

# *FY* 2002

Annual Report

April 2002 - March 2003



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# Foreword

## Forward

For the Human Frontier Science Program, 2002 was the year of the Third Intergovernmental Conference, held in Berlin on 24-25 June. This event gave Management Supporting Parties (MSPs) the opportunity to place their trust once more in a small, effective organization, funding the best in basic frontier research in the life sciences. MSPs pledged their support for a further five years, on the basis of the Program's excellent track record, its relevance to priorities in science policy and its willingness to adapt to the evolving needs of the scientific community. It emerged that in the course of its relatively short history, important lessons had been learned at HFSP. As Secretary General of the Human Frontier Science Program since 1999, I would like to share these with you and briefly describe the measures we have taken to enhance the effectiveness of our international programs in creating scientific networks and interchange across national and disciplinary boundaries. I will then describe the new directions HFSP workshops have taken, and share the results of the first of these meetings with you.

## Research Programs

During the first decade of operations, from 1989 to 1999, HFSP concentrated its funding efforts in two areas: molecular biology and brain science. Each area had a Research Grant program for international teams of independent investigators and a Fellowship program supporting post-doctoral fellows studying in the foreign laboratory of their choice. Over this first decade, both programs became highly successful and prestigious.

Yet at the same time, we felt the need to adapt our programs to the changing realities of biological science. The completion of the various genome projects highlights the central challenge facing biological science today: namely, how to grapple with the immense and intricate complexity of living systems. When

we look at the DNA sequences making up a genome, we are looking at something like a giant jigsaw puzzle. What are the details by which each piece works, and how do these pieces fit together and interact? Putting together the jigsaw puzzle of genomes and living systems will demand the skill and talent not only of geneticists, molecular biologists, cell biologists, and neuroscientists; it will also critically require chemists, physicists, computational scientists and mathematicians. Thus at HFSP, we now aim to promote research not only across continental boundaries, but across the boundaries dividing scientific disciplines within life sciences as well. In 2000, the HFSP Board of Trustees merged the programs in brain science and molecular biology into a single unified program devoted to the study of complex mechanisms of living organisms. Another initiative approved by Board was the creation of a Young Investigator Program focused on investigators in the early phase of independent research. In addition, new emphasis was given to creating truly interdisciplinary research by supporting international teams of biologists collaborating with physicists, chemists, mathematicians and computational scientists. As the pioneering molecular biologist and recent Nobel laureate, Sydney Brenner, said in his keynote address at our first annual Awardees' meeting in Turin in 2001: "All the natural sciences are converging on biology."

## Interdisciplinarity

HFSP is a relatively small program, with an annual budget of \$50 million. In order to maximize the value of our scientific investments and create a true Frontiers Program, we have changed the funding guidelines to make it possible for interdisciplinary teams with original ideas and novel experimental strategies to join together without the necessity of preliminary results. In the latest rounds of grants, it was apparent that this change in the funding guidelines is

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beginning to have its intended effect of encouraging a greater spirit of adventure and risk-taking among our grantees. Especially encouraging are several interdisciplinary projects aimed at developing new technologies for basic life science research. The effect of this emphasis on true interdisciplinarity is striking, showing a 7-fold increase over the last 3 years in the number of scientists outside life sciences joining research grant teams (see Chapter 2).

Progress at the frontiers of basic science and innovations in research technologies go hand-in-hand, and one major component of an international science program should be to bring together talents and skills from different nations and disciplines to develop new experimental tools. Indeed, in my own field of neuroscience, a history of major discoveries over the past fifty years would closely parallel a history of the introduction of new techniques for studying the brain, which has progressed from using various imaging devices to single cell recordings in awake animals. Other fields in life sciences also supported by HFSP have taken advantage of new optical methods, nano-technology and bioinformatics; a beautiful illustration of how scientific advances depend on the experimental tools available.

## Fellowship Program

The second major challenge we faced at HFSP was how to maximize the effectiveness of our support for the international training and career development of young scientists. For those who wish to pursue post-doctoral life science research in another country, an HFSP fellowship is generally regarded as the best fellowship available. Yet we found that about 70% of our fellows chose to study in the United States; and of these, about half stayed in the U.S. at the conclusion of their fellowship (see Chapter 4 for the demography of applicants in terms of their country of origin and country of postdoctoral training). We can look at this first statistic in a positive light: we can view the U.S. as an international resource for basic science training, a resource used by countries from all over the world. But the second statistic is rather troublesome: in general, 50% of HFSP fellows studying in the U.S., stay in the U.S. after their fellowships are over, not because they do not wish to go back to their home countries, but because of lack of opportunities in their home countries to forge careers as independent scientists, to work in an environment where they can interact with other scientists and have a sense of a future. Here it should be noted that there have been striking changes in the last two years, with nearly 15% fewer fellows choosing to train in the U.S. Figure 5 also shows a near doubling of U.S. students seeking training abroad, a change from about 5% to 10%.

This is the background to several changes made at HFSP aimed at promoting the repatriation of young scientists. First, we have extended our post-doctoral fellowships from two to three years, with the option of using the third year

of support for training in the home country. Moreover, this third year can be saved: that is, a student can use the first two years of HFSP support in the host country, obtain support from another source for another two years, and then use the third year of HFSP support on their return to their home country in the fifth year. Indeed, I think in general we must have science funding programs that can be customized, that are flexible enough to meet the needs of individuals who not only are working in highly competitive fields, but who may also have families.

## Career Development Awards

With such thoughts in mind, at HFSP we have created an important new category of support called the Career Development Award (CDA). This is currently a small program that provides a total of US \$180,000 over two to three years to support especially outstanding former HFSP fellows in their home countries during the critical period when they are trying to establish themselves as independent investigators.

The career development award provides a start for a young scientist: ideally, if funds permitted, the award should have been for five years of support. HFSP has also created a new international grant program for young investigators – scientists within their first five years of establishing independent laboratories - to provide scientists with research opportunities to compete for funds within their own age group.

For certain, a long-term commitment of resources to the most talented young scientists needs to be made, and in general, only governments have such resources. Fortunately, there are promising signs that governments in Europe, Japan and other developed nations recognize this challenge, and are designing programs aimed at identifying their most talented young scientists and promoting their transition to independence.

Thus, with its Long-Term Fellowships, Short-Term Fellowships, Career Development Awards, Young Investigator grants, and our main Research Grant programs, HFSP is unique: no other funding agency seeds and nurtures international life science networks in such a comprehensive and continuous fashion, from postdoctoral fellow through to junior independent researcher to senior established investigator. An additional important feature is the highly competitive nature of its selection procedure by reviewers from all member countries and a success rate currently around 10-15%. The main reason for the low funding rate has been lack of sufficient funds.



## HFSP Administration

At this point it might be worth making a few points about administrative aspects of HFSP. I have been impressed, having been involved with many leading science institutions and organizations in the past, with the extremely efficient way in which HFSP carries out its operations. Here is an organization that supports several hundreds of scientists across the world, that is run by the highest scientific standards of excellence and originality, and yet devotes only 5% of its budget to overhead costs. There is no bureaucracy at HFSP. It is an extremely streamlined and flexible operation run by a staff of only 14 individuals. So 95% of the money contributed by MSPs goes directly towards promoting the best life science research and training across national boundaries.

## Workshops on policy issues

While the fundamental mission of the HFSP is to promote intercontinental research between scientists at the frontiers of life science research, there is an awareness at HFSP of the interconnectedness of the efforts of funding agencies throughout the world to promote science and of the benefits to be gained from tackling common problems globally. A small organization such as HFSP cannot be present on every front, but it can provide a useful forum for policy discussions, bringing funding agencies and policy makers together to develop common policies that make all our efforts more effective. It was in this aim that a workshop on international training was held in Strasbourg in November 2001 and that a second workshop focusing on the promotion of life sciences in developing countries is planned for 2003.

*Working meeting on international training and support of young investigators in the natural sciences*: There are many troubling signs within the developed world about the future health of basic science. Even as scientific and technological advances are becoming ever more deeply interwoven in our economies, public policies, cultures and personal lives, there is increasing evidence that the best and brightest young minds are finding science less and less attractive as a career option. In response to this growing problem, HFSP and the European Science Foundation hosted a meeting of leaders of funding agencies from Europe, North America and Japan. It resulted in the publication of a report, "Toward a new paradigm for education, training and career paths in the natural sciences".

We concluded that the traditional model of science education and training at academic research institutions is in many ways failing. This model, a legacy of the 19th century, has viewed science education and training as a "pipeline" with only one honored endpoint for the student: the replication of the student's academic mentor, the research professor heading a laboratory in a well-defined scientific discipline.

Instead of a narrow, unidirectional and impermeable "pipeline," we proposed a new organic paradigm for visualizing science

training and careers: a tree with a richly ramifying, highly permeable network of roots and branches reflecting the broad range of inputs into the scientific enterprise and the wide range of career opportunities for students with a solid science background

([http://www.hfsp.org/pubs/Position\\_Papers/funders.htm](http://www.hfsp.org/pubs/Position_Papers/funders.htm)). Postdoctoral fellows are visualized as occupying the trunk and intermediate branches of this "tree of science."

In this new paradigm, optimizing the experience and opportunities of postdocs means aiming to fulfill two quite different yet complementary goals. First, both doctoral and postdoctoral training and education must be redesigned to facilitate advancement in a wide variety of valued positions and careers in industry, schools, administration, government, the media, business and many other domains, in addition to academic scientist research. Second, organizational policies in many countries must be refined in order to enable the most skilled, talented and successful young scientists to obtain independent positions – that is, to advance to the tree's "upper branches" – at early and highly creative stages of their careers.

From the outset of their training, students should have the opportunity to explore a wide array of fields. There is now widespread recognition that many scientific research paths, particularly in the life sciences, transcend conventional disciplinary boundaries. Indeed, the current revolution in the life sciences has to a large degree been driven by the availability of new tools developed by physics, chemistry, informatics and engineering. With the growth of genomics, proteomics and other large-scale approaches in the life sciences, there is an increasing number of large, interdisciplinary groups that collaboratively probe many aspects of complex biological systems. This large-scale approach has long been a feature of research in the physical sciences and may also become more important to students and researchers in the life sciences. We live in a world increasingly driven by scientific and technological innovation. Never before has there been a greater need for individuals with a strong education in the sciences to bring their knowledge, experience and perspectives to business, government, industry, administration, teaching, journalism and a host of other fields. Some funding agencies support training programs that include training in administration, teaching, and ethics as ways of enhancing the scientific research enterprise and laying the groundwork for alternative careers. Such programs need to become much more pervasive. An education in science should be seen as an excellent preparation for a multitude of diverse careers for which a science education is essential. Web resources such as *Science* magazine's *Next Wave* forum provide unprecedented opportunities for communicating information on science-based careers without any geographical restrictions. Indeed, the very existence of such virtual, global scientific forums is an encouraging sign that a new "tree of science" is beginning to take root.

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Of course, the path to the upper branches of science is hard and will be attained only by a minority of students at the trunk. This is part of the risk involved- part of the risk involved in all ambitious human endeavors – and I do not believe that policy makers should react to this freely-taken risk through measures that restrict individual choice. The impulse to pursue science as a career is often akin to the impulse that drives a young painter, writer or dancer: that impulse to unravel and understand deep patterns in nature is akin to the impulse to create resonance patterns in color, words or music. The young scientist and artist alike find intellectual and emotional challenges and rewards in their fields that they feel they can find nowhere else; these rewards cannot be quantified; yet they need to be part of any discussion of scientific training and careers. Like many others, I left a career path in medicine to pursue basic biological research. I did so not because basic research offered better opportunities for a secure, independent, well-remunerated position than did medicine; quite the contrary. I did it because I felt that there could be no more exciting way to spend one's life than exploring the workings and development of the brain, and because I felt that this would be the long-term path to true advances in psychiatric diagnosis and treatments. Yet at the time, I viewed my training in medicine in much the way I believe we should view training in scientific research: as a tree which branches into a variety of interesting and valued areas of employment.

We must revise our approaches to science education and training to better guide students along the many career paths open to them in addition to academic science. Yet at the same time we should remember that science at its best is more than just a career. It is a unique and international human creation that combines competition and cooperation, rationality and imagination, passionate debate and solitary exploration, in pursuit of new knowledge for the benefit of humanity.

*Workshop Promoting the Life Sciences in Developing Countries:* We live on a planet increasingly interwoven by a global market economy, and by the Internet and other astonishing communication technologies. Yet the global propagation of science – the most fundamental and universal of human cultural achievements – has lagged far behind.

Thus as a follow up to the Strasburg meeting on training, a meeting is being organized through the joint efforts of EMBO, HFSP, TWAS and the Wellcome Trust for early November, 2003 in Trieste. This meeting will concentrate in particular on the challenge of promoting science in developing nations. The Trieste meeting will bring together information on what different countries and funding agencies are doing, to see if it is possible to have more synergy in our efforts, and to explore new ways of seeding and fostering scientific culture across the world.

The idea behind the Trieste meeting is that basic science should be a central component of any thriving society's educational system; of its industrial and agricultural development, health care system, and environmental planning. The burgeoning of even a few high-quality science research groups within a nation in which science remains undeveloped can serve to jumpstart a scientific field, catalyzing its own scientific growth by attracting some of a nation's brightest young minds to scientific careers. This in turn may allow a nation to begin to apply the knowledge gained from science to local medical, agricultural and ecological challenges. Our ultimate goal must be to help create a world of scientists who "act locally, but think – and interact – globally."



TORSTEN WIESEL  
*Secretary General*









# I. Aims and Activities of the Program

## Aims

The HFSP promotes fundamental research in the life sciences with special emphasis on novel and interdisciplinary research, international and in particular intercontinental collaboration and support for young investigators. Since its establishment in 1989, the HFSP has demonstrated the value of creating a framework for competitive, collaborative, international research of the highest calibre and of providing young scientists with the opportunity to emerge as talented researchers capable of shaping the science of the future. To this end, the HFSP maintains its vital place on the frontiers, promoting the most original of contemporary research.

During its first decade, HFSP established two general research areas within the broad framework of research into complex mechanisms of living organisms: brain science and molecular mechanisms of biological functions. The rapid development of molecular and cellular neurobiology and the application of molecular genetics to problems in neuroscience over the past decade, has led to considerable overlap in the techniques and approaches used in the two broad areas. Furthermore, biology itself has undergone a revolution in the last 5 years, emerging as a leading scientific area with a convergence of interest from other disciplines such as physics, mathematics, chemistry and computer science on solving biological questions.

In response to these developments, the Board of Trustees decided in March 2001 to combine the two research areas into a single, unified one in order to focus on the study of complex mechanisms of living organisms. The fields supported range from brain functions to biological functions at the molecular level and include all levels of analysis, as complexity is inherent at all levels of research. The HFSP is particularly interested in involving scientists outside the traditional biological fields as part of research collaborations and as postdoctoral fellows.

The HFSP has embarked on a series of initiatives to meet the fresh challenges posed by science. It also seeks to be at the forefront of research management by instituting a flexible framework for its grant and fellowship programs. This enables the world's best scientists to collaborate internationally in optimum conditions and younger scientists to obtain training essential to their future independence. To that end, the HFSP keeps in close contact with other funding agencies in countries interested in developing and implementing common policies aimed at enabling young investigators to achieve independence.

At the 2002 Intergovernmental Conference in Berlin, the representatives of the Management Supporting Parties reaffirmed the above aims of the HFSP and recognized that the scientific value of the HFSP warrants its continuation for a further phase of 5 years (See Berlin Communiqué in Annex 1).

## Activities

HFSP funds Research Grants and Fellowships and organizes Workshops/Annual Awardees Meeting. These activities may be modified to meet the changing needs of the scientific community, on the recommendation of the Council of Scientists and by the decision of the BOT, after due consideration of reviews and of the funding policies of individual nations and funding agencies.

Since 1990, 597 Research Grants involving 2415 scientists, and 1814 Long-Term Fellowships have been awarded. Researchers from over 60 countries have received HFSP funding. Currently Japan provides about 60% of the \$50 million annual budget. (For more information about Research Grants and Fellowships, see the respective Guidebooks on the website).

# 1. Aims and Activities of the Program

## Research Grants

Research grants are provided for teams of 2-4 scientists from different countries and continents who wish to combine their expertise to approach questions that could not be answered by individual laboratories. Emphasis is placed on novel collaborations that bring together scientists from different disciplines (e.g. chemistry, physics, mathematics, computer science, engineering) to focus on problems in the life sciences. To stimulate novel, daring ideas and innovative approaches, preliminary results are not required and applicants are expected to develop new lines of research.

Research teams must be international and intercontinental. The principal applicant must be from one of the member countries<sup>1</sup>. However, those scientists collaborating with the principal applicant may be situated anywhere in the world. Awards are made for a maximum of three years. Two types of Research Grant are available:

- **Young Investigators' Grants** are awarded to teams of researchers, all of whom are within the first five years after obtaining an independent laboratory position (e.g. Assistant Professor, Lecturer or equivalent). Applications for Young Investigators' Grants will be reviewed in competition with each other independently of applications for Program Grants. Young Investigators' Grant teams receive a standard amount of \$250,000 per team per year<sup>2</sup>.
- **Program Grants** are awarded to teams of independent researchers at any stage of their careers. The research team is expected to develop new lines of research through the collaboration. Applications including independent investigators early in their careers are encouraged. Priority will be given to new, innovative research projects for which preliminary results might not necessarily be available. Applicants may apply for up to \$450,000 for the whole team per year, based on around \$100,000 per team member<sup>3</sup>

### **Two-step Review Procedures:**

In March 2001, HFSP introduced a new two-stage review procedure since many grant applications do not conform to the specific HFSP requirements despite the high quality of the science.

Applicants must submit a letter of intent via the HFSP web site at the end of March or the beginning of April each year. Successful applicants will be notified at the end of June and invited to submit a full application in September.

## Fellowships

Because young scientists are most open to new ideas and experiences, the HFSP established fellowship programs to increase the mobility of young scientists between countries. Postdoctoral scientists have been encouraged to receive training in new fields in order to broaden their scientific experience. With the increased complexity of science and its methodology, the process of learning new approaches requires longer periods of training before a young investigator can achieve independence.

In response, the HFSP has developed a more comprehensive approach to support of outstanding young scientists, from the initial stages of their postdoctoral research training to their status as independent investigators. The duration of the Long-Term Fellowship award has been increased to three years since 2000 allowing the last year to be used for repatriation and delayed for up to two years. Because it is often difficult for young investigators to obtain independent funding to pursue their own line of research early in their careers, the HFSP initiated the Career Development Award in 2001, which is designed to facilitate a fellow's transition from junior scientist to independence as an established investigator in the home country.

### **Long Term Fellowship (LTF)**

Long-Term Fellowship program is to promote the development of a global network of talented young scientists by enabling postdoctoral fellows to obtain training in a new area of research in outstanding laboratories in another country.

Fellows can obtain 3 years of postdoctoral support for research training in a new scientific area in another country. The LTF provides a living allowance equivalent to US\$ 36,000, an annual US\$ 6,000 research and travel allowance, and \$1,000 for language training. The third (final) year of funding can either be used to return to the home country and under those circumstances can be deferred for up to two years or can be used for a third year in the host laboratory.

### **Short-Term Fellowships (STF)**

Short-Term Fellowship program enables researchers who are early in their careers to spend two weeks to three months working in a laboratory in another country to learn new techniques or establish new collaborations. Former LT fellows can use this mechanism of support to complete work initiated under their HFSP fellowship. The fellowship provides travel and per diem support.



# 1. Aims and Activities of the Program

## **Career Development Award (CDA)**

The CDA will enable former HFSP fellows to establish themselves as independent young investigators in their home countries, enhancing the distribution of outstanding scientists open to new ideas and international collaboration throughout the world. It will provide young investigators with independent funds to develop their own research program, thus building a culture of independent young researchers in all countries.

Fellows beginning with award year 2000 are eligible for the CDA after completion of at least 2 full years of their LTF or within 2 years after completion of the LTF. Applicants must either be in the process of obtaining or already hold a position in the home country in which they are able to conduct independent research. The award provides US\$ 180,000 in total for two or three years.

## **Workshops/Annual Awardees Meeting**

All grantees in their third year and fellows in their second or final year are invited to participate in the Annual Awardees Meeting. This meeting brings together both grant awardees and Long-Term Fellows to stimulate interactions and hopefully lead to new collaborations among participants from different fields.

The Second Annual Awardees Meeting<sup>4</sup> took place in Ottawa, Canada on 9-12 June, 2002. The meeting was open to holders of HFSP Research Grants awarded in 1999, Young Investigator Grants awarded in 2001-2002 and Long-Term Fellowships awarded in 2000, both in their last year. Former fellows working in Canada were also invited. There were 128 participants including 36 grantees, 59 fellows and 33 other participants, made up of members of BOT, COS and the Secretariat. Research grantees gave short presentations of their research and time was made available for questions and discussions. The plenary lecturers given by Timothy Hunt and Roderick MacKinnon contributed greatly to the success of the meeting.

## **Public relations and other activities**

In the course of FY2002, the website was expanded to include reports of the scientific achievements of awardees and other Program-related information. In addition, e-mail newsletters are now occasionally distributed to more than 6200 subscribers (as of the end of FY 2002).

The Secretary-General met policy makers and administrators of the United States of America (November, 2002), Japan (September, 2002 and February 2003), and in order to update them directly as regards the activities of HFSP and to encourage them to lend firmer support to the Program. Scientific Directors participated in many scientific meetings so as to raise the visibility of the Program.

**1:** Member countries as of the end of FY 2002: Canada, France, the Federal Republic of Germany, Italy, Japan, Switzerland, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the European Union. (these countries and organizations are defined in the Statutes of the HFSP as Management Supporting Parties "MSPs")

**2:** In future years, the sum will depend on the size of the team: \$250,000 for two members, \$350,000 for three members, and \$450,000 for four or more

**3:** For 2002 awardees, a sum depending on the size of the team was awarded: \$250,000 for two members, \$350,000 for three members, and \$450,000 for four or more.

**4:** The third Annual Awardees Meeting takes place in Cambridge on July 6-9, 2003.

# 2. Implementation of new initiatives

Several program initiatives were introduced following the appointment of Prof. Torsten Wiesel as Secretary General in April 2000. These were aimed at enhancing the frontier nature of the science supported by the Program, encouraging postdoctoral fellows to return to their home countries and increasing contact between scientists from different fields through an annual meeting of HFSP awardees. The measures taken are outlined below. Although some of these initiatives will only show an effect after several years, this section of the Annual Report provides a status report on the measures taken to date.

## Unification of the HFSP scientific program

After its inception in 1989, HFSP supported grants and fellowships in two major areas, “Brain functions” and “Molecular approaches to biological functions”. These two scientific areas were reviewed by different committees, but over the years it became apparent that these areas were converging more and more. It was therefore decided, starting with the 2002 awards, to merge them into a single program concerned with “complex mechanisms of living organisms”. The focus of this unified program encompasses the former areas and includes all applications ranging from molecular studies to the level of higher brain functions. All applications are now reviewed by two committees, one for grants and one for fellowships, but all fields are now covered by each committee. Experience with this broadly based review committee structure has been very positive. It enables a consistent set of criteria to be applied to all applications, regardless of their field and is proving to be an excellent mechanism to evaluate applications according to the interdisciplinary mission of HFSP.

## Young Investigators Grant

The Young Investigators Grant scheme was introduced to encourage collaborations between young scientists who are within 5 years of obtaining their first independent positions. The first awards were made in 2001. So far 31 Young Investigators Grants have been awarded in 2001-2003. Young Investigators are always invited to the Annual Awardees Meeting (see below), which provides an excellent opportunity for them to make contacts and allows HFSP to follow their careers.

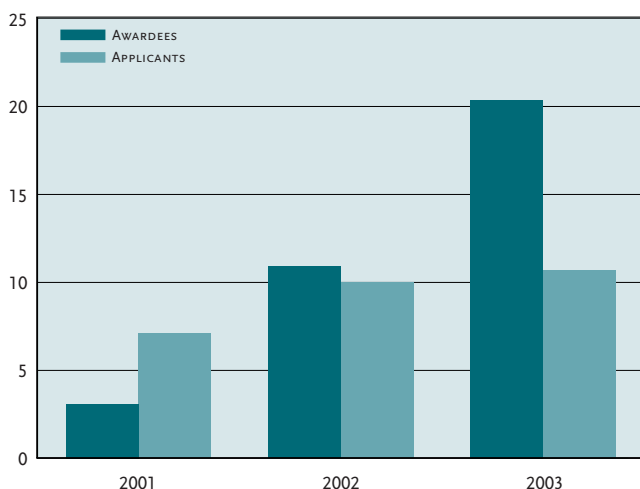
## 2. Implementation of new initiatives

### Interdisciplinarity of Research Grants

Over the last few years, the interests of scientists in all disciplines have been converging on the life sciences, either through the development of new techniques or application of new concepts to biological problems. Such collaborations between disciplines will be essential for the future of biology as it evolves towards a more quantitative “systems biology”. Two measures have been taken to increase the interdisciplinary nature of the research grants. First, since the end of 2001, HFSP has been working with scientific societies in the physical and mathematical sciences to promote the opportunities offered by the Program. Secondly, a two-step procedure for submitting grant applications was introduced. After an initial letter of intent, only a limited number of full applications are invited. Selection of these is very stringent and involves consideration of how an application is relevant to HFSP’s interdisciplinary goals as well as the quality and potential impact of the scientific proposal.

As shown in the figure below, an increase in the proportion of applications from scientists located in departments outside the life sciences from ca. 7% to 10% was observed between 2001 and 2002 following greater publicity of the program in those scientific communities. At the same time, introduction of the two step procedure led to an increase in the total number of applications from around 350 in 2001 to 548 in 2002, indicating a significant increase in the number of physical scientists applying to the Program. Of the Research Grant awards made, the proportion of scientists from outside the life sciences increased from 3% to 20% between 2001 and 2003. Considerable progress has therefore been made over this period to enhance the interdisciplinary profile of the Research Grant program. This is reflected in a shift in the topics funded from important but rather “mainstream” biomedical research to more fundamental “frontier” approaches to biological problems.

**% scientists from non-biological disciplines participating in Research Grants\***



\*Estimated from the institutions where applicants or awardees are located

### Long-term Fellowship tenure and Career Development Award

HFSP Long-term Fellowships have been extended from 2 to 3 years. In order to increase the Fellows’ options after the first two years, the 3<sup>rd</sup> year may be taken in the host laboratory or may be used as a stepping stone to return to the home country. Since this was introduced in the awards made in 2000 and the third year may be taken up after a gap of two years between the 2<sup>nd</sup> and 3<sup>rd</sup> years, it is still too early to identify any change in the pattern of return to the home country.

