AChemS
Association for Chemoreception Sciences
ANNUAL Newsletter
2012
FOSTERING CHEMICAL SENSES RESEARCH AND UNDERSTANDING SMELL AND TASTE IN HEALTH AND DISEASE

MESSAGE FROM THE PRESIDENT

Tim McClintock, PhD, *President 2011-2012*

Toward finding the future

Even someone who usually ignores the news (meaning me) by now recognizes that the world is suffering through a period of change and transition. AChemS is no exception, albeit mostly for reasons that differ greatly from those affecting economies and political stability around the world. Due to the growth of our Annual Meeting we were forced a few years ago to leave behind our cherished "home" in Sarasota, Florida. As Past President Don Wilson reminded us in his message last year, such hardships are often opportunities in disguise so AChemS seized the opportunity not only to find a new meeting site in Florida but also to test whether, in fairness to the third of our membership that lives in western North America, holding at least some of our Annual Meetings in the western United States is viable and desirable. Personally, I'm excited to go to Huntington Beach, CA in 2012 and 2013 and get a taste of a different climate and cultural environment. The hotel venue there certainly presents a sophisticated image and has larger meeting spaces than our previous venues, so I'm expecting to be a bit spoiled. More importantly, once we have familiarity with both Florida and a west coast venue we will be able to make informed decisions about whether we collectively favor the old model of a single home venue for our Annual Meeting, would instead prefer variety and exploring new places, or would be best served by some mixture of these extremes. We'll continue to gather member opinions and collect your stories of the good and bad you encounter with these venues and the travel to get to them, with the expectation that an obvious consensus will arise on where to site the Annual Meetings in the more distant future.

Quality of content? It rules!

The venue issue is important but nothing matters more to AChemS, of course, than the quality of the scientific content of the Annual Meeting and the opportunities for our members to interact with each other over this content. On that score I have no worries whatsoever given AChemS' long tradition of electing outstanding scientists and capable leaders to organize the meeting. Robert Margolskee and Matt Wachowiak ran wonderful meetings in 2010 and 2011, our first meetings outside of Sarasota, and Minghong Ma is proving more than able to meet the dual challenges of organizing our first west coast meeting during a weak funding climate. Over these past several years our Program Chairs and their committees have been able to incrementally improve the meeting due to the excellent feedback provided by you, the members who take time to complete our post-meeting surveys. On behalf of the officers of AChemS, thanks to all of you who care enough to help in this important way.

Three cheers for fiscal responsibility

Since I've raised the issue of weak economies, let me reassure everyone that AChemS is financially sound. We have reserves that are nearly sufficient to meet the gold standard for financial health of professional societies — the ability to cover the financial commitments of two failed annual meetings. It can happen; just ask the groups that had meetings scheduled to start on September 12, 2001 or in New Orleans in the early fall of 2005. Our Treasurers (most recently: Carol Christensen, Mike Michel, and Debi Fadool) and our management team at L&L Management Services, Inc. deserve our thanks for their brilliant work in making us fiscally secure.

Another noteworthy exercise in fiscal responsibility was the decision to shorten the 2012 Annual Meeting by a half day. This generates some small savings for AChemS and, more importantly, for some of our members attending the meeting. While this was only possible in an unusual year where outside events could be predicted to cause meeting attendance to fall slightly (about 80% of normal, we expect) and thereby allow us to condense the meeting without sacrificing symposia, it's nonetheless gratifying to witness responsible, forward-thinking behavior.

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From the bully pulpit

AChemS members have a long tradition of supporting each other. Over the years I've had the privilege of watching AChemS members advocate for grants, fellowships, or the publication of manuscripts from other investigators in our field, sometimes doing so even in the face of significant scientific or personal disagreements. I'm proud to be part of a group that has such high standards of behavior. To the extent that it is consistent with scientific rigor and the highest ethical standards, let's continue this tradition. It's more important than ever in a weak economy and stagnating government funding. Remember, if we in the chemical senses are disproportionately successful in nurturing the careers of our most promising young scientists through each period of weak funding we can't help but be in position to expand our field a bit more when investment in science recovers (as it always eventually seems to do).

Finally, with all of that off my chest, I'm ready to step down from the pulpit, put the job into the capable hands of Alan Spector, and meet any and all in late April for a drink at Pete's Sunset Grille.

COUNCILOR'S REPORT

Kevin Daly, PhD and Haiqing Zhao, PhD, *Councilors*

I am pleased to report that during the past year the Councilors developed a new Outreach Program to replace the very successful program AChemS ran for many years while in Sarasota. The new Outreach Program was aimed at a more "mature" audience from the Osher Lifelong Learning Institute (OLLLI), which had a local branch at Eckerd College in St. Petersburg, FL. The program was designed as a mini symposium entitled "Olfaction: In Health and Disease" and featured two outstanding speakers, Rachel Herz and Bonnie Blodgett. The symposium was held at Eckerd College and was attended by AChemS members as well as several OLLLI students. By all accounts the outreach program was a success! The Councilors have therefore decided to continue and expand the program. This year we plan to have 2 speakers: Claire Murphy and Gordon Shepherd. We have contacted the OLLLI branch affiliated with UC Long Beach and they have graciously agreed to provide a venue on the UC Long Beach campus (about 15 minutes from the Hyatt Huntington Beach). The symposium is tentatively scheduled for Saturday, April 28th, the exact time is TBA. Please support the AChemS Outreach Program by attending this event.

