AChemS
Association for Chemoreception Sciences

Fall
Newsletter
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fostering chemical senses research and understanding smell and taste in health and disease

Association for Chemoreception Sciences
c/o Panacea Associates
744 Duparc Circle
Tallahasssee, FL 32312 USA

Voice/fax: +001(850) 894-3480
email: meredith@panassoc.com
website: http://www.achems.org

This Issue Includes

Message from the AChemS President

John Scott (johns@cellbio.emory.edu)

This is another pivotal year for AChemS. One prominent event has been the election of four chemosensory scientists to the National Academy of Sciences: Cori Bargmann, Linda Bartoshuk, Linda

Buck, and Obaid Sidiqqi. Most AChemS members will recognize the service of both Lindas as AChemS officers. Linda Bartoshuk was the second Executive Chair/President of AChemS and Linda Buck is currently Senior Councilor. We are all personally pleased at this recognition of the contributions of these scientists, but also of the breadth of approach and scientific understanding represented in AChemS. I also wish to congratulate the winners of awards at AChemS XXV. Robert Bradley received the Max Mozell award for Outstanding Achievement in the Chemical Senses. I was pleased to preside as chair of the Awards Committee over the renaming of that award in honor of Max, who was so important in organizing AChemS. Congratulations are also in order for the following winners. Noam Sobel received the Moskowitz Jacobs Inc. Award for Research Excellence in the Psychophysics of Taste & Smell. Dana Small received the Ajinomoto Award for Research in Gustation. Brett Johnson received the Takasago Award for Research in Olfaction. Hessam Alimohammadi received the Don Tucker Memorial Award for Outstanding Graduate Student Presentation at the Annual Meeting. Further information about these scientists and their work is available in this newsletter. Chuck Derby did a great job organizing the 25th annual meeting. He accomplished this in the face of time constraints because of the reception held at the Ringling Museum. That reception, organized by our colleagues at Panacea Associates was a wonderful celebration of AChemS and its history. That history was reviewed in a symposium chaired by Gordon Shepherd, with a number of participants: Mike Meredith, Marion Frank, Neal Vickers and a number of short discussants, ending with Max Mozell. We thank them all for their thoughtful comments.

After 15 years of service to AChemS, Panacea Associates has decided to retire from management of AChemS and its meeting. The Panacea contract will run through June 30, 2004. Susan Lampman, Pat Meredith, Loreen Kollar, and Michael Lampman have performed much of the essential work of holding the organization together and putting on the meeting. They contract with the hotel, arrange the services there, run the web site, oversee much of the data projection, and generally hold the hand of the officers to be sure that those officers execute their duties. Without their efforts, AChemS would have been a much less effective organization. We owe them a lot. They have set a high standard for future operations.

The Executive Committee appointed a management task force in the spring of this year and charged it with finding a new management firm. Past President John Hildebrand and I have co-chaired this committee, and the other members are former presidents Stuart Firestein, Steve Roper, Judy Van Houten, Tom Scott, Charles Greer, President-Elect Mimi Halpern, and Treasurer Debi Fadool. We composed a request for proposals that was sent out to a list of firms that came from various sources. We had a large number of inquires and ultimately received proposals from over 35 association management firms. It is comforting that so many firms perceived AChemS to be a healthy and stable association worthy of investment of their time and effort. The selection process is on track for completion in time for a smooth transition beginning with preparation for our meeting. It is important that new management see how the meeting runs and see the essential steps of preparation. John and I thank the members of this committee for their substantial efforts. It has been a chance to see how our colleagues really come through when the chips are down.

The executive committee and the management task force are expecting that the new management firm will take on more responsibility that will make operations smoother. Currently, officers just learn the job before being replaced, and we had not previously asked Panacea Associates to assume many of the important responsibilities outside of the meeting. As we have grown larger, these tasks are taking an increasing effort from officers (ask any recent Program Chair). Our intention is that new management will provide greater continuity and free officers for some more long term thinking about AChemS.

One of those long-term concerns is to be sure that our procedures are properly codified so that new management understands our goals and methods. One step that we have taken in this direction is to reappoint the Finance Committee. This committee had been allowed to lapse for several years. The revived committee, chaired by Barry Green and comprising Gary Beauchamp, Carol Christensen, Scott Herness, and Mike Michel will advise the Treasurer and the Executive Committee on issues of the budget. This year we have also asked them to help us consider some of the financial issues involved in the management contract. As we reformulate the web site, I hope that we will see the members of this and our other committees prominently displayed.