A second measure aimed at encouraging Fellows to return home and to give them a start in their new independent laboratories, HFSP has introduced a competitive Career Development Award for HFSP Fellows who return to their home countries. The award is for \$180,000, which can be spent over 2 or 3 years depending on the awardee’s needs. The first Career Development Awards were made in March 2003. Eight young scientists who have returned to European countries, China, Japan and South Korea were funded.

### Annual Awardees Meetings

Starting in 2001, HFSP has been organizing annual meetings to bring together grant and fellowship awardees. The aim of these meetings is to allow greater interaction between HFSP awardees in the hope that this will encourage new collaborations. The meeting is held in a different country each year, hosted by the MSPs. The first two were held in Turin, Italy (2001) and Ottawa, Canada (2002). The third meeting is being organized in Cambridge, UK in 2003. The meetings have been welcomed enthusiastically by the awardees and have provided members of the HFSP Board of Trustees, Council of Scientists, Review Committee members and staff with an excellent opportunity to evaluate the work being funded and to increase the visibility of the HFSP in the host country.

# 3. Budget and Finance

The Organization is supported by contributions from the Management Supporting Parties (MSPs): these include Canada, France, Germany, Italy, Japan, Switzerland, United Kingdom, United States and the European Commission, which represents the other countries of the European Union. For HFSP, fiscal year 2002 (FY 2002) extends from 1<sup>st</sup> April 2002 until 31<sup>st</sup> March 2003.

## 1. Income Budget

The income budgeted for FY 2002 was approved by the Board of Trustees (BOT) in March 2002 for a consolidated amount of US\$ 49.44 million (including US\$ 0.06 million in kind from Japan). This figure differs marginally from that of FY 2001 (Table 1).

At the Intergovernmental Conference in Washington, May 1997, MSPs came to an understanding as to the medium and long-term funding of HFSP ("Washington goal") by which an increase of non-Japanese contributions would bring the total budget to US\$ 60 million in FY 2002. MSPs' contributions to the FY 2002 budget reached 82% of this target and 79% excluding Japan (as compared to 55% last year).

TABLE 1: Budget of Contributions for FY 2002, evolution from FY 2001 and percentage of "Washington Goal"				
	BUDGET FY 2002 (US\$ MILLION)	BUDGET FY 2001 (US\$ MILLION)	% ACHIEVEMENT OF WASHINGTON GOAL IN 2002 BUDGET	WASHINGTON GOAL (US\$ MILLION)
Canada*	0.73	0.53	91%	0.80
Switzerland*	0.53	0.53	achieved	0.45
Germany*	3.20	1.92	achieved	3.20
European Commission*	2.86	1.43	95%	3.00
France*	1.55	1.48	75%	2.05
Italy*	0.37	0.25	24%	1.55
Japan (excl. 0.06 in kind)	31.25	37.05	85% **	37.00
UK*	1.50	0.71	achieved	1.50
USA	7.39	5.83	70%	10.45
<b>Total budget in US\$</b>	<b>49.38</b>	<b>49.73</b>	<b>82%</b>	<b>60.00</b>

\* Currency converted in US\$

\*\* Japan had achieved the Goal until FY 2001, but its contribution was reduced due to an unfavorable exchange rate in 2002.



### 3. Budget and Finance

TABLE 2: Actual contributions from MSPs at the end of March 2003 (FY 2002) in US\$ million

	ACTUAL FY 2002	BUDGET FY 2002	DIFFERENCE	NOTE
Canada	0.83	0.73	0.10	Exch. rate: 0.01 • Unbudgeted: 0.09
Switzerland	0.64	0.53	0.11	Exch. rate: 0.11.
Germany	1.75	3.20	- 1.45	Exch. rate: 0.22 • Phasing : - 1.67
European Commission	2.73	2.86	- 0.13	Exch. rate: 0.35 • Phasing: - 0.48
France	1.60	1.55	0.05	Exch. rate: 0.20 • Phasing: - 0.15
Italy	0	0.37	- 0.37	Phasing: - 0.37
Japan (excl. 0.06 in kind)	31.25	31.25	0.00	
UK	1.60	1.50	0.10	Exch. rate: 0.05 • Unbudgeted: 0.05
USA	8.60	7.39	+1.21	Unbudgeted: 1.21
<b>Total budget in US\$</b>	<b>49.00</b>	<b>49.38</b>	<b>- 0.38</b>	

#### Actual Program Resources for FY 2002

MSPs' cash contributions received during FY 2002 (as of 31<sup>st</sup> March 2003) and consolidated in US\$ are shown in Table 2. They fell short of the budget by US\$ 0.38 million, bringing the total to US\$ 49 million. Variations between budget and contributions received can be explained as follows:

- Variation of exchange rate between budget and accounts :
  - + 0.94
- Phasing:
  - payments due from previous years and received during FY 2002: + 1.58 (Germany : 0.63, EC : 0.95)
  - payments for FY 2002 not yet received:
    - 4.25 (Germany : 2.30, EC : 1.43, France : 0.15, Italy : 0.37)
- Increase in contributions from MSPs for FY 2002 (not included in budget): + 1.35 (Canada: US\$ 0.09 million, UK: US\$ 0.05 million, USA: US\$ 1.21 million)

Excluding the exchange rate impact and phasing of payments, MSPs' contributions for FY 2002 represent US\$ 50.73 million (49.38 + 1.35). The additional unbudgeted US\$ 1.35 million was not included in the Program Activities Plan for FY 2002 and will be available for FY 2003 program activities.

Geographically, Japan remains the main contributor (approximately 64 % of total contributions). North American and European contributions have gradually increased (Table 3).

TABLE 3: Geographical distribution of contributions

REGION	FY 2002	FY 2001	FY 2000
Japan	64	72	75
Europe	17	13	13
North America	19	15	12

**Finance management** is based on investments in short term mutual funds (Monetary SICAV) and medium term capital guaranteed structured products. So as to optimise returns, investments are adapted in terms of amount and maturity date to the projected cash-flow for award payment and administrative costs until 2006.

The cash operation process was streamlined to improve the distribution of funds between current accounts and the investment portfolio. Financial income from asset management (interest and capital gain) amounted to US\$ 2.08 million, as compared to US\$ 0.51 million in FY 2001. US\$ 10 million has been invested in a 2 year capital guaranteed structured product.

## 3. Budget and Finance

	DIFFERENCE 2001 > 2002	ACTUAL FY 2002 US\$ MILLION	%	FY 2001 US\$ MILLION	%
<b>Administrative expenses</b>	<b>0.78</b>	<b>3.38</b>	<b>6.20 %</b>	<b>2.60</b>	<b>5.4 %</b>
Salaries	0.41	1.95	3.57 %	1.54	3.2 %
Others	0.37	1.43	2.63 %	1.06	2.2 %
<b>Program activities</b>	<b>5.23</b>	<b>51.20</b>	<b>93.80 %</b>	<b>45.97</b>	<b>94.6 %</b>
Research Grants	2.78	39.26	71.92 %	36.48	75.1 %
Long-Term Fellowships	2.66	11.76	21.55 %	9.10	18.7 %
Short-Term Fellowships	0.03	0.18	0.33 %	0.15	0.3 %
Awardees meeting	- 0.11			0.11	0.2 %
Other Program activities	- 0.13			0.13	0.3 %
<b>Total</b>	<b>6.01</b>	<b>54.58</b>	<b>100.0 %</b>	<b>48.57</b>	<b>100.0 %</b>

### 2. Expenditure

Total expenditure before tax amounted to US\$ 54.58 million, an increase of 12.4 % from the previous year.

The exchange rate had a significant impact (Table 4).

The exchange rate impact is about 25 % this year.

In March 2001 : 1 US \$ = 1.1463 €

and in March 2002 : 1 US\$ = 0.9172 €.

HFSP's administrative costs increased slightly from the previous year and represent 6.20 % of total expenditure. The increase represents about 31 %, but only 5 % on the basis of last year's exchange rate.

In FY 2002, **37 new Research Grants** were funded (26 Program Grants and 11 Young Investigators Grants ) with an average annual budget of US\$ 383 000 per grant, as compared to 53 new awardees in FY 2001 with an average annual budget of US\$ 250 000 per grant. In addition, **94 new Long-Term Fellowships** were funded this year, as compared to 81 in FY 2001.

In total, annual spending for program activities amounted to US\$ 51.20 million, of which 23 % was allocated to Long term Fellowships and 77 % to Research Grants. The long term balance between funds committed and funds in reserve is maintained.

### 3. Funds set aside for future payments

From the outset, HFSP has always considered it essential that fellows and grantees be guaranteed accurate and timely payment for the duration of their HFSP award. This includes future payments to ongoing awardees. To this end, funds necessary to meet these contractual financial obligations are set aside. These funds are referred to as "committed funds" in the accounting summary and as "liabilities" in the balance sheet. At the end of every fiscal year, HFSP's financial assets should match these commitments.

Funds committed for award payments beyond FY 2002 for programs initiated in FY 2001 and FY 2002 amount to US\$ 56.86 million (Table 5).

At the close of the financial year on 31<sup>st</sup> March 2003, HFSP's financial assets consolidated in US\$ amounted to US\$ 55.01 million, exceeding the total commitment made to awardees beyond FY 2002 by US\$ 56.86 million. The difference is explained by outstanding contributions. These amount to US\$ 4.25 million for FY 2002.

The total amount of HFSP program resources including annual expenditure and funds committed for future payments of awardees amounted to US\$ 107.89 million, of which US\$ 78.35 million (73 %) was allocated to Research Grants and US\$ 29.54 million (27 %) to Long term Fellowships (Table 5).

### 3. Budget and Finance

TABLE 5: Total resources allocated to program activities: annual expenditure and funds set aside (US\$ million)

	TOTAL RESSOURCES ALLOCATED	ANNUAL EXPENDITURE					COMMITTED FUNDS BEYOND FY 2002 <sup>1</sup>		
		107.89	51.03				56.86		
		FY 2002	FY 2003	FY 2004	FY 2005	FY 2006			
		3 <sup>rd</sup> year							
RG 2000	12.74	12.74							
LT 2000*	6.30	4.50	0.90	0.90					
		2 <sup>nd</sup> year	3 <sup>rd</sup> year						
RG 2001	26.99	13.74	13.25						
LT 2001 with CDA <sup>2</sup>	8.99	3.46	3.73	0.90	0.90				
		1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year					
RG 2002	38.62	12.78	12.92	12.92					
LT 2002 with CDA <sup>2</sup>	14.25	3.81	4.32	4.32	0.90	0.90			

<sup>1</sup>: estimate

<sup>2</sup>: payment of career development awards (CDA) can start up to 5 years after beginning of award

#### 4. Budget for FY 2003 (1<sup>st</sup> April 2003 – 31<sup>st</sup> March 2004)

At the BOT meeting in March 2003, several MSPs confirmed that they would meet the Washington Goal in FY 2003.

The budget for FY 2003, submitted to the Board in March 2003, anticipates that on the whole, MSPs contributions will remain stable (Table 6).

As compared with FY 2002 the total annual expenditure for program activities in FY 2003 will decrease by US\$ 0.59 million to US\$ 50.61 million (Long Term fellowships + US\$ 1.33 million, Research Grants – US\$ 2.24 million, others + US\$ 0.32).

In this budget, funds available at end of FY 2003 will match requirements for future payments beyond FY 2003.

#### 5. HFSP0 Finance Committee

The Finance Committee was set up by decision of the BOT in December 2000 to review and monitor the Organisation's financial situation and management.

Chaired by Dr. Baldwin until December 2002, Committee members are Dr. Beretta (Switzerland), Prof. Strata (Italy) and Mr. Kurihara (Japan). On Dr. Baldwin's resignation, Prof. Strata was elected Chair of the Finance Committee and Dr. Harford joined the committee as the North American representative. Prof. Strata chaired the second Finance Committee meeting, held in March 2003.

At its meeting on 1 December 2002, the Finance Committee decided to recommend to the Board of Trustees a change in fiscal year from 1 April – 31 March to the calendar year. This proposal was rejected by the BOT at its 29<sup>th</sup> meeting (March 2003).

At its meeting on 23 March, 2003, the Finance Committee decided to make the following recommendations to the BOT:

- a change in auditing practice to fulfill French legal requirements (see p. 30 )
- additional procedure for budget planning (see p. 31)
- the purchase of new premises for the Secretariat, pending confirmation by certified authorities of the soundness of the building, 12, quai Saint-Jean.

TABLE 6: Summary of operational budget for FY 2003 (US\$ million)

RESOURCES		EXPENDITURES	
Canada	0.81	<b>Administrative expenses</b>	<b>3.70</b>
Switzerland	0.64	Salaries	1.74
Germany	2.51	Others	1.96
European Community	3.22	<b>Program activities</b>	<b>50.61</b>
France	1.75	Research Grants	29.02
Italy	0.55	Young Investigators	8.00
Japan (excl. 0.06 in kind)	31.25	Long-Term Fellowships	13.09
UK	1.57	Short-Term Fellowships	0.20
USA	10.45	Awardees meeting	0.30
<b>MSPs</b>	<b>52.75</b>	Positive balance	0.52
Capital gain	2.08		
<b>Total</b>	<b>54.83</b>	<b>Total</b>	<b>54.83</b>

## 3. Budget and Finance

### Acknowledgement

HFSP0 is grateful for the support of the following organizations :

#### **Canada**

- Canadian Institutes of Health Research (CIHR)
- National Research Council of Canada (NRCC)
- Natural Sciences and Engineering Research Council of Canada (NSERC)

#### **France**

- Communauté urbaine de Strasbourg (CUS)
- Ministère des Affaires Etrangères
- Ministère de la Jeunesse, de l'Éducation Nationale et de la Recherche
- Région Alsace

#### **Germany**

- Bundesministerium für Bildung und Forschung (BMBF)

#### **Italy**

- Consiglio Nazionale delle Ricerche (CNR)

#### **Japan**

- Ministry for Economy, Trade and Industry (METI)
- Ministry of Education, Culture, Sports, Science and Technology (MEXT)

#### **Switzerland**

- Bundesamt für Bildung und Wissenschaft

#### **USA**

- Department of Energy
- National Aeronautics and Space Administration (NASA)
- National Institutes of Health (NIH)
- National Science Foundation (NSF)

#### **UK**

- Biotechnology and Biological Sciences Research Council (BBSRC)
- Medical Research Council (MRC)

#### **European Union**

- Commission of the European Communities, Directorate General Information Society
- Commission of the European Communities, Directorate General Research



# 4. Selection of Awardees

## Selection procedures

Awardees starting their research work in FY 2003 were selected during FY 2002 from among the applications received.

Advertisements were placed in the international scientific journals *Science* and *Nature* to solicit applications and the call for applications was publicized via the web sites or newsletters of relevant scientific societies.

For the selection of **Research Grants** awards, a two-step review process was used. The deadline for the initial letters of intent was 3 April, 2002. After review, 80 teams were invited to submit full applications, which were reviewed by the Research Grant Review Committee with the support of external reviewers' reports. Following review, the applicants received feedback from the committee in the form of a short summary.

The selection of **Long-Term Fellowship** awardees was performed by the Fellowship Review Committee. Each application was pre-scored by two Review Committee members. During the Review Committee meeting, the top applications were discussed further, scored and ranked, and the most highly qualified candidates were recommended for funding.

**Short-Term Fellowships** were evaluated throughout the year by two reviewers selected among current or former members of the Fellowship Review Committee, the final decision being taken by the chairperson of the Review Committee.

The main review criteria for fellowships are the scientific originality and excellence of the proposal, the accomplishments and potential of the candidate, the quality of the host and of the host environment, and the training potential of the fellowship experience. The overall benefit of international, and especially intercontinental, exchange in the achievement of the aims of the research and the interdisciplinary aspect of the project are also important considerations.

The "**Career Development Award**" (CDA) program was implemented this year. Each application was evaluated by two members of the Council of Scientists and ranked accordingly. Outstanding applications were recommended for funding.

The Review Committees met in Strasbourg on the following occasions:

TABLE 4-1	
DATES OF MEETINGS	
Fellowships	20, 21, 22 January, 2003
Research Grants	27, 28, 29 January, 2003

The final selection of awards was made by the COS and financial considerations (budgetary restrictions) were taken into account by the BOT before the recommendations were approved.

## Applications and Awards

### Research Grants

Research Grants are awarded for projects of basic research carried out jointly by a team of scientists from at least two different countries. Emphasis is placed on the inter-continentiality of the collaboration and on its interdisciplinary nature, and young investigators are especially encouraged to apply. Two types of grants were awarded in FY 2002: Young Investigators' Grants for groups of young scientists within five years of obtaining an independent position; and Program Grants for scientists at any stage of their careers. Grants are awarded for periods of up to 3 years.

## 4. Selection of Awardees

The numbers of awards since the beginning of the program are shown in table 4-2 :

AWARD YEAR	NUMBER OF APPLICATIONS	NUMBER OF AWARD	SUCCESS RATE (%)	TOTAL COST IN THEIR 1 <sup>ST</sup> YEAR*
1990	235	29	12.3	7.67
1991	239	32	13.4	8.07
1992	281	37	13.2	8.07
1993	332	42	12.7	9.62
1994	351	40	11.4	9.30
1995	389	52	13.4	9.81
1996	439	45	10.3	10.32
1997	385	48	12.5	10.56
1998	381	47	12.3	10.56
1999	365	50	13.7	11.10
2000	315	54	17.1	12.50
2001	386	53	13.7	13.25
<b>Total</b>	<b>4098</b>	<b>529</b>	<b>12.9</b>	

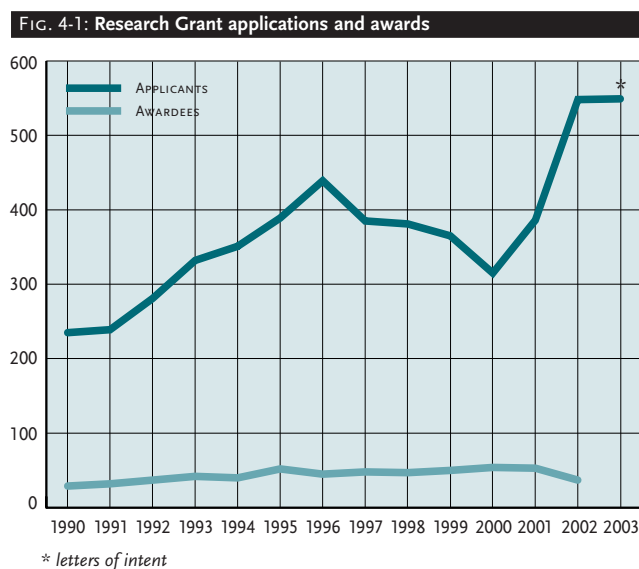
AWARD YEAR	LETTERS OF INTENT	FULL APPLICATIONS INVITED	AWARDS	SUCCESS RATE (%)	TOTAL COST IN THEIR 1 <sup>ST</sup> YEAR*
2002	548	72	37	51.4**	12.35
2003	549	80	31	39**	10.85
<b>Total</b>			<b>597***</b>		

\* US\$ million

\*\* based on full applications

\*\*\* Grand total of awards (1990-2003)

Fig. 4-1 shows the number of applications and awards until award year 2002.



In award year 2003, out of 549 letters of intent, 80 were invited to submit a full application and 31 awards were made.

	LETTER OF INTENT		INVITED		AWARDEES	
	P	Y	P	Y	P	Y
<b>Female</b>						
Nb. of Scientists	226	55	28	5	11	4
Percentage	15.20%	20.99%	12.90%	12.20%	14.10%	16.00%
<b>Male</b>						
Nb. of Scientists	1261	207	189	36	67	21
Percentage	84.80%	79.01%	87.10%	87.80%	85.90%	84.00%
<b>Total</b>						
Nb. of Scientists	1487	262	217	41	78	25

Note: P = Program Y = Young

Distribution of awards per country (FIGS. 4-2, 4-3, TABLE 4-4)

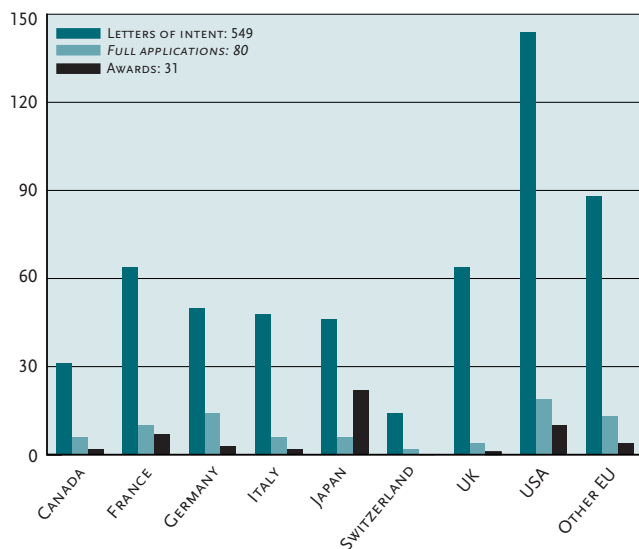
Fig 4-2 shows the distribution of the 2003 awards among various countries and the total number of scientists from different countries participating in the international teams. The largest number of applications came from the USA and one third of successful applicants were from the USA.

### Interdisciplinarity in Research Grants

Since emphasis on interdisciplinarity in the selection of research grant awardees has increased, a significant rise has been observed in the participation of scientists from outside the life sciences from 3% in 2001 to 20% in 2003. See Chapter 2. *New Initiatives*.

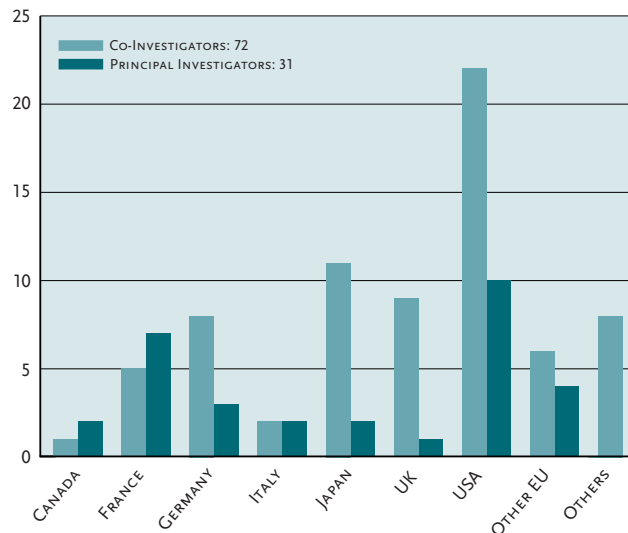
## 4. Selection of Awardees

FIG 4-2: Countries in which Principal Investigators are working



**Other EU, Letters of intent:** 3 Austria, 12 Belgium, 8 Denmark, 2 Finland, 4 Greece, 5 Ireland, 14 The Netherlands, 5 Portugal, 18 Spain, 17 Sweden  
**Other EU, Full applications:** 1 Austria, 1 Belgium, 1 Denmark, 2 Ireland, 3 The Netherlands, 2 Spain, 3 Sweden  
**Other EU, Awards:** 1 Belgium, 1 The Netherlands, 2 Sweden

FIG 4-3: Countries in which awardees are working



**Principal investigators:**  
**Other EU:** 1 Belgium, 1 The Netherlands, 2 Sweden  
**Co-investigators:**  
**Other EU:** 1 Austria, 3 The Netherlands, 1 Spain, 1 Sweden  
**Others:** 1 Australia, 1 Hungary, 1 India, 4 Israel, 1 Russia

TABLE 4-4: Number of applicants and awardees listed by country of institution

	LETTER OF INTENT			PG	INVITED			PG	AWARDEES		
	PG	YG	TOTAL		PG	YG	TOTAL		PG	YG	TOTAL
Canada	63	13	76	10	1	11	2	1	3		
France	147	21	168	18	7	25	7	5	12		
Germany	128	31	159	25	4	29	11	0	11		
Italy	73	15	88	6	2	8	2	2	4		
Japan	165	16	181	22	4	26	11	2	13		
Switzerland	37	8	45	4	1	5	0	0	0		
UK	144	32	176	21	3	24	7	3	10		
USA	387	67	454	61	10	71	25	7	32		
EU	206(a)	38(a)	244	35(b)	3(b)	38	8(c)	2(c)	10		
Others	137(a')	21(a')	158	15(b')	6(b')	21	5(c')	3(c')	8		
<b>Total</b>	<b>1487</b>	<b>262</b>	<b>1749</b>	<b>217</b>	<b>41</b>	<b>258</b>	<b>78</b>	<b>25</b>	<b>103</b>		

Note: PG = Program Grants YG = Young Investigators' Grants

**(a) Others from EU Letter of Intent**

PG: 8 Austria, 21 Belgium, 22 Denmark, 15 Finland, 13 Greece, 7 Ireland, 38 The Netherlands, 5 Portugal, 40 Spain, 37 Sweden

YG: 5 Belgium, 2 Denmark, 3 Finland, 2 Greece, 6 The Netherlands, 4 Portugal, 5 Spain, 11 Sweden

**(b) Others from EU Invited**

PG: 2 Austria, 2 Belgium, 1 Denmark, 1 Finland, 1 Greece, 2 Ireland, 11 The Netherlands, 7 Spain, 8 Sweden

YG: 1 The Netherlands, 1 Spain, 1 Sweden

**(c) Others from EU Recommended**

PG: 1 Austria, 1 Belgium, 4 The Netherlands, 2 Sweden

YG: 1 Spain, 1 Sweden

**(a') Others Letter of Intent**

PG: 4 Argentina, 27 Australia, 6 Brazil, 1 Bulgaria, 1 Chile, 6 China, 1 Croatia, 2 Cuba, 6 Czech Republic, 1 Estonia, 5 Hong Kong, 5 Hungary, 4 India, 30 Israel, 2 Kenya, 3 Republic of Korea, 2 Mexico, 1 New Zealand, 6 Norway, 4 Poland, 16 Russia, 2 Taiwan, 2 Ukraine

YG: 1 Argentina, 3 Australia, 1 Brazil, 1 Chile, 1 Estonia, 1 Hungary, 2 India, 5 Israel, 1 Republic of Korea, 1 Mexico, 1 Russia, 2 Singapore, 1 Taiwan

**(b') Others Invited**

PG: 3 Australia, 2 Brazil, 1 Cuba, 6 Israel, 1 Poland, 2 Russia

YG: 1 Hungary, 1 India, 1 Israel, 2 Singapore, 1 Taiwan

**(c') Others Recommended**

PG: 1 Australia, 3 Israel, 1 Russia

YG: 1 Hungary, 1 India, 1 Israel

## 4. Selection of Awardees

### Long-Term Fellowships

The aim of the Long-Term Fellowship program is to provide opportunities for talented young scientists to obtain training in the world's best laboratories and to enhance the mobility of young scientists between countries. Long-Term Fellowships provide support for periods of three years. The third year of support can either be used in the host laboratory or for a final postdoctoral year of training in a laboratory in the home country. Under the latter circumstance, support can be delayed for up to two years. Fellows of award year 2000 have been eligible for the Career Development Awards that provide an opportunity to establish independent research programs upon repatriation.