In addition the Councilors have been busy deciding the AChemS Student Travel and Housing Awards. Notification of these awards has been sent.

SECRETARY'S REPORT

Dana Small, PhD, *Secretary*

Thank you to all who have submitted newsworthy items for posting on the webpage. Your contributions are very appreciated! Thank you also to those who have contributed feature articles for this newsletter. This is the second year we include member-initiated submissions and they are great; the chemical senses meet literature, art and music!

The AChemS Facebook page had its one-year anniversary this past December. We are now at 111 members. Last year during the lead up to the Annual Meeting the Facebook forum was used to post helpful hints about the meeting location, to find rides between the airport and the hotel, and to find people with whom to room. Since the meeting there has been a steady flow of post-doc advertisements and occasionally a post about some relevant activity or event related to the chemical senses. This year we are in a new location. It is my hope that members will use Facebook for the dissemination of helpful social information. For example, if you happen upon a great restaurant or discover a place to avoid please let your fellow members know via a post. Of course, if we can bring science to social networking all the better. Friend us!

A final point is that there has been some discussion about updating the AChemS website. The idea would be to increase functionality and to perform a facelift. I will be presenting some of the ideas, issues and options formulated by the Website Subcommittee (Mike Meredith, Debi Fadool, and myself) at the annual Business Meeting. If you have expertise and/or opinions about this please weigh in.

See you all in California!

MEMBERSHIP REPORT

Steven Munger, PhD, *Membership Chair*

Current and Recent Membership Totals

After a peak in FY08 (coinciding with ISOT), membership dropped below FY07 levels in all categories and has stayed at those lower levels (Figure 1, Table 1). Total membership has been steady for the last three years (~800 total, ~75% of whom are Regular members).

Members who are in arrears are kept on the books for three years with no benefits before they are dropped from the member rolls. Of the 913 currently in arrears, 171 are three years in arrears and will be dropped from AChemS if they do not pay their dues in FY12.

FY12 dues have been payed by 316 individuals, and are late for 511 members who were in good standing in FY11 (361 Regular, 143 Student, 7 Emeritus). Many of these individuals (~65%, if past trends hold) will likely pay their FY12 dues as the abstract deadline approaches. This would leave AChemS with ~ 650 active members, not including new members. AChemS has averaged 169 new members per year over the last four years. Therefore, we could expect that the number of active members will remain stable. However, the new meeting venue, the competition with ISOT, and the continuing economic problems in the world could have a negative impact on membership.