In addition, it is time for some long-term planning about the future. A planning session involving executive committee members and some former officers should take place a few months after new management is in place. We will be seeking input from the membership about some issues concerning the annual meeting, membership, and the ways that AChemS can broaden its impact while maintaining the collegiality that has characterized our first 25 years.

Plans are well underway for the 2004 meeting. Program Chair, Tim McClintock has organized several impressive symposia. In addition, he and Peter Mombaerts have organized a session on molecular approaches to chemical senses preceding the regular meeting. This is an important effort to attract more of the exciting science in our field to the annual AChemS meeting. I applaud this effort. We must find more creative ways to serve the needs of the various disciplines within AChemS and to bring us all together for greater progress in our science.

Finally, please remember to respond to the call for nominations to AChemS offices from John Hildebrand and the call for nominations for awards from Mimi Halpern.

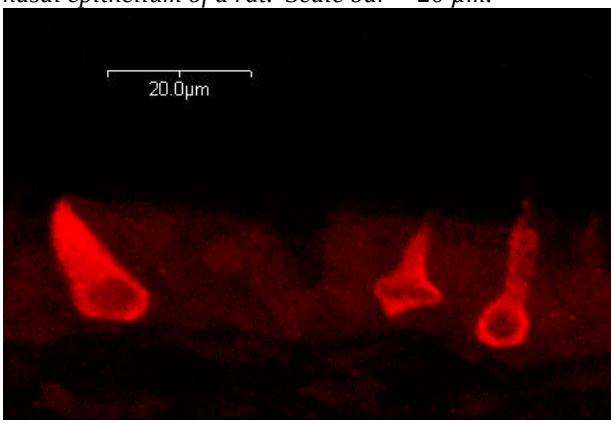
News from the nose and mouth

Specialized Chemosensory Cells of the Trigeminal Nerve

Tom Finger (tom.finger@uchsc.edu)

That the trigeminal nerve can respond to strong odorants is well recognized (Bryant et al. 2000). The commonly held belief is that free intraepithelial nerve endings from polymodal nociceptors mediate these sensations. A recent article (Finger et al. 2003) describes the presence of trigeminally-innervated solitary chemosensory cells (SCCs) in the nasal epithelium of rodents. The SCCs are prevalent in non-olfactory regions of the epithelium, but are especially numerous along the major routes of airflow and at the entrance to the vomeronasal organ. The SCCs express several components of the bitter-taste transduction cascade including T2Rs, gustducin and PLCβ2. Furthermore, the trigeminal nerve responds to low concentrations of typical bitter-tasting compounds applied to the nasal epithelium. These results demonstrate the presence of specialized chemosensory epithelial cells in the nasal cavity of rodents reminiscent of the SCCs previously described in the epidermis of non-mammalian aquatic vertebrates.

Photomicrograph of solitary chemoreceptor cells in the nasal epithelium of a rat. Scale bar = 20 µm.



Remaining questions include whether such cells are present in the human nose. More importantly, will researchers on this nasal system, which expresses T2Rs, be playing for Taste or Smell in the annual softball game?

Bryant BP, Silver WL (2000) Chemesthesis: The Common Chemical Sense. *The Neurobiology of Taste and Smell*. T. E. Finger, W. L. Silver and D. Restrepo. New York, Wiley-Liss**:** 73-100

Finger TE, Bottger, Hansen A, Anderson KT, Alimohammadi H, Silver WL (2003) Solitary chemoreceptor cells in the nasal cavity serve as sentinels of respiration. *Proc Natl Acad Sci USA* 100 (15): 8981-6

An Early Look at AChemS XXVI

Tim McClintock (mcclint@uky.edu)

The 26th annual meeting of the Association for Chemoreception Sciences (AChemS) will be held at the Hyatt Sarasota Hotel in Sarasota, FL, April 21 – 25, 2004. The program will include presentations of basic and applied research into all aspects of sensory chemoreception. We anticipate nearing 400 poster and slide presentations this year. In keeping with our tradition of volunteer efforts to enhance the meeting, several members of the association are organizing symposia and workshops on timely topics. The program will include the following:

The Givaudan-Roure Lecture, by Dr. Arturo Alvarez-Buylla, University of California San Francisco: "Neurogenesis in the Olfactory Bulb"

Symposia

- Receptors: Choosing Genes, Targeting Axons, and Detecting Chemicals
- The Ins and Outs of Sensory Cilia
- Olfaction and Neurodegenerative Disorders
- Non-neuronal Cells of the Olfactory System in Development
- Chemical Communication in Mammals: from Pheromones to Individual Recognition
- Developmental Regulatory Genes in the Taste and Olfactory Systems

Workshop: Biophysical Algorithms in Chemosensation: Olfactory Representation and Learning

Educational Outreach Event at the GWIZ Science Center

For more information visit the AChemS-XXVI meeting web site at: http://www.achems.org/Conference2004/confindex.htm

Abstract Submission Deadline
Jan. 12, 2004

Deadline for Advance Registration
March 15, 2003

Logo Design Contest for AChemS XXVI ($500)

Students and postdoctoral fellows who are members of AChemS are eligible to earn $500 for the winning entry in this contest to design the logo for this year's AChemS meeting. The logo will be featured prominently on the program book, the abstract book, and in publicity about the meeting. Design entries are due on February 1, 2004. Please submit designs as files on a compact disc containing your name and contact information to Tim McClintock, AChemS XXVI Program Chair, Dept. of Physiology, University of Kentucky, 800 Rose St., Lexington, KY 40536-0298; mcclint@uky.edu.

Satellite Conference on Chemosensory Receptors April 20-21

Immediately preceding AChemS XXVI, a satellite conference on the molecular biology of odorant, vomeronasal, and gustatory receptors will be held. The program will include plenary talks on all aspects of these genes and their products. The conference will be open to all who wish to attend. Registration is $50 for postgraduates, $25 for students. The organizers welcome nominations for presentations at the conference, which can be made via e-mail to Peter Mombaerts (peter@rockefeller.edu) or Tim McClintock (mcclint@uky.edu). Additional information will be made available via the AChemS web site at: http://www.achems.org/.

Remembering Lloyd M. Beidler 1922 – 2003

Mary Lou Beidler, Allan Beidler, Stephen Beidler, David Beidler, John Beidler, Christopher Beidler, and Dianne Beidler Walker.

Lloyd Mumbauer Beidler, Jr. was born in Allentown, PA on January 17, 1922. He was the third of three children, and his father was a railroad clerk. Both of his parents were descended from German immigrants to the Allentown area in the 18th century. Lloyd attended a small, rural elementary school and graduated from the South Whitehall consolidated High School with honors in 1939.

Lloyd enrolled at Muhlenburg College, a Lutheran school in Allentown where he graduated with a Bachelor of Science degree in Physics in 1943. He entered graduate school at Johns Hopkins University where he met Mary Lou, who became his loving wife and companion of 56 years. After obtaining his doctorate in Molecular Biophysics at Johns Hopkins, he accepted a position on the faculty of Florida State University in Tallahassee. It was here where Lloyd and Mary Lou began a family and built their own home of 46 years on a modest 15 acre farm, where he reared his six children with the same dedication and veracity as he provided to his students at the university. He was a teacher and diplomat in all aspects of his life and touched the lives of all those that he met. His success as a father and academician is evidenced by the remarkable success of his children and students.

During Lloyd's tenure at Florida State, he was an innovative research scientist and inspirational teacher to many students, post docs and colleagues. His reputation as a teacher and scientist preceded him around the world, resulting in lecture and consultation as visiting scientist at the invitation of many countries. Some of his major accomplishments include: American Physiological Society's Bowditch Lectureship for 1959; Appointed by John F. Kennedy as the Science Coordinator of US Science Exhibits for the Seattle Worlds Fair in 1961; Co-founded with Dan Kenshalo the Psychobiology program at Florida State University in 1965; Honorary Doctor of Law degree, Muhlenberg

College in 1969; FSU's Robert O. Lawton Distinguished Professorship in 1971; Election to the National Academy of Sciences in 1974; American Academy of Arts & Sciences in 1975; Resolution of Commendation from Florida's House of Representatives and Senate in 1987; Recipient of the National Institutes of Health Javits Neuroscience Award; Served on the nominating committee for the Nobel Prize Award; Board of Directors of the American Museum of Electricity; Member of the Advisory Council of the National Institute of Deafness and other Communication Disorders.