Awards approved by the Board of Trustees and numbers of fellows funded since the beginning of the Program are shown in Table 4-5. In 2003, BOT recommended making 90 fellowship awards. For the 2003 competition, awardees needed to be within 3 years of receiving their Ph.D. at the time of application. They were expected to have at least one first author publication and to be moving into a new area of research in order to broaden their scientific experience. They could not have worked in the host institution for more than 12 months at the start of their fellowship.

AWARD YEAR	NUMBER OF APPLICATIONS	NUMBER OF AWARDS*	SUCCESS RATE (%)	TOTAL COST IN THEIR 1 <sup>ST</sup> YEAR **
1990	202	77	38.1	2.45
1991	348	98	28.2	3.23
1992	499	125 (128)	25.7	4.03
1993	555	147 (152)	27.4	4.85
1994	613	159 (160)	26.1	5.83
1995	711	160	22.5	6.01
1996	846	160	18.9	6.59
1997	807	160	19.8	6.40
1998	704	160	22.7	6.24
1999	682	159 (160)	23.5	5.76
2000	652	144 (160)	24.5	5.71
2001	665	81	12.2	3.43
2002	567	94	16.6	3.81
2003	639	90	14.1	4.14 <sup>1</sup>
<b>Total</b>	<b>8490</b>	<b>1814 (1840)</b>	<b>21.7</b>	

<sup>1</sup>: Estimate

\* Figures in parentheses correspond to the number of awards approved by the Board of Trustee if they differ from the actual number of funded fellows.

\*\* US\$ million. Source: Accounting Summary

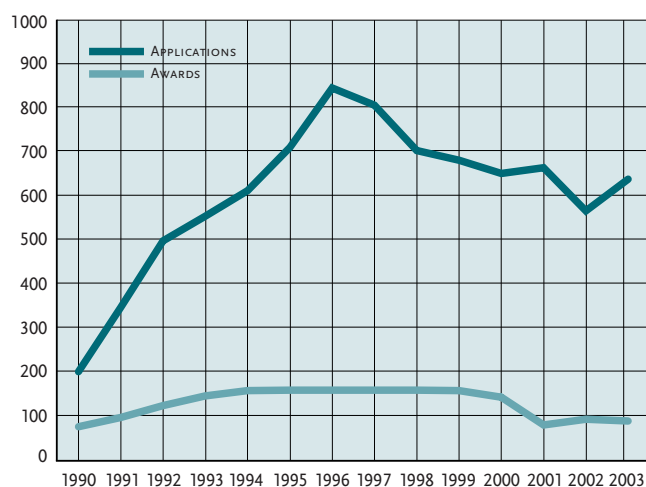
Of the 639 applications for award year 2003, 37% of the applications were made by female candidates and 63% by male applicants.

In table 4-6, the gender distribution of Long-Term Fellows since the beginning of the Program is presented.

AWARD YEAR	FEMALE AWARDEES		MALE AWARDEES	
	NUMBER	%	NUMBER	%
1990	20	26%	57	74%
1991	24	24%	74	76%
1992	31	25%	94	75%
1993	41	28%	106	72%
1994	44	28%	115	72%
1995	50	31%	110	69%
1996	38	24%	122	76%
1997	40	25%	120	75%
1998	57	36%	103	64%
1999	41	26%	118	74%
2000	44	31%	100	69%
2001	23	28%	58	72%
2002	27	29%	67	71%
2003*	31	34%	59	66%

\* These figures correspond to the awards approved by the BOT in March 2003 and may be subject to change.

FIG. 4-4: Number of applications and awards for the past fourteen years.



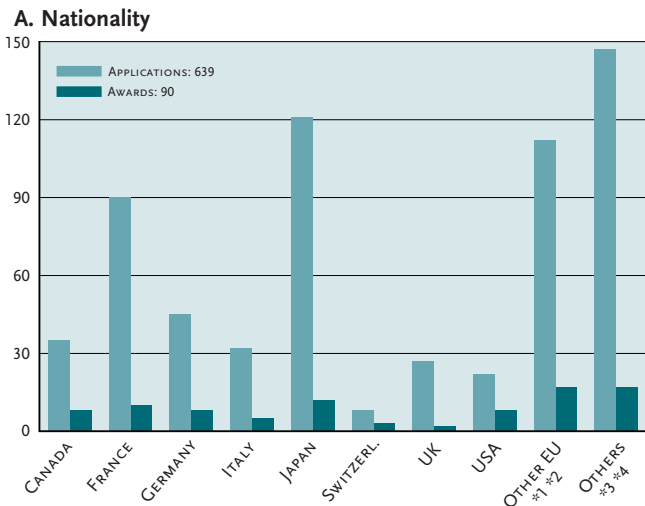


## 4. Selection of Awardees

Figure 4-5 shows the applicants' and awardees' nationalities and their host countries.

The host country chosen most commonly was the USA.

**FIG. 4-5: Long-Term Fellowship applications reviewed and awarded in March 2003 (by nationality and host country)**



**Nationalities of Long-Term Fellowship applicants and awardees**

**Other countries of the European Union**

**Applicants**

\*1: 5 Austria, 9 Belgium, 1 Denmark, 2 Finland, 9 Greece, 5 Ireland, 2 Portugal, 47 Spain, 13 Sweden, 19 The Netherlands

**Awardees**

\*2: 1 Austria, 2 Belgium, 3 Greece, 1 Ireland, 6 Spain, 1 Sweden, 3 The Netherlands

**Other countries**

**Applicants**

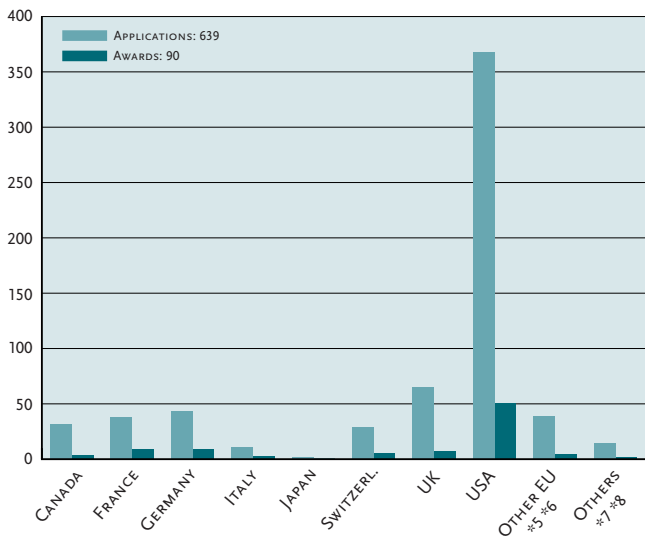
\*3: 9 Argentina, 19 Australia, 1 Bangladesh, 6 Brazil, 1 Bulgaria, 1 Chile, 6 China, 1 Croatia, 2 Czech Republic, 1 Ex-Yugoslavia, 5 Hungary, 1 Iceland, 13 India, 35 Israel, 3 Republic of Korea, 2 Lebanon, 2 Lithuania, 2 Mexico, 1 Mongolia, 1 Morocco, 1 Myanmar, 1 New Zealand, 1 Nigeria, 1 Norway, 1 Philippines, 3 Poland, 3 Russia, 1 Slovak Republic, 2 Slovenia, 1 Sri Lanka, 1 Tunisia, 1 Turkey, 1 Ukraine, 1 Venezuela, 2 Vietnam, 14 Dual Nationality

**Awardees**

\*4: 3 Argentina, 2 Australia, 1 Hungary, 2 India, 6 Israel, 2 Republic of Korea, 1 Dual Nationality

**B. Host country**

\*1 - \*8: see next page for details of individual countries

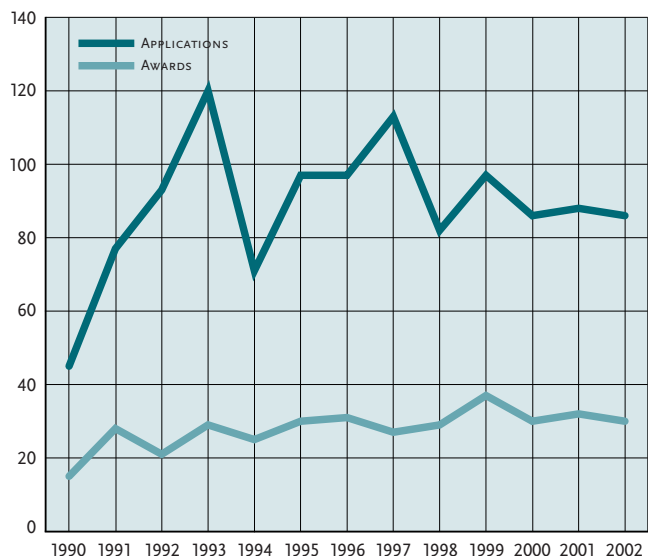


### Short-Term Fellowships

Short-Term Fellowships are intended for researchers who wish to spend 2 weeks to 3 months working in a laboratory in another country to learn or develop new techniques or to use instruments or techniques not available in their own country. Preference is given to independent young research workers, early in their careers. Applicants are expected to have a doctoral degree or equivalent experience in research. Applications can be made at any time during the year. Applications submitted in one fiscal year may be reported as awarded in the next fiscal year. As Short-Term Fellowships can be submitted anytime during a year, the date of application, selection and award may not occur in the same fiscal year. Thus the values of annual success rate are not described in the chart.

The awards made since the beginning of the Program are shown in Fig. 4-6.

**FIG. 4-6: Short-Term Fellowship applications received and awarded each year**



**Host countries of Long-Term Fellowship applicants and awardees**

**Other countries of the European Union**

**Applicants**

\*5: 4 Austria, 4 Belgium, 3 Denmark, 2 Finland, 1 Greece, 1 Ireland, 4 Spain, 8 Sweden, 12 The Netherlands

**Awardees**

\*6: 1 Austria, 1 Sweden, 2 The Netherlands

**Other countries**

**Applicants**

\*7: 12 Australia, 1 Cyprus, 1 Israel

**Awardees**

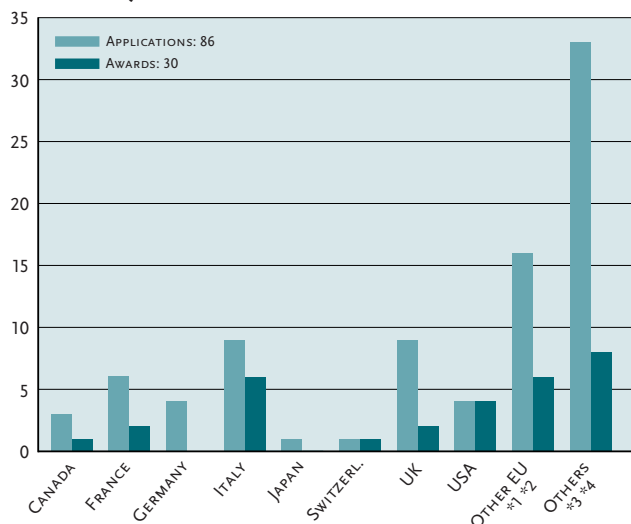
\*8: 1 Australia

## 4. Selection of Awardees

Fig. 4-7 shows the applicants' and awardees' nationalities and their host countries. As is the case of the Long-Term Fellowships, most applications and awards were for visits to the USA.

FIG. 4-7

### A. Nationality



#### Nationalities of FY 2002 Short-Term Fellowship applicants and awardees

##### Other countries of the European Union

###### Applicants

\*1: 1 Belgium, 1 Greece, 2 Ireland, 1 Portugal, 10 Spain, 1 The Netherlands

###### Awardees

\*2: 1 Ireland, 1 Portugal, 3 Spain, 1 The Netherlands

##### Other countries

###### Applicants

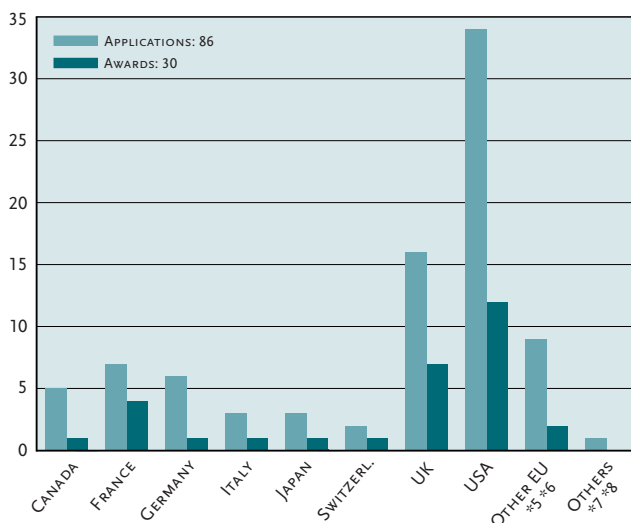
\*3: 1 Argentina, 3 Australia, 2 Brazil, 9 India, 1 Iran, 1 Israel, 1 Kyrgyzstan, 1 Mexico, 4 Nigeria, 1 Norway, 1 Poland, 2 Romania, 2 Russia, 1 Slovenia, 1 South Africa, 1 Ukraine, 1 Dual Nationality

###### Awardees

\*4: 1 Australia, 2 India, 1 Israel, 1 Mexico, 1 Norway, 1 Ukraine, 1 Dual Nationality

### B. Host country

\*1-\*8: see next page for details of individual countries



## Career Development Awards

The Career Development Award (CDA) has been implemented in Fiscal Year 2002 to enable former Long-Term Fellows to establish their own independent research program in their home country. It provides a total amount of 180,000 USD which can be distributed over 2 or 3 years.

In this first competition, 22 eligible applications from long term fellows of award year 2000 were received. Each application has been reviewed and scored by two members of the Council of Scientists. After ranking, 8 outstanding candidates have been recommended for funding.

Their nationalities are:

- Belgium: 1
- China: 1
- Germany: 3
- Japan: 1
- Republic of Korea: 1

## Workshops

From 1995-2001, the HFSP held two Scientific Workshops each year on topics in the research fields covered by the HFSP. Proceedings of these small closed meetings have been published and distributed to scientists worldwide. Proceedings of Workshops X and XI were published in 2001.

In 2001, COS and BOT recommended that previous series of workshops should be replaced with the Annual Awardees Meetings and by workshops on topics of particular relevance to HFSP such as the international training, career development of young scientists and strategies to promote frontier science internationally. The first such workshop was organized in collaboration with the European Science Foundation in November 2001. This Working Meeting on International Training and Support of Young Investigators in the Natural Sciences brought together heads of international funding agencies to identify the best strategies for promoting training and transition of independence of young scientists in the life sciences (see Annex 8). A Workshop on Promoting Life Sciences in Developing Countries is under preparation and will be held on November 8-10, 2003. The purpose of the workshop is for relevant parties of funders and policy makers to focus on life sciences and outline the characteristics of the educational and research needs in different regions and to come up with specific recommendations.

#### Host countries of FY 2002 Short-Term Fellowship applicants and awardees

##### Other countries of the European Union

###### Applicants

\*5: 1 Austria, 1 Belgium, 1 Denmark, 1 Finland, 1 Portugal, 1 Spain, 1 Sweden, 2 The Netherlands

###### Awardees

\*6: 1 Austria, 1 Belgium

##### Other countries

\*7: 1 Israel

# 5. Awards paid during FY 2002

During FY 2002, a total amount of US\$ 51.20 million was paid to the awardees.

Research Grants were paid to 144 teams, in a total amount of US\$ 36.15 million. The distribution of recipients according to the starting time was:

TABLE 5-1

Award Year 2000 Awardees	54 research teams
Award Year 2001 Awardees	53 research teams
Award Year 2002 Awardees	37 research teams

Detailed lists are shown in Annex 5. The distribution of these awardees by country is shown in Fig. 5-1

Long-Term Fellowships were paid to 297 fellows, for a total amount of US\$ 11.76 million. The distribution of recipients according to the starting time was:

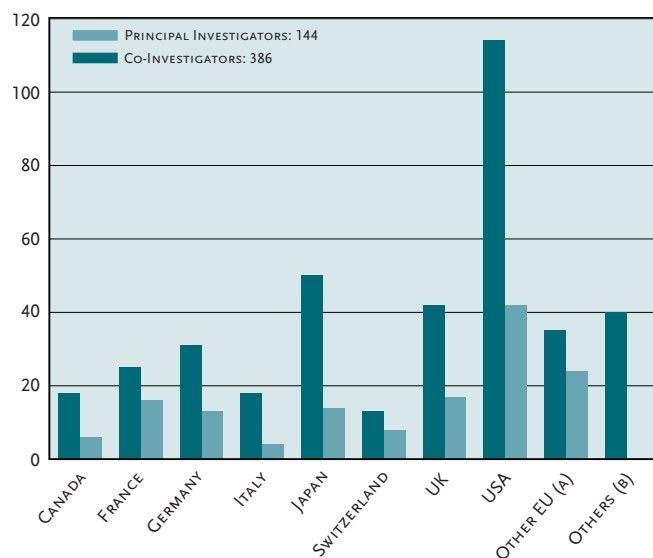
TABLE 5-2

Award Year 1999 Fellows	5 fellows
Award Year 2000 Fellows	119 fellows
Award Year 2001 Fellows	80 fellows
Award Year 2002 Fellows	93 fellows

Detailed lists are shown in Annex 6. The distribution of these fellows by nationality and host country is shown in Fig. 5-2.

Short-Term Fellowships were paid to 30 fellows, in a total amount of US\$ 174.231. A detailed list is shown in Annex 7. The distribution of these fellows by nationality and host country is shown in Fig. 5-3.

FIG. 5-1: Research Grants awardees paid during FY 2002 by country



#### Principal investigators

(a) Other EU: 2 Austria, 2 Belgium, 3 Denmark, 1 Finland, 2 Greece, 1 Ireland, 4 The Netherlands, 4 Spain, 5 Sweden

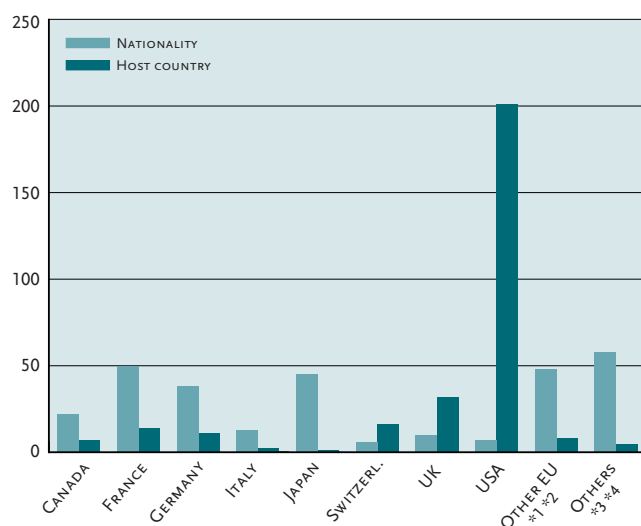
#### Co-investigators

(a) Other EU: 2 Austria, 2 Belgium, 3 Denmark, 1 Finland, 1 Greece, 7 The Netherlands, 1 Portugal, 7 Spain, 11 Sweden

(b) Others: 1 Argentina, 9 Australia, 2 Brazil, 1 Chile, 1 Cuba, 1 Cyprus, 1 Hong Kong, 3 Hungary, 1 India, 12 Israel, 1 Republic of Korea, 1 New Zealand, 4 Norway, 1 Russia, 1 Singapore.

## 5. Awards paid during FY 2001

FIG. 5-2: Long-Term Fellowship awardees paid during FY 2002 by nationality and host country



Long-Term Fellowship awardees (1999, 2000, 2001 and 2002) paid during FY 2002 by nationality and host country

**Other countries of the European Union**

**Nationality**

\*1: 5 Austria, 4 Belgium, 2 Denmark, 3 Finland, 3 Greece, 2 Portugal, 15 Spain, 14 The Netherlands

**Host country**

\*2: 1 Belgium, 2 Spain, 1 Sweden, 4 The Netherlands

**Other countries**

**Nationality**

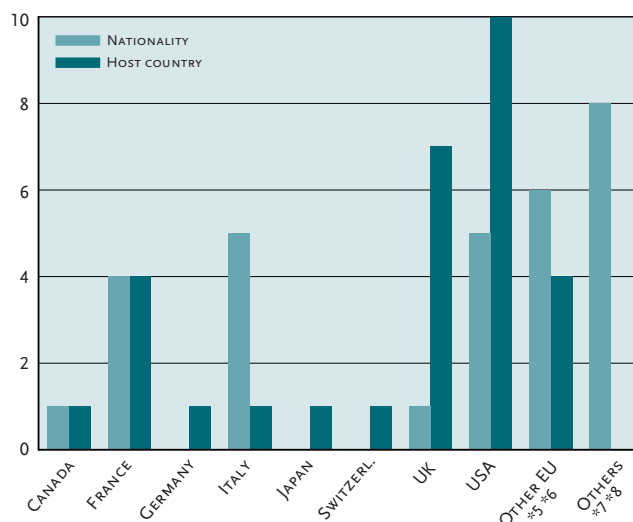
\*3: 2 Argentina, 6 Australia, 1 Brazil, 5 China, 1 Costa Rica, 1 Czech Republic, 1 Hungary, 1 Iceland, 4 India, 19 Israel, 6 Republic of Korea, 1 Lebanon, 2 Mexico, 1 Poland, 1 Romania, 1 Russia, 1 Slovak Republic, 4 Dual Nationality

**Host country**

\*4: 4 Australia, 1 China

FIG. 5-3: Short-Term Fellowship awardees paid during FY 2002 by nationality and host country

\*1 - \*8: see next page for details of individual countries



Short-Term Fellowship awardees paid during FY 2002 by nationality and host country

**Other countries of the European Union**

**Nationality**

\*5: 1 Belgium, 1 Ireland, 1 Portugal, 3 Spain

**Host country**

\*6: 1 Austria, 1 Belgium, 1 Denmark, 1 Spain

**Other countries**

**Nationality**

\*7: 1 Australia, 2 India, 1 Israel, 1 Mexico, 1 Nigeria, 1 Ukraine, 1 Dual Nationality

# 6. Annual Awardees Meeting and Workshops

## Annual Awardees Meeting

The Second Annual Awardees Meeting was held in Ottawa on 9-12 June 2002. The meeting brought together 128 participants amongst the Research Grant awardees and Long-Term Fellows in their last year as well as members of BOT, COS and the Secretariat.

One of the aims of these meetings is to give the awardees the opportunity to report on research carried out during the tenure of HFSP support. It is also hoped that the meeting would stimulate interactions, hopefully leading to new collaborations between participants from different fields. The participants appreciated this unusual opportunity to interact with scientists in a broad range of fields and many commented that they would maintain the contacts made at the meeting.

For members of the BOT and COS, the meeting gave them the possibility to get to know awardees from their countries and to receive direct feedback about the Program, while for the Secretariat, it was a welcome opportunity to spend time with awardees. For all who participated, the Ottawa meeting, like that in Turin the year before, went a good way to creating a sense of community.

(see Annex 8)



# 7. Board of Trustees

## Change of Trustees

During FY 2002, one trustee resigned and one appointment was made. Three trustees resigned.

### France

Prof. JEANTEUR resigned.

### USA

In December 2002, Dr. Wendy BALDWIN resigned from the Board. She had been a trustee since June 1995.

Her successor is Dr. Joe HANFORD, Director, National Cancer Institute, National Institutes of Health.

### European Union

Dr. Bruno HANSEN and Prof. George METAKIDES resigned.

The list of the Trustees during FY 2002 is shown in Table 7-1.

## Change of Auditors

Mr. Serge GAUDET<sup>5</sup>, Canada Customs and Revenue Agency, Mr. Claude PFAUWADEL<sup>6</sup>, SEGEC, France, and Mr. Naoki KAJITA, Ministry of Economy, Trade and Industry (METI), Japan, remained during FY 2002<sup>7</sup>.

The nomination of Mr. Junpei WATANABE was approved by the Board at its 29<sup>th</sup> meeting. He succeeds Mr. KAJITA as auditor.

The list of Auditors during FY 2002 is shown on Table 7-2.

## Meetings of the Board of Trustees

During FY 2002, the 28<sup>th</sup> and 29<sup>th</sup> meetings were held on 2 December 2002 and on 24 March 2003 in Strasbourg.

The major decisions were as follows:

### 28<sup>th</sup> BOT meeting (2 December 2002)

- Trustees agreed to simplify the eligibility criteria for the research grant program by eliminating the nationality requirement. Henceforth, the guidelines should state that the principal applicant must have his/her laboratory in a member country and that one other team member must be located in another country. In this way, there would be no discrimination against researchers with permanent resident status.
- In accordance with the Berlin Joint Communiqué, trustees discussed the criteria for membership of the Program, prior to the elaboration of new guidelines for membership.
- The auditors recommended the simplification of auditing procedures for award payments and the continued development of systems and practices relating to information technology. Trustees approved these recommendations.
- Trustees accepted the invitation by Japan to host the 4<sup>th</sup> Annual Awardees Meeting in 2004.