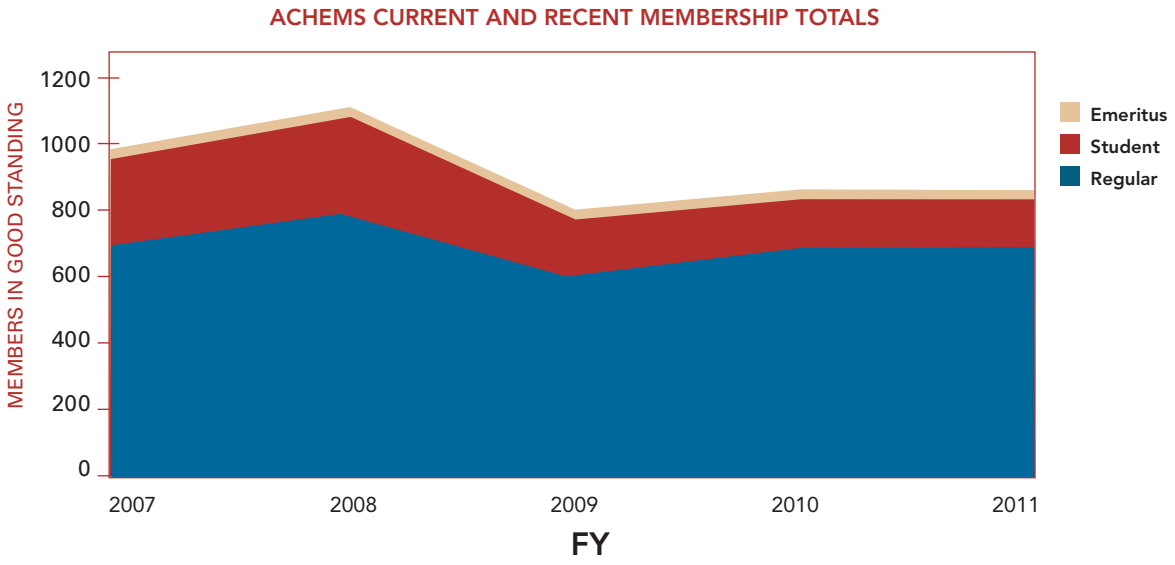


Figure 1: Membership Trends FY07-FY11

	REGULAR	STUDENT	EMERITUS	TOTAL
2007	**712** (69) 80	**244** (75) 50	**28** (2) 2	**984** (146) 210
2008	**817** (60) 133	**263** (51) 36	**28** (2) 6	**1108** (113) 175
2009	**594** (88) 245 105	**177** (76) 169 75	**23** (1) 9 1	**794** (165) 489 181
2010	**623** (120) 213 134	**154** (69) 172 81	**21** (0) 6 6	**798** (189) 391 221
2011	**613** (110) 259 66	**165** (96) 154 65	**24** (3) 2 3	**802** (209) 415 134
2012*	**270** (6) 611	**28** (6) 292	**18** (0) 10	**316** (12) 913

Table 1: Membership Numbers FY07-FY12

Bold — members in good standing; Parentheses — new member subset; Blue — in arrears; Red — cancelled memberships (4+ years in arrears).

** FY12 membership renewals and new memberships should continue to roll in over the next three months in anticipation of the Annual Meeting abstract submission deadline.*

CHEMICAL SENSES REPORT

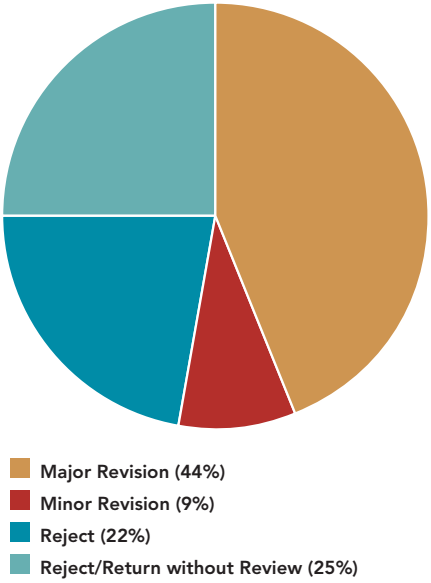
Wolfgang Meyerhof, PhD, *Editor*

Statistics:

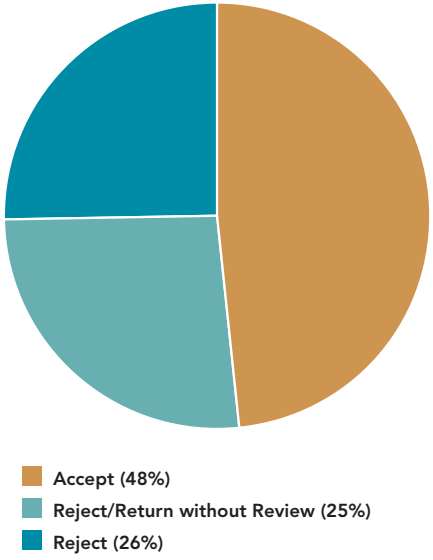
	2007	2008	2009	2010	2011
Impact factor	1.896	3.041	3.031		
Original submissions	141	145	194	218*	161*
Avg. time from submission to 1st decision	33.53 days	31.32 days	27.43 days	27.62 days	29
Avg. time from submission to final decision	106.63 days	81.57 days	69.57 days	70.37	100
Accepted articles	91	73	74	96	77
Accept ratio	62.32%	51.77%	46.54%	46.15%	48%

**from 32 countries, (USA>>Japan>Germany>France=China>UK=Spain=Italy), 1 letter to editor, 154 original articles, 6 review articles*

FIRST DECISION RATIO



FINAL DECISION RATIO



Achieved or maintained

- Impact factor dropped in 2011 due to some highly cited papers that dropped out of the effective time period.
- Submission rate decreased substantially, but are highest for the societies' countries. This is an unexpected, very serious, and still unexplained development that requires action. It will be discussed on the next Editorial Board meeting.
- Frank Zufall replaced Barry Keverne as Executive Editor.

To do

- Inclusion of one review article per issue on a regular basis. Submission of review articles improved somewhat but is still critical.

PROGRAM CHAIR'S REPORT

Minghong Ma, PhD, *Program Chair*

A Preview of AChemS XXXIV

The 34th AChemS Annual Meeting will be held at Hyatt Regency, Huntington Beach, CA, from April 25 to April 28, 2012. AChemS is the major Annual Meeting for presenting research on all aspects of chemosensory research, connecting with colleagues in academia and industry, and learning about funding opportunity and career development. The Program Committee has put together a very strong program this year, with over 300 poster, platform and symposium presentations. This will be the first AChemS meeting held outside Florida in more than 33 years of AChemS history and I hope that you will join us in the new venue on the golden coast.

