates me in science is my curiosity to work on yet unsolved questions. Besides, it is enriching and enjoyable to have discussions with researchers from various scientific fields. A major source of inspiration to me is meeting scientists with conceptual and original way of thinking.

Viktoriia Starokozhko

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Medical toxicology, clinical pharmacology, in-vitro toxicology, reproductive toxicology, pharmacology and drug development.

Research Motivation: I find scientific research to be interesting and exciting. It stimulates me not only to develop new ideas and creative thinking, but also significantly broadens my view on many topics. Being in research gives you a unique possibility to become an independent thinker and develop your own personality.

Sokrates Stein

PhD
École Polytechnique Fédérale de Lausanne, Switzerland
Germany
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Fellow of the German National Academy of Sciences Leopoldina

Scientific & Research Interests: Chronic diseases, Atherosclerosis, Hepatic steatosis, Nuclear receptors, Posttranslational modifications, Drug discovery

Research Motivation: In the past 8 years I have been working in different academic institutions, starting as a researcher in developmental biology and then moving to the study of transcriptional regulators in complex metabolic diseases, such as atherosclerosis and hepatic steatosis.

Maria Steinke

Dr. rer. nat.
Fraunhofer Project Group "Regenerative Technologies in Oncology", Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Tssue Engineering, Regenerative Medicine, Human 3D in vitro test systems, Human obligate airway pathogens, Identification, homing and monitoring of therapeutic cells for regenerative medicine

Research Motivation: I am highly motivated to do scientific work in the challenging field of tissue engineering and regenerative medicine with the aim to better understand virulence mechanisms of obligate human pathogens using appropriate in-vitro test systems and, finally, to help diseased people.

Julian Stingele

Max Planck Institute for Biochemistry, Germany
Germany
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Fellow of the Max Planck Society

Scientific & Research Interests: Cell Biology, Genome Stability, DNA Repair, Posttranslational Modifications

Research Motivation: I get up every day believing that what I do is the most important thing I could be doing.

Christian Stoppel

M.D. Ph.D
Department of Psychiatry, Charite Berlin, Germany
Germany
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Fellow of the Leibniz Association

Scientific & Research Interests: The neural correlates of attention, motivation and cognitive control and their disturbance in psychiatric disease.

Research Motivation: To understand how the human brain works and how dysfunctions lead to the development of mental diseases. My interest comes from philosophical grounds as a human being who wants to understand what determines being a human in general.

Jenny Stritzelberger

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Germany
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Glioblastoma therapy and mechanisms of resistance (MMR deficiency, MGMT)

Research Motivation: I especially enjoy how science gives physicians the possibility to combine their clinical knowledge with the latest findings to form the best therapy for their patients.

Anda J. Ströse

M.Sc.

Comprehensive Cancer Center Münster (CCCM) of the University Hospital Münster, Germany

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Supported by the European Commission - Marie Curie Actions and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: cancer biology, tumor-stroma interactions, cancer-associated fibroblasts, paracrine signaling, microvesicels, epigenetics, microRNA, metastasis, drug resistance, tumor markers, targeted/personalized therapy, systems biology

Research Motivation: Science gives me the opportunity to do something meaningful and worthwhile, to nurse my intrinsic curiosity and to share thoughts, visions and aspirations beyond borders and nationalities. I feel very committed to contribute to our understanding of how cancer develops, can be prevented and cured.

Michael Strüber

Diploma in Molecular Medicine

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Supported by Suedwestmetall and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: During my PhD I have been doing cellular and circuit neuroscience. I'm interested in the question how properties of single cells and their communication determine the dynamics of large neuronal networks. In the future I would like to link these ideas to the study of behavior and psychiatric disease.

Research Motivation: I decided to do science because I like to work on novel ideas and be curious about the world. It always feels like a small adventure to develop new experimental strategies for unanswered interesting questions and it is fulfilling to be part of a global knowledge-gaining community.

Ben Stutchfield

MBChB

MRC Centre for Regenerative Medicine, United Kingdom

United Kingdom

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Fellow of Microsoft Corporation

Scientific & Research Interests: Liver regeneration, cell therapy, biomarkers of liver failure.

Research Motivation: Improving clinical outcomes through translational research

Vigneshwari Subramanian

M.Sc

University of Helsinki, Finland

India

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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Chemoinformatics, Bioinformatics, Pharmacogenomics

Research Motivation: The mystery behind the complex biochemical processes in human body motivated me for in-depth research, which in turn drew me into science. Being inspired by the ability to test the ideas in a fast and efficient manner, I decided to pursue a research career in Computational Drug discovery.

Thamolwan Wan Surakiatchanukul

MD Candidate, BSc (Finance), BA (Biochemistry)

University of Virginia School of Medicine, United States

Thailand

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Supported by the National Science and Technology Development Agency, Thailand and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Robotic Surgery: Investigating the learning curve of medical trainees' surgical task performance by using a new haptic feedback technology, near-infrared spectroscopy imaging, and self-assessment. Ophthalmology & Neuroscience; Infectious Diseases & Global Health; Public Health Planning

Research Motivation: From investigating genetic markers in ulcerative colitis and evaluating hepatitis B prevention effort to developing a new tool for surgical training, I have been inspired to work with clinicians, public health workers, and engineers to improve medical innovation and patient safety.

Anastasiya Sybirna

Master's degree

École normale supérieure, France

Ukraine

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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Stem cell biology, embryonic stem cells, adult stem cells, epigenetics, cancer, developmental biology

Research Motivation: I am highly motivated to contribute to both fundamental and translational research in stem cell biology. The Lindau Meeting offers an outstanding opportunity to learn from the most prominent scientists of our day and build a network of peers willing to push the boundaries of unknown.

Mariko Taga

MRes
University of Southampton, United Kingdom
France
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Neurodegenerative disease, neuroinflammation, dementia, ageing

Research Motivation: I am fascinated by the complexity of biological systems with a specific interest in the most complex organ of the human body: the brain. I love the challenges associated with the research, especially when unexpected results occur. Rather than failures these will lead us to new discoveries.