6: Since June 1998

7: Since November 1992

8: Since March 2002

### 29<sup>th</sup> BOT meeting (24 March 2003)

- The recommendations proposed by the Council of Scientists were approved (see in detail 20<sup>th</sup> COS meeting)
- The following awards were approved, in accordance with the recommendation of the COS:
  - 9 Young Investigator Grants, 22 Program Grants, 90 Long-Term Fellowships and 8 Career Development Awards.
- The recommendations of the Finance Committee were approved. These include:
  - a change in auditing practice to fulfill French legal requirements. International auditing company, Deloitte-Touche-Tohatsu, was selected to serve as legal auditor for HFSP0. The internal audit should continue as before (see below).
  - additional procedure for budget planning: MSPs will receive a letter from the Secretariat, reminding them of their financial targets and asking for written confirmation of their contribution for the following year. The letter should be sent in June and the response received prior to the December BOT meeting.
  - the purchase of new premises for the Secretariat, pending confirmation by certified authorities of the soundness of the building, 12, quai Saint-Jean. The Board empowered the Finance Committee to decide whether a cash payment or a bank loan is most appropriate.
- The Program activity plan and the budget proposal for FY 2003 were approved.
  - It was agreed that Article 1 of the Statutes, stipulating the address of the seat of the organisation should be amended in view of the proposed change of premises for the Secretariat (12, quai Saint-Jean)
- **Dr. BERETTA**, chair of the Intergovernmental Working Group reported that Canada, France and UK expressed their approval in principle of the financial formula proposed for 2004. No other comments were received. Discussion began as regards long-term financial planning for the period 2004-2007, for consideration at the 4<sup>th</sup> Intergovernmental Conference to be held in Switzerland in 2004
- A Working Group of three members was established to revise the draft guidelines for membership in the light of discussion at the 29<sup>th</sup> BOT meeting
- Trustees agreed to renew the term of **Mr. PFAUWADEL** as auditor for a further year. They also approved the nomination of **Mr. Junpei WATANABE**, as auditor and successor to **Mr. KAJITA**. North American trustees agreed to nominate a third internal auditor as soon as possible.
- **Prof. ITO** was elected President of HFSP0 for a further term of three years, from 1 April, 2003.
- **Prof. WIESEL** was appointed Secretary General of HFSP0 for a further term of three years, from 1 April, 2003.

TABLE 7-1: Members of the Board of Trustees (April 1, 2002-March 31, 2003)

#### President:

**Prof. Masao ITO**, *Brain Science Institute, Riken, Japan.*

#### Canada

**Dr. Mark BISBY**, *Canadian Institutes of Health Research, Ottawa*  
**Dr. Sadiq HASNAIN**, *National Research Council of Canada, Ottawa*

#### France

**Mrs. Elisabeth BETON DELEGUE**, *Ministry of Foreign Affairs, Paris*  
**Prof. Philippe JEANTEUR**, *University of Montpellier II, Montpellier*

#### Germany

**Dr. Ulrich SCHLÜTER**, *Forschungszentrum Jülich, Jülich*  
**Dr. Christoph SCHNEIDER**, *German Research Council, Bonn*

#### Italy

**Prof. Piergiorgio STRATA**, *University of Turin, Turin*  
**Prof. Glauco TOCCHINI-VALENTINI**, *Italian National Research Council, Rome*

#### Japan

**Mr. Hiroyoshi KURIHARA**, *Ministry of Education, Culture, Sports, Science and Technology (MEXT), Tokyo*

#### Switzerland

**Dr. Isabella BERETTA**, *Federal Office for Education and Science, Bern*

#### UK

**Mrs. Jane LEE**, *Medical Research Council, London*  
**Dr. Doug YARROW**, *Biotechnology and Biological Sciences Research Council, Swindon*

#### USA

**Dr. Wendy BALDWIN**, *Vice-President, National Institutes of Health, Bethesda (until December 2002)*  
**Dr. Mary CLUTTER**, *National Science Foundation, Arlington*  
**Dr. Joe HOLFORD**, *National Cancer Institute, National Institutes of Health, Bethesda (from March 2003)*

#### European Union

**Mr. Bruno HANSEN**, *Directorate-General, Research, EC, Brussels*  
**Prof. George METAKIDES**, *Directorate-General, Information Society, EC, Brussels*

#### Honorary Member

**Dr. Kozo IIZUKA**, *Advisor, Kubota Co. Ltd, Japan*

TABLE 7-2: Auditors (April 1, 2002-March 31, 2003)

#### Canada

**Mr. Serge GAUDET**, *Canada Customs and Revenue Agency, Ottawa*

#### France

**Mr. Claude PFAUWADEL**, *SEGEC AUDIT, Strasbourg*

#### Japan

**Mr. Naoki KAJITA**, *Ministry of Economy, Trade and Industry, Japan*

# 8. Council of Scientists

## Change of members

In May 2002, **Prof. Giacomo RIZZOLATTI** (Italy) was appointed to succeed **Prof. Antonino CATTANEO** and **Prof. Silvano RIVA** (Italy) to succeed **Prof. Arturo FALASCHI**.

In October 2002, **Prof. Joachim SEELIG** (Switzerland) was appointed to succeed **Prof. Walter GEHRING**.

In January 2003, **Prof. Helen BERMAN** (USA) and **Prof. Viola VOGEL** (USA) succeeded **Prof. Mina BISSELL** and **Dr. Susan HOCKFIELD**.

The list of members of the Council of Scientists for FY 2002 is shown in Table 8-1

## 20<sup>th</sup> COS meeting (4 March 2003)

During FY 2002, the 20<sup>th</sup> meeting was held in Strasbourg on 4 March, 2003.

The major decisions taken at this meeting were as follows:

To recommend to the Board the funding of 9 Young Investigator Grants and 22 Program Grants.

- To recommend to the Board the funding of 90 Long-Term fellowships, resulting in an overall success rate of 14%
- To recommend to the Board the funding of 8 Career Development Awards
- The following propositions should be made to the Board for their consideration:

### Research Grants:

- Young Investigators' grants should in future years receive the same level of funding as the Program Grants, based on the size of the team (\$250,000 for two team members, \$350,000 for three and \$450,000 for four or more).
- In future years, in the case of Young Investigators' grants where two people from the same institute form a clearly interdisciplinary core in the context of a broader international collaboration, they should be treated as 1.5 team members in terms of funding instead of one member.

### Long-Term Fellowships:

- Applications on the reserve list should no longer be re-ranked before the final list of recommended awards is compiled.
- A host laboratory may not sponsor more than one Long-term Fellowship candidate in any one award year.
- "High risk" applications from candidates outside of biology should be reviewed separately after flagging by the review committee.

### Career Development Award:

- From the next round of awards, where the quality of science is equally high, preference should be given to candidates moving to their home country to a different institution from where they worked prior to receiving the Long-term Fellowship.
  - **Dr. Carlos BELMONTE** was elected COS delegate to the Research Grant Committee
  - **Dr. Pierre FERRIER** was elected COS delegate to the Fellowship Review Committee
  - **Prof. BETZ** was elected Chair of COS. As regards the position of Vice-chair, **Dr. YANAGIDA** succeeds **Dr. HIROKAWA** and **Prof. BELMONTE** succeeds **Prof. BETZ**.

TABLE 8-1: Members of the Council of Scientists (April 1, 2002- March 31, 2003)

**Chair:**

Prof. Pierre MAGISTRETTI, *University of Lausanne*

**Canada**

Prof. Harold L. ATWOOD, *University of Toronto*

Dr. Philip E. BRANTON, *McGill University, Montreal*

**France**

Prof. Pierre FERRIER, *Center for Immunology, Marseille-Lumigny (CIML)*

Prof. Marc JEANNEROD, *Institute of Cognitive Science, Bron*

**Germany**

Dr. Carmen BIRCHMEIER, *Max-Delbrück Centre for Molecular Medicine, Berlin*

Prof. Heinrich BETZ, *Max-Planck Institute for Brain Research*

**Italy**

Prof. Giacomo RIZZOLATTI, *University of Parma*

Prof. Silvano RIVA, *CNR, Pavia*

**Japan**

Dr. Nobutaka HIROKAWA, *Vice-chair, University of Tokyo*

Dr. Toshio YANAGIDA, *University of Osaka*

**Switzerland**

Prof. Joachim SEELIG, *University of Basel*

**UK**

Prof. Richard N. PERHAM, *University of Cambridge*

Prof. Michael J. OWEN, *University of Wales College of Medicine, Cardiff*

**USA**

Prof. Helen BERMAN, *Rutgers, State University of New Jersey, Piscataway*

Prof. Viola VOGEL, *University of Washington*

**European Union**

Dr. Carlos BELMONTE, *Institute for Neuroscience, Alicante*

Prof. Christine VAN BROECKHOVEN, *University of Antwerp, Belgium*

**Honorary Member**

Prof. Masao ITO, *Brain Science Institute, RIKEN, Japan*

# 9. Review Committees

The Review Committees met in January 2003 to consider the awards to be made in March 2003.

TABLE 9-1: Members of the Review Committee for Research Grants

## Canada

Prof. Paul LASKO, McGill University, Montreal  
Prof. Anthony PHILLIPS, University of British Columbia, Vancouver

## France

Dr. Michel BORNENS, Institut Curie, Paris  
Dr. Jean-Philippe PIN, CNRS UPR 9023, Montpellier

## Germany

Prof. Fritz ECKSTEIN, Max-Planck Institute for Experimental Medicine, Göttingen  
Prof. Dr. Eckhart GUNDELFINGER, Leibnitz Institute for Neurobiology, Magdeburg

## Italy

Dr. Elena GIULOTTO, University of Pavia  
Prof. Antonio MALGAROLI, Università Vita-Salute San Raffaele, Milan  
Dr. Nadia ROSENTHAL, EMBL, Monterotondo (Rome)

## Japan

Prof. Hiroshi HANDA, Tokyo Institute of Technology  
Prof. Minoru KIMURA, Kyoto Prefectural University of Medicine  
Prof. Akio NOMOTO, University of Tokyo

## Switzerland

Dr. Susan GASSER, University of Geneva  
Prof. Heinrich REICHERT, University of Basel

## UK

Dr. Karl FRISTON, Institute of Neurology, London  
Dr. Catherine MARTIN, John Innes Centre, Norwich  
Dr. Martin VAN HEEL, Imperial College of Science, Technology and Medicine

## USA

Dr. William BIALEK, Princeton University, California  
Prof. Frances BRODSKY, University of California San Francisco  
Dr. Angela GRONENBORN, Bethesda  
Dr. Daniel KIEHART, Duke University, Durham

## European Union

Prof. Peter BRZEZINSKI, Stockholm University, Sweden  
Prof. Urban LENDAHL, Karolinska Institute, Stockholm, Sweden  
Prof. Carlos MARTINEZ-A., Universidad Autonoma de Madrid, Spain

## Delegate from Council of Scientists

Prof. Christine VAN BROECKHOVEN, University of Antwerp, Belgium

TABLE 9-2: Members of the Review Committee for Fellowships

## Canada

Prof. Emil F. PAI, University of Toronto  
Dr. Alan PETERSON, McGill University, Montreal

## France

Dr. Joël BOCKAERT, CNRS UPR 9023, CCIPE, Montpellier  
Prof. Ioan NEGRUTIU, École Normale Supérieure de Lyon

## Germany

Dr. Elisa IZAURRALDE, EMBL, Heidelberg  
Prof. Michael MARTIN, Justus-Liebig-University, Giessen  
Dr. Marino ZERIAL, Max-Planck Institute for Molecular Cell Biology and Genetics, Dresden

## Italy

Prof. Roberto DI LAURO, A. Dohrn Zoological Center, Naples  
Dr. Giulio F. DRAETTA, European Institute of Oncology, Milan

## Japan

Dr. Shin'ichi ISHIWATA, University of Waseda, Tokyo  
Prof. Eisuke NISHIDA, University of Kyoto  
Dr. Ko SAKAI, University of Tsukuba

## Switzerland

Prof. Jean GRUENBERG, University of Geneva  
Prof. Timothy J. RICHMOND, Institute of Molecular Biology and Biophysics, Zurich  
Dr. Antonius G. ROLINK, Basel Institute for Immunology

## UK

Dr. Robin LOVELL-BADGE, National Institute for Medical Research, London  
Prof. Wolfram SCHULTZ, University of Cambridge  
Dr. Antonio SIMEONE, King's College London

## USA

Dr. Caroline H. DAMSKY, University of California, San Francisco  
Prof. Lawrence KATZ, Duke University Medical Center, Durham  
Prof. Virginia LEE, University of Pennsylvania School of Medicine, Philadelphia

## European Union

Prof. Jørn HOUNSGAARD, University of Copenhagen, Denmark  
Prof. Montserrat PAGES, CSIC, Barcelona, Spain

## Delegate from Council of Scientists

Prof. Christine VAN BROECKHOVEN, University of Antwerp, Belgium



# 10. Secretariat

The Secretariat remained small. At the end of FY 2002, the number of staff members was 13.

The composition is shown in Table 10-1, and the structure in Table 10-2. Temporary workers were hired at peak periods or to cover for personnel on leave.

TABLE 10-1: Composition of Staff Members at the end of FY 2002

Grade <sup>1</sup>	STAFF					SECRETARIAL STAFF					Total
	A7	A6	A5	A3	A2	B5	B4	B3	B2	B1	
Number of Members	1 (1)	1 (1)	3 (4)	1 (0)	1 (1)	2 (1)	3 (3)	0 (1)	1 (2)	0 (0)	13 (14) <sup>2</sup>

<sup>1</sup>: The grades are the same as defined by the OECD Staff Manual.

<sup>2</sup>: Figures in parentheses are the numbers at the end of the previous fiscal year.

TABLE 10-2: HFSPO Secretariat

## Scientific programs

Director of Scientific Affairs and Communications  
**Martin REDDINGTON (UK)**

## Research Grants program

Director of Research Grants  
**Takashi SHIMIZU (Japan)** until August 2002  
**Tada-aki HORI (Japan)** from September 2002

### Assistants

**Pascale BEUDIN** (until December 2002)  
**Armelle SCHMITT-KOUKOU** (from January 2003)  
**Sylvie KRONENBERGER**

## Fellowship program

Director of Fellowships and Workshops  
**Danuta KROTOSKI (USA)** until August 2002  
**Diana BORASCHI (Italy)** from September 2002

### Assistants

**Marie-Claude PERDIGUES**  
**Carine SCHMITT**  
**Martina VERGIN** (temporary)

## Executive Office

Secretary General  
**Torsten WIESEL (USA)**

Deputy Secretary General  
**Takayuki SHIRAO (Japan)**

Assistant  
**Jill HUSSER**

## IT Systems Manager

**Xavier SCHNEIDER**

## Administration

Director of Administration and Finance  
**Patrick VINCENT (France)**  
 until November 2002

Manager of Administration and Finance  
**Isabelle HEIDT-COQUARD (France)**  
 from December 2003

### Assistants

**Sarah NAETT**  
**Dominique TANGUY** (until January 2003)

## Administrative Officer

**Kenichi OHTSUKA (Japan)**





## Annexes

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# Annex I

## Joint Communiqués for the Human Frontier Science Program

### Intergovernmental Conference, Berlin, 2002

1. Representatives of the Governments of Canada, France, Germany, Italy, Japan, Switzerland, the United Kingdom of Great Britain and Northern Ireland, the United States of America and of the Commission of the European Communities (hereinafter referred to as “the representatives”), constituting the Management Support Parties (MSPs) for the Human Frontier Science Program (HFSP), met on June 20 and 21, 2002 in Berlin to review the progress made so far and discuss the future of the HFSP.
2. The HFSP is a multilateral science program that aims to contribute to the advancement of the frontiers of human knowledge by promoting, through intercontinental collaboration and training, fundamental research focused on the elucidation of the complex mechanisms of living organisms, to facilitate maximum use of the MSPs’ scientific potential, and to allow the fullest possible use of the research results, taking into account bioethical considerations for the benefit of all humankind.
3. The HFSP was proposed by the Government of Japan at the Venice Economic Summit in June 1987. The other participants in the Economic Summit welcomed this initiative. The Program was further developed by international scientific committees composed of eminent scientists and experts from the seven Economic Summit countries, Switzerland and the European Community. Following the recommendations of these committees, intergovernmental meetings were held in June and July 1989 in Tokyo and Berlin respectively, in order to establish a framework for the implementation of the HFSP. At the Intergovernmental Conference held in Washington, D.C. in 1997, the representatives recommended the continued support of the Program for a further phase of five years, guided by a communiqué issued at the end of the conference.
4. In accordance with the 1997 communiqué, a scientific review of the program was carried out in 2000. This was a follow-up to the previous evaluation in 1995/96 and addressed the impact of the Program. It was reported to the Board of Trustees (BOT) in March 2001. The conclusions of the review were very positive and emphasized in particular that:
  - New collaborations vital to the execution of the research are created and continue after the project;
  - The Fellowship Program is one of a number of outstanding programs;
  - For both grants and fellowships, HFSP publications have citation performance well above the norm.
5. At the 2002 Intergovernmental Conference in Berlin, the representatives recognized that the scientific value of the HFSP warrants its continuation for a further phase of five years, with the following understandings.
6. **Aims of the program:** The aims, objectives, and mission of the Program will continue to be the provision of a unique and important contribution to fundamental research of the highest quality, based on international peer review. The representatives reaffirmed the value of the Program’s emphasis on interdisciplinary science, encouragement of researchers early in their careers who are expected to play an important role in originating creative research, and international and especially intercontinental collaboration, including training and mobility. In this respect, new initiatives introduced such as the Young Investigators’ Grants, and the Career Development Awards are particularly welcome.
7. **Program activities – Research areas:** The representatives noted that the Program had contributed to the advancement of the frontiers of human knowledge by supporting the elucidation of brain functions and of biological functions through molecular level approaches. The representatives also noted that it is desirable to combine these areas into one topic, ‘complex mechanisms of living organisms’; this recognises the increasing interdisciplinarity of research in the life sciences. The representatives also recommended that the Board of Trustees (BOT), in consultation with the Council of Scientists, review the Program to ensure that it continues to support research activities in which it has a unique contribution to offer.
8. **Program activities – Fellowships and grants:** The representatives agreed that Program activities in the subject areas will continue to be research grants, long and short-term fellowships, and workshops which include annual awardees’ meetings. Some of these initiatives are designed to enable talented young researchers to reach independence early in their careers.

**9. New membership:** The representatives noted the importance of promoting new supporting parties for the further development of the international and collaborative nature of the Program. New Management Supporting Parties, for example from Asia, should be considered to achieve a better balance of MSPs among continents. The current MSPs will take active steps to expand the number of supporting members to participate in this unique, cutting-edge, global research fund. The BOT will be requested to consider and respond to an application for membership in a timely manner. The BOT is asked to reconsider the criteria for new memberships.

**10. Financing:** The HFSP will continue to be supported by contributions from all MSPs. Unconditional financial contributions are preferred, although in kind contributions, consistent with the guidelines of the HFSP, are also welcome. Representatives welcomed the progress that had been made and reaffirmed the importance of achieving the goals offered in the 1997 communiqué. Representatives agreed that the new initiatives authorized by the BOT meeting in March 2000 required additional funding. They therefore agreed that the scientific value of the HFSP justifies a funding level of 60 million US\$ and stressed the urgency of attaining a funding level of this amount and an equal match in the amount contributed by Japan and other MSPs by 2004. The working group, established according to § 12, is asked, on the basis of relevant criteria, to develop a financial scheme for contributions of non-Japanese MSP's, leading to an appropriate and fair burden sharing. In this respect, the chair of the IGC proposed that the working group takes into consideration additional criteria for an equitable allocation of burden. The IGC expects the working group to present its results on a new contribution formula by the end of February 2003. MSP's are asked to submit nominations for the working group to the chair of the working group by August 1st, 2002. Members of the working group should be given a strong mandate by the respective MSP's.

**11. General structure:** The HFSP Organization will maintain its present legal status as an international, non-governmental, non-profit association during the next phase. The government of France, Region Alsace and the city of Strasbourg will maintain the preferential treatment and privileges they have provided to the HFSP Organization and its employees. The BOT, whose members represent the MSPs, will continue to govern the Program in accordance with the Statutes and By-Laws of the HFSP. The representatives reaffirmed the important role that the BOT plays in overseeing the Program and urged all MSPs to ensure that they are represented on the BOT by members with appropriate decision-making authority. Intergovernmental Conference (IGC) handles overall policy and makes ultimate decisions on important issues including the continuation of HFSP and the scope of the research it supports. The IGC consists of the representatives of MSPs, and is held in accordance with a communiqué of the previous IGC or at the request of the majority of the MSPs. MSPs should make a strong and sustained commitment to make it possible for HFSP to implement its activities effectively. For this purpose, various measures including feasibility of attaining international organization status or similar status for HFSP, and attaining international organization personnel status or similar status for HFSP personnel might be examined.

**12. Review and development of the Program:** The Program will continue to be reviewed by various means, including regular reports. The representatives noted that the previous reviews reported in 1996 and 2001 clearly demonstrated the excellence of the Program and its continuing global importance. A further review of the effectiveness of the Program from a scientific viewpoint will be carried out. The necessity and timing of the next review will be discussed at the IGC meeting in 2004. Representatives agreed to establish a working group (WG) responsible to the IGC, logistically supported by the HFSP secretariat. The activity of the working group would be :

- to examine the scope and development of HFSP's activities and the financial requirements,
- to propose financial targets beyond 2004,
- to study the feasibility of attaining international organisation status or similar status for HFSP
- to develop a strategy for expanding the number of supporting members

The results of the working group will be presented to the BOT and to MSP's.

**13. Next conference:** The representatives of the MSPs decided that the next IGC meeting would be held in Switzerland in 2004. The IGC in 2004 would decide on overall policy regarding the scope of research supported, review the financial situation and set a new financial framework and review the success in attracting new MSPs.

### Intergovernmental Conference, Washington 1997

1. Representatives of Canada, France, Germany, Italy, Japan, Switzerland, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the Commission of the European Communities, constituting the Management Supporting Parties (MSPs) for the Human Frontier Science Program (HFSP), met on May 20, 1997 in Washington D.C. to review the progress made so far and discuss the future of the HFSP after the end of the first full-fledged implementation phase (1992-1997).
2. The HFSP is a multilateral science program that aims to contribute to advancement of the frontiers of human knowledge by promoting, through international cooperation, basic research focused on the elucidation of the complex mechanisms of living organisms, to facilitate maximum use of the MSPs scientific potential, and to allow the fullest possible use of the research results, taking into account bioethical considerations, for the benefit of all mankind.
3. The HFSP was proposed by the government of Japan at the Venice Economic Summit in June 1987. The other participants in the Economic Summit welcomed this initiative. The Program was further developed by international scientific committees composed of eminent scientists and experts from the seven Economic Summit countries and the European Community. Following the recommendations of these committees, intergovernmental meetings were held in June and July 1989 in Tokyo and Berlin respectively, in order to establish a framework for implementation of the HFSP. At an Intergovernmental Conference held in Tokyo in 1992, the representatives of the MSPs recommended the continued support of the Program beyond its initial phase, guided by a communiqué issued at the end of the conference.
4. Following the instructions of the 1992 communiqué, a scientific review of the Program was carried out in 1995 and a major review



of all aspects of the Program was conducted and reported in 1996. The conclusions of these two reviews were very positive and emphasized in particular:

- the excellence of the science supported and the peer-review process used
  - the uniqueness of the HFSP in promoting international and intercontinental collaboration
  - the support of scientists relatively early in their careers
  - the efficiency of administration
  - the need for the Program to continue and expand.
5. The need for the Program was evidenced by the fact that the number of grant applications doubled between 1990 and 1995, while the number of applications for the Long-Term Fellowships have more than quadrupled.
  6. The Proceedings of the 1996 G-7 Summit Meeting (Lyon, France) noted the following: “We applaud the results of the Human Frontier Science Program since its launch in Venice in 1987, and we await with interest the outcome of the Intergovernmental Conference on further progress on the subject in Autumn 1996.”
  7. At the 1997 Intergovernmental Conference in Washington D.C., the representatives of the MSPs recognized the desirability of continuing the HFSP for a further phase of five years with the following understandings.
  8. **Aims of the Program:** The aims, objectives, and mission of the Program will continue to be the provision of a unique and important contribution to basic research of the highest quality, based on international peer-review. The MSPs reaffirmed the value of the Program’s emphasis on interdisciplinary science, encouragement of researchers early in their careers who are expected to play an important role in originating creative research, and international, particularly intercontinental, cooperation.
  9. **Program activities – Research areas:** MSPs noted that the Program had provided valuable support to frontier basic research on the elucidation of brain functions and of biological functions through molecular level approaches. MSPs noted that these themes continue to be of high priority, and also recommended that the Board of Trustees (BOT), in consultation with the Council of Scientists, review the Program to ensure that it continues to support research activities in which it has a unique contribution to offer.
  10. **Program activities – Fellowships and Grants:** MSPs agreed that Program activities in the subject areas will continue to be research grants, long and short-term fellowships, and workshops. Noting that the grants’ program was identified by program reviews as the most distinctive feature of the HFSP, MSPs requested that BOT consider appropriate adjustments in the proportions of program support.
  11. **New membership:** MSPs noted that the importance of promoting new participant parties for the further development of the international and collaborative nature of the Program. At the 1992 Intergovernmental Conference, MSPs stated that the opportunity to become a MSP is open to all interested and qualified parties and that acceptance of those parties desiring to join the HFSP will be decided by the BOT after deliberation of such factors as the party’s scientific capacity in the research areas of the HFSP and the degree of the party’s intended support of the Program. At the 1997 Intergovernmental Conference, recognizing that other parties have expressed interest in becoming a MSP, the BOT was

requested to formulate criteria to admit a new party based on its scientific capability in research areas and the party’s financial support to HFSP. The BOT was also requested to consider and respond to these applications in a timely manner.

12. **Financing:** The HFSP will continue to be supported by contributions from all MSPs. Unconditional financial contributions are preferred, although in-kind contributions, consistent with the guidelines of the HFSP, are also welcome. The MSPs reaffirmed the goals of the 1992 communique towards increased and equitable funding for the HFSP. This increase will serve to support the scientific excellence of the Program based on continual assessment by the Council of Scientists. It will also contribute to progress towards an equal match between the contribution of Japan and the contribution of other MSPs, with an objective to favor grants over fellowships. The MSPs stressed the urgency of moving toward these goals within five years. An example of a way to achieve these desired goals is offered<sup>1</sup>
13. **General structure:** The HFSP Organization will continue its legal status as an international, non-governmental, non-profit association during its next phase. The BOT, whose members represent the MSPs, will continue to govern the Program in accordance with the Statutes and By-laws of the HFSP. The government of France, Region Alsace and the city of Strasbourg will maintain the preferential treatment and privileges they have provided the HFSP Organization and its employees. MSPs reaffirmed the important role that BOT plays in administering the Program and strongly encouraged all MSPs to ensure that they were represented on the BOT by representatives with appropriate decision-making authority.
14. **Review of the Program:** The Program will continue to be reviewed by various means, including regular reports. A review of the effectiveness of the Program from the scientific viewpoint will be carried out within five years from the date of the previous scientific review, i.e., by December 2000. A major review of all aspects of the Program will be conducted and reported to the MSPs by the end of March 2001.
15. **Next conference:** MSPs expressed their desire to hold the next Intergovernmental Conference following the reviews of the Program in 2001 to consider the future of the Program. The MSPs may meet sooner at the request of the BOT.