AChemS 2012 Program highlights:

Givaudan Lecture

Dr. David Anderson will deliver the Givaudan Lecture. Dr. Anderson is the Seymour Benzer Professor of Biology at the California Institute of Technology, an Investigator of the Howard Hughes Medical Institute, and a member of the National Academy of Sciences. He has made significant contributions to our understanding of how emotional behaviors are encoded in the brain using both mouse and *Drosophila* as model systems. His lab uses molecular genetic tools, as well as functional imaging and electrophysiology, to establish cause-and-effect relationships between specific neuronal circuits and behaviors such as aggression and fear. His lecture is entitled, "Neural Control of Aggression in *Drosophila*."

Featured Symposia

"Presidential Symposium: NEURAL EPIGENETICS AND OLFACTION" will focus on the effects of chromatin modification on gene expression regulation. The topics include odorant receptor gene choice in olfactory neurons, regulation of neurogenesis in neural stem cells, and chromatin remodeling in fully differentiated neurons.

"Industry Symposium: TASTE AND SMELL IN TRANSLATION: APPLICATIONS FROM BASIC RESEARCH" will cover recent key advances in the chemical senses that are of interest to industry scientists and also to basic scientists. The symposium will be followed by the **Industry Reception** (ticketed event).

Symposia

The Program Committee received more outstanding proposals than we could possibly fit into the program. The following symposia at this year's meeting cover a broad range of current high-interest topics in the chemical senses and feature an outstanding list of speakers.

"WIRING NEURAL CIRCUITS IN OLFACTORY SYSTEMS" will focus on recent advances in revealing circuit architecture in the olfactory system by combining cutting-edge techniques including BAC transgenesis, in vivo multiphoton imaging, viral tracing, and photoconvertible fluors.

"THE FLAVOR OF THINGS TO COME: EXPECTATION AND THE PROCESSING OF CHEMOSENSORY INFORMATION" will be a cross-disciplinary forum on the relationship between expectation and sensory processing by bridging rodent electrophysiology with human fMRI studies and olfaction with gustation.

"CHEMICAL SENSES IN HEALTH AND DISEASE" will bring together a group of young and established investigators to cover recent clinically relevant researches on taste and smell disorders.

"MODULATION OF EARLY OLFACTORY PROCESSING BY INTERNAL PHYSIOLOGICAL STATES" will highlight the current knowledge of how internal physiological states influence olfactory perception in several animal model systems ranging from fruit fly to salamander and mouse.

"THE ROLE OF RESPIRATION IN OLFACTORY AND FLAVOR PROCESSING" will cover recent findings on how respiration modulates the activity of olfactory and flavor circuits via orthonasal and retronsal processing.

Special Presentations

Other special presentations include the International Flavors and Fragrances Special Lecture and a special platform presentation session featuring the Polak Young Investigator Award winners.

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Workshops

"FUNDING OPPORTUNITIES FOR THE NEW INVESTIGATOR" NIDCD representatives will offer information and insights into navigating NIH funding mechanisms. This workshop is directed at new investigators but more established investigators may also find it helpful.

"RESEARCH CAREERS IN INDUSTRY" (NEW THIS YEAR!) Five industry scientists will share their career experience, including the challenges in transitioning from the academic environment, their degree of flexibility in pursuing research topics, and how their performance is assessed. They will offer specific advice on developing skills in working in teams, communicating science to diverse audiences, working through the political landscape, and navigating the interview process. These skills will serve everyone well, whether in academia or industry! This event will be followed by a "mixer" for participants; combined with the ChEMA (Chemosensory Enterprise and Mentorship Alliance) social event.

Other planned events include the **Welcome Banquet, Opening Awards Ceremony, Annual Business Meeting, and Clinical Luncheon.** Of course, there will be platform presentations, lots of posters, and great opportunities to network with other scientists. On behalf of the Program Committee, I hope to see you all in Huntington Beach, CA!

TREASURER'S REPORT

Carol Christensen, PhD, *Treasurer*

The AChemS organization is fiscally very healthy. Our 2010-2011 fiscal year ended on June 30, 2011 and an independent auditor reviewed our accounts. The audited results showed that we ended FY 10-11 with a surplus of nearly $30,000. The proposed budget for FY 11-12 anticipates a budget shortfall that will be close to our surplus for this year. The California meeting venue is more expensive than Florida and we expect fewer attendees because of the ISOT meeting occurring in the same timeframe.

We began in May, 2011 to use a professional investment company to conservatively manage our excess funds. We took this step because the return from money market funds has dropped so precipitously during the past several years. As of September 1, we now have $200,000 that is being managed by this firm. The Finance Committee will monitor the performance of this outside manager.

"VOLATILE ART" AT ACHEMS XXXIII

Andreas Keller, PhD

At AChemS XXXIII I organized together with Kóan Jeff Baysa (who is a curator and actually knows how to organize an art exhibit) an exhibition of works of art that is engaged in some way with the chemical senses. The idea was to see what happens when artists and scientists address the same topic with the different methods of their respective fields.