The family will always remember him as a loving and dedicated husband and father, and the greatest man they ever knew. He is greatly missed.

Recipients of the 2003 AChemS Awards

Award for Outstanding Achievement in the Chemical Senses

Dr. Robert M. Bradley, University of Michigan

A major focus Dr. Bradley's laboratory is the circuits and processing properties of neurons in the first relay in the taste pathway – the nucleus of the solitary tract (NST). When this work was initiated the NST was thought to pass on the afferent information from taste receptors relatively unchanged to higher brain centers and to local reflex circuits in the brainstem. Dr. Bradley introduced the use of blind patch recording in brain slices of the NST to allow analysis of the biophysics, structure, and pharmacology of these neurons for the first time. A form of long-term potentiation was discovered in the NST, revealing lasting changes in synaptic sensitivity. A second major focus has been the development of a neural implant that will provide a method to perform long-term chronic recordings from the same single afferent taste fibers. This project originated when Robert was a graduate student with Lloyd Beidler and re-emerged when new technology was developed. The cut ends of a taste nerve are placed on either side of an array of holes surrounded by electrode sites. The nerve regenerates through these holes to reinnervate taste buds on the tongue. The lab has successfully recorded from regenerated taste fibers for over 3 weeks and have found out that their response characteristics change with time. Although this technology is now applied to study the taste system, its use is potentially more universal and could be used as a component in a prosthetic device to restore neural function.

Acknowledgements

I have been fortunate to count on a number of co-workers who not only performed most of the experiments but have provided insight as well. I have also been fortunate to interact with an outstanding group of mentors and colleagues who have shaped my approach on how to be a successful scientist. Charlotte Mistretta has provided scientific counseling and guidance in all my research endeavors as well as showing me all the other important things of life. The NIDCD/NIH has provided grant support.

Grabauskas G and Bradley RM (1996) Synaptic interactions due to convergent input from gustatory afferent fibers in the rostral nucleus of the solitary tract. *J.Neurophysiol.* 76:2919-2927

Shimatani Y, Grabauskiene S and Bradley RM (2002) Long-term recording from the chorda tympani in rats. *Physiol.Behav.* 76:143-149

Grabauskas G and Bradley RM (2003) Frequency-dependent properties of inhibitory synapses in the rostral nucleus of the solitary tract. *J.Neurophysiol.* 89:199-211

Ajinomoto Award for Research in Gustation

Dr. Dana Small, Northwestern University

Taste perception has four primary dimensions: intensity, familiarity, pleasantness, and quality. A major focus of this research is to identify the human brain regions coding for each of these perceptual dimensions. In addition, several characteristics of the gustatory system make it an excellent model for understanding sensory and affective interactions. First, the primary cortical representation of taste is within paralimbic cortex. Second, taste perception is thought to be an unlearned or primarily reinforcing, yet the reward value must be flexible to reflect fluctuations of internal state as well as changes in external contingencies. The second goal of this work is to understand how changing the reward value of taste may alter its neural representation. Finally, several projects are aimed at understanding

how flavor is represented in the human brain. The lab is testing the hypotheses that taste/smell integration is dependent upon a network of structures including the insula, orbitofrontal cortex, amgydala and anterior cingulate cortex; 2) is dependent upon experience, 3) is dependent upon mode of olfactory perception; and 4) is altered by attentional allocation. To accomplish these goals taste perception is examined in patients with discrete brain lesions and brain activation is evaluated during perception of chemosensory stimuli using functional neuroimaging techniques in healthy subjects.

Acknowledgments

For getting me started, a special thanks to Marilyn Jones-Gotman (world's best Ph.D. advisor), Jim Weiffenbach and Linda Bartoshuk. I would like to acknowledge the AChemS community for their continued support of student attendance and for making taste and smell such a fun topic of study. Finally, my current research would not be possible without the support of the Cognitive Brain Mapping Group at Northwestern University, my fantastic students and assistants, and the international SCISP collaboration headed by Francis McGlone and funded by Unilever Research.