Hanna Taipaleenmäki

PhD
University Medical Center Hamburg-Eppendorf, Germany
Finland
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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: My research interest is breast cancer metastasis to bone, with the aim to understand the role of the bone environment, specifically cells of the osteoblast lineage in the metastatic spread of breast cancer by using human samples, mouse genetics and cell and molecular biological approaches.

Research Motivation: For me science is a life style, a key element I can't imagine living without. The motivation is coming from the opportunity to make discoveries, to be able to contribute to the knowledge of the scientific community, to build and test hypotheses and eventually possibly improve the patient health.

Zhongming Tan

Dr.
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China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Transplantation immunology, liver fibrosis, hepatocelluar carcinoma

Jean-Yves Tano

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Supported by the Alexander von Humboldt Foundation, Germany and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Pharmacology, physiology, cardiovascular diseases and myogenic tone

Satya Tapas

Ph.D.
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India
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Fellow of the Department of Science and Technology (Government of India)

Scientific & Research Interests: My research interests focus on structural studies of therapeutically important proteins using various biophysical techniques. I mainly use X-ray crystallography technique for structural elucidation of proteins to understand the structure and function relationship.

Research Motivation: I am always fascinated about the intricacy of bio-macromolecules responsible for control of life. The structure of proteins and its complex regulation in cell system intrigue me to study them in great details at molecular lever. So, I am interested to make my career in structural biology.

David Laszlo Tarnoki

Ph.D.
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Respiratory and cardiovascular twin studies, Interstitial lung diseases, Chronic obstructive pulmonary disease, Thoracic Ultrasound, Thoracic imaging, Thoracic HRCT, Secondhand smoking, Smoking prevention, Anti-tobacco research, Non-alcoholic fatty liver, Arterial stiffness, Body composition.

Research Motivation: My twin brother, Adam, and I deal with twin studies, focusing on respiratory & cardiovascular diseases. We have processed many twin research in topic of heritability of chronic obstructive pulmonary disease, lung function and exhaled nitric oxide. I deal with other respiratory research too.

Adam Domonkos Tarnoki

Ph.D.
Semmelweis University, Department of Radiology and Oncotherapy, Hungary
Hungary
tarnoki2@gmail.com
Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Cardiovascular and respiratory twin studies, Genetics, Arterial stiffness, Atherosclerosis, Body composition, Chronic obstructive pulmonary disease, Cardiovascular and Thoracic imaging, Secondhand smoking, Smoking prevention, Anti-tobacco research, Asthma, Non-alcoholic fatty liver disease.

Research Motivation: Me and my twin brother (David Tarnoki) have been motivated since our childhood by our parents to study medicine. Thanks to our twinship and motivation in this scientific field, me and my twin brother founded the Hungarian twin registry and have led multidisciplinary twin research projects.

Mattia Terenghi

Philosophy Doctorate
Imperial College London, Institute of Chemical Biology, United Kingdom
Italy
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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: My interest focuses on cellular heterogeneity at proteomic level. The involvement of proteins in individual cell behavior and the mechanism underpinning the cell decision-making process above biological noise are largely unknown. I focus my attention on fit-for-purpose phenotype for cancer cells .

Research Motivation: Science is one of the best expressions of humankind's desire to extend its knowledge. Research, empowered by human curiosity and imagination tested against reality, represents the journey towards knowledge and discoveries. I am driven and inspired by this fascinating mixture to be a researcher.

Atiporn Therdyothin

5th year medical student
Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Thailand
Thailand
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Supported by the National Science and Technology Development Agency, Thailand and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: The influence of estrogen and environmental endocrine disruptor on thyroid autoimmunity, the causal effect of estrogen level on positivity of thyrotropin receptor antibody using Mendelian randomization approach, the effect of BPA, perchlorate and thiocyanate on thyroid function and autoimmunity.

Research Motivation: Science has always been a big part of my life since I was young. I was taught that everything around us was science. I read many books about world's great scientists and was impressed by how they have changed our world, and I have always hoped that someday, I will have a chance to do so.

Jerry Tien

Ph.D.
University of Washington, United States
Canada
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Fellow of the AKB Stiftung

Scientific & Research Interests: I am interested in how the mitotic machinery ensures the timely and accurate segregation of chromosomes during cell division. Specifically, I utilize single-molecule techniques and genetic screens to study the molecular mechanisms and regulation of kinetochore-microtubule coupling during mitosis.

Research Motivation: My motivation for science can be traced to three influential mentors. My Junior High biology teacher first inspired my intellectual curiosity. With help from a professor in college, I interned at a biotechnology company. Lastly, my PhD advisor encouraged a multidisciplinary approach to research.

Ioana Teodora Tofolean

Student
"Carol Davila" University of Medicine and Pharmacy, Romania
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Supported by the Government of Romania and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Mitochondrial respiratory Complex I, Cell cultures, Clonogenic survival, Spectrofluorimetry, Patch clamp, Calcium events, Microcalorimetry

Research Motivation: "Does one live for the sake of science? No, the reverse is true: Science is for the sake of the life!"

Ciprian Tomuleasa

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Iuliu Hatieganu University of Medicine and Pharmacy / Ion Chiricuta Oncology Institute, Romania
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Translational hematology and oncology, cancer stem-like cells, cancer biomarkers, microRNAs and nanotechnology

Research Motivation: Scientific research is the backbone of progress in medicine. Thus, translational research allows the improvement in patient healthcare and therapeutics

Michelle Tonkin

BSc
University of Victoria, Department of Biochemistry and Microbiology, Canada
Canada
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Fellow of the Canadian Student Health Research Forum (CSHRF)

Scientific & Research Interests: Structural and biophysical characterization of host-pathogen interactions and human disease-related proteins, protein expression and purification methods, in vitro reconstitution of macromolecular complexes and X-ray crystallography

Research Motivation: As a Biochemistry PhD student with a strong social conscience, I am pursuing infectious disease research with a specific focus on the globally devastating apicomplexan parasites; my research will form the basis for novel therapeutic approaches to treat apicomplexan infections such as malaria.