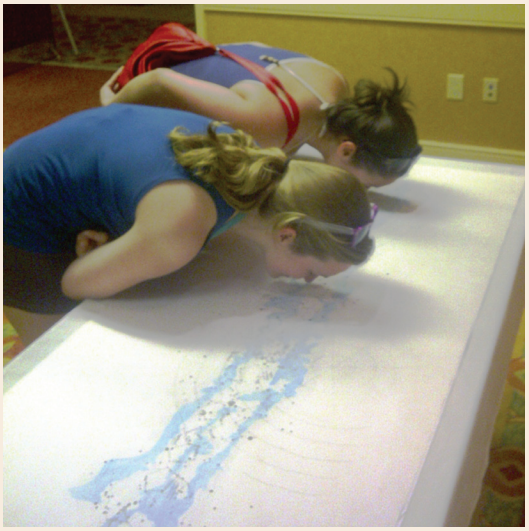
Of the six works of art that we chose for the exhibit, most had a smell. They could be looked at as well as sniffed. In addition, one piece was edible and two could be listened to. Most pieces were interactive and visitors were encouraged to touch all of them. It was not really the announced odor art exhibit but rather a multisensory art exhibit.

Many of you who were at the meeting managed to find time to visit "Volatile Art" despite the busy schedule of talks and posters and the beach and the bar. The response was mostly one of guarded curiosity. Some people were enthusiastic and came for repeat-visits. Others had doubts about the value of non-empirical methods of inquiry. Some just enjoyed sniffing and eating the art.

For those who were not at the meeting or didn't have time to come to the exhibition, here are photographs of four of the six pieces that were exhibited. For the full effect you'll have to try to imagine the smells that came with the drawings, sculptures, and installations as you look at the photographs.

olfactory inkblot_2 by Gayil Nalls is a "sculpture for the mouth". In each of the wrappers there is a small piece of edible art. Also part of this interactive artwork is a website at which a survey about the experience can be filled out.

Pure Instinct by Minette Lee Mangahas is a sculpture made out of wax, raw cocoa, and "pheromone" that was purchased online.



Untitled (Star Map) by Carrie Paterson is a drawing of the night sky in which astronomical constellations are replaced with the chemical structures of scented molecules. The scented molecules themselves are also added to the drawing, making it a smell map that can be explored olfactory.

Scensing by Jiayi Young and Shih-Wen Young is an interactive installation in which the five senses are represented by five glass containers containing an odorous liquid. A frequency generator can be adjusted to modulate the resonance pattern.

Olfactory Song Titles

Smells Like Teen Spirit (Nirvana)

I Smell Sex and Candy (Nirvana)

That Smell (Lynyrd Skynyrd)

Now I Wanna Sniff Some Glue (Ramones)

Wake Up and Smell the Coffee (The Cranberries)

Mine Smell Like Honey (R.E.M.)

You Smell So Good (Rammstein)

Smells Like Children (Marilyn Manson)

You Smell Like Dinner (Jinx Titanic)

I Smell a Rat (Patty Griffin)

Smells Like Cartoon Planet (Ghost Space)

Stop and Smell the Roses (Sally Harmon)

Smell of Incense (Southwest F.O.B.)

The Red Smell (Vreid)

Sure Can Smell the Rain (Blackhawk)

The Smell of Gas (Danny Michel)

Hippy Smell (Ween)

I Smell Smoke (Mystikal)

The Smell of Your Skin (Candace Charee)

The Smell of Today is Sweet Like Breastmilk in the Wind (Mum)

Smell the Witch (Mortiis)

You Smell Good! (Hoops and Yoyo)

You Smell Like You're from Santa Cruz (30 Second Fury)

Pleasant Smell (12 Rounds)

You Put a Smell on Me (Matthew Dear)

The Smell of Victory (Nobodys)

Smell the Color 9 (Chris Rice)

Why U Smell Like Dat? (The Game)

The Dirty Sweet Smell of the Summer (Oceansize)

Smell the Saw (Chainsaw)

Smell of Your Skin (Boss Axis)

Smell That Chick (Riskay)

I Smell Blood (John Murphy)

Smell of a Friend (The Lodge)

Smell the Groove (Taken)

Courtsey of Matthias Laska

Neurogastronomy

How the brain creates flavor and why it matters

By Gordon M. Shepherd, MD, DPhil, Columbia University Press, 2012, ISBN: 978-0-231-15910-4. 267 pages including bibliography and index.

A review by Justus V. Verhagen

As a chemosensory scientist you have probably enjoyed reading several books on taste or smell, of which there have been many over the years. But have you ever read a book about flavor? Only a few books exist on the matter. This year Gordon Shepherd, professor at Yale School of Medicine, provides a grand discussion of flavor in his new book "Neurogastronomy." In this tour-de-force, written in an exquisitely entertaining and very accessible way, Shepherd provides a welcome new perspective on the nature and importance of flavor in human life, culture and evolution.