<sup>1</sup>: One example of a way to achieve the financial goals of the Program is shown below.

Guidelines for HFSP funding	
MSP	CONTRIBUTION (IN THOUSAND US\$)
Japan	37.000
European Commission	3.000
Canada	800
France	2.050
Germany	3.200
Italy	1.550
Switzerland	450
United Kingdom	1.500
USA	10.450
<b>Program Total</b>	<b>60.000</b>

MSPs agreed as a first step and within two years to make the strongest efforts to provide a contribution equal to at least 50% of the figures. [These figures have been calculated for the MSPs other than Japan and the EC on the basis of a GNP standard (reference OECD, average GNP 1993 to 1995 minus 10%).]

## Intergovernmental Conference, Tokyo, 1992

1. Representatives of Canada, France, Germany, Italy, Japan, Switzerland, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the Commission of the European Communities, constituting the Management Supporting Parties (MSPs) for the Human Frontier Science Program (HFSP), met on January 21 and 22, 1992 in Tokyo to discuss the future of the HFSP after the end of the initial stage of the Program.
2. The HFSP is a multilateral science program that aims to contribute to advancement of the frontiers of human knowledge by promoting, through international cooperation, basic research focused on the elucidation of the complex mechanisms of living organisms, to facilitate maximum use of the MSPs scientific potential, and to allow the fullest possible use of the research results, taking into account bio-ethical considerations, for the benefits of all humankind.
3. The HFSP was proposed by the Japanese government at the Venice Economic Summit in June 1987. The other participants in the Economic Summit welcomed this initiative. The Program was further developed by international scientific committees composed of eminent scientists and experts from the seven Economic Summit countries and the European Community. Following the recommendations of these committees, intergovernmental meetings were held in June and July 1989, in Tokyo and Berlin respectively, in order to establish a framework for implementation of the HFSP. The Berlin meeting reached consensus on implementation of the HFSP for an initial experimental phase ending March 31, 1992 and to set out the form in which the HFSP was to be implemented. Thus the International Human Frontier Science Program Organization (HFSP/O), which is governed by Trustees who are nominated by the MSPs, was established as its implementing organ in Strasbourg, France, in October 1989.
4. Since its inception, the HFSP has become well known in the scientific community and has obtained special recognition for the high quality of the research it is supporting and because of the care, rigor and impartiality of its system of international peer review. The initial phase of the HFSP owed its success to the efforts of the Secretary-General and staff of the Secretariat, the Council of Scientists and its Review Committees, the Board of Trustees, and the strong support of the MSPs. In September 1991, the Board of Trustees submitted a report ("Report of the Board of Trustees to the Management Supporting Parties") on the HFSP activities to the MSPs and recommended the continued support for the Program beyond its initial phase.
5. The representatives of the governments of the MSPs noted that the research areas of the HFSP and research collaborations it supports were likely to benefit from longer-term support, and recognized the desirability of continuing the HFSP beyond the initial phase with the following understanding.
6. In line with the Board of Trustees' report mentioned above, the operating objectives and principles of the Program will continue to be to support basic research of the highest quality, as based on international peer review, to promote international (in particular, intercontinental) collaborative research, and to support interdisciplinary science.
7. Emphasis will continue to be placed on the encouragement of researchers early in their careers who are expected to play an important role in originating and pursuing creative research.
8. Research areas for funding will continue to be basic research on elucidation of brain functions, and of biological functions through molecular level approaches, subject to any changes decided by the Board of Trustees upon advice by the Council of Scientists.
9. Methods of research support in the subject areas will continue to be research grants, long-and-short-term fellowships and workshops.
10. The Program will continue to be reviewed by various means, including through regular reports. A review of the effectiveness of the Program from the scientific viewpoint will be carried out some 5 years after the start of the initial phase (i.e. by the end of 1994). A major review of all aspects of the Program will be conducted and reported by the end of March 1996 to the MSPs as a basis for considering the future of the Program.
11. The HFSP will be supported by contributions from all MSPs during and after fiscal year 1992 of the HFSP/O. Unconditional financial contributions will be preferred; in-kind contributions, consistent with the guidelines of the HFSP/O, will also be welcome. The MSPs recognized the desirability of achieving a better balance of the financial contributions to the Program, so that the proportion of Program support to be provided by Japan moderates through the increase of support from other MSPs. A desirable goal to be achieved over time, and as soon as feasible, is an equal match between the contributions of Japan and that of the other MSPs.
12. Subject to the provisions of paragraphs 10 and 13, the HFSP/O will continue its legal status as an international, non-governmental, non-profit association during its next phase. The governance of the Program will continue by the Board of Trustees whose members represent the MSPs, the Council of Scientists and the Secretariat, in accordance with the Statutes and By-laws of the HFSP/O. The government of France and the city of Strasbourg will maintain the preferential treatment and privileges they have provided the HFSP/O and its employees.
13. With a view to achieving the sound development of the Program through, among others, secure and adequate funding, discussion will take place, initially within the Board of Trustees, on possible changes to the status and constitution of the HFSP/O.
14. The opportunity to become a MSP is open to all interested and qualified countries. Acceptance of those countries desiring to join the HFSP will be decided by the Board of Trustees after deliberation on such factors as the country's scientific capacity in the research areas of the HFSP and the degree of the country's intended support to the HFSP.

## Annex 2

# Statutes of the International Human Frontier Science Program Organization

### Article 1. Names, Status and Domicile

1. The International Human Frontier Science Program Organization (HFSP; hereinafter, "the Organization"), is an international non-governmental non profit association devoted to the promotion of basic research.
2. The seat of the Organization is in Strasbourg (France), "Tour Europe, 20, Place des Halles". The registered seat of the Organization may be moved within the conurbation of Strasbourg by a decision of the Board of Trustees (Assemblée Générale) (see Article 6).

It is registered on the "Registre des Associations du Tribunal d'Instance de Strasbourg", and subject to Articles 21 to 79 of the local Civil Code, maintained valid through the law introducing French civil legislation of June 1, 1924.

### Article 2. Objectives of the Organization

1. The objectives of the Organization are to implement the Human Frontier Science Program (HFSP; hereinafter, "the Program"). This Program aims to promote, through international cooperation basic research focused on the elucidation of the sophisticated and complex mechanisms of living organisms and to make the fullest possible utilization of the research results for the benefit of all humankind, in accordance with the implementing scheme of the Program established by the Economic Summit member countries and the European Communities at the intergovernmental meeting held in Berlin (West) on July 26-28, 1989, and subsequently revised by the Original Members and Switzerland at the intergovernmental meeting held in Tokyo on January 21-22, 1992 (see Annex).
2. The resources of the Organization shall be used solely to achieve the objectives set out in this Article.
3. The Organization shall abstain from any political and commercial activities.

### Article 3. Activities of the Organization

The Organization conducts the following activities:

- I) to provide research grants to international joint research teams;
- II) to provide fellowships to researchers;
- III) to organize and/or subsidize workshops; and
- IV) to conduct other activities necessary to achieve the objectives of the Organization.

Importance is attached to "scientific merit", "internationality", especially "intercontinentality", and "interdisciplinarity" in implementing the Program activities.

### Article 4. Membership

1. The Organization is composed of the members of the Board of Trustees.
2. The members of the Board of Trustees are appointed by the Management Supporting Parties (see paragraph 3 of this Article).
3. A country or an organization which supports, takes part in and appoints persons who participate in the management of the Program is referred to as a Management Supporting Party (hereinafter, "MSP").
4. The MSPs are Canada, France, the Federal Republic of Germany, Italy, Japan, Switzerland, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the European Communities.  
On the basis of the principle that the opportunity to become an MSP be basically open to all interested countries, the Board of Trustees decides as to the acceptance of those desiring to join the MSPs after deliberation on such factors as the country's scientific capacity in basic research in the research areas of the Program and the degree of support to the Program.
5. Membership is lost under the following circumstances:
  - I) resignation in writing
  - II) exclusion pronounced by the Board of Trustees motivated by an act entailing materially and morally wrong effects to the Organization. In this case, the member involved may be invited to provide explanations.

## Article 5. Organs of the Organization

The organs of the Organization are as follows :

- I) Board of Trustees
- II) Council of Scientists
- III) Secretariat

## Article 6. Board of Trustees

1. The Board of Trustees is responsible for the overall policy concerning the conduct, management and operation of the Program.
2. Members of the Board of Trustees will be the two persons appointed by each MSP; the term of each member is to be decided by each MSP.
3. A President and two Vice-Presidents are elected by the members from among the Trustees for a three-year term. Their terms are renewable once for further three years.  
The President chairs the Board of Trustees. The Vice-Presidents support the President, and, in the event of the President's absence, Vice-Presidents will carry out the President's duties on his/her behalf.
4. The President and the Vice-Presidents as in the last day of their respective terms will remain the President and the Vice-Presidents continuously until their respective successors are elected.
5. The disbursements are authorized by the President. The President represents the Organization in court and on every legal occasion. He may delegate his powers to the Secretary-General. The representative of the Organization must be in full possession of his civic rights.
6. The President will convene regular meetings at least once a year. The president shall call a meeting whenever two-thirds of the members of the Board of Trustees so request. For a quorum, a meeting of the Board of Trustees requires the attendance of two-thirds of the membership. Members must be given written notification to attend the meeting by mail, fax or other means at least thirty days in advance.
7. Duties and authorities of the Board of Trustees, in addition to those specified elsewhere, consist of the following:
  - I) To approve and revise, as appropriate, policies, procedures and statutes of the Organization;
  - II) To approve the program activity plan as well as the budget proposal for each fiscal year (including revisions)
  - III) To approve the annual activity report and the financial statement for each fiscal year;
  - IV) To present its advice, as appropriate, to the Council of Scientists (see Article 7) on the operation of the Program ;
  - V) To decide on the acceptance of countries desiring to join the MSPs;
  - VI) To appoint and dismiss members of the Council of Scientists giving due consideration to recommendations from the Council of Scientists;
  - VII) To appoint and dismiss the Secretary-General giving due consideration to the advice of the Council of Scientists;
  - VIII) To determine, in conjunction with the Council of Scientists, the arrangements to be followed for the independent evaluation of the scientific achievement and management effectiveness of the Program; for which purposes the Board of Trustees may obtain additional scientific or other consultation and advice;

- IX) To appoint and dismiss Auditors;
- X) To deliberate and decide other basic matters regarding the management of the Program; and
- XI) To decide on the establishment of branch offices.

8. The Chairperson of the Council of Scientists attends meetings of the Board of Trustees, as observer.
9. The Secretary-General attends meetings of the Board of Trustees in a non-voting capacity.
10. Auditors may, by invitation, attend meetings of the Board of Trustees as observers.
11. Decisions are made by a two-thirds majority vote. However, decisions on sections I, II, V, VII and XI of paragraph 7 of this Article are made on a consensus basis.  
The Trustees may delegate their rights to vote to their proxies from their respective MSPs by giving written notification by mail, fax or other means to the Organization in advance of the meeting of the Board of Trustees. The Chairperson of the meetings also has the right to vote.

## Article 7. Council of Scientists

1. The Council of Scientists deliberates and decides on scientific matters related to the current operation of the Program.
2. The Council of Scientists consists of no more than 26 members. Two members are normally nominated by each MSP. The term of appointment will be for two years, renewable once for a further two years. However, in case a member is elected as the Chairperson, as defined in paragraph 4 of this Article, during the fourth year of his/her term, a further one year extension of his/her term may be granted.
3. The Secretary-General attends as a non-voting ex-officio member of the Council, withdrawing from Council consideration of any matter related to his/her appointment or dismissal.
4. A Chairperson and two Vice-Chairpersons will be elected by the members from among the Council members, each for a term of one year, renewable once for one year. The Chairperson chairs the Council of Scientists. The Vice-Chairpersons support the Chairperson and in the event of the Chairperson's absence, the Vice-Chairpersons will carry out the Chairperson's duties on his/her behalf.
5. The Chairperson and two Vice-Chairpersons as in the last day of their respective terms will remain the Chairperson and the Vice-Chairpersons continuously until their respective successors are elected.
6. The Chairperson will convene regular meetings once a year and may convene extraordinary meetings if necessary. Members must be given written notification to attend the meeting by mail, fax or other means at least thirty days in advance.
7. The duties and authorities of the Council of Scientists, in addition to those specified elsewhere, consist of the following:
  - I) To decide matters related to the evaluation of the applications and the selection of awardees; namely, the membership and duties of Review Committees, the operation of the mail review, the review criteria, selection procedure; and the size and term of awards to be recommended to the Board of Trustees;
  - II) To review the scientific achievements of the Program and the appropriateness of the priority areas, and to advise the Board of Trustees accordingly;



## Annex 2

- III) To give recommendations to the Board of Trustees on the appointment and dismissal of Council members; and
  - IV) To give advice to the Board of Trustees on the appointment and dismissal of the Secretary-General.
8. If, in its advice to the Board of Trustees based on section II of paragraph 7 of this Article, the Council of Scientists recommends any changes to the current Program, the recommendations will be considered by the Board of Trustees in consultation with the Council of Scientists. The implementation of any such changes will be decided by the Board of Trustees.
  9. Auditors may attend meetings of the Council of Scientists as observers.
  10. For a quorum, a meeting of the Council of Scientists requires the attendance of two-thirds of the Council's membership, and any decisions by vote at the meeting will require a two-thirds majority of those present.
  11. The Council of Scientists may invite non-member persons to participate in its meetings for advice.

### Article 8. Secretariat

1. The Secretariat consists of the Secretary-General and staff members.
2. The Secretary-General will be appointed for a three-year term. The term is renewable once up to three years. The successful candidate will be expected to devote the high level of commitment necessary to secure the development of the Program.
3. The Secretary-General selects, appoints and dismisses the senior permanent staff members in line with the following principles:
  - I) Candidates for the posts of Research Directors should demonstrate a satisfactory level of knowledge concerning research in the Program science areas, and appropriate experience in the administration of research support systems in basic science;
  - II) Appointments policy should be such that over time the interests of MSPs and their contributions to the Program be reflected fairly; and
  - III) Appointments to senior permanent Secretariat posts should be on the basis of the Secretary-General's selection from a choice of candidates, conforming to appointment procedures and job requirements to be drawn up by the Secretary-General and approved by the Board of Trustees. Appointment procedures should provide for early consultation with, and endorsement by, the Board of Trustees on appointments and dismissals of senior permanent staff.
4. The Secretary-General appoints and dismisses all other permanent staff members.
5. Candidates for all Secretariat staff positions may be nominated by MSPs/Trustees and/or the Secretary-General.
6. The Secretary-General supervises the Secretariat and is accountable to the Board of Trustees for the execution of the Program in accordance with the decisions of the Council of Scientists and the Board of Trustees according to their duties and authorities.
7. Among the responsibilities of the Secretariat are :
  - I) To draw up the program activity plan, as well as the budget proposal for each fiscal year (see paragraph 8 of this Article);
  - II) To draw up the annual activity report and the financial statement for each fiscal year (see paragraph 8 of this Article)

- III) To provide the Council of Scientists and Board of Trustees with background documentation and logistic support;
  - IV) To solicit applications for research grants, fellowships and workshops;
  - V) To be responsible for arranging all administrative aspects of the review procedures:
    - sending proposals to appropriate mail reviewers under the guidance of the Council of Scientists,
    - organizing meetings of the various Review Committees and transmitting their reports to the Council of Scientists,
    - arranging in a timely manner the meetings of the Council of Scientists,and
  - notifying applicants of the results of the review procedures; and
  - VI) To issue and administer the awards.
8. The documents listed in sections I and II of paragraph 7 of this Article will be prepared with full regard being given to the advice by the Council of Scientists.

### Article 9. Auditors

1. Three Auditors will be appointed by the Board of Trustees. The Auditors are part-time and will remain in office for a one-year term. The term is renewable.
2. The Auditors conduct the internal auditing on the Organization's financial status and activities, and report to the Board of Trustees, which may inform the Council of Scientists.

### Article 10. Duty to Report to the Management Supporting Parties

It is the duty of the President of the Organization to report to the MSPs on the progress of the Program activities, the financial status of the Organization, and other matters, by conveying to the latter the program activity plan, the budget proposal, annual activity report, the financial statement, auditing report, etc. In order to facilitate the evaluation of the scientific achievements of the Program by the MSPs, the President of the Organization will also submit the annual report on the review of scientific achievements.

### Article 11. Financial Resources and Accounts

1. The financial resources of the Organization include:
  - I) the contributions and/or support from the MSPs and persons and/or parties other than the MSPs such as countries, districts and public institutions. Supports include subsidies, gifts and donations;
  - II) the income derived from its assets.
2. The Program will be supported by contributions from all MSPs. A desirable goal to be achieved over time, and as soon as feasible, is an equal match between the contributions of Japan and that of the other MSPs.
3. Regular accounts will be kept, stating receipts and disbursements.

### Article 12. Fiscal Year

The fiscal year of the Organization starts on April 1<sup>st</sup> and ends on March 31<sup>st</sup> of the following year.

### **Article 13. Amendment of the Statutes**

The Statutes may be amended at any time by decision of the Board of Trustees, on a consensus basis in accordance with paragraph 7 of Article 6.

### **Article 14. Dissolution**

1. The Organization may be dissolved at any time by a resolution adopted by the Board of Trustees on a consensus basis.
2. If, upon dissolution of the Organization, there remains, after the satisfaction of all debts and liabilities, any property whatsoever, this shall be dealt with in accordance with the decision of the Board of Trustees.

### **Article 15. By-Laws**

By-laws may be amended after the approval of the Board of Trustees. If newly drafted amendments to the By-laws have to be applied for any urgent reasons, prior to the approval of the Board of Trustees, they may be provisionally effective with the approval of the President until the next meeting of the Board of Trustees.

### **Article 16. Reference to English Version**

In case there should be any uncertainty in the interpretation of the provisions of the Statutes (French version), the English version should be referred to in order to clarify the meaning.

### **Article 17. Transitional Arrangements**

1. Members of the Board of Trustees at the end of March 1992 continue to be members of the Board of Trustees as of 1<sup>st</sup> April 1992.
2. Members of the Council of Scientists at the end of March 1992 continue to be members of the Council of Scientists as of 1<sup>st</sup> April 1992.
3. Notwithstanding the provision set out in paragraph 2 of Article 7, half of the members of the Council of Scientists from April 1992 may be appointed for a one-year term to promote both continuity and turnover of membership.
4. Those holding the post of Auditor at the end of March 1992 continue to be Auditors as of 1<sup>st</sup> April 1992.
5. Notwithstanding the provision of paragraphs 2 and 3 of Article 8, extensions of contracts of employment for all Secretariat staff, from 1<sup>st</sup> April 1992 to 31<sup>st</sup> March 1993, have been offered.
6. The Program will continue to be reviewed by various means, including through regular reports. A review of the effectiveness of the Program from the scientific viewpoint will be carried out some five years after the start of the initial phase (i.e. by the end of 1994). A major review of all aspects of the Program will be conducted and reported by the end of March 1996 to the MSPs as a basis for considering the future of the Program.

**Entered into force:**

April 1, 1992

**Revisions:**

March, 1994: Article 8, paragraph 5

March, 1995: Article 7, paragraph 2

Article 7, paragraph 6

# Annex 3

## History of the Program

### 1. Chronology of events

During the period 1986-87, the government of Japan introduced the concept of a program to support international collaboration in basic research on biological functions called the Human Frontier Science Program. In proposing to initiate the HFSP, Japan noted the need to increase its contribution to the world's overall effort in basic science. Subsequently, at a number of international meetings of experts, specific areas of research and methods of supporting them were defined.

The Japanese Prime Minister proposed the HFSP at the Venice Economic Summit in June 1987, an initiative which was welcomed by the Economic Summit partners. In order to ensure the early implementation of the HFSP, Japan offered to provide significant funding for an initial 3-year phase, with additional contributions from the other partners, called Management Supporting Parties<sup>8</sup> (MSPs).

The initial phase of the Program (from October 1989, when the HFSP was registered as the secretariat of the Program in Alsace, to March 1992) witnessed the support of an impressive array of excellent science that would have been difficult or impossible to fund through traditional or national research granting agencies.

The second phase ("full-fledged" phase I) of the Program commenced in April 1992, and was based on the "Joint Communiqué for the Human Frontier Science Program (ANNEX 1)" adopted at the Tokyo Intergovernmental Conference (IGC) on the HFSP (21-22 January 1992). The representatives of the MSPs recommended the continued support of the Program beyond its initial phase, guided by the communiqué.

Following the instructions of the communiqué, a General Review, consisting of a scientific review and an evaluation of all aspects of the Program was completed during FY 1995. Both of these reviews were conducted by external, independent organizations. Based on these reviews, the "Report of the Board of Trustees to the MSPs on General Review of the Human Frontier Science Program" was prepared in March 1996 for submission to the MSPs.

The conclusions of these two reviews were very positive and the HFSP was placed on the Agenda of the G-7 Summit Meeting in June 1996 in Lyon, France.

The further IGC was held on 20 May 1997 in Washington. The representatives of the MSPs recognized the desirability of continuing the HFSP for a further phase of five years. Importantly, the MSPs reaffirmed the goals of the Tokyo communiqué towards increased and equitable funding for the Program. Following the Washington communiqué (ANNEX 1), a further General Review was completed by the end of March 2001 and reported to the MSPs.

To mark the 10<sup>th</sup> anniversary of the Program, the Board of Trustees decided to hold three ceremonies to reflect its intercontinental character. The first ceremony was held in Tokyo on 3 December 1998 followed by the second one held in Strasbourg on 1 June 1999 and the third one held in Washington D.C. on 10 December 1999.

At the meetings of the Board of Trustees held in FY 1999, Prof. Masao Ito was elected as the new President and Prof. Torsten Wiesel was selected as the new Secretary-General. Both of their terms started as of 1 April 2000.

The third Intergovernmental Conference was held on 20 and 21 June 2002 in Berlin. The representatives reaffirmed the value of the Program's emphasis on interdisciplinary science, the encouragement of researchers early in their careers and international and especially international collaboration. The new initiatives, such as the Young Investigators' Grant and the Career Development Award are therefore particularly welcome. The representatives also recognized that the scientific value of the HFSP warrants its continuation for a further phase of five years.

At the meeting of the Board of Trustees held in March 2003, the terms of Prof. Masao Ito as President and that of Prof. Torsten Wiesel as the Secretary-General were renewed.

### 2. Budgetary Evolution (including in-kind contributions)

FIG. 1: Evolution of Total Contribution (budgeted and received) in US\$ million per Fiscal Year

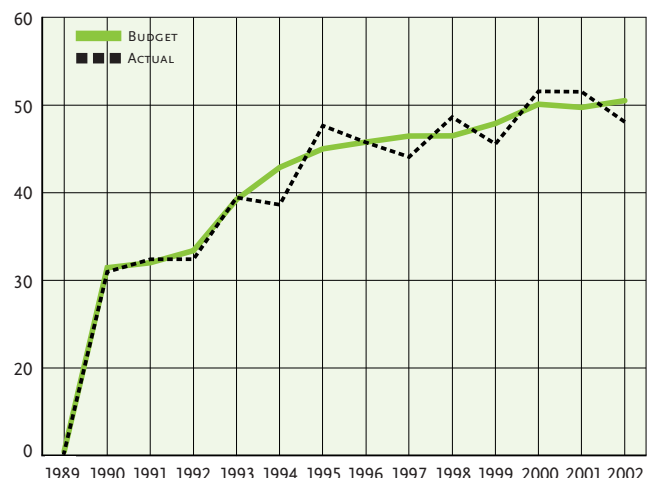


FIG. 2: Evolution of Contributions from Japan and other MSPs

in US\$ million per Fiscal Year

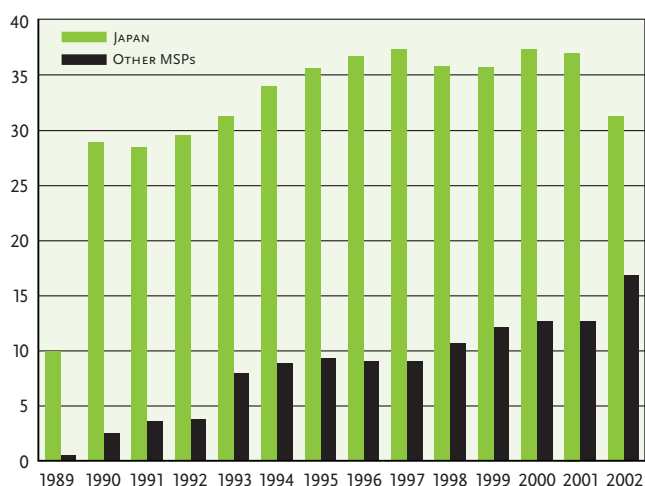


FIG. 3: Evolution of Expenditure

in US\$ million per Fiscal Year

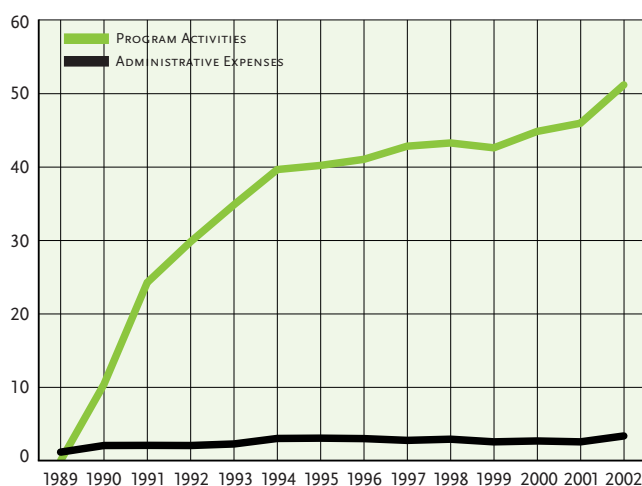


TABLE 1: Contributions from MSPs in US\$ million per fiscal year at budget exchange rate

	CANADA	FRANCE	GERMANY	ITALY	JAPAN	SWITZERLAND*	UK	USA	EU
FY 1989	–	0.46	–	0.02	9.94	–	–	–	–
FY 1990	0.20	1.65	0.29	0.33	28.95	–	–	–	–
FY 1991	0.00	1.62	0.91	0.44	28.44	0.40	–	0.04	0.15
FY 1992	0.40	1.32	0.77	0.19	29.57	0.40	0.51	0.04	0.18
FY 1993	0.33	1.25	0.81	0.18	31.30	0.40	0.54	3.50	0.91
FY 1994	0.54	1.56	0.99	0.18	34.01	0.40	0.59	3.50	1.11
FY 1995	0.53	1.74	1.22	0.19	35.65	0.59	0.58	3.50	1.00
FY 1996	0.26	1.37	1.17	0.18	36.73	0.51	0.63	4.00	0.92
FY 1997	0.25	1.47	1.02	0.17	37.38	0.53	0.76	4.00	0.87
FY 1998	0.45	1.70	1.25	0.29	35.84	0.58	0.76	4.50	1.11
FY 1999	0.44	1.75	1.60	0.29	35.77	0.61	0.75	5.00	1.68
FY 2000	0.45	1.58	2.10	0.26	37.38	0.55	0.75	5.50	1.52
FY 2001	0.51	1.16	2.20	0.68	37.05	0.52	0.80	7.39	0.87
FY 2002**	0.83	1.60	1.75	0.00	31.25	0.64	1.60	8.60	2.73

The figures for contributions up to FY 1999 are earmarked. From FY 2000 to FY 2002, real payments are given.