Nelson Totah

Ph.D.
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United States
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Fellow of the Max Planck Society

Scientific & Research Interests: Neuronal Representations, Neuronal Circuits, Neuromodulators (Dopamine, Norepinephrine), Time Perception, Expectancy, Attention, Psychophysics, Extracellular Electrophysiology, Rodent Behavior, Behavioral Pharmacology

Research Motivation: New knowledge emerges from a collective of individuals. I value being part of this collective and participating in the unpredictable process of discovery. I wish to help decipher how the brain represents information and thus work toward a physical explanation for thoughts and perceptions.

Sandra Touati

PhD student
University Pierre and Marie Curie, France
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: Cell division, mouse oocytes, meiosis, mitosis, checkpoint proteins

Research Motivation: I am excited for unravelling the complexity of physiology and pathological process. I hope that our research will improve the field of knowledge.

Karen Trchounian

PhD
Yerevan State University, Armenia
Armenia
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Supported by the National Academy of Sciences of the Republic of Armenia and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: Regulation of bacterial growth and metabolism, bioenergetics of fermentation, biohydrogen production, protein-protein interaction

Research Motivation: My main motto for science is to understand nature as it is and try to use it for sustainable development of people on Earth. Moreover, the deeper you go into science and understand how are the natural mechanisms are working, the more you think that you know approximately nothing. This motivates me.

Stuart Trenholm

PhD
FMI, Basel, Switzerland
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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: I am interested in using a variety of techniques (anatomical, electrophysiological, viral, imaging, behavioural) to study the circuits and computations underlying vision.

Research Motivation: For me, science is an endeavour that is intellectually rewarding, it allows for lots of creativity, and it can have positive effects on the world.

Eric Trepo

Ph.D.
Université Libre de Bruxelles, Belgium
France
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Supported by the Fonds National de la Recherche Scientifique, Belgium and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research focuses on the genetic susceptibility to liver diseases and more specifically alcoholic liver disease.

Sonia Troeira Henriques

PhD
The University of Queensland, Australia
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Fellow of the Australian Academy of Science

Scientific & Research Interests: My major research interests are design and mode-of-action studies of therapeutic peptides. Specifically, I am developing disulfide-rich peptides to treat two distinct cancers, gastric cancer and leukaemia, with higher specificity and lower likelihood to develop resistance than current therapies.

Research Motivation: My interest in science arises from my willingness to understand chemical and biological phenomena. The challenge of solving problems, together with the satisfaction of a discovery, made me want to keep pursuing knowledge and the best way to do it was becoming a scientist.

Roman Tsaryk

PhD
University Medical Center Mainz, Germany
Ukraine
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Fellow of bayme vbm vbw

Scientific & Research Interests: Angiogenesis, tissue engineering, unfolded protein response, chaperones, DNA repair, cancer

Research Motivation: To be a scientist was always my dream. The possibility to logically explain the most complex phenomena, which at the same time leaves room for uncertainty, always excited me and continues to drive my fascination for research.

Markus Tschurtschenthaler

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University of Cambridge, United Kingdom
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Fellow of bayme vbm vbw

Scientific & Research Interests: Gastroenterology, immunology, next generation sequencing, inflammatory bowel disease (Crohn's disease & ulcerative colitis), genetic & environmental (epigenetic) factors in intestinal inflammation

Research Motivation: We are living in particularly exciting times and are constantly faced with attractive ideas. In science we have the opportunity to translate them into results with all our curiosity, creativeness and ambition. Moreover, every single experiment might give us the chance to expand human knowledge.

Shih-Yi Tseng

MD student
National Taiwan University, Taiwan
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Supported by the National Science Council Taiwan and Microsoft Corporation

Scientific & Research Interests: I am interested in neuroscience, understanding the basic principles of how nervous systems work, such as neural circuits, brain function, and behavior, as well as the pathophysiological mechanisms of neuropsychiatric disorders. Other research interests include systems biology and biophysics.

Simeon Tsohataridis

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University Medical Center Mainz, Institute of Physiology, Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Blood brain barrier, characterizing of the neurovascular, coupling in immature central nervous systems, electrophysiology, combined mild inflammation and hypoxia in immature central nervous systems.

Research Motivation: My motivation for science emerges from the most intrinsic desire of human beings: the desire to know. My ambition is to comprehend the functionality of the human brain and to find a better way of treating the many forms of pathologic brain conditions, such as inflammation or post hypoxic apoptosis.

Alex Tuck

Ph.D.
University of Edinburgh (UK) / Friedrich Miescher Institute, Switzerland
United Kingdom
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Fellow of Microsoft Corporation

Scientific & Research Interests: Molecular biology of long non-coding RNAs, transcriptomics, epigenetics, mouse embryonic stem cells, neuronal differentiation, bioinformatics, single-cell RNA sequencing

Research Motivation: I am motivated by a strong desire to understand living organisms at a fundamental level, and in particular, to explore how different types of genetic information contribute to mammalian development.

Kayla Tunnell

New York University, United States
United States
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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cognitive neurobiological studies which integrate molecular, histological, electrophysiological, and behavioral data; particular interest in animal models of schizophrenia and autism and their effects on the hippocampal long term potentiation (LTP) model of learning and memory.

Research Motivation: Science satisfies my need for answers while also cultivating my curiosity and cynicism. The scientific and medical fields teach me to always doubt what I read, to keep asking questions and seeking answers. A field that consistently adapts allows its professionals to continue developing as well.

Alexandra Tzilivaki

Bachelor (expected)
University of Crete Dept. of Biology & Foundation for Research and Technology Hellas, Greece
Greece
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Fellow of the Alexander S. Onassis Public Benefit Foundation

Scientific & Research Interests: Developing biophysical models of pyramidal neurons and examining the role of morphology and ionic/synaptic mechanisms in dendritic integration and neuronal output using theoretical approaches. Keywords: Computational Neuroscience, Brain, Learning and Memory, pyramidal neurons, Dendrites .