Small DM, Jones-Gotman M, Zatorre RJ, Petrides M, Evans AC (1997) A Role For The Human Right Anterior Temporal Lobe in Taste Quality Recognition." Journal of Neuroscience, 17(13): 5136-5142

Small DM, Zatorre RJ, Dagher A, Jones-Gotman M (2001) Brain Activity Related to Eating Chocolate: From Pleasure to Aversion, Brain, 124(10): 1720-1733

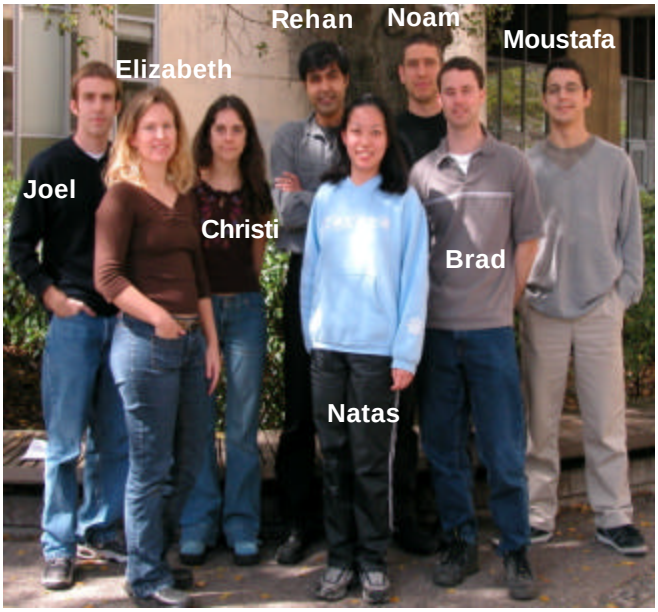
Small DM, Zatorre RJ, Jones-Gotman M (2001) Increased Taste Intensity Perception Following Resection of the Anterior Temporal Lobe in Humans", Brain, 124, (8) 1566-1575

Small DM (2002) Towards an understanding of the brain substrates of reward in humans" Neuron, 33(5) 668-671

Moskowitz Jacobs Award for Research Excellence in the Psychophysics of Taste and Smell

Dr. Noam Sobel, University of California, Berkeley

Our lab studies human olfaction. Our two main goals are (1) to elucidate systems-level neurobiological mechanisms of olfactory processing, and (2) to elucidate ways in which chemical sensing affects human behavior. Methods currently used in our lab are functional magnetic resonance imaging (fMRI), physiological monitoring, and olfactory psychophysics. Using these methods we have recently concentrated on the role of sniffing in olfactory processing[1]. We have shown that because airflow is slightly different in each nostril, each nostril is in fact hyper tuned to better perceive different odorants[2]. In other words, when humans take a sniff, each nostril conveys to the brain a slightly different olfactory image. We are now studying how the brain combines these two disparate images of the olfactory world into a single olfactory percept.



In addition to this major project, other ongoing projects in our lab include: Using fMRI, fMRS, and psychophysics to probe odor encoding in olfactory cortex[3], and the plasticity of this organization[4]; Using psychophysics to study the olfactory deficit in neurodegenerative diseases such as Parkinson's disease; Using fMRI, physiological recording, and

psychophysics, to test for the possibility of a functional human vomeronasal system.

Acknowledgments.
Our work is the result of a collaborative effort by (from left to right in picture) Joel Mainland, Elizabeth Bremner, Christina Zelano, Rehan Khan, Natasha Young, Noam Sobel, Brad Johnson, and Moustafa Bensafi. We thank Arak Elite.

Sobel N, Prabhakaran V, Desmond J, Glover G, Sullivan E, Goode RL, Gabrieli JDE (1998) Sniffing and Smelling Separate subsystems in the human olfactory cortex. Nature 19:282-286

Sobel,N, Saltman A, Khan R, Sullivan E, Gabrieli JDE (1999) The world smells different to each nostril. Nature 402:35

Anderson,AK Christoff K, Stappen I, Panitz D, Ghahremani DG, Glover G, Gabrieli JDE, Sobel N (2003) Olfaction dissociates the neural representation of intensity and valence in humans. Nature Neurosci 6: 196-202.

Mainland J, Bremner E, Young N, Johnson B, Khan R, Bensafi M, Sobel N (2002) Olfactory Plasticity: One nostril knows what the other learns. Nature 419:802.