\* Switzerland became an MSP in 1991

\*\* payments received as of the end of FY 2002 (exchange rate, 31.03 2003)

TABLE 2: Evolution of Expenditure on awards (in US\$ million)

FY 1990	10.40
FY 1991	24.28
FY 1992	29.83
FY 1993	34.86
FY 1994	39.67
FY 1995	40.23
FY 1996	41.06
FY 1997	42.85
FY 1998	43.29
FY 1999	42.63
FY 2000	44.86
FY 2001	45.98
FY 2002	51.20

# Annex 4

## Program Activity Plan for FY 2003

The Program Activity Plan for FY 2003 defines the frame of action for FY 2003 (from April 1, 2003 to March 31, 2004), as decided by the Board of Trustees (BOT) and/or the Council of Scientists (COS). The most important decisions relate to the implementation of Program activities and the selection of Awardees for the year 2004.

### Basic Policies

FY2003 is the 12<sup>th</sup> year of the full-fledged phase of the HFSP, or the 14<sup>th</sup> year since the initiation of the HFSP

The basic policies guiding the Program's activities in FY 2003 (that is, the policies for Awards for the year 2004, to be reflected in the Awards Guidebooks) are as follows:

1. As regards research area, HFSP continues to fund basic research focused on the elucidation of the complex mechanisms of living organisms. The scientific programs will give preference to projects involving scientists from different disciplines and will promote interdisciplinary training.
2. Particular encouragement will be given, as in previous years, to researchers early in their careers, enabling them to originate and pursue creative research.
3. The activities of the Program will continue to be Research Grants, Long- and Short-Term Fellowships and Workshops/Annual Awardees' Meeting, in accordance with the provisions reconfirmed in the Joint Communiqué, Berlin, 2002 .
4. The possibility of obtaining additional funds from sources other than the current MSPs will be pursued.
5. A concerted effort will be made to keep in close contact with funding agencies in countries interested in developing and implementing common policies aimed at enabling young investigators to achieve independence.
6. Public relations will be widened through, for example, the sponsoring of plenary lectures or symposia within major scientific meetings and deepened by more frequent contacts with administrators and policy makers. Ministerial-level contacts with the Secretary-General are to be encouraged. This will be possible largely thanks to the cooperation of MSPs.

### Program Activities

Important criteria in the review of applications and in the selection of awards for the Research Grant program will be innovation, interdisciplinarity, scientific merit, need for collaboration, internationality (in particular, inter-continentality), and the participation of scientists early in their careers. In the Fellowship program, special emphasis will be given to the excellence and potential of the candidate, and the shift in research area constituted by the training requested.

The current ratio of funding between Research Grants and Long-Term Fellowships will be maintained

### Research Grants

Research Grants are of two types, Young Investigators' Grants and Program Grants.

Young Investigators' Grants will be awarded to teams of scientists who are all within 5 years of establishing an independent laboratory and within 10 years of obtaining their PhD. Program Grants will be awarded to teams of independent researchers at any stage in their career, though young scientists are particularly encouraged. Applications should aim to include a high proportion of researchers early in their careers.

Both Program Grants and Young Investigators' Grants will be awarded annually, for a period of up to 3 years, for the support of collaboration among research teams in different countries, and especially for inter-continental collaboration.

The two-stage review procedure will be maintained for Research Grant applications, with a letter of intent to be submitted online.

### Fellowships

Fellowships consist of Long-Term Fellowships, Short-Term Fellowships and the Career Development Award.

#### Long-Term Fellowships

Awards for Long-Term Fellowships will be made once each year.

Applicants are expected to have a doctoral degree or equivalent experience in research. Applications will not be accepted from



candidates who have already spent one year or more at the host institute at the start of the fellowship. Applicants must be within 3 years of receiving their doctoral degree at the time of application. Long-Term Fellowships provide support for up to three years.

The third year of support can be used for repatriation to a laboratory in the home country and can be deferred for up to two years. The third year can also be used in the host laboratory; however, in this case no deferral is possible.

#### **Short-Term Fellowships**

Short-Term Fellowships are intended to support researchers who wish to spend 2 weeks to 3 months in a laboratory in another country, to learn new techniques or develop new collaborations, for example. In addition, former Long-Term Fellows may apply to visit their former host laboratory.

Applications can be made at any time during the year. Preference is given to independent researchers early in their careers. Applicants are expected to have a doctoral degree or equivalent experience in research.

The total budget for all Short-Term Fellowships remains at US\$ 200,000. (Awards are calculated on the basis of country specific per diem amounts for each host country).

#### **Career Development Award**

Long-Term Fellows will also be eligible to receive one of 10 Career Development Awards after they have completed their fellowship and have obtained a position in their home country. The award will enable them to pursue independent research.

Applications for the Career Development Award will be reviewed by the Council of Scientists and authorized by the Board of Trustees.

### **Workshops/Annual Awardees Meeting**

The 3<sup>rd</sup> Annual Awardees Meeting will be held in Cambridge, UK, on July 6-9, 2003. Grantees awarded in 2000 and Young Investigators and Long-term fellows from various years will make oral and poster presentations on work accomplished under HFSP support. Preparation work begins for the 4<sup>th</sup> Annual Awardees Meeting in Japan.

In November 2001, a first policy workshop entitled "Toward a New Paradigm for Education, Training and Career Paths in the Natural Sciences" focused on questions of training primarily in the developed world. This workshop is the model for a second meeting "Promoting Life Sciences in Developing Countries" to be held in November, 8-10, 2003, in Trieste. The purpose of the meeting is to obtain an overview of the various initiatives of participating organisations to assist training and science education in developing countries and to explore the possibilities for collaboration between governmental and private agencies. The final outcome of the meeting will be a concise report of the findings and specific recommendations.

## **Other Activities**

### **Relocation of the Secretariat**

As a consequence of a deterioration in working conditions (noise, lack of security), the Secretariat will move to more suitable and spacious premises in the city centre during FY 2003.

### **Informatics and Publications**

The web site will be developed more extensively to feature scientific items from projects funded by the Program, as well as subjects of more general interest and importance in furthering the interdisciplinary aims of the HFSP. The contents of the newsletters have been enriched and continue to be widely distributed.

Contacts will be intensified with professional bodies of scientists within and outside the life sciences to encourage applications from scientists from all the natural sciences.

The Annual Report will be published before June so as to be available for the 4<sup>th</sup> Awardees' Meeting to be held in June.

The scientific reports of awardees, both grantees and long-term fellows, will be compiled for internal distribution to BOT and COS.





# Annex 5

## Research Grants: Awardees paid during FY 2002

*The first named in each group is the principal investigator*

### Award year 2000

#### Brain Functions

##### Dynamic tuning in visual motion and depth processing

BRITTEN Kenneth H., *USA*  
MENON Ravi S., *Canada*  
TROTTER Yves, *France*  
VAN DEN BERG Albert V., *The Netherlands*

##### Mechanisms of patterning and cell fate specification in the mammalian telencephalon

CAMPBELL Kenneth, *USA*  
GOTZ Magdalena, *Germany*  
GUILLEMOT François, *France*  
PETERSON Andrew S., *USA*

##### Premotoneuronal interaction between descending pathways; the C3-C4 propriospinal system and reaching

ISA Tadashi, *Japan*  
ALSTERMARK Bror, *Sweden*  
PETERSSON Lars-Gunnar, *Sweden*  
SASAKI Shigeto, *Japan*

##### Synaptic and extrasynaptic signalling by glutamate in the cerebellar cortex

JAHR Craig E., *USA*  
HAUSSER Michael, *UK*  
NUSSER Zoltan, *Hungary*  
OKABE Shigeo, *Japan*

##### Genetic models to correlate MU-receptor regulation with behavioral adaptations to opiates

KIEFFER Brigitte L., *France*  
EVANS Christopher J., *USA*  
MALDONADO Rafael, *Spain*  
UEDA Hiroshi, *Japan*

##### The dynamics of hindbrain patterning: coordinate analysis of cell fate, movement, restriction and AP identity

KRUMLAUF Robert, *USA*  
BRONNER-FRASER Marianne, *USA*  
FRASER Scott E., *USA*  
WILKINSON David G., *UK*

##### Olfactory transduction: receptors, enzymes and ion channels

KURAHASHI Takashi, *Japan*  
CHEN Tsung-Yu, *USA*  
KOUTALOS Yiannis, *USA*  
NGAI John, *USA*  
YAU King-Wai, *USA*

##### Molecular regulation of central nervous system stem cells

LEND AHL Urban L. A., *Sweden*  
RAFF Martin, *UK*  
SMITH Austin G., *UK*  
TAGA Tetsuya, *Japan*

##### Function and development of feedforward and feedback connections in neocortex

MARTIN Kevan A. C., *Switzerland*  
BURKHALTER Andreas H., *USA*  
KENNEDY Henry, *France*  
YOUNG Malcolm P., *UK*

##### The role of complexins in neurotransmitter release

PARSONS Thomas D., *USA*  
BORST Jacob G. G., *The Netherlands*  
BROSE Nils, *Germany*  
CHOW Robert H.-P., *USA*

##### Biosynthesis, inactivation and biological actions of lysophosphatidic acid in the nervous system

PIOMELLI Daniele, *USA*  
AOKI Junken, *Japan*  
CALIGNANO Antonio, *Italy*  
CHUN Jerold, *USA*  
GIRAULT Jean-Antoine, *France*  
PRESTWICH Glenn, *USA*  
RODRIGUEZ DE FONSECA Fernando, *Spain*

##### Molecular and systems analysis of a multimodal memory center

PREAT Thomas, *France*  
HEISENBERG Martin, *Germany*  
MERCER Alison R., *New Zealand*  
STRAUSFELD Nicholas J., *USA*

##### Dynamic organization of the brain during sleep

SEJNOWSKI Terrence J., *USA*  
BORBELY Alexander A., *Switzerland*  
MCCORMICK David A., *USA*  
STERIADE Mircea, *Canada*

##### The role of neuropeptide Y in epilepsy

SPERK Günther, *Austria*  
BECK-SICKINGER Annette G., *Germany*  
COLMERS William F., *Canada*  
HERZOG Herbert, *Australia*  
SCHARFMAN Helen, *USA*  
VEZZANI Annamaria, *Italy*

## The control of axon guidance at the vertebrate midline

STOECKLI Esther T., *Switzerland*  
 FURLEY Andrew J. W., *UK*  
 KLAR Avihu, *Israel*  
 TESSIER-LAVIGNE Marc, *USA*

## How the circadian clock sends signals to the rest of the brain

TAGHERT Paul, *USA*  
 HALL Jeffrey C., *USA*  
 NASSEL Dick R., *Sweden*  
 STENGL Monika, *Germany*

## Cross-linguistic investigation of the representation and neural substrate of word meaning and syntax

VIGLIOCCO Gabriella, *UK*  
 CAPPÀ Stefano F., *Italy*  
 GARRETT Merrill F., *USA*  
 INDEFREY Peter, *The Netherlands*  
 SANZ Montserrat, *Japan*  
 TABOSSI Patrizia, *Italy*

## The neural coding of object recognition in humans and macaques

VOGELS Rufin, *Belgium*  
 BIEDERMAN Irving, *USA*

## Molecular Approaches

## Regulation of steroid hormone biosynthesis and signaling in plants

BISHOP Gerard, *UK*  
 CHORY Joanne, *USA*  
 KONCZ Csaba, *Germany*  
 YOKOTA Takao, *Japan*

## Nitric oxide in excitable tissues: physiology and disease

BREDDT David S., *USA*  
 TAKEDA Shin'ichi, *Japan*  
 ZHANG Mingjie, *Hong Kong*

## Structural dynamics of terminal oxidases

BRZEZINSKI Peter, *Sweden*  
 FERGUSON-MILLER Shelagh, *USA*  
 GENNIS Robert B., *USA*  
 SVENSSON-EK Margareta, *Sweden*

## Angiogenic and antiangiogenic gene therapy

CAO Yihai, *Sweden*  
 DEBS Robert, *USA*  
 FOLKMAN Judah M., *USA*

## Regulation of homologous recombination in response to DNA DSB's

CARR Antony M., *UK*  
 SHINAGAWA Hideo, *Japan*  
 SUNG Patrick, *USA*

## Development, specificity and function of CD1 reactive T cells

DELLABONA Paolo, *Italy*  
 DEGANO Massimo, *Italy*  
 DE LIBERO Gennaro, *Switzerland*  
 JOYCE Sebastian, *USA*  
 KRONENBERG Mitchell, *USA*  
 MAC DONALD H. Robson, *Switzerland*  
 TANIGUCHI Masaru, *Japan*

## Trans translation: analysis of tmRNA that functions as a transfer RNA and messenger RNA

FELDEN Brice, *France*  
 ATKINS John F., *USA*  
 HIMENO Hyouta, *Japan*  
 RAMAKRISHNAN Venkatraman, *UK*

## The WW domain network in yeast

FIELDS Stanley, *USA*  
 BORK Peer, *Germany*  
 MACIAS HERNANDEZ Maria J., *Germany*  
 SUDOL Marius, *USA*  
 WADE Rebecca C., *Germany*

## Serine oligopeptidases: structure-function relationships and role in human disease

FULOP Vilmos, *UK*  
 ANDREWS Norma W., *USA*  
 JULIANO Luiz, *Brazil*  
 POLGAR László, *Hungary*

## Signal transduction during oocyte maturation

JAFFE Laurinda, *USA*  
 CHIBA Kazuyoshi, *Japan*  
 FOLTZ Kathleen, *USA*  
 KISHIMOTO Takeo, *Japan*  
 OLATE Juan, *Chile*  
 TERASAKI Mark, *USA*

## Mediator of transcriptional regulation

KORNBERG Roger D., *USA*  
 ASTURIAS Francisco J., *USA*  
 BJÖRKLUND Stefan, *Sweden*  
 GUSTAFSSON Claes, *Sweden*  
 KIM Young-Joon, *Korea (Republic of)*  
 MYERS Lawrence, *USA*

## Stats and their target genes mediate the potent biological response to interferons

KOROMILAS Antonis E., *Canada*  
 DURBIN Joan E., *USA*  
 HAUSER Hansjörg, *Germany*  
 SCHINDLER Christian W., *USA*  
 YOSHIMURA Akihiko, *Japan*

## Transcriptional regulation of hepatic differentiation

LEMAIGRE Frédéric, *Belgium*  
 DUNCAN Stephen A., *USA*  
 WEISS Mary C., *France*  
 ZARET Kenneth S., *USA*

## The molecular function of an essential histone variant

LUCER Karolin, *USA*  
 TREMETHICK David, *Australia*

## Signalling to actin dynamics

MACHESKY Laura, *UK*  
 ASPENSTROM Pontus, *Sweden*  
 GERTLER Frank B., *USA*  
 MULLINS R. Dyche, *USA*  
 ODA Atsushi, *Japan*  
 POLLARD Thomas D., *USA*  
 WEHLAND Jürgen, *Germany*

## A novel cAMP pathway

MATSUDA Michiyuki, *Japan*  
 BOS Johannes L., *The Netherlands*  
 HARIHARAN Iswar, *USA*  
 WITTINGHOFFER Alfred, *Germany*

## Histone acetylation and epigenetic gene regulation

NAKATANI Yoshihiro, *USA*  
 CAVALLI Giacomo, *France*  
 ISHII Shunsuke, *Japan*

## Structure, function and regulation of aquaporins and solute transporters of the "MIP" family channel proteins

NIELSEN Søren, *Denmark*  
 AGRE Peter, *USA*  
 ENGEL Andreas, *Switzerland*  
 HOHMANN Stefan, *Sweden*

## Structure, function and regulation of the plant plasma membrane H<sup>+</sup>-ATPase family

PALMGREN Michael G., *Denmark*  
 BOUTRY Marc, *Belgium*  
 HARPER Jeffrey F., *USA*  
 SUSSMAN Michael R., *USA*

## Mechanisms of axis formation in mammals

PEDERSEN Roger A., *USA*  
 ROSSANT Janet, *Canada*  
 ZERNICKA-GOETZ Magdalena, *UK*

### Functional analyses of EXT proteins

PERRIMON Norbert, *USA*  
LINDAHL Ulf, *Sweden*  
SUGAHARA Kazuyuki, *Japan*

### Phosphate sensors and signal transduction in regulation of phosphate uptake systems in yeast

PERSSON Bengt, *Sweden*  
HARASHIMA Satoshi, *Japan*  
SINNING Irmgard M., *Germany*  
VOSS John C., *USA*

### Application of small amphipathic polymers ("Amphipols") to the crystallization of integral membrane proteins

POPOT Jean-Luc, *France*  
BERRY Edward, *USA*  
VENIEN-BRYAN Catherine, *UK*

### Molecular pathways to protein storage vacuoles in plant cells

ROGERS John C., *USA*  
HARA-NISHIMURA Ikuko, *Japan*  
ROBINSON David G., *Germany*

### Coupling signaling to chromatin modifications

SASSONE-CORSI Paolo, *France*  
ALLIS C. David, *USA*  
HANAUER André, *France*

### Genetic circuitry underlying chordate notochord specification: Brachyury gene regulation in lower deuterostomes

SATOH Noriyuki, *Japan*  
CAMERON R. Andrew, *USA*  
LEVINE Michael S., *USA*

### Molecular basis for regulation of the epithelial sodium channel (ENaC) by hormones, interacting proteins, ions

SCHILD Laurent, *Switzerland*  
CANESSA Cecilia, *USA*  
HORISBERGER Jean-Daniel, *Switzerland*  
LIFTON Richard P., *USA*  
ROTIN Daniela, *Canada*

### The glycosylphosphatidylinositol toxin of malaria: synthesis, structure, genetics, function

SCHWARZ Ralph T., *Germany*  
FERGUSON Michael A. J., *UK*  
FRASER-REID Bertram, *USA*  
KINOSHITA Taroh, *Japan*  
RIEZMAN Howard, *Switzerland*  
SCHOFIELD Louis, *Australia*

### Assembly of recombination and DNA replication at sites of double-strand break repair in mitosis and meiosis

SHINOHARA Akira, *Japan*  
HABER James E., *USA*  
SUGINO Akio, *Japan*

### Investigation of the molecular mechanism of the light energy storage in retinal proteins

SUHAI Sándor, *Germany*  
KANDORI Hideki, *Japan*  
OLIVUCCI Massimo, *Italy*  
RUHMAN Sanford, *Israel*  
SCHULTEN Klaus, *USA*  
SHEVES Mordechai, *Israel*

### Reverse engineering of gene regulation circuits using gene expression data

SURETTE Michael G., *Canada*  
ALON Uri, *Israel*  
LEIBLER Stanislas, *USA*

### Molecular analysis of the SCF ubiquitin ligase from yeast to human

TODA Takashi, *UK*  
NAKAYAMA Kei-Ichi, *Japan*  
PETER Matthias, *Switzerland*  
TYERS Michael D., *Canada*  
WEIS-AMON Angelika, *USA*

### Developing hammerhead ribozymes to investigate gene function during development

UNEY James, *UK*  
ISEKI Sachiko, *Japan*  
PHYLACTOU Leonidas A., *Cyprus*

### Structural and functional analysis of the U2AF complex

VALCARCEL Juan, *Germany*  
CARMO-FONSECA Maria, *Portugal*  
GREEN Michael R., *USA*  
RIO Donald C., *USA*  
YOKOYAMA Shigeyuki, *Japan*

### Iron-sulfur molybdoenzymes as models for biological electron transfer

WEINER Joel H., *Canada*  
ARMSTRONG Fraser A., *UK*  
BLASCO Francis, *France*  
STRYNADKA Natalie, *Canada*

### Signalling in inflammation: pleiotropic activities of phosphoinositide 3-kinase gamma

WETZKER Reinhard, *Germany*  
HIRSCH Emilio, *Italy*  
WYMANN Matthias P., *Switzerland*

## Award year 2001

### Young Investigators – Brain Functions

#### A multidisciplinary approach toward the role of PI3K/Akt signaling transduction in higher brain function

FRANKE Thomas F., *USA*  
DAVIS Sabrina, *France*  
GIESE K. Peter, *UK*

#### A comprehensive study of olfactory coding in the insect brain: behavior, physiology, modeling

GALIZIA Giovanni, *USA*  
GIURFA Martin, *France*  
LINSTER Christiane, *UK*

#### Role of exocytosis mediating neurite outgrowth in the development of the brain

GALLI Thierry, *France*  
BINZ Thomas, *Germany*  
LITTLETON J. Troy, *USA*  
MATTEOLI Michela, *Italy*

#### In vivo visualization of axonal connectivity and functional activity using diffusion tensor MRI

KIM Dae-Shik, *USA*  
GOEBEL Rainer, *The Netherlands*  
MORI Susumu, *USA*

#### Cellular mechanisms of dependence: opioid-induced desensitization of G protein-coupled potassium currents

LUSCHER Christian, *Switzerland*  
SLESINGER Paul, *USA*

#### Brain mechanisms of syntactic processing

SAKAI Kuniyoshi L., *Japan*  
PHILLIPS Colin, *USA*



## Young Investigators – Molecular Approaches

### Chromatin structural features in organization and regulation of homeotic gene clusters

KONDO Takashi, *Japan*  
MISHRA Rakesh K., *India*

### Molecular control of intestinal iron transport: identification and characterisation of new molecules

MCKIE Andrew, *UK*  
ANDERSON Gregory, *Australia*  
VULPE Christopher, *USA*

### From molecular adaptation to protein function: new tools for genome analysis

NIELSEN Rasmus, *USA*  
SCHMID Karl, *Germany*  
YANG Ziheng, *UK*

### Comparative biochemical and molecular studies of isoprenoid biosynthesis in pines and pine bark beetles

SEYBOLD Steven, *USA*  
BOHLMANN Jörg, *Canada*

### Signal-dependent regulation of NF- $\kappa$ B activity

THANOS Dimitris, *USA*  
GHOSH Gourisankar, *USA*  
MOSIALOS George, *Greece*  
NAKANO Hiroyasu, *Japan*

### Crosstalk between PPAR and LXR in the control of lipid metabolism

TONTONOZ Peter, *USA*  
NAGY Laszlo, *Hungary*  
SCHWABE John, *UK*

## Program Grants – Brain Functions

### Multiple-cue integration in language acquisition: mechanisms and neural correlates

CHRISTIANSEN Morten H., *USA*  
CHATER Nick J., *UK*  
DOMINEY Peter F., *France*  
OGURA Mieko, *Japan*

### Neural basis of nonspatial visual attention: objects, features and behaviour

DUNCAN John, *UK*  
CHELAZZI Leonardo, *Italy*  
KANWISHER Nancy, *USA*  
VALDES-SOSA Mitchell, *Cuba*

### Functional analysis of genetically defined interneurons in the ventral spinal cord

JESSELL Thomas M., *USA*  
BROWNSTONE Robert, *Canada*  
JACKSON Meyer B., *USA*  
MAXWELL David J., *UK*  
REDMAN Stephen J., *Australia*  
TODD Andrew, *UK*  
ZISKIND-CONHAIM Lea, *USA*

### Towards an understanding of reconsolidation

LEDOUX Joseph E., *USA*  
BONHOEFFER Hans Tobias, *Germany*  
DUDAI Yadin, *Israel*  
MORRIS Richard G. M., *UK*  
NADER Karim, *USA*

### Targeting and signaling at interneuron Ca<sup>2+</sup>-permeable AMPA synapses

McBAIN Christopher, *USA*  
HENLEY Jeremy M., *UK*  
LACAILLE Jean-Claude, *Canada*

### Cellular and molecular mechanisms involved in the differentiation of cortical layer V neurons

MOLNAR Zoltán, *UK*  
AUDINAT Etienne, *France*  
LAVERY Daniel, *Switzerland*  
YAMAMOTO Nobuhiko, *Japan*

### Ca<sup>2+</sup>-regulated expression of Ca<sup>2+</sup> transporting systems during neuronal development, survival and death

NARANJO Jose R., *Spain*  
CARAFOLI Ernesto, *Italy*  
DERVAN Peter B., *USA*  
GENAZZANI Armando A., *UK*

### Neural function of the FMR1 protein defective in fragile X mental retardation: an integrated approach

OOSTRA Ben A., *The Netherlands*  
BAGNI Claudia, *Italy*  
MANDEL Jean-Louis, *France*  
PASTORE Annalisa, *UK*

### Cell assembly interactions between connected brain areas during learning and memory consolidation

PENNARTZ Cyriel M. A., *The Netherlands*  
EVERITT Barry John, *UK*  
MCNAUGHTON Bruce L., *USA*

### Functional analysis of sensory circuits in *C. elegans*

SCHAFFER William R., *USA*  
BARGMANN Cornelia I., *USA*  
BAZZICALUPO Paolo, *Italy*  
MORI Ikue, *Japan*

### Cerebello-cerebral communication: a basis of visual and oculomotor cognition

THIER Hans-Peter, *Germany*  
BARASH Shabtai, *Israel*  
GLICKSTEIN Mitchell, *UK*  
SHINODA Yoshikazu, *Japan*