Research Motivation: Being intrigued by the mystery of neurons, I entered the Department of Biology, eager to study life sciences and potentially contribute to a better life quality for everyone. Furthermore, my interest in psychology, prompted me into brain research.

Henriette Uhlenhaut

Dr.
Helmholtz Zentrum München, Germany
Germany
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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: The focus of my research is to understand the molecular mechanisms underlying the regulation of metabolic homeostasis by nuclear receptors and their associated transcription factors. We are using a combination of mouse genetics with cutting edge genomic technologies to study hormone responses.

Research Motivation: I'm a naturally curious person who loves the thrill of discovering new mechanisms. My goal is to make significant contributions towards understanding hormone responses at the molecular level.

Ayse Ulusoy

PhD
German Center for Neurodegenerative Diseases, Germany
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Supported by the Helmholtz Association of German Research Centres and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My focus is to understand how a-synuclein spreads from the brainstem to the frontal areas during the pre-symptomatic stages of Parkinson's disease. We have generated animal models mimicking this spreading and are currently investigating potential mechanisms using histopathology and molecular tools.

Research Motivation: The joy of achieving results is what keeps me going. To achieve knowledge is challenging. In the lab, we spend countless hours performing laborious experiments to answer questions. Most of them fail. This is frustrating! The joy of finding answers however, is worth every minute of this frustration.

Anne Urai

MSc
University Medical Center Hamburg-Eppendorf, Department of Neurophysiology and Pathophysiology, Germany
Netherlands
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Fellow of the German Academic Exchange Service

Scientific & Research Interests: Perceptual decision-making, learning, vision, neural oscillations, neural networks, brain connectivity, magnetoencephalography, pupillometry, neuropharmacology

Research Motivation: Science for me is the excitement, the intellectual challenge and deep thinking. By solving small problems each day, I hope to one day contribute a little piece to the bigger puzzle of understanding how the brain works.

Martin Urner

MD
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Switzerland
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Supported by the International University of Lake Constance and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Anesthesiology and critical care with a focus on effects of volatile anesthetics and trifluorinated molecules in sepsis, inflammation and ion transporter function in epithelial and endothelial cells of the lung under hypoxic conditions and blood purification using functionalized nanomagnets

Research Motivation: As a physician scientist with a scientific and clinical track I've always been curious to understand human physiology and underlying mechanisms of diseases to provide the best possible care to the patients.

Tuna Üstünkaya

M.D/Ph.D candidate
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Supported by the The Scientific and Technological Research Council of Turkey (TÜBİTAK) and The OPEC Fund for International Development (OFID)

Scientific & Research Interests: I have just begun my Ph.D studies so at the moment I'm trying to decide what to go on but so far, I am interested in breast cancer genetics, molecular profiling, and targeted therapy. But this summer I will be working on role plasma kallikrein and kinin system on diabetic vascular complications.

Research Motivation: As someone who felts uncomfortable against the unknown, It has always been a must for me to try to discover it in my life. Combined with that desire, I also want to prolong human life, and decrease the sufferings of human beings. These make me who I am a young medical researcher hungry for knowledge.

Mehrshad Vafaie

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Supported by the Klaus Tschira Stiftung gGmbH and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Cardiac troponins, cardiac biomarkers in acute coronary syndrome and atrial fibrillation, early rule-out of myocardial infarction, guideline adherence

Research Motivation: My motivation for science is to make a significant contribution to the practice of evidence based medicine in the field of cardiology. As a physician, I strongly believe in a scientific approach to clinical problem-solving, which is best supported by active involvement in high-quality research.

Celine Vallot

PhD
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Supported by the CNRS - National Center for Scientific Research and Microsoft Corporation

Scientific & Research Interests: Epigenetic mechanisms in normal and tumoral development, human stem cell biology and long non coding RNAs and epigenetic regulation

Research Motivation: Being a scientist is living a passionate (everyday) life; research is, for me, a source of excitement and can be very rewarding.

Lianne van de Laar

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Supported by the European Molecular Biology Organization (EMBO) and Microsoft Corporation

Scientific & Research Interests: Immunology, Hematology, Cell ontogeny, Dendritic cells, Macrophages, Inflammation, Signal transduction, Immunotherapy, Humanized mouse models, Translation of basic scientific insights into new therapeutic approaches

Research Motivation: Working on dendritic cell subset development during my PhD project, I developed a strong interest in dendritic cell and macrophage ontogeny and the instructive effects of the environment, which is the topic of my current research. In the future, I hope to translate basic findings into new therapies.

Robert van der Burgh

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Supported by the European Commission - Marie Curie Actions and the AKB Stiftung

Scientific & Research Interests: My research interests involve: Inflammation and immune mediated diseases, in particular primary immune deficiencies and Juvenile Idopathic Arthritis. I am interested in all cellular and molecular aspects of this and then applying this knowledge in drug discovery.

Research Motivation: My motivation for science is curiosity. Just wanting to know how things work. Starting in chemistry, I ended up in biology. At first I didn't like it much, to inaccurate, to many variables. Now these are the things I love the most about it. The complexity and satisfaction when you solve a problem.

Astrid van der Veldt

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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Oncology, clinical oncology, internal medicine, drug discovery, targeted therapy, pharmacokinetics, pharmacodynamics, tumor resistance, angiogenesis, tumor heterogeneity, cancer genome, imaging, nuclear medicine, positron emission tomography.

Research Motivation: As a medical doctor, I experience many challenges in the treatment of cancer patients. My major goal is to improve and optimize the treatment of these patients, thereby improving their perspectives and quality of life.

Monique van der Voet

Ph.D.
Radboudumc, Department of Human Genetics, Netherlands
Netherlands
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Supported by the Royal Netherlands Academy of Arts and Sciences and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Genetics of brain function and (psychiatric) malfunction, and Drosophila models of brain disorders. Moving from gene identification studies to functional studies that will provide evidence for the causal nature of genes and elucidate disease processes.