Neurogastronomy is an umbrella-term coined by Shepherd to explore how the brain creates the sensations of food. He seamlessly integrates findings from food science, psychophysics and neurophysiology. The book is composed of 27 chapters in 4 main parts. In the first part the book introduces flavor, retronasal smell in humans versus dogs, and discusses food odorants. Part two describes the olfactory system up to the piriform cortex, including discussions of microcircuitry, lateral inhibition, pattern recognition and the important similarity between the neural encoding of faces and odors. Part three discusses the multimodal neurosensory basis of flavor. The final section is highly integrative and links "flavor images" and the underlying neural networks to important issues of obesity, language, consciousness and human evolution.

The book challenges many commonly held beliefs and has a few key recurring themes. First, it successfully dispels the myth that the sense of smell is of relatively minor importance among the human senses. Central is the notion that our large brains make up for the relatively small number of receptor neurons to generate flavor like in no other species. A related theme, is the critical role smell and flavor play in human development, language and culture. Gordon challenges many commonly held beliefs and shattered a few of yours truly too.

Quotes from well-known chefs and prescient gourmands, like Jean Anthelme Brillat-Savarin, and great literature frequently enliven the narrative, including a surprising and critical re-evaluation of Proust's flavor-evoked memories. Additionally, Neurogastronomy provides invaluable historical perspectives and insights into the scientific process of chemosensory discovery. "Neurogastronomy" is a thought-provoking, very broad and important tale of flavor indeed. I believe every AChemS member will find interesting material in the book. Shepherd knows the nose and then some...highly recommended by this "neurogastronome!"

2011 ACHEMS *Award Recipients*

Scott Herness, PhD

International Flavors & Fragrances (IFF) Award for Outstanding Research on the Molecular Basis of Taste Winner

Research Focus

In the last decade, remarkable progress has been made on the once seemingly intractable problem of understanding how a taste receptor cell responds to a taste stimulus. Receptors and associated downstream transduction cascades are now known for all five taste qualities. In parallel with these experiments were other studies directed at understanding the nature of the neurotransmitters in the bud. My laboratory has contributed to this pursuit — identifying and characterizing the signaling agents in the bud. These studies and those of my colleagues have helped change concepts of taste transduction from one of a taste receptor cell operating as an independent silo to one of the cell working collectively with its neighbors as a processing unit. My lab has identified and characterized a number of neurotransmitters, neuropeptides, and their corresponding receptors within the taste bud. These include serotonin, norepinephrine, GABA, cholecystokinin, vasoactive intestinal polypeptide, and neuropeptide Y. The expression patterns of signaling agents and receptors delineate hardwired autocrine and paracrine pathways among subsets of taste receptor cells. Further, studies of their physiology, using patch-clamp recordings and calcium imaging, have verified the excitatory or inhibitory nature of these pathways. We hypothesize that these pathways participate in the processing of gustatory information in manners such as gain modulation, lateral inhibition, and adaptation of the final afferent neural discharge. Taste transduction might best be characterized as occurring in early and late phases. Early transduction mechanisms refer to those events occurring between stimulus-induced receptor activation and the resultant depolarization of the taste receptor cell. Late transduction mechanisms, on the other hand, refer to the complex network of excitatory and inhibitory cell-to-cell communication pathways within the bud evoked after the initial depolarization. Hence single taste receptor cells are influenced not only through apical receptor activation but also through basolateral receptors. This notion strongly supports the long held speculation that the highly conserved morphology of the taste bud is central to its function.

Acknowledgements

Upfront, I'd like to thank International Flavors and Fragrances, Inc. for their generous sponsorship of this award. Our society benefits greatly from the support of its corporate sponsors and the benevolence of IFF to AChemS does not go unnoticed. Personally, successful work in my career has happened only when all three players of a scientific trinity show up: an idea, resources, and the encouragement of close colleagues (especially when the 'brilliant idea' morphs into something far less spectacular). If the first two have wavered over the years, I've been fortunate to have the third unfailingly. I was privileged to start my career in the field's best labs: My graduate school mentor Dr. Lloyd Beidler who paternalistically guided me on an uncompromising journey that taught me how to ask and answer questions, that gave me independence, and that stood as example of true accomplishment; My graduate school professor/teacher/advisor, later my colleague/friend, Dr. Jim Smith who showed me that science could be warm, personal, and familial; And, my postdoctoral mentor Dr. Carl Pfaffmann who clarified my outlook on the scientific method and brought me to the hard lesson of following the integrity of the data: my admiration and affection could fill a book. The early AChemS community (circa 1980, no less) took me into its fold, became my scientific family, and helped to eventually transform an inchoate graduate student into its President. Along the way, I became the mentor; students and post-docs in my laboratory have provided the data upon which my career rests. Nothing could have happened without them and they know that. Among these Dr. Fang-li Zhao, who has been with me for a decade, remains my true collaborator and my good friend. And, of course, no scientist would be honest without thanking all those anonymous reviewers who have kept me intellectually honest and provided those many repeated reminders that my corticosterone responses are indeed intact.