Takasago Award for Research in Olfaction

Dr. Brett A. Johnson, University of California, Irvine

Given the simultaneous capacity of the olfactory system to detect a wide variety of chemical structures and to discriminate between very similar odorants, Dr. Johnson and his colleagues chose to analyze olfactory responses using multiple series of odorants representing this variety of stimuli. The discovery of a large but finite set of odorant receptors that maps neatly onto olfactory bulb glomeruli suggested that an appropriate measure of the full breadth of olfactory responses might involve a systematic and quantitative mapping of glomerular activity across the entire structure. The combination of these strategies allowed them to test how spatial patterns of olfactory bulb activity might relate to the chemical structures of odorant molecules. They used a careful analysis of 2-deoxyglucose autoradiograpy to show that spatial patterns are recapitulated in the lateral and medial aspects of each dfactory bulb, that odorants of similar structure evoke similar patterns, that certain regions of the bulb respond to molecular features present in multiple distinct odorants (e.g., functiona groups), that even rather simple odorants are represented as combinations of such features, and that responses within bulbar regions can be organized spatially according to properties of the entire odorant molecule (e.g., molecular length). They used behavioral tests to show that the quantitative differences in patterns evoked by certain chemically related odorants predict the ease of discrimination of these odorants.

Acknowledgements
I thank Michael Leon, for support, trust, advice, and encouragement; my wife and colleague Cindy Woo; my biochemistry mentors Dana Aswad and Elias Michaelis; our collaborator Christiane Linster; and numerous lab members who risked shoulders, wrists, and sanity to execute the thousand turns of the cryostat and the million mouse clicks necessary to construct the maps (especially Zhe Xu and Edna Hingco). I thank colleagues at meetings for their thoughts, reviewers who helped hone the interpretations, and those who imagined that I belonged with the excellent past winners of this award.

Johnson BA and Leon M (2000) Odorant molecular length: one aspect of the olfactory code. J Comp Neurol 426:330-338

Linster C, Johnson BA, Yue E, Morse A, Xu Z, Hingco, EE, Choi Y, Choi M, Messiha A, Leon M (2001) Perceptual correlates of neural representations evoked by odorant enantiomers. J Neurosci 21:9837-9843

Johnson BA, Ho SL, Xu Z, Yihan JS, Yip S, Hingco EE, Leon M (2002) Functional mapping of the rat olfactory bulb using diverse odorants reveals modular responses to functional groups and hydrocarbon structural features. J Comp Neurol 449:180-194

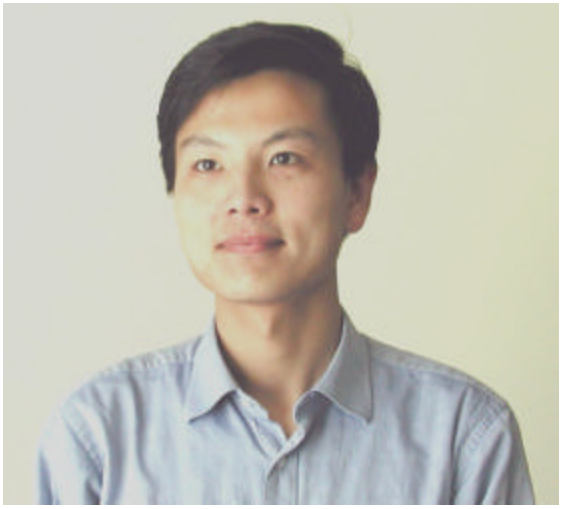
Don Tucker Award for Outstanding Graduate Student Presentation

Pencheng Han, University of Utah

PACAP modulates potassium currents and promotes survival of olfactory receptor neurons. Han P, Hegg, CC, Roskams AJ[1], Lucero MT. Physiology, University of Utah and [1]Center for Molecular Medicine, University of British Columbia