Research Motivation: Science is my fascination; it's a way of understanding the world in its captivating simplicity and intriguing complexity.

Katerina Vanova

MSc.
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Heme Metabolism in Liver Diseases, Products of Heme Catabolic Pathway, Gasotransmitters (especially Carbon Monoxide), Gas Chromatography, Functional Foods in Liver Diseases and Cancer, Liver Transport System, Histamine Intolerance.

Research Motivation: Since I entered the fascinating world of science, my passion has grown into the need to find an answer. Every day, I learn new things and discover astonishing details about how nature and our body works. And still there are so many puzzles to be solved!

Juan Varela

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Supported by the European Commission - Marie Curie Actions and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research interests include different biophysical areas. I'm mainly interested in neurosciences and cellular transport processes in general. From a technical perspective, my interests are centred in new light microscopy methods and nanotechnology tools.

Research Motivation: I have always been attracted by science, trying to understand mechanisms underlying natural processes. This interest led me to study physics and then move to do research in the biological field, with the hope of contributing to a better understanding and more harmonic use of nature.

Florian Veillard

PhD
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France
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Fellow of the Bayer Science and Education Foundation

Scientific & Research Interests: Under the direction of Pr Jules Hoffmann and Jean-Marc Reichhart, my research is focused on the Toll activation Pathway in drosophila. I am more precisely studying the molecular mecanisms of pathogens recognition which lead to the proteolytic cascade activation needed for Toll receptor activation.

Sebastian Virreira Winter

Diplom
Max Planck Institute for Infection Biology, Germany
Germany
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Fellow of the Max Planck Society

Scientific & Research Interests: Innate immunity & signaling, reactive oxygen species, redox regulation, infection biology, cell biology, molecular biology, imaging

Research Motivation: Curiosity is my major drive and I enjoy unraveling molecular mechanisms to better understand how biological processes work.

Tanel Visnapuu

Masters degree
University of Tartu, The Centre for Disease Models and Biomedical Imaging, Estonia
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Supported by the Estonian Academy of Sciences and Microsoft Corporation

Scientific & Research Interests: I am interested in the metabolic, biological and psychological causes of psychiatric disorders. I have recently mainly concentrated on studying the monoaminergic systems in rodents. In addition, I prefer to read scientific literature regarding neuropharmacology. My personal favorite is neuroanatomy.

Research Motivation: To me, science is the most important thing in life to do professionally. I love experimenting, so doing science is in my nature. It is exiting to keep up to date with new discoveries. Most importantly, I really like to dissect brains and measure brain substances after experimental manipulations.

Julea Vlassakis

B.A. Chemistry and Physics
UC Berkeley, United States
United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Single-cell proteomic and transcriptomic analysis, microfluidics

Research Motivation: I am passionate about designing microfluidic tools for single-cell analysis that will enable discovery of the mechanisms of cancer progression, aging and stem cell differentiation.

Sven Kenjiro Vogel

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Supported by acatech - Deutsche Akademie der Technikwissenschaften and the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: In Vitro reconstitution of cellular machines and synthetic biology.

Research Motivation: To explore the unknown in order to meet the unforeseen.

Lauren Wagner

Bachelor of Arts
Carleton College, United States
United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Chemical biology: using bioorthogonal chemistry and metabolic engineering to solve complex biological problems; Enzyme-substrate engineering and chemical genetics; Glycobiology and cancer biology: role of glycosyltransferases in glycosylation dysregulation; Chemical methodologies for glycoproteomics

Research Motivation: Science is about pushing the bounds of what we believe is possible. As a scientist studying chemical biology and glycobiology, I am inspired by the beauty and complexity of the natural world. I am motivated to solve challenges to human health and the environment and to inspire future scientists.

Tobias Wagner

Dr.
Friedrich Schiller University Jena, Center for Molecular Biomedicine, Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Cancer Research, Epigenetics, Transcriptional Regulation, Tumorigenesis, Individualized Cancer Therapy

Alexandra Walsh

MS
Vanderbilt University, United States
United States
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Supported by Oak Ridge Associated Universities (ORAU), USA

Scientific & Research Interests: Cellular metabolism, Tumor therapy response, Multiphoton imaging, Fluorescence lifetime imaging, Models of physiological processes, Relevant preclinical models of disease and Immunotherapies.

Jianwei Wang

Dr. rer.nat
Leibniz Institute for Age Research - Fritz Lipmann Institute e.V. (FLI), Germany
China
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Fellow of the Leibniz Association

Scientific & Research Interests: Hematopoietic stem cell self-renewal and aging

Research Motivation: Science is attractive and my character fits with this field: explore the unknown world.

Bang-an Wang

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Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, China
China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My interest is focused on the generation of gametes in mouse, towards understanding the mechanism of epigenetic reprogramming involved in germ cell specification and functional maturation.

Research Motivation: Born into a medical family, I was interested in how diseases occurred and how to protect people from pains. It's very inspiring for me to do challenging work, and contribute to science researches by solving complex problems for a healthier humanity.

Qiong Wang

Ph.D
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China
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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Breast cancer cause research is always my interest of research. Over the past four years, I have been focusing on the contribution of environmental, dietary, and heritage susceptive factors and their interaction on breast cancer risk.

Research Motivation: Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among females. I believe that research regarding the causes of breast cancer is of great importance. I have enough enthusiasm to pick this field as my research career.

Tiange Wang

M.D.
Shanghai Jiao Tong University, School of Medicine, China
China
wtg@live.cn
Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Environmental risk factor interventions in prevention of diabetes, obesity and metabolic disorders; Genetic epidemiology of diabetes, cardiovascular complications and obesity; Impact of gene and environment interactions on diabetes, cardiovascular disease and obesity.

Research Motivation: My passion for scientific research comes from the unknown in human health, sometimes we found interesting phenomenon that seems hard to explain by available evidence, therefore this point may inspire basic and translational studies to find underlying mechanisms, which may be very valuable.