### Axonal and dendritic patterning: regulation of Rho GTPases

UEMURA Tadashi, *Japan*  
DICKSON Barry J., *Austria*  
LUO Liqun, *USA*  
POO Mu-Ming, *USA*

## Program Grants – Molecular Approaches

### Molecular controls of lymphangiogenesis and angiogenesis

ALITALO Kari, *Finland*  
DUMONT Daniel J., *Canada*  
SUDA Toshio, *Japan*

### Molecular function of trypanosomal sialidases: recognition, hydrolysis and synthesis of sialoconjugates

ALZARI Pedro, *France*  
FRASCH Alberto C., *Argentina*  
WITHERS Stephen G., *Canada*

### Nuclear envelope and muscle diseases

BONNE Gisèle, *France*  
 COLLAS Philippe, *Norway*  
 HAYASHI Yukiko, *Japan*  
 WORMAN Howard J., *US*

### Molecular mechanism of membrane fission

BURGER Koert N. J., *The Netherlands*  
 KOZLOV Michael M., *Israel*  
 LUINI Alberto, *Italy*  
 MALHOTRA Vivek, *USA*

### The virtual snapdragon – integrating genes and morphogenesis

COEN Enrico, *UK*  
 PRUSINKIEWICZ Przemyslaw, *Canada*

### Adaptation of the aminoacyl-tRNA synthetases for multiple biological functions

CUSACK Stephen A., *France*  
 LAMBOWITZ Alan M., *USA*  
 MARTINIS Susan A., *USA*  
 NUREKI Osamu, *Japan*

### Evolution of vulva development in nematodes related to *C. elegans* (family Rhabditidae)

FELIX Marie-Anne, *France*  
 FITCH David, *USA*  
 PODBILEWICZ Benjamin, *Israel*  
 SOMMER Ralf J., *Germany*

### Molecular basis of mRNA transport along microtubules

KIEBLER Michael, *Germany*  
 SCHNAPP Bruce, *USA*  
 ST. JOHNSTON Daniel, *UK*

### Functional organization of the cell nucleus investigated through proteomics and molecular dynamics

LAMOND Angus I., *UK*  
 ELLENBERG Jan, *Germany*  
 MANN Matthias, *Denmark*  
 PEDERSON Thoru, *USA*

### Mechanism of nitric oxide synthesis: a unique role for tetrahydrobiopterin in catalysis

MAYER Bernd, *Austria*  
 ANDERSSON K. Kristoffer, *Norway*  
 LANGE Reinhard, *France*  
 SHIMIZU Toru, *Japan*

### DNA replication origin recognition and its regulation in eukaryotes

MECHALI Marcel, *France*  
 DIFFLEY John F. X., *UK*  
 WAHL Geoffrey M., *USA*

### Functional and structural studies of SWI/SNF-related complexes

OWEN-HUGHES Thomas, *UK*  
 CAIRNS Bradley R., *USA*  
 HILL Christopher, *USA*  
 WERNER Michel, *France*  
 YANIV Moshe, *France*

### Role of proteolysis in MHC class II antigen presentation by dendritic cells

PETERS Christoph, *Germany*  
 PLOEGH Hidde, *USA*  
 VILLADANGOS Jose, *Australia*

### Protein evolution and functional genomics with a single-molecule sorter

PLÜCKTHUN Andreas, *Switzerland*  
 RIGLER Rudolf, *Sweden*

### The role of recombination intermediates and their resolution in genome stability

ROTHSTEIN Rodney, *USA*  
 ARCANGIOLI Benoît, *France*  
 IWASAKI Hiroshi, *Japan*

### Biology, chemistry and structure of the DNA repair complex ERCC1/XPF

SCHÄRER Orlando D., *Switzerland*  
 ELLENBERGER Thomas E., *USA*  
 HOEIJMAKERS Jan H. J., *The Netherlands*

### Antp superclass genes consortium: the origin of regulatory genes and major body plan innovations

SCHIERWATER Bernd, *Germany*  
 DELLAPORTA Stephen, *USA*  
 HOLLAND Peter W. H., *UK*

### Creation of novel genetic coding system by artificial evolution

SHIBA Kiyotaka, *Japan*  
 SUGA Hiroaki, *USA*  
 SZOSTAK Jack W., *USA*

### Growth regulation of ribosomal protein gene transcription in yeast

SHORE David Mark, *Switzerland*  
 DI MAURO Ernesto, *Italy*  
 MIZUTA Keiko, *Japan*  
 WARNER Jonathan R., *USA*

### Molecular mechanism of nucleocytoplasmic transport

SILVER Pamela A., *USA*  
 AEBI Ueli, *Switzerland*  
 CORBETT Anita H., *USA*  
 HURT Eduard C., *Germany*  
 STEWART Murray, *UK*  
 YONEDA Yoshihiro, *Japan*

### Structures of macromolecular assemblies and functions of molecular machines

STUART David I., *UK*  
 BAMFORD Dennis, *Finland*  
 BURNETT Roger, *USA*

### The role of hepatocyte nuclear factors in liver and pancreatic beta-cell function

TALIANIDIS Iannis, *Greece*  
 PONTOGLIO Marco, *France*  
 STOFFEL Markus, *USA*

### Mitochondrial calcium signalling; structural determinants and cellular consequences

THOMAS Andrew P., *USA*  
 PETERSEN Ole H., *UK*  
 RIZZUTO Rosario, *Italy*  
 RUTTER Guy A., *UK*

### Structural basis of active ion transport by P-type ATPase

TOYOSHIMA Chikashi, *Japan*  
 CHAMPEIL Philippe, *France*  
 INESI Giuseppe, *USA*

### Control of plant architecture by a new signaling pathway

WEIGEL Detlef, *USA*  
 BRADLEY Desmond J., *UK*  
 BRADY Robert Leo, *UK*  
 LIFSCHITZ Eliezer, *Israel*

### Chromatin assembly and acute human leukemia

WERNER Milton H., *USA*  
 ITO Yoshiaki, *Japan*  
 KRUDE Torsten, *UK*  
 SHIBAHARA Keiichi, *Japan*

### Mechanisms of fusion of biological membranes

WICKNER William T., *USA*  
 GALLWITZ Dieter, *Germany*  
 MAYER Andreas, *Germany*  
 NAKANO Akihiko, *Japan*

## Systematic molecular and genetic analysis of lens-retina interactions in vertebrates

WITTBRODT Joachim, *Germany*  
BOVOLENTA Paola, *Spain*  
HIMMELBAUER Heinz, *Germany*  
KONDOH Hisato, *Japan*

## Molecular mechanisms that control NK cell-mediated tumor surveillance

YAGITA Hideo, *Japan*  
SMYTH Mark, *Australia*

## Award year 2002

### Young Investigators

## Deciphering activity-dependent changes in neuronal circuits using novel imaging approaches

BITO Haruhiko, *Japan*  
EMPTAGE Nigel, *UK*  
SCHNITZER Mark, *USA*

## Revealing telencephalic evolution through comparative functional analysis of gene regulatory regions

BLADER Patrick, *(UK), France*  
BROWN Daniel, *(USA), Canada*  
JARVIS Erich, *USA*  
SCHUURMANS Carol, *Canada*

## Ribosome-associated chaperones in protein biogenesis: structural and functional insights

DEUERLING Elke, *Germany*  
BAN Nenad, *(Croatia), Switzerland*

## Functions of the RNA polymerase III transcription system in genome organization and dynamics

DIECI Giorgio, *Italy*  
DONZE David, *USA*  
KOBAYASHI Takehiko, *Japan*

## Molecular movements essential for ribosome function

FOURMY Dominique, *France*  
JOSEPH Simpson, *(India), USA*  
VISSCHER Koen, *(The Netherlands), USA*

## Regulation of solvent and antibiotic tolerance expression in Gram negative bacteria

GALLEGOS María-Trinidad, *Spain*  
WATANABE Kazuya, *Japan*  
ZHANG Xiaodong, *(China), UK*

## Elucidation of the molecular mechanisms underlying neuronal development

HSIEH-WILSON Linda, *USA*  
NISHI Akinori, *Japan*  
SEEBERGER Peter H., *(Germany) USA*

## Elucidating the role of aqueous environments in biological function with a nano-mechanical probe

JARVIS Suzanne, *(UK), Japan*  
MCKENDRY Rachel, *UK*  
OOSTERKAMP Tjerk, *The Netherlands*

## Controlling the onset of S-Phase: interactions at the heart of origin licensing

LYGEROU Zoi, *Greece*  
BASTIAENS Philippe I., *(The Netherlands), Germany*  
NISHITANI Hideo, *Japan*

## Interactions between areas of the visual cortex

ROELFSEMA Pieter, *The Netherlands*  
VAN VREESWIJK Cornelis, *(The Netherlands), France*  
VANDUFFEL Wim, *(Belgium), USA*

## How cytoskeletal dynamics mediate cell motility

WATERMAN-STORER Clare, *USA*  
DANUSER Gaudenz, *Switzerland*  
NÄTHKE Inke, *(Germany), UK*

## Program Grants

## Visualization of molecular events involved in endocytosis at the synapse

ALVAREZ DE TOLEDO Guillermo, *Spain*  
FERNÁNDEZ-CHACÓN Rafael, *Spain*  
KLINGAUFG Juergen, *Germany*  
LAGNADO Leon, *UK*

## An interdisciplinary approach to the problem of language and music specificity

BESSON Mireille, *France*  
ALTER Kai, *Germany*  
KOLINSKY Régine, *Belgium*  
PERETZ Isabelle, *Canada*

## Ligand-receptor interactions: modulation by glycosyltransferase activity

COHEN Stephen, *(Canada), Germany*  
CLAUSEN Henrik, *Denmark*  
CONTI Elena, *(ITALY), Germany*  
YASUTOMO Koji, *Japan*

## Impact of slow oscillations on cortical synaptic plasticity

CONTRERAS Diego, *(Spain), USA*  
DESTEXHE Alain, *(Belgium), France*  
SANCHEZ-VIVES Maria V., *Spain*

## Molecular mechanisms in endocytosis

DE CAMILLI Pietro, *(Italy), USA*  
BRODIN Lennart, *Sweden*  
DI FIORE Pier Paolo, *Italy*  
WENDLAND Beverly, *USA*

## The origin of oxygen on earth: the innovation and evolution of photosynthetic water oxidation

DISMUKES G. Charles, *USA*  
KLIMOV Vyacheslav V., *Russia*  
WYDRZYNSKI Thomas, *(USA), Australia*

## Functional imaging of receptors in living cells by 2-photon uncaging of signalling molecules

ELLIS-DAVIES Graham, *(UK), USA*  
BOOTMAN Martin, *UK*  
KASAI Haruo, *Japan*

## Spatiotemporal signal transduction dynamics in synaptic function and plasticity

FINE Alan, *Canada*  
MEYER Tobias, *(Switzerland), USA*  
MIYAWAKI Atsushi, *Japan*

## Interplay between DNA supercoiling and DNA-bending proteins in the regulation of gene expression

FINZI Laura, *Italy*  
ADHYA Sankar, *USA*  
NELSON Philip, *USA*

## The biophysics of noise and signal in visual cortex

GRAHAM Lyle J., *(USA), France*  
SEGEV Idan, *Israel*  
STORM Johan Frederick, *Norway*

## Specification and refinement of developing primary visual pathways

HENSCH Takao, *(USA), Japan*  
PROCHIANZ Alain, *France*  
RUIZ I ALTABA Ariel, *(Mexico), USA*

## Structural and functional analyses of the initiation mechanism of archaeal DNA replication

ISHINO Yoshizumi, *Japan*  
DIRUGGIERO Jocelyne, *(France), USA*  
FORTERRE Patrick, *France*  
HARADA Yoshie, *Japan*

### A biological and mathematical multiscale approach to left/right symmetry breaking in vertebrates

IZPISUA-BELMONTE Juan Carlos, *(Spain/USA), USA*  
DA FONTOURA COSTA Luciano, *Brazil*  
MÜLLER Gerd, *Austria*

### A multidisciplinary study of DNA non-homologous end-joining

JEGGO Penelope, *UK*  
TACCIOLI Guillermo, *USA*  
VINDIGNI Alessandro, *Italy*

### Genetic dissection of the neuronal circuits that control locomotion

KIEHN Ole, *(Denmark), Sweden*  
GLOVER Joel C. *(USA), Norway*  
GOULDING Martyn D., *(New Zealand), USA*  
PEARSON Keir G., *Canada*

### Functional analysis of immediate early genes in LTP and memory

MANSUY Isabelle, *(France), Switzerland*  
BLISS Timothy V. P., *UK*  
KUHL Dietmar, *Germany*  
LAROCHE Serge, *France*

### Regulation of protein traffic: large ARF-GEFs as integrating molecular scaffolds

MELANCON Paul, *Canada*  
CHERFILS Jacqueline, *France*  
JUERGENS Gerd, *Germany*

### Morphogenetic regulation of cell movement by e-cadherin cell surface dynamics

MONTELL Denise, *USA*  
KUSUMI Akihiro, *Japan*  
YAP Alpha, *Australia*

### Structural and functional studies of the yeast ribosome

NISSEN Poul, *Denmark*  
ANDERSEN Gregers C., *Denmark*  
GOLDMAN Yale E., *USA*  
KINZY Terri G., *USA*

### Study of transient and stable eukaryotic macromolecular complexes: implication for cell function

ROBINSON Carol, *UK*  
MUTO Yutaka, *Japan*  
NAGAI Kiyoshi, *(Japan), UK*  
SERAPHIN Bertrand, *France*

### Ecological diversity and adaptation of proteorhodopsins

SPUDICH John, *USA*  
BEJA Oded, *Israel*

### Structural and molecular mechanisms of cyclic nucleotide gated channels

TORRE Vincent, *Italy*  
KAUPP U. Benjamin, *Germany*  
SCHERTLER Gebhard, *(Austria), UK*

### Differential response to Type I interferons: a molecular model of a cytokine network

UZÉ Gilles, *France*  
PIEHLER Jacob, *Germany*  
SCHREIBER Gideon, *Israel*

### Synaptic signaling at the single molecule level

WAXHAM Neal, *USA*  
SCHWILLE Petra, *Germany*

### Plasticity and specificity in subsystems of language in the developing brain

WERKER Janet F., *Canada*  
MARCUS Gary F., *USA*  
MEHLER Jacques, *(France), Italy*  
NEVILLE Helen J., *(Canada), USA*  
SEBASTIÁN-GALLÉS Núria, *Spain*

### Molecular mechanisms underlying differential transcription by POU factors

WILMANNS Matthias, *Germany*  
MATTHIAS Patrick, *Switzerland*  
SCHÖLER Hans R., *(Canada), USA*

# Annex 6

## Long-Term Fellowships: Awardees paid during FY 2002

### 1. 1999 Fellows paid during FY 2002

Name	Nationality	Host institute	Host country
BASSI Gurminder	UK	University of North Carolina, Chapel Hill	USA
BRAUN Anne	France	Massachusetts Institute of Technology, Cambridge	USA
LENA Clément	France	Massachusetts Institute of Technology, Cambridge	USA
RUEGSEGGER Ursula	Switzerland	University of California, San Francisco	USA
VILLUNGER Andreas	Austria	The Walter and Eliza Hall Institute of Medical Research, Melbourne	Australia

### 2. 2000 Fellows paid during FY 2002

#### 2.1. Fellows who spent their third year in the same host institution

Name	Nationality	Host institute	Host country
AIHARA Hideki	Japan	Harvard Medical School, Boston	USA
AONO Shinya	Japan	Cornell University, Ithaca	USA
BEN-YEHUDA Sigal	Israel	Harvard University, Cambridge	USA
BERAUD-DUFOUR Sophie	France	The Scripps Research Institute, La Jolla	USA
BLAGDEN Christopher	UK	New York University Medical Center	USA
BLANCHETTE Marco	Canada	University of California, Berkeley	USA
BOLDIN Mark	Israel	California Institute of Technology, Pasadena	USA
BRADKE Frank	Germany	University of Stanford	USA
BRODERSEN Ditlev	Denmark	Medical Research Council, Cambridge	UK
BURDA Patricie	Switzerland	University of California, San Diego	USA
CARLYLE James	Canada	University of California, Berkeley	USA
CINGOLANI Gino	Italy	The Scripps Research Institute, La Jolla	USA
CIOSK Rafal	Poland	Fred Hutchinson Cancer Research Center, Seattle	USA
COFFINIER Catherine	France	University of California, Los Angeles	USA
COHEN Dana	Israel	Duke University Medical Center, Durham	USA
CORONA Davide	Italy	University of California, Santa Cruz	USA
CORSON Laura	USA	Mount Sinai Hospital, Toronto	Canada
CUBIZOLLES Fabien	France	University of Geneva	Switzerland
DE GREGORIO Ennio	Italy	CNRS, Gif-sur-Yvette	France
DORRIS Michael	Canada	New York University	USA
EDEN Sharon	Israel	Harvard Medical School, Boston	USA
EGILE Coumaran	France	Harvard Medical School, Boston	USA
EIZINGER Andreas	Austria	Stanford University	USA
FIORILLO Christopher	USA	University of Cambridge	UK
FISAHN André	Germany	NICHD/NIH, Bethesda	USA
FITZGERALD Daniel	USA	ETH - Hoenggerberg, Zurich	Switzerland
FLORESCO Stan	Canada	University of Pittsburgh	USA
FRIEDLER Assaf	Israel	Medical Research Council, Cambridge	UK
GANESH Chandramowli	India	University of California, Berkeley	USA
GAREL Sonia	France	University of California, San Francisco	USA
GEISSMANN Frédéric	France	New York University Medical Center	USA
GILBOA Lilach	Israel	New York University Medical Center	USA
GOMEZ VICENTEFRANQUEIRA Maria	Spain	Hammersmith Hospital, London	UK



Name	Nationality	Host institute	Host country
GU Feng	China	McGill University, Montreal	Canada
GUARNE Alba	Spain	NIDDK/NIH, Bethesda	USA
HEMBERGER Myriam	Germany	University of Calgary	Canada
HETTEMA Ewald	The Netherlands	MRC Laboratory of Molecular Biology, Cambridge	UK
HIROSE Tetsuro	Japan	Yale University, New Haven	USA
HIROTA Junji	Japan	The Rockefeller University, New York	USA
HOHWY Morten	Denmark	ETH, Zürich	Switzerland
HOLMSTROM Tim	Finland	Max-Planck-Institute for Biochemistry, Martinsried	Germany
HONDA Hiroaki	Japan	Princeton University	USA
HOSOYA Toshihiko	Japan	Harvard University, Cambridge	USA
IHARA Kentaro	Japan	University of Texas Southwestern Medical Center, Dallas	USA
INOUE Takayoshi	Japan	Stowers Institute for Medical Research, Kansas City	USA
JABADO Nada	France	McGill University, Montreal	Canada
KARTEN Yashmin	The Netherlands	University of Arizona, Tucson	USA
KAWAUCHI Shimako	Japan	University of California, Irvine	USA
KEMPF Hervé	France	Harvard Medical School, Boston	USA
KEREN Nir	Israel	Washington University, St. Louis	USA
KLEIN Ulf	Germany	Columbia University, New York	USA
KOBOR Michael	Germany	University of California, Berkeley	USA
KOHLER Claudia	Germany	Friedrich Miescher Institute, Basel	Switzerland
KORTEMME Tanja	Germany	University of Washington, Seattle	USA
LABRADOR Juan Pablo	Spain	University of California, Berkeley	USA
LE CAM Laurent	France	Dana-Farber Cancer Institute, Boston	USA
LEE Marcus	Australia	University of California, Berkeley	USA
LEONHARDT Nathalie	France	University of California, San Diego	USA
LERCHNER Walter	Austria	California Institute of Technology, Pasadena	USA
MAK Ho Yi	China	Massachusetts General Hospital, Boston	USA
MARTINHO Rui	Portugal	New York University Medical School	USA
MERENDINO Livia	Italy	University of Geneva	Switzerland
MODIS Yorgo	Greece/Switzerland/USA	Harvard University, Cambridge	USA
NAITO Taku	Japan	Massachusetts General Hospital, Charlestown	USA
NAKAGAWA Terunaga	Japan	Massachusetts Institute of Technology, Cambridge	USA
NIESSING Dierk	Germany	The Rockefeller University, New York	USA
NOGUCHI Eishi	Japan	The Scripps Research Institute, La Jolla	USA
OHBA Tomoyuki	Japan	The Scripps Research Institute, La Jolla	USA
OKUNO Hiroyuki	Japan	The Johns Hopkins University School of Medicine, Baltimore	USA
ORIAN Amir	Israel	Fred Hutchinson Cancer Research Center, Seattle	USA
PANSE Vikram	India	Ruprecht-Karls-Universität, Heidelberg	Germany
PASTERKAMP R. Jeroen	The Netherlands	The Johns Hopkins University School of Medicine, Baltimore	USA
PAZ Keren	Israel	Memorial Sloan-Kettering Cancer Center, New York	USA
POMERANZ KRUMMEL Daniel	USA	MRC Laboratory of Molecular Biology, Cambridge	UK
PROTOZANOVA Ekaterina	Canada	Boston University	USA
REISER Vladimir	Slovak Republic	Dana-Farber Cancer Institute, Boston	USA
RUGGIU Matteo	Italy	The Rockefeller University, New York	USA
RYU Soojin	Republic of Korea	University of Freiburg	Germany
SAKISAKA Toshiaki	Japan	The Scripps Research Institute, La Jolla	USA
SATTLER Rita	Germany	The Johns Hopkins University School of Medicine, Baltimore	USA
SCHAEFFER Valérie	France	University of Washington, Seattle	USA
SCHAUB Myriam	France	Biocenter/University of Basel	Switzerland
SCHOCK Frieder	Germany	Harvard Medical School, Boston	USA
SHIM Jaekyung	Republic of Korea	University of California, San Diego	USA
SPAFFORD J. David	Canada	Free University of Amsterdam	The Netherlands
SPASSKY Nathalie	France	University of San Francisco	USA
SPORLE Ralf	Germany	Institut Pasteur, Paris	France
SRINIVAS Shankar	India	National Institute for Medical Research, London	UK
STEIN Jens	Germany	Universidad Autonoma de Madrid	Spain
STRIDE Brenda	Canada	German Cancer Research Center, Heidelberg	Germany
TEIXEIRA FERNANDES Maria Teresa	Portugal	ISREC, Epalinges	Switzerland
TEN BERGE Derk	The Netherlands	Stanford University	USA
TOMER Guy	Israel	Oregon Health Sciences University, Portland	USA
UKA Takanori	Japan	Washington University School of Medicine, St. Louis	USA
VAN THOR Jasper	The Netherlands	University of Oxford	UK
VANZO Nathalie	France	EMBL, Heidelberg	Germany
VERHEIJEN Mark	The Netherlands	The Salk Institute for Biological Studies, La Jolla	USA
VINCENT Stéphane André	France	Harvard Medical School, Boston	USA
VINCENT Stéphane David	France	Harvard University, Cambridge USA	USA
YARON Avraham	Israel	Stanford University	USA
ZEITLINGER Julia	Germany	MIT, Cambridge	USA

## Annex 6

### 2.2. Fellows who repatriated to their home country in their third year

Name	Nationality	Host institute	Host country
BERZINS Stuart	Australia	Monash University, Prahran	Australia
BLERY Mathieu	France	Centre d'Immunologie Marseille-Luminy	France
BONIZZI Giuseppina	Italy	European Institute of Oncology, Milano	Italy
CLAYTON Andrew	Australia	Ludwig Institute for Cancer Research, Melbourne	Australia
DAVENNE Marc	France	Institut Pasteur, Paris	France
GONZALEZ Susana	Spain	Spanish National Center of Biotechnology, Madrid	Spain
KITZMANN Magali	France	CNRS, Montpellier	France
LOHMANN Jan	Germany	Max-Planck-Institute for Developmental Biology, Tübingen	Germany
MANN Fanny	France	IBDM, Marseille	France
MASER Pascal	Switzerland	University of Bern	Switzerland
MENKE Franciscus	The Netherlands	Utrecht University	The Netherlands
MORSOMME Pierre	Belgium	Université Catholique de Louvain	Belgium
PERRAIS David	France	Université Bordeaux 2	France
SCORRANO Luca	Italy	Venetian Institute for Molecular Medicine, Padova	Italy
STEMMANN Olaf	Germany	Max-Planck-Institute of Biochemistry, Martinsried	Germany
TILLOY Florence	France	Institut Curie, Paris	France
TSUNENARI Takashi	Japan	Keio University, Tokyo	Japan
ZHANG Xiao-Hui	China	Chinese Academy of Sciences, Shanghai	China

### 3. 2001 Fellows paid during FY 2002

Name	Nationality	Host institute	Host country
BEAULIEU Martin	Canada	Duke University, Durham	USA
BLAGOVESHCHENSKAYA Anastasiya	Russia	Oregon Health Sciences University, Portland	USA
BOISBOUVIER Jérôme	France	NIDDK/NIH, Bethesda	USA
BORRELL Victor	Spain	The Salk Institute for Biological Studies, La Jolla	USA
BRAND Marjorie	France	Fred Hutchinson Cancer Research Center, Seattle	USA
BRUCKNER Katja	Germany	Harvard Medical School, Boston	USA
BUREAU Ingrid	France	Cold Spring Harbor Laboratory	USA
CANO-DELGADO Ana	Spain	The Salk Institute for Biological Studies, La Jolla	USA
CHARRON Frederic	Canada	University of Stanford	USA
CHEN Taiping	Canada	Massachusetts General Hospital, Charlestown	USA
CIRUNA Brian	Canada	New York University School of Medicine	USA
CORNEIL Brian	Canada	California Institute of Technology, Pasadena	USA
CUVIER Olivier	France	Cold Spring Harbor Laboratory	USA
DAVY Alice	France	Fred Hutchinson Cancer Research Center, Seattle	USA
DERRE Isabelle	France	Tufts University School of Medicine, Boston	USA
DURRANT Wendy	UK	Duke University, Durham	USA
ECHARD Arnaud	France	University of California, San Francisco	USA
EL NEMER Wassim	Lebanon	University of California, San Francisco	USA
FERGUSON Andrew D.	Canada	University of Texas Southwestern Medical Center, Dallas	USA
FORESTIER Claire-Lise	France	Albert Einstein College of Medicine, Bronx	USA
FREI Christian	Switzerland	Fred Hutchinson Cancer Research Center, Seattle	USA
FRISCHKNECHT Friedrich	Germany	Institut Pasteur, Paris	France
GARDIOL Alejandra	Italy	University of Cambridge	UK
GAUTREAU Alexis	France	Harvard Medical School, Boston	USA
GERBER André	Switzerland	Stanford University	USA
GIL Jesus	Spain	University College London	UK
GIUGLIANO Michele	Italy	University of Bern	Switzerland
GORBUNOVA Vera	Israel	Baylor College of Medicine, Houston	USA
GOTTSCHALK Alexander	Germany	University of California, La Jolla	USA
GRIBNAU Joost	The Netherlands	Whitehead Institute for Biomedical Research, Cambridge	USA
HALL Anita	UK	Karolinska Institute, Stockholm	Sweden
JANSSEN Peter	Belgium	University of Washington Medical School, Seattle	USA
JOVINE Luca	Italy	Mount Sinai School of Medicine, New York	USA
KARPUJ Marcela	Israel	University of California, San Francisco	USA
Kim Do-Hyung	Republic of Korea	Whitehead Institute for Biomedical Research, Cambridge	USA
KOBAYASHI Katsunori	Japan	University of California, Berkeley	USA
KREKELBERG Bart	The Netherlands	The Salk Institute for Biological Studies, La Jolla	USA
LANUZA Guillermo	Argentina	The Salk Institute for Biological Studies, La Jolla	USA
LAUVAU Grégoire	France	Sloan-Kettering Institute for Cancer Research, New York	USA
LE GOOD Jessie Ann	UK	ISREC, Epalinges	Switzerland
LEE Soo-Kyung	Republic of Korea	The Salk Institute, La Jolla	USA
LI Su	China	MRC Laboratory of Molecular Biology, Cambridge	UK
LIEBERAM Ivo	Germany	Columbia University, New York	USA