M. Yanina Pepino de Gruev, PhD

Moskowitz Jacobs Award Winner

Research Focus

My research centers on understanding individual differences in taste perception, food pleasure and reward pathways in lean versus obese individuals as well as in individuals suffering from substance addictions (e.g. nicotine or alcohol). My interest in these two traits has an origin in previous research suggesting that food and drug reward share neurobiological bases and that certain types of obesity can be understood as resulting from addictive mechanism similar to other drugs of abuse. My current research studies focus on the following three areas: 1) human fat taste perception 2) the effect of bariatric surgery-induced weight loss on taste perception and eating behavior; and 3) the effect of non caloric sweeteners on taste preference and glucose homeostasis.

Acknowledgements

I would like to express my sincere gratitude to the AChemS Award Committee and to Moskowitz Jacobs Inc. for this great honor. Every year, since 2002 when I was first introduced to AChemS by Julie Mennella, I look forward to the annual meeting of our society. AChemS has always been a great source of learning, inspiration and pleasurable intellectual excitement that undoubtedly has shaped, and will continue shaping, my work.

I could not be here if it weren't by a group of outstanding mentors who I would like to thank for their encouragement, support and continuing guidance. Juan Carlos Molina, my PhD mentor in Argentina, who infected me with his contagious excitement for research and convinced me that science is a feasible career for women and although challenging, compatible with motherhood. Julie Mennella, Gary Beauchamp, Dani Reed, Joseph Brand and the wonderful whole "family" at the Monell Center. I had the inestimable good fortune to be recruited by Julie as a postdoc at Monell. Julie, whom I admire and look up for her impeccable scientific integrity, passion for science and generous heart, has been the best mentor I could ever dream of, a colleague and a friend. Thank you.

I will be forever grateful to Samuel Klein for opening the doors of the Center for Human Nutrition at Washington University for me. I thank him for his continuous support, input in my research, intellectual stimulation and genuine advice. I am truly excited to be part of this outstanding research center and thankful for the opportunity to work with this group of very talented scientists.

I would like to thank my family, specially my husband, for their indispensable support, kindness and encouragement in my career as a scientist. Finally, I would like to thank the following institutions for their generous financial support: the Institute of Clinical and Translational Science (KI2 program) and the Nutrition and Obesity Research Center at Washington University in St. Louis and GlaxoSmithKline Consumer Healthcare.

Award Recipients *continued*

Thomas Finger, PhD

Max Mozell Award Winner

Research Focus

My interest in the chemical senses has its roots with my fascination with fish. As a graduate student, I wanted to understand fish behavior and the sensory world of aquatic organisms. My thesis advisor, Harvey J. Karten, said that if I wanted to understand the brain of a fish, I should either start with the input (sensory side) or the output (motor function). I thought it would work better to start with the input so I began my graduate work studying sensory systems. But where to start? Again, Harvey advised, "well you should either start at the front (cranial nerve #1 = olfactory), or the back (spinal roots = somatosensory). I chose the front, and the rest is history. My initial studies on the olfactory system of catfish led ultimately to studies on the central representation of taste, and then to the common chemical sense. These studies led me to ask questions about the organization of the sensory periphery and how it transmits information to the nervous system. Since some of these questions were more easily investigated in transgenic mice than in fish, my research has largely migrated from fish to mammalian systems.

Currently, my work includes examination of transmission of taste information from taste buds to nerves, how solitary chemosensory cells in the respiratory epithelia evoke protective respiratory reflexes, and the role of the medial amygdala in processing chemical cues from conspecifics as relayed by the main olfactory system.

Acknowledgements

First I would like to thank my many colleagues, collaborators, trainees, and laboratory members who not only generated much of the data, but whose enthusiasm and friendship made doing science both fun and exciting. Second, I want to thank the members of the AChemS community and other scientists who generously shared research materials, transgenic lines and ideas over the years. For me, science is not just an occupation, but is a social activity that has led to many dear friendships.

Finally, I want to express my deep appreciation to NIDCD for its long-standing support of my research. In addition, I have received support from NSF and from the Ajinomoto Amino Acid Research Program.

Nathalie Mandairon, PhD

AChemS Young Investigator Award Winner

Research Focus

Sensory experience has effects on both physiological responses and on animal behavior. I am interested in how odors induce plasticity in the first central relay of the olfactory system, which is the olfactory bulb. This structure is one of the few brain areas that continuously replaces parts of its neuronal population, and I focus on the role of adult neurogenesis on olfactory learning. In addition, I am exploring how olfactory behavior and neurogenesis are influenced by the central nervous system neuromodulators acetylcholine and noradrenaline, both of which have been implicated in memory deficits such as those symptomatic of Alzheimer's disease.

Acknowledgments

I would like to express my sincere gratitude to AChemS and the members of the Awards Committee for this great honor. I joined the AChemS during my postdoc in 2004 and since, this annual meeting has been for me very stimulating. I would like first to thank my outstanding mentors Anne Didier and Christiane Linster.