Lin Wang

bachelor of medicine
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Supported by Siemens AG

Scientific & Research Interests: My research interests mainly focus on the relationship between pathogen and host immune response, especially on Coxsackievirus A 16 and Mycobacterium Tuberculosis.

Research Motivation: During my 2 year-residency internship, I noticed many serious diseases are not researched completely, such as cancer, virus infection. Therefore, I contributed myself to academic field of medical, and tried to build up a channel between scientific theory and therapeutic application.

Chao Wang

Master
Medical biochemistry and biophysics, Umeå University, Sweden
China
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Fellow of the AKB Stiftung

Scientific & Research Interests: Protein misfolding and aggregation, Neurodegenerative diseases, Traumatic brain injury, Chronic and acute inflammation, S100 pro-inflammatory cytokines, Cell cytotoxicity, Atomic force microscopy and Amyloid aggregation kinetics

Research Motivation: More than 10 years ago I watched the film "DNA Age" about DNA as information carrier. This fascinated me greatly and initiated my interest in science, which since then never changed. What I like most about science is that every day I am facing the possibility to discover something new and important.

Jean Wang

B.S.
University of California, San Diego, United States
United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: I'm interested in developing biomaterials for tissue engineering, regenerative medicine, and drug delivery. My PhD project involves studying the mechanism by which an hydrogel derived from ventricular extracellular matrix is able to stop the decline in cardiac function when injected post-infarction.

Research Motivation: Like most scientists, I like research because of its possibilities of discovering new knowledge. In addition, believing that my work has the potential of improving human life, even if it would only be a small insignificant contribution, makes me feel incredibly rewarded.

Stan Wang

B.S.
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Supported by the Lockheed Martin Corporation and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Stem cell biology & regenerative medicine, nuclear reprogramming, epigenetics, developmental biology, tissue engineering, cell replacement therapy, translational therapeutics, drug discovery & development

Research Motivation: As an MD/PhD, I envision serving at the interface of medicine, science, and entrepreneurship by pioneering treatments & accelerating the ability of patients to benefit from the latest innovations. Through our shared creativity & curiosity, we can work to solve the challenges of our time together.

Tobias Wartzek

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Supported by The Association of German Engineers and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Contactless unobtrusive Vital Sign monitoring, telemedicine, smart home, robust signal processing, capacitive ECG-measurement, modeling of physiological systems, Decision Support Systems for intensive care units, AAL, sensor and data fusion and artifact detection

Research Motivation: I always wanted to understand the physical background of technical as well as natural phenomena in our world to use it and to affect it for our specific needs. By this I want to improve/engineer our life and allow for a healthier and longer living.

Tobias Wauer

MSc
MRC Laboratory of Molecular Biology, Cambridge, United Kingdom
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Supported by the Bavarian State Ministry of Education, Science and the Arts, Elite Network of Bavaria

Scientific & Research Interests: Structural Biology, Neurodegenerative Disease, Biophysics, Ubiquitination

Research Motivation: Understanding the incomprehensible complexity of Nature

Kipp Weiskopf

M.Phil.
Stanford University School of Medicine, United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Cancer biology, cancer immunology, tumor microenvironment, immune checkpoints, therapeutic antibodies, protein engineering, macrophages

Research Motivation: As a physician-scientist in training, I am motivated by a desire to create new therapies that benefit human health. I have a particular interest in antibodies and other biological therapies that alter the activity of the immune system in cancer.

Manuela Weitkunat

M.Sc.
Max Planck Institute of Biochemistry, Germany
Germany
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Fellow of the Max Planck Society

Scientific & Research Interests: I am researching the development of the muscle-tendon system using Drosophila as a model organism. My main research question is how muscle-tendon attachment and formation of the contractile system in the muscle are coordinated. To answer this question, I am combining biological and physical methods.

Research Motivation: My motivation for science are the same questions that many generations of scientists dedicated their life to. How are complex organisms formed, how do they function and what happens in case of a disease. My goal is to further expand our understanding of the processes in development and disease.

Jui-Hsia Weng

Ph.D.
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Supported by the National Science Council Taiwan and Microsoft Corporation

Scientific & Research Interests: Biochemistry, Cell Biology, Molecular Biology, Developmental Biology, Chemical Biology, Chemistry, Biophysics, Metabolism, Neurobiology and Stem cell biology

Research Motivation: I majored in chemistry in college and used to think that everything would reach equilibrium. Yet life has shown me many counter examples. My desire to understand this complexity has driven me to study biology. I am keen to pursue science that extends bench work to clinical application.

Martin White

PhD
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Supported by the Human Frontier Science Program and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: My research interests span all areas of chromosome biology, from DNA replication to repair, compaction and chromosome segregation. The current focus of my research is the spatial patterning of DNA recombination events during meiosis.

Research Motivation: My motivation for science is strongly driven by curiosity and a desire to understand the logic used by cells to overcome the many obstacles to survival.

Rob Wilkinson

DPhil
University of Sheffield, Department of Cardiovascular Science, United Kingdom
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: My research focuses on unravelling the molecular and genetic mechanisms governing blood vessel formation as a strategy to combat cardiovascular disease and cancer. I also study the mechanisms which regulate blood stem cell formation and how these cells differentiate from arterial endothelial cells.

Research Motivation: From an early age, I was often found dismantling household items and attempting to put them back together again. This early passion for understanding how things work has remained with me and now manifests itself in my drive to understand how multicellular organisms 'work.'

Kevin Wilkinson

PhD
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United Kingdom
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: My research interests primarily revolve around the trafficking of neurotransmitter receptors to and from synapses. In particular, I am interested in the protein interactions and post-translational modifications that regulate these processes under basal conditions and during synaptic plasticity.

Research Motivation: My motivation for science has always stemmed from my natural curiosity - I have always been fascinated by understanding how things work. In particular, I am driven to investigate the mechanisms that underlie complex cellular behaviour and take great pleasure in finding out new things.

Adam Williamson

PhD
University of California Berkeley, United States
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Supported by Siemens AG

Scientific & Research Interests: Cell signaling, protein ubiquitylation

Research Motivation: The humbling invitation to partake in the Lindau meetings comes at a transition point in my training - I am changing fields for my postdoc, and success in this endeavor will require developing and implementing new methods with roots in diverse areas of science.