Neuroprotection is a promising strategy for the treatment of neurodegenerative diseases. Pituitary adenylate cyclase activating polypeptide (PACAP) is an important neuroprotective peptide, yet the underlying neuroprotective mechanisms remain to be elucidated. We grew acutely dissociated mouse olfactory receptor

neurons (ORNs), as well as an immortalized olfactory placode derived cell line (OP6), in the presence and absence of 40 nM PACAP and measured the voltage-gated potassium currents (IK) by whole-cell patch clamp. Concurrently, an activated caspase fluorescent marker, CaspACE FITC-VAD-FMK, was used to label living cells undergoing apoptosis in a series of time points after dissociation. The images of fluorescence-positive cells were recorded by confocal microscopy and the survival rates were calculated. We found that (1) in untreated primary cultures, the IK density in ORNs was 48% larger than the IK density in cells grown in PACAP. In OP6 cells, the IK density was not significantly different in the presence or absence of PACAP. (2) In serum-free media, PACAP significantly



reduced neuronal apoptosis in ORNs for short (<24 hours) but not extended (24 hours to 9 days) culture durations (unpaired Student's t test). Our results confirm previous work that PACAP is neuroprotective for ORNs[1] and suggest that the observed suppression of the increase in IK, may be a mechanism for PACAP's neuroprotective effects in ORNs. This work was funded by NIH NIDCD grant # DC02994 to MTL.

[1]Hansel et al. (2001) *J Neurosci.* 21(13):4625

Additional Awards Granted to AChemS Members

Richard Doty (University of Pennsylvania) is the 2003-2004 recipient of the William Osler Patient-Oriented Research Award from the University of Pennsylvania. This prestigeous award was established in 1996 to honor Dr. Osler, the Father of Clinical Medicine, who in the 1880's revolutionized clinical teaching and research. The award is granted to an outstanding member of the School of Medicine faculty for a body of clinical research performed predominantly at the University of Pennsylvania in the last five years.

Charles A. Greer (Yale Univ, School of Medicine) was selected as the 2002 winner of Frank Allison Linville's R.H. Wright Award in Olfactory Research. The $30,000 award is made annually to an individual with outstanding research achievement in olfaction. Dr. Greer was noted for his studies of the fine structure and function of the developing olfactory system.

Debra Ann Fadool (Florida State University) was recently honored as an up-and-coming star in neuroscience research with the first Merck Young Investigator Award from Women in Neuroscience. The award recognizes the accomplishments of non-tenured female researchers. Debi works on sensory signal transduction mechanisms operating in the olfactory system at the electrophysiological and molecular/cellular level.

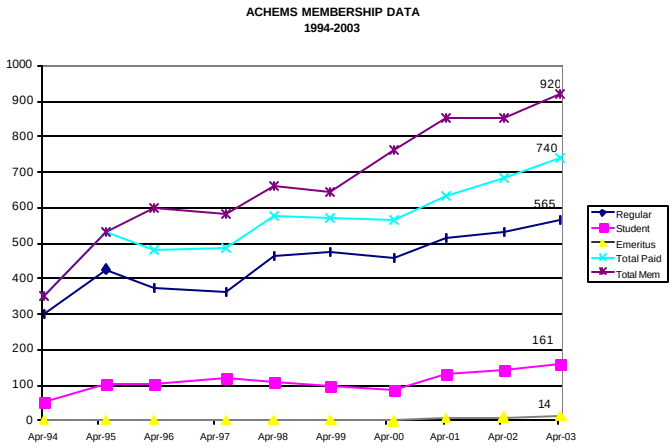
Message from the Membership Chair

Mary Lucero (mary.lucero@m.cc.utah.edu)

If you have not already done so, please renew your membership online now! To check whether or not your have paid for 2003-2004, go to the AChemS directory, do a search on your own name, and at the bottom of the record details, it should say "current through 2004".

There are four items of note for matters pertaining to membership:

1. Summary of Membership. As of the beginning of April 2003, our paid new memberships and renewals of existing memberships are as follows: Regular = 565; Student = 161; Emeritus = 14; Grand Total = 740 (up from 666 at April last year). There are currently 180 unpaid members, which brings our total membership to an all time high of 920! Thus we are approaching the 1000 membership level whether we want to or not. Dr. Richard Costanzo suggested that I resume his efforts at charting the membership over time. The graph is shown below.



2. Gender and ethnicity are now being tracked on renewals and new applications. Because of a number of requests for this information from people writing grant proposals or needing to search on these parameters, the online forms have been changed to include gender and ethnicity information. The information is strictly voluntary, but I encourage all of you to update it because it will greatly improve the accuracy of the data base.