I would like to thank some students for their precious help and investment: Conor Stack, Nita Gupta, Casara-Jean Ferretti, Carly Kiselycznyk, Shane Peace, Alexandra Karnow, Melissa Moreno, Florence Kermen and Caroline Charpentier. I am also thankful to Joelle Sacquet and Marc Thevenet for their daily help.

Finally, I would like to thank Roudnitska foundaion, Marie Curie foundation, Lyon 1 University and the CNRS for their financial support.

Mavis Irwin, PhD Candidate

The Don Tucker Memorial Award

Research Focus

Mavis Irwin, a native of rural Idaho, obtained her BA in Biology and Biomedical Physics at California State University Northridge. She is currently a doctoral student in the Physiology Department at the University of Utah. Her research focus is on the physiological role of pituitary adenylate cyclase activating polypeptide (PACAP) in the developing olfactory system. PACAP is an essential peptide in development and throughout life and is studied as a candidate for preventing the oxidative stress associated with neurodegenerative diseases. Without PACAP, the neonates often die before weaning age, directing that PACAP is required for normal development. For the past two years, Mavis used confocal calcium imaging of mouse olfactory bulb slices to identify the cell types and mechanisms mediating PACAP-induced modulation of calcium levels in olfactory bulb neurons and glia.

Acknowledgments

Dr. Mary Lucero and Dr. Mike Michel are her mentors. Funding: NIH NIDCD Disability Administrative Supplement to R01 DC02994-8; NIH NIDCD ARRA Supplement to R01 DC02994-9; AChemS Minority and Disability Travel Awards.

John Hayes, PhD

Ajinomoto Award Winner

Research Focus

In the 20th century, many biologists and psychophysicists made the transition from a search for universal laws toward a goal of understanding and explaining variability. Individual differences inperception have been linked to dietary behavior for 50 years, dating back to seminal work by Kaplan and Glanville, and Fischer and Griffin. More recently, advances in molecular genetics by many of the people at this meeting have provided new tools to study and explain perceptual variation, which I believe may act as biological drivers of food choice. Borrowing from psychophysics, neurobiology, genetics, food science and nutrition, my work attempts to integrate these fields to address three questions. First, we seek to identify and quantify examples of individual differences in chemosensation (eg define and refine phenotypes) in humans. Second, we try to associate putatively functional polymorphisms with these phenotypes in vivo. Third, we askwhether these phenotypic differences are large enough to actually influencedietary behavior. Although some genotypes and phenotypes have been successfully linked to food choice and diet related health, ingestive behavior is highly multifactorial. Thus, polymorphisms that are functional at the bench in vitro or even in vivo in laboratory testing may still be irrelevant with regard to the health and wellness of free-living humans. Nonetheless, studying perceptual variation has public health and commercial relevance, as it may be a useful endophenotype for diet related disease, or as a biological driver of market segmentation.

Acknowledgments

I am deeply honored to be selected as the 2011 recipient of the Ajinomoto Award. The list of previous awardees is impressive (including three PECASE winners in the last decade) and I am humbled to be included among them. My sincere thanks to the Ajinomoto Corporation and the Awards Committee. This will be my 10th AChemS in 11 years and I would not be where I amtoday without the collegiality and support of the AChemS community.

I would also like to thank my numerous mentors. My career has meandered a bit over the years, and I have had the distinct privilege to work with many renowned chemosensory researchers. Thank you. In particular, I would like to acknowledge Harry Lawless for hooking me on the chemical senses in the first place, and Valerie Duffy, for launching me on the integrative,multidisciplinary approach I use today.

Finally, I would like to thank the National Institutes of Health (NIDCD and NIAAA) for supporting my past and current research and training, the Pangborn Sensory Science Scholarship Fund for generous support as a student, and my colleagues and friends at Cornell University, the JB Pierce Foundation, the University of Connecticut, Brown University, and the Pennsylvania State University.

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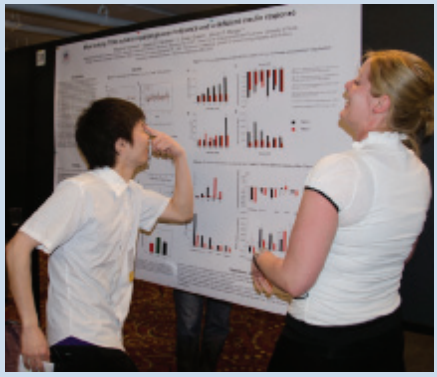


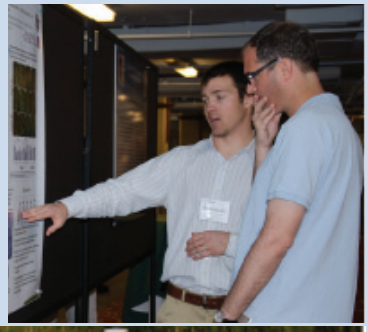

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