Catriona Wimberley

BSc, BEng
Australian Nuclear Science and Technology Organisation ANSTO, Australia
Australia
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Fellow of the Australian Academy of Science

Scientific & Research Interests: My research focuses on medical physics and using PET imaging to study neuroreceptor systems in normal and disease states. The work I do incorporates nuclear medical imaging, mathematical modelling, neurology, pharmacokinetics, and the study of neurodegenerative disorders.

Research Motivation: I am hopeful that what I study will lead to an understanding of the brain and neurodegerative diseases and therefore allow us to ease or even cure them. I also love that the pursuit of science allows constant learning, creativity and collaboration with researchers all around the world.

Sandra Winning

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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Hypoxia, inflammation and cancer

Research Motivation: Getting new perspectives, expending my personal knowledge and discussing scientific questions with researchers from different scientific fields and countries incites me to my work. Science is not limited to the desk but is diverse and challenging to me.

Agata Witkowska

MSc
Max Planck for Biophysical Chemistry, Germany
Poland
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Fellow of the Lennart Bernadotte-Stiftung

Scientific & Research Interests: Mechanism of synaptic vesicle exocytosis, neuronal transmission, cellular trafficking and molecular biology.

Research Motivation: Since I remember I have been fascinated with experimental work. Already in school I was convinced that I want to become a scientist. I love dealing with scientific problems and finding ways to solve them.

Stefanie Wittrisch

M.Sc.
Leipzig University, Institute of Biochemistry, Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: G-Protein coupled receptors (GPCRs), GPCRs as drug targets, receptor trafficking (internalisation, desensitisation, recycling), peptide drugs (synthesis, stability, delivery), peptide-mediated selective tissue targeting, adipocytes, adipogenesis, obesity, metabolic syndrome, diabetes

Research Motivation: I thrive on the challenge of experimentation and its discoveries: it is extremely rewarding being the first to see a previously undiscovered mechanism in cells. It is this potential for answering basic questions, such as who we are, which motivates me.

Manja Wölter

M.D.
University of Rostock: Medical School, Proteome Center Rostock, Germany
Germany
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Fellow of the Else Kröner-Fresenius-Stiftung (EKFS)

Scientific & Research Interests: Medicine, Obstetrics and Gynecology, Fetal Growth Restriction, Intrauterine Growth Restriction (IUGR), Placental Insufficiency, Preeclampsia, Hypertension, Fetal Programming, Fetal Proteins, Mass Spectrometry, Proteome Research

Research Motivation: During medical school I was always impressed by the depth of scientific medical knowledge. But I also became aware of the work which is still to do. Hence, I am interested in doing research and being part of developing new diagnostic and therapeutic possibilities of diseases.

Hyejung Won

PhD
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Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Chromosome disorganization in neurodevelopment disorders Hi-C, RNA-seq, Human neuronal differentiation, Neurodevelopment disorders

Research Motivation: I aim to apply genome-wide systematic research on neurodevelopment to untangle the molecular intricacies involved in neurological disorders. Using human neural progenitor system to model human neurodevelopment and disorders, I want to delineate chromosome organization in neural differentiation.

Gabriel C. Wu

B.S.
University of Texas at Austin, Center for Systems and Synthetic Biology, United States
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Fellow of the Alcoa Foundation

Scientific & Research Interests: Characterization of immune repertoire and cellular heterogeneity using high throughput sequencing, proteomics and single cell techniques, antibody repertoire, B cell heterogeneity, systems immunology, systems biology

Research Motivation: Discovery. Application. The prospect of discovering new knowledge and applying my research to solve complex problems in human health and society.

Yang Xia

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Scientific & Research Interests: TRP channels and pulmonary hypertension

Peng Xia

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Scientific & Research Interests: Regulation of cancer development, cell proliferation, cytoskeleton dynamics and cell morphology, super-resolution imaging

Research Motivation: Interest and curiosity

Tingting Xia

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Scientific & Research Interests: My research mainly focuses on mechanisms underlying central nervous system regulation peripheral energy homeostasis, especially under circumstances of nutritional regulation. We employed amino acid deprivation model to study how brain controlled peripheral energy balance accurately.

Research Motivation: I hope my devotion to biological sciences could be a tiny but significant contribution to the development of scientific research and revealing the mechanisms of human diseases, which could be helpful to design the treatments and drug targets to relieve the suffering of patients in the future.

Jianbo Xiao

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Fellow of the Alexander von Humboldt-Foundation

Scientific & Research Interests: Phytochemicals in health and environment, natrual products for prevention and management of diabetes and obesity, diabetes-associated changes in pharmacokinetic and benefits of dietary polyphenols, dietary polyphenols and diabetes, protein-polyphenol interaction, nanomedicine and nanobiology.

Research Motivation: I am very interested in guest editing special issue on international journals related to my research, such as phytochemicals in medicine and food, polyphenols and diabetes, polyphenol-protein interaction, and so on. Moreover, I also like to organize international conference in nutrition and medicine.

Yan Xiong

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Scientific & Research Interests: Proteomics research and biomarker discovery in neurodegenerative diseases

Research Motivation: Understanding the way things work

Wenping Xu

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: The mechanism and therapeutic of hepatocellular carcinoma and chronic liver diseases such as hepatic fibrosis or liver cirrhosis.

Research Motivation: Hepatocellular carcinoma (HCC) is one of the most common cancers in the world, especially in China. Despite a few advances in treatment of the disease, its prognosis is still poor, which renders it a great challenge to doctors. So, I focus on the related research field and hope to find something new.

Ke Xu

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Scientific & Research Interests: Structural and functional studies of transmembrane proteins

Research Motivation: Interest in the mystery of nature

Kohei Yamamizu

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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: My research interests are how our body is formed. Development is most dynamic events in our life and is very beautiful and mysterious. I am investigating cell differentiation of ES cells into three germ layers: endothelial cells, cardiomyocytes, blood cells, myocytes, hepatocytes and neurons.