LUSCHNIG Stefan	Germany	Stanford University School of Medicine	USA
MA Li-Geng	China	Yale University, New Haven	USA
MARJAAARA Sanna K.	Finland	Cornell University, Ithaca	USA
MARTY Thomas	Switzerland	New York University Medical School	USA
MATSUMOTO Gen	Japan	Northwestern University, Evanston	USA
MAY Robin C.	UK	University of Utrecht	The Netherlands
MEDENDORP Wijbrand Pieter	The Netherlands	York University, Toronto	Canada
MELLITZER Georg	Austria	INSERM, Strasbourg	France
MIEDA Michihiro	Japan	University of Texas Southwestern Medical Center, Dallas	USA
MILKEREIT Philipp E.	Germany	Université Paul Sabatier, Toulouse	France
MORITA Yasuhiro	Japan	University of Melbourne, Parkville	Australia
MOSTOSLAVSKY Raul	Argentina/Israel	Children's Hospital, Boston	USA
NA Soon-Young	Republic of Korea	Massachusetts General Hospital, Boston	USA
NAGAR Bhushan	Canada	University of California, Berkeley	USA
NERN Aljoscha	Germany	University of California, Los Angeles	USA
NIEDER Andreas	Germany	Massachusetts Institute of Technology, Cambridge	USA
NISHIMURA Hiroyuki	Japan	Harvard University, Cambridge	USA
NOTON Elizabeth A.	UK	Massachusetts General Hospital, Boston	USA
NUSSBAUM Alexander	Germany	The Scripps Research Institute, La Jolla	USA
OGASAWARA Koetsu	Japan	University of California, San Francisco	USA
OTOMO Takanori	Japan	University of Texas Southwestern Medical Center, Dallas	USA
PALATNIK Javier	Argentina	MPI for Developmental Biology, Tübingen	Germany
PATTON E. Elizabeth	Canada	Children's Hospital, Boston	USA
PRALLE Arnd	Germany	University of California, Berkeley	USA
ROEPER Katja	Germany	University of Cambridge	UK
SAKAI Katsuyuki	Japan	Institute of Neurology, London	UK
SCHNEIDER Robert	Germany	University of Cambridge	UK
SEIMI Fekrije	France	Rockefeller University, New York	USA
SRAYKO Martin	Canada	Max Planck Institute of Molecular Cell Biology and Genetics, Heidelberg	Germany
SULLIVAN James A.	UK	Yale University, New Haven	USA
SUTANI Takashi	Japan	Harvard Medical School, Boston	USA
TOMOYASU Yoshinori	Japan	Kansas State University, Manhattan	USA
TUGARINOV Vitali	Israel	University of Toronto	Canada
VERKADE Heather	Australia	University of California, San Francisco	USA
VERSELE Matthias	Belgium	University of California, Berkeley	USA
VOICULESCU Octavian	Romania	University College London	UK
WATANABE Reika	Japan	University of Geneva	Switzerland

#### 4. 2002 Fellows paid during FY 2002

Name	Nationality	Host institute	Host country
AGRAWAL Alka	USA	Institut Pasteur, Paris	France
ANGO Fabrice	France	Cold Spring Harbor Laboratory	USA
ASHKENASY Gonen	Israel	The Scripps Research Institute, La Jolla	USA
ATWAL Jasvinder	Canada	Stanford University	USA
BARRAL José	Mexico	Max-Planck-Institute for Biochemistry, Martinsried	Germany
BEIS Dimitris	Greece	University of California, San Francisco	USA
BORELLO Ugo	Italy	University of California, San Francisco	USA
CARAZO-SALAS Rafael Edgardo	Costa Rica	Imperial Cancer Research Fund, London	UK
CARRENO Sébastien	France	University of California, Berkeley	USA
CAVODEASSI Florencia	Spain	University College London	UK
CHAN Ho Man	UK	Dana-Farber Cancer Institute, Boston	USA
COSSART Rosa	France	Columbia University, New York	USA
DE SAINT JAN Didier	France	Oregon Health Sciences University, Portland	USA
DENEFF Natalie	Belgium	Princeton University USA	USA
DIJKERS Pascale	The Netherlands	University of California, San Francisco	USA
EGAWA Takeshi	Japan	Skirball Institute of Biomolecular Medicine, New York	USA
ESASHI Fumiko	Japan	Imperial Cancer Research Fund, Herts	UK
FALCIATORE Angela	Italy	University of Geneva	Switzerland
FARRAS Rosa	Spain	CNRS, Montpellier	France
FARRE Eva	Spain	The Scripps Research Institute, La Jolla	USA
FLEISCHMANN Alexander	Austria	Columbia University, New York	USA
FREIRE DE LIMA Célio Geraldo	Brazil	National Jewish Medical and Research Center, Denver	USA
FUJII Yoshifumi	Japan	Yale University, New Haven	USA
GERETY Sebastian	France/USA	NIMR, London	UK
GON Stéphanie	France	Harvard Medical School, Boston	USA
GOROSTIZA Pau	Spain	University of California, Berkeley	USA

## Annex 6

Name	Nationality	Host institute	Host country
GRAVEL Serge	Canada	Wellcome/CRC Institute, Cambridge	UK
GROSSHANS Helge	Germany	Yale University, New Haven	USA
GUASCH Géraldine	France	The Rockefeller University, New York	USA
HARVEY Kieran	Australia	Massachusetts General Hospital, Charlestown	USA
HENRAS Anthony	France	University of California, Los Angeles	USA
HEUN Patrick	Germany	The Salk Institute for Biological Studies, La Jolla	USA
HIROTA-NAKAOKA Nami	Japan	University of Cambridge	UK
HOFMANN Thomas	Germany	The Johns Hopkins University, Baltimore	USA
HOLMBERG Carina	Finland	Northwestern University, Evanston	USA
HOSHI Eiji	Japan	University of Pittsburgh	USA
IJIMA Kanae	Japan	Cold Spring Harbor Laboratory	USA
ISHII Tomohiro	Japan	The Rockefeller University, New York	USA
KATOH Akira	Japan	Stanford University	USA
KLIER Eliana	Canada	Washington University, St. Louis	USA
KOLB Fabrice	France	Friedrich-Miescher-Institute, Basel	Switzerland
KOMORI Hirofumi	Japan	Stanford University	USA
KRISTJANSSON Arni	Iceland	University College London	UK
KURODA Kumi	Japan	McGill University, Montreal	Canada
LALIOTI Maria	Greece	Yale University, New Haven	USA
LARSEN Delmar	USA	Free University, Amsterdam	The Netherlands
LILLEMEIER Björn	Germany	Stanford University	USA
LONDON Michael	Israel	University College London	UK
LOPES Massimo	Italy	ETH, Zurich	Switzerland
MALLIK Roop	India	University of California, Irvine	USA
MARTINEZ-PEREZ Enrique	Spain	Stanford University	USA
MATSUNAGA Eiji	Japan	Université Paris 6	France
MATSUOKA Toshiyuki	Japan	University College London	UK
MEILER Jens	Germany	University of Washington, Seattle	USA
MIZRAHI Adi	Israel	Duke University Medical Center, Durham	USA
MOREL Véronique	France	University of Cambridge	UK
MORILLON Antonin	France	University of Oxford	UK
NEWSOME Timothy P.	Australia	Imperial Cancer Research Fund, London	UK
NGUYEN Minh Dang	Canada	Harvard Medical School, Boston	USA
OKAJIMA Tetsuya	Japan	Rutgers University, Piscataway	USA
OKUDA Takashi	Japan	University College London	UK
PARK Jin Mo	Republic of Korea	University of California, La Jolla	USA
PASCUAL-AHUIR GINER Amparo	Spain	Massachusetts General Hospital, Boston	USA
PETER Marion	France	King's College London	UK
PIEL Matthieu	France	Harvard University, Cambridge	USA
POZNIAK Christine	Canada	University of California, San Francisco	USA
RAMIREZ AMAYA Victor	Mexico	University of Arizona, Tucson	USA
ROKAS Antonis	Greece	University of Wisconsin, Madison	SA
ROUACH Nathalie	France	University of California, San Francisco	USA
RUBIO Vicente	Spain	Yale University, New Haven	USA
SANDERS Steven L.	USA	Wellcome/CRC Institute, Cambridge	UK
SCHEUSS Volker	Germany	Cold Spring Harbor Laboratory	USA
SCHRATT Gerhard	Germany	Children's Hospital, Boston	USA
SCHROEDER Björn	Germany	University of California, San Francisco	USA
SCHULDINER Maya	Israel	University of California, San Francisco	USA
SLOTBOOM Dirk J.	The Netherlands	MRC, Cambridge	UK
SOEN Yoav	Israel	Stanford University	USA
STEFL Richard	Czech Republic	ETH, Zurich	Switzerland
TAKEUCHI Osamu	Japan	Dana-Farber Cancer Institute, Boston	USA
TANIMOTO Hiromu	Japan	Universität Würzburg	Germany
THOMÄ Nicolas	Germany	Memorial Sloan-Kettering Cancer Center, New York	USA
TONI Nicolas	Italy/Switzerland	The Salk Institute for Biological Studies, La Jolla	USA
TOTH Attila	Hungary	University of Cambridge	UK
TYEDMERS Jens	Germany	MIT, Cambridge	USA
ULMER Tobias	Germany	NIDDK/NIH, Bethesda	USA
VAN OIJEN Antoine	The Netherlands	Harvard University, Cambridge	USA
VARDY Leah	UK	Massachusetts Institute of Technology, Cambridge	USA
VAZQUEZ SENTIS Eugenio	Spain	Massachusetts Institute of Technology, Cambridge	USA
VEENHOFF Liesbeth	The Netherlands	The Rockefeller University, New York	USA
YOSHIDA Yutaka	Japan	Columbia University, New York	USA
YVERT Gael	France	Fred Hutchinson Cancer Research Center, Seattle	USA
ZECHEL David	Canada	Universität Zürich	Switzerland
ZUGARO Michaël	France	Rutgers University, Newark	USA

# Annex 7

## Short-Term Fellowships: Awardees paid during FY 2002

Name	Nationality	Host institute	Host country
ANTONY Claude	France	ICRF, London	UK
BISOGNO Tiziana	Italy	King's College London	UK
BUCHANAN Tony	USA	Institute of Neurology, London	UK
CALDEIRA Sandra	Portugal	Stanford University Medical Center	USA
CALES Carmela	Spain	Research Institute for Microbial Diseases, Osaka	Japan
CRANDALL Craig G.	USA	Rigshospitalet, Copenhagen	Denmark
DI BERNARDO Diego	Italy	Boston University	USA
DI CARO Simona	Italy	University of Pittsburgh	USA
FAIRHALL Adrienne	USA	SISSA, Trieste	Italy
GIRELLI Massimo	Italy	University of California, San Diego	USA
GUYADER Mireille	France	The Scripps Research Institute, La Jolla	USA
KORKOTIAN Eduard	Israel	Otto von Guericke University, Magdeburg	Germany
KOVALCHUK Igor	Ukraine	Friedrich Miescher Institute, Basel	Switzerland
KRON Michael A.	USA	EMBL, Grenoble	France
LAROCHELLE Stéphane	Canada	IGBMC, Illkirch	France
LE RAY Didier	France	Instituto Cajal/CSIC, Madrid	Spain
MARKOVITCH Daniel	Australia	Case Western Reserve University, Cleveland	USA
MAZZINI Stefania	Italy	NIMR, London	UK
MENEZES DE LA PRIDA Liset	Spain	Université Paris V	France
ONYIDO Ikenna	Nigeria	Utah State University, Logan	USA
RECIO Alberto	Mexico	University of Leuven	Belgium
ROBINSON Simon D.	UK	University of Vienna	Austria
RODRIGUEZ-MORENO	Antonio	Spain University College London	UK
ROSENTHAL Joshua	USA	Medical Research Council, Edinburgh	UK
SCHEPENS Bénédicte	Belgium	University of Montreal	Canada
TOOMEY Deirdre	Ireland	University of Connecticut, Farmington	USA
VALLON Olivier	France	Carnegie Institute of Washington, Stanford	USA
VISHNOI Gargi	India	Université de Picardie Jules Verne, Amiens	France
VISWESWARIAH Sandhya	India	University of California, Berkeley	USA
YOUSSEF Farid	Egypt/UK	University of Dundee	UK



# Annex 8

## Annual Awardees Meeting and Workshops

### Second Annual Awardees Meeting

Ottawa, 9-12 June 2002

#### Programme

##### Sunday June 9<sup>th</sup>

15:00-19:00 Registration

18:30-20:30 Reception and Dinner

##### Monday June 10<sup>th</sup>

- 8:45-9:00 **Opening remarks – Torsten Wiesel,**  
*HFSP Secretary General*  
**Welcoming address – Arthur Carty,**  
*President, National Research Council Canada*
- 9:00 **Molecular analysis of the segmentation clock in vertebrates and invertebrates**  
*Pourquié, O., Ish-Horowitz D., Niehrs, C., Patel, N.*
- 9:20 **Four dimensional receptor tyrosine kinase signaling during mouse development**  
*Corson, L.B., and Rossant, J.*
- 9:40 **Protein tyrosine phosphatase 1B as a negative regulator of growth hormone signaling by controlling JAK2 dephosphorylation**  
*Gu, F., Dubé, N., Boisclair, Y.R., Tremblay, M.L.*
- 10:00 **Developmental origins of hematopoietic stem cells**  
*Dzierzak, E., Orelio, C., de Bruijn, M., Ma, X., Robin, C., Peeters, M., Oostendorp, O., Patient, R., Hara, T., Keller, G., Charbord, P. and Peault, B.*
- 10:20 **Developmental biology of color polymorphisms in butterfly wing patterns**  
*Cieslak, A., Collins, S., Heckel, D.G., Nijhout, H.F., Sekimura, T., Vane-Wright, R.I., Vogler, A.P.*
- 10:50 **Coffee**

- 11:10 **Molecular misreading and cellular quality control in Alzheimer's disease**  
*Hol, E.M., Nair S.M., de Vrij, F.M.S., Jäck, H.-M., Roelofs, R.F., Sluijs, J.A., Racchi, M., Verhaagen, J. and van Leeuwen, F.W.*
- 11:30 **Early transcription regulation of Drosophila primordial germ cells**  
*Martinho, R.G., Kunwar, P., Lehmann, R.*
- 11:50 **Direct DNA targets and Chromatin profiling for the Drosophila dMyc transcriptional network using tethered Dam methyltransferase (Dam-ID)**  
*Orian, A., Van Steensel, B., Loo, L., Henikoff, L., Delrow, J., Parkhurst, S.M., and Eisenman, R.N.*
- 12:10 **Novel small RNA-encoding genes in the intergenic regions of Escherichia coli**  
*Wagner, E.G.H., Altuvia, S., Margalit, H., Argaman, L., Hershberg, R., Vogel, J. and Bejerano, G.*
- 12:30-13:30 **Lunch**
- 14:00-16:00 **Poster session**
- 16:00-18:00 **Chalkboard sessions:**
- **Developmental Genetics** (Chair: Paul Lasko)
  - **Structural Biology** (Chair: Emil Pai)
  - **Cellular and Molecular Neuroscience** (Chair: Gill Bates)
  - **Gene Expression and Regulation** (Chair: Gerhart Wagner)
- 18:00 **Plenary Lecture**  
**Ion Channels – Lecturer: Rod MacKinnon**

**Tuesday June 11<sup>th</sup>**

- 9:00 **Understanding corticogenesis through the analysis of genes involved in neuronal migration disorders**  
*Chelly, J., Francis, F., Friocourt, G., Orly Reiner, O., McConnell, S.K., Schaar, B.S.*
- 9:20 **Design and testing of rational therapeutic approaches for Huntington's disease**  
*Bates, G.P., Apostol, B.L., Bodai, L., Dröge, A., Engelman, S., Göhler, H., Hockly, E., Kazantsev, A., Mahal, A. Pallos, J., Slepko, N., Smith, D., Steffan, J.S., Woodman, B., Housman, D., Marsh, J.L., Davies, S.W., Wanker, E. E. and Thompson, L. M.*
- 9:40 **Reconstitution of the spliceosome's U1 snRNP from all recombinant subunits: dissection of interacting subunits and study of their provisional stability by electrospray Q-tof mass-spectrometry**  
*Pomeranz Krummel, D.A., Hernández, H., Muto, Y., Robinson, C.V., and Nagai, K.*
- 10:00 **The Nova-2 paraneoplastic neurologic disease antigen is necessary for survival in the mouse and regulates RNA splicing in neurons.**  
*Ruggiu, M., Zhong, R, and Darnell, R.B.*
- 10:20 **Study of the function of nuclear receptors in the mouse through conditional somatic mutagenesis**  
*Desvergne, B., Metzger, D., Chambon, P., Samarut, J., Kato, S., Ichinose, H., Wahli, W.*
- 10:50 **Coffee**
- 11:10 **Heparan -proteoglycan dependent axon branching induced by the Kallmann syndrome gene kal-1**  
*Buelow, H., Berry, K., Soussi-Yanicostas, N., Hardelin, J.P., Topper, L., Peles, E., Petit, C. and Hobert, O.*
- 11:30 **Prediction and design of protein protein interactions**  
*Kortemme, T., Baker, D.*
- 11:50 **A distinct pathway remodels mitochondrial cristae and mobilizes cytochrome C during apoptosis**  
*Scorrano, L., Ashiya, M., Buttle, K., Weiler, S., Oakes, S.A., Mannella, C.A., and Korsmeyer, S.J.*
- 12:10 **Importation of RNA into mitochondria: mechanisms and biomedical significance**  
*Tarassov, I., Entelis, N., O., Rubio, M.A.T, Kolesnikova, Kaneko, T., Kapushoc, S.T., Watanabe; Pesant, G., K., Steinberg, S., Aphasizhev, R., Martin, R., Suzuki, T., Alfonzo, J.A., Simpson, L.*
- 12:30 **Lunch and free afternoon**
- 18:30 **Reception/Dinner at the Canadian Museum of Civilization**  
**Tom Brzustowski**, *President, Natural Sciences and Engineering Research Council of Canada (NSERC)*  
**Alan Bernstein**, *President, Canadian Institutes of Health Research*

**Wednesday June 12<sup>th</sup>**

- 9:00 **Language and the Infant Brain**  
*Kuhl, P.K*
- 9:20 **Targets of homeobox genes in the nematode *C.elegans***  
*Eizinger, A., and Kim, S.K.*
- 9:40 **Replication and protection of chromosome ends**  
*Cooper, J.P., Cech, T.R., Hiraoka, Y., Lingner, J.*
- 10:00 **Establishment of asymmetric division in *B. subtilis***  
*Ben-Yehuda, S., and Losick, R.*
- 10:20 **Internal models for multiple tasks in sensorimotor controls**  
*Kalaska, J., Wolpert, D., Lemon, R., Kawato, M., Kitazawa, S., Flanagan, R.*
- 10:50 **Coffee**
- 11:10 **A WAVE1-complex mediates actin nucleation by Rac1 and NCK**  
*Eden, S., Rohatgi, R., Podtelejnikov, A.V., Mann, M. and Kirschner, M.*
- 11:30 **Cell movements during gastrulation are dependent on the ARID gene, *dril*.**  
*Callery, E.M., and Thomsen, G.H.*
- 11:50 **Regulation of developmental gene expression by chromatin-mediated mechanisms.**  
*Rupp, R.A.W., Wolffe, A.P., Otte, A.P.*
- 12:10 **Transcription-Associated Recombination (TAR)**  
*Wahls, W.P., Aguilera, A., and Ohta, K.*
- 12:30-13:30 **Lunch**
- 14:00-16:00 **Poster session**
- 16:00-18:00 **Chalkboard sessions:**
- **Developmental Cell Biology** (Chair: Janet Rossant)
  - **Systems and Cognitive Neuroscience** (Chair: John Kalaska)
  - **Cell Signalling** (Chair: Tim Hunt)
  - **Chromosomes** (Chair: Ralf Rupp)
- 18:00 **Plenary Lecture**  
**Protein synthesis, proteolysis, and the control of cell cycle transitions**  
**Tim Hunt**
- 19:00 **Farewell reception**

### Working Meeting on International Training and Support of Young Investigators in the Natural Sciences

Strasbourg, November 29-30, 2001

Recruitment and retention of young people into scientific careers are concerns of increasing importance in many countries. Changing demographics and decreasing enrolments in scientific programs portend a shortage in the numbers of scientists over the coming decades in many countries, while the current narrow perception of careers in science does little to attract individuals into research careers. In addition, the extraordinary changes that have occurred in the life sciences over the past decades require new approaches to training of young scientists. Fast-moving fields such as genomics and proteomics require a new kind of scientist trained to work in highly interdisciplinary, team-oriented, problem-based rather than individual, discipline-based approaches to research. The technology-driven society, in which laboratory findings are now rapidly translated to the public domain, requires that the general population have a greater appreciation for the process of science in order to better weigh the costs and benefits of these advances. At the same time, the increased international mobility of scientists leads to concerns with the brain drain, as increasing numbers of young scientists, especially those from developing countries, are not always able to find the same opportunities for independent and innovative research in their home countries. Closely related to this is the need to build strong basic and applied sciences in all parts of the world to take advantage of local talent and prepare all countries to be ready for true participation in the global economy.

In order to address these issues the HFPS and the European Science Foundation organized a working meeting on "International Training and Support of Young Investigators in The Natural Sciences" that brought together Heads of Research Funding Agencies, from Europe, North America, and Japan. The meeting focused on four primary areas:

- Attracting students into science,
- Training of young scientists at university and postdoctoral levels
- Developing mechanisms to support the transition to independence and retention of the brightest young scientists
- Ensuring a healthy circulation of scientifically trained professions both within professional sectors and geographically.

The comparison of national experiences in the promotion of scientific careers clearly illustrated the need for concerted action to develop new approaches to supporting development of scientific careers. The most important outcome of the meeting was the development of a new model of the scientific pipeline that emphasized multiple valid outcomes of scientific training. Secondly, the participants recognized as the primary supporters of science in most countries, funding agencies are in a unique position to facilitate changes in the culture of research training and support. They developed a list of recommendations to catalyze changes the structure of national science programs, in partnerships with ministries of educations, research institutions, and the private sector.

# Annex 9

## PR activities in FY 2002

### Web-site

The HFSP web site (<http://www.hfsp.org>) now has a new, cleaner design. Extensive technical changes have been made to enable us to enrich the scientific content of the site. HFSP awardees can now access their section of the site more easily by defining their own user name and password.

The Japan Science Foundation presented information on HFSP in Japanese on its own site (<http://jhfsp.jsf.or.jp>).

According to the internet search engine, Google, more than 1500 web pages in web sites around the world link to the HFSP home page. These are mostly sites dedicated to summarizing funding opportunities (e.g. GrantsNet, BioMedNet), academic institutions (especially pages summarizing funding opportunities) and other funding agencies. In particular, efforts are continuing to link with the web pages of academic societies outside the biological sciences so as to inform scientists in other disciplines of the opportunities offered by HFSP.

An occasional electronic newsletter is sent out to around 6200 subscribers to inform them about HFSP activities and point to new information on the web site.

### Scientific and science policy meetings

Secretary General and science directors attended the following scientific and science policy meetings, and publicized the Program.

#### 2002

- Institute of Physics meeting of members of international physical societies, Brighton, April 7-8
- Seminar on Biotech-IT interface, Stockholm, April 24
- ELSO 2<sup>nd</sup> Annual Conference, Nice, July 2
- Federation of European Neuroscience Societies meeting, Paris, July 13-17
- Keio University International Symposia for Life Sciences and Medicine: The Neural Basis of Early Vision, Tokyo, September 1-4
- Symposium in Shanghai and Meetings with Chinese Ministers in Beijing, September. 5
- EMBO meeting on Careers in the Life Sciences, September 11-13
- American Physical Society, Boston, September 27-29: Opportunities for physicists in biology.
- Society for Neuroscience meeting, Orlando, November 2-7,
- Euroconference "Novel Strategies of Mucosal Immunisation through Exploitation of Mechanisms of Innate Immunity in Pathogen-Host Interaction", Siena, Italy, November 6-10,
- Meeting on "New Science and Technology Based Professions in Europe" organized by Euroscience, Bischofsberg, November, 6-9

#### 2003

- OECD Global Science Forum
- Workshop on Practice in International Science cooperation, Tokyo, February 12-14
- Joint NSF/NIH Symposium: Accelerating Mathematical-Biological Linkages, NIH, Maryland, February 12-13
- Joint ELSF – EMBO – FEBS - UNESCO Meeting on Life Sciences in the European Research Council - The scientists' opinion, Paris, February 19
- 6<sup>th</sup> European Winter Conference in Immunity "Chemokines in Immunity", St.Sorlin d'Arves, France, March 25-28.