Research Motivation: Being a scientist is one of the jobs that gives the dream for future generations. Using pluripotent stem cells such as embryonic stem (ES) cells and induced pluripotent stem (iPS) cells, I want to discover the mechanisms of development and apply my techniques for regenerative medicine.

Ryosuke Yamamoto

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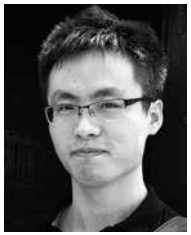
Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: I am interested in motile cilia, organelles essential for many vital activities of eukaryotic organisms. My current study is focused on understanding how ciliary motility is regulated by dynein motors that drive motility.

Research Motivation: When I discover something in nature that no one yet knows, I get great satisfaction from doing science. This is applicable for any small things I find and the joy of finding new features of nature is my chief motivation for doing science.



Chongwen Yang

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Scientific & Research Interests: 3D reconstruction and structural analysis of viruses, biomacromolecules and complexes utilizing cryo electron microscopy (cryoEM) and cryo electron tomography (cryoET).

Research Motivation: I am interested in discovering truths and mechanisms behind superficial phenomena as well as explanations and predictions for them.

Yuanyuan Yao

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Scientific & Research Interests: Sensory processing, neuromodulation, learning and memory, decision making

Research Motivation: When I was an undergraduate student, I was involved in several ecological studies and found the wild nature is a mystery world. Animals are so clever and exhibit many amazing behaviors. So I decide to study neuroscience and hope I can dissect the underlying mechanisms.

Ken Yokawa

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Supported by the Japan Society for the Promotion of Science and Microsoft Corporation

Scientific & Research Interests: I'm interested in biological mechanisms related to an interface between outside and inside of living system. Membrane trafficking, early signal transduction (reactive oxygen species, calcium), cell-cell communication are of interest. Currently plant materials are used for my research work.

Research Motivation: I would like to try cross-disciplinary research to understand a common biological mechanisms. Scientists have to keep away from authoritarianism to be flexible to obtain new ideas regardless of research discipline. And I think that every discovery of science has to be beneficial to human society.

Sha Yu

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Scientific & Research Interests: Function of miRNAs and other small RNAs in human disease, miRNA stability and processing and function of miRNAs in plant development.

Research Motivation: I like the logic and preciseness of science. Doing research makes me feel excited. I am interested in formulating hypothesis and designing experiments to test my idea. I usually feel rewarded once a scientific problem is solved. I get thrilled when I listened to a wonderful academic lecture.

Can Yurttas

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Scientific & Research Interests: I'm very much interested in understanding and especially treating any type of cancer. In my current research field, I'm investigating how oncolytic viruses specifically infect and lyse tumor cells of the gastrointestinal system.

Research Motivation: Science is not only about understanding our environment, but also about improving our life. In medical science, research may even prolong life or be essential for the quality of life. To be able to contribute to that knowledge satisfies me very much.

Tianbu Zhang

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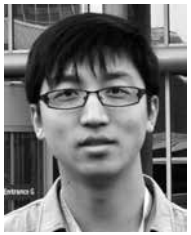
Fellow of the Deutsche Forschungsgemeinschaft (DFG)

Scientific & Research Interests: Biochemistry, X-ray crystallography, drug development.

Research Motivation: Exploring the biology of life and discovering new medicine for the benefit of mankind have always been my passion. The goal of my current research focuses on the development of new drugs for treating Tuberculosis, an ancient disease that continues to pose a global threat in the 21st century.



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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Protein analysis in living cells, proteomics, nanoprobes in bioanalysis and nanofabrication.

Research Motivation: I am curious about the mysterious mechanisms in living systems and I would love to participate in uncovering those mysteries, which drives me to design tools for the exploration.

Wen Zhang

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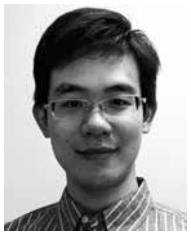
Fellow of the AKB Stiftung

Scientific & Research Interests: We utilize crystallography, molecular biology and chemistry to study the chemical and physical processes that facilitated the transition from chemical evolution to biological evolution on the early earth.

Research Motivation: I am interested in drug discovery for disease treatment, i.e. for cancer. Some molecular mechanism has to be understood to study that and crystallography is one of the most powerful strategies to study the bio-macromolecular functions.



Jiawei Zhao

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Fellow of the Robert Bosch Stiftung

Scientific & Research Interests: My research interests mainly focus on characterizing the structure and mechanism of activation of G protein coupled receptors (GPCRs) using a spectrum of biochemical and biophysical tools. I am also interested in developing new drugs targeting GPCRs.

Research Motivation: What motivates me the most for science is that I am always obsessed by scientific phenomena and scientific questions. The process solving the scientific problem is fun for me.

Haixing Zhu

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Supported by the Sino-German Center for Research Promotion and the Foundation Lindau Nobel Laureate Meetings

Scientific & Research Interests: Respiratory medicine (Asthma, COPD, Lung Cancers, ARDS and other diseases of air movement and airways), airway epithelial repair after injury, cell and biology (aquaporin and respiratory medicine)

Research Motivation: My PhD program gave me a lot of benefit from the research about the field of respiratory medicine. I am so interested about the cutting-edge experiment technology. I am eager to continue my individual scientific career and try my best to shrink the distance between the lab and the field in pulmonary medicine.

Asaf Zviran

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Supported by the Weizmann Institute of Science (Israel) and Microsoft Corporation

Scientific & Research Interests: My main research interest is getting a better understanding of intracellular regulation and how this regulation determines and maintains cell identity decisions. This includes the characterization of the underlying events required for reprogramming of somatic cells to induced pluripotent stem cell.

Research Motivation: My main motivation is bridging the gap between basic understandings of cellular functions and promoting a better diagnostic and treatment of complex diseases.

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by Henri Matisse

5 April – 31 August 2014
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