3. Dues increase. After extensive discussion at the executive committee meeting, it was proposed that the new annual membership dues would be increased to $40 for student and emeritus members and $100 for regular members. A vote was conducted, and there was unanimous support for this proposal. The membership has been sent an email detailing the rationale for this increase (see also business report).

4. Amendment to AChemS bylaws. At the 2003 business meeting, the following amendment to the AChemS bylaws Article III section 2 was unanimously approved. The main impacts of this change are that we have dropped the requirement of 2 years in the chemosensory field for Regular membership and now both undergraduates and first year graduate students can be student members of AChemS as long as their faculty sponsor is a Regular member in good standing (has paid dues).

AChemS bylaws Article III Section 2. Individual Members. Any individual who has done research in chemoreception, completed a post-baccalaureate terminal degree and is affiliated with an academic, clinical or industrial institution shall be eligible to apply for Regular Membership. Applicants for Student Membership (undergraduate, graduate students) must be enrolled in appropriately oriented programs at degree-granting institutions of higher education and must be sponsored by a Regular member in good standing.

Message from the Treasurer

Debra Ann Fadool (dfadool@bio.fsu.edu)

As I reach the final year of my office term, I would like to describe the future outlook of our society budget and resources. I apologize that this will be so lengthy but a full explanation is warranted. We are in store for significant and important financial decisions that will affect the growth, society management, and professional services for our society membership. Dr. John Scott and I felt that the society would benefit from the collective efforts of a finance committee that would serve to not only oversee the formulation of the annual budget by the treasurer, but be intellectually involved in the long-term health of our economic reserves. It will be important that financial decisions are not made independently but rely upon the strength of an informed committee. Most pressing is an unfortunate poor timing: a new management team will be hired to replace Panacea's retirement and simultaneously a newly elected treasurer will have to stand office. The corporate memory existing through our newly formed finance committee will help reduce what might otherwise be an awkward transition. I am greatly satisfied that I will be coordinating a team of individuals that can provide expertise and opinions of what is most financially favorable for our society. Please welcome the following individuals that have been appointed to serve in this important capacity: Drs. Barry Green (chair), Gary Beauchamp, Carol Christensen, Scott Herness, Mike Michel, John Scott. The past treasurer

will be retained in service to the finance committee until he/she is replaced by the next outgoing treasurer.

The new finance committee has been charged with the following immediate duties:

1. Develop a policy for relations with corporate sponsors, corporate members, and exhibitors. Make recommendations to the President about his/her responsibilities in fund raising starting in December/ January of each year.

2. July-August: Make individual recommendations via email to the treasurer about the upcoming budget allocations. The recommendations will be incorporated by the treasurer who will present the new budget to the executive committee for approval by electronic vote.

3. Make recommendations to the search committee of the new management team concerning the current mode of record keeping by the treasurer and if the format of accounting should be the same, modified, or completely performed by the new management team.

The following are the major economic concerns society members have expressed to me:

1. Interest rates on our CAP business account have fallen from nearly 5.8% to 0.6%. This account is an interest-earning checking account yet rates have not risen above 1% for more than one year. Although I have re-negotiated for a no fees account due to our non-profit status, and this has been granted, heavy use of our electronic abstract submissions and credit card registration fees comes with unavoidable costs associated with the technology. To offset these costs and combat the poor economy, I have established or maintained two high interest-earning Certificates of Deposit for the society that now total $54,610.79. This value represents our reserve and the deposits will mature in the Spring of 2005.

2. The executive committee voted unanimously to increase the cost of membership dues to $100 for full members and $40 for students. This increase was passed at our April 2003 business meeting by the members at large. As I presented during this meeting, our estimated costs of a poorly attended meeting balanced against fixed costs due to Panacea, Oxford Press, Community of Science, and the Hyatt, could be as much as $158,000. Typical scientific societies work towards establishing a reserve that averages 60-70% of their annual budget. We simply could not retain the old dues structure and build a reserve with projected additional costs in new management, upcoming contributions to ISOT 2008, and increased demands for new expanded member services such as the website and member information data bases. We thank you for your understanding and continued financial support of the society through annual membership dues.

4. We have had the good fortune of having continued and new donations provided from a variety of corporations to fund the general operations of our conference including, IFF, Avon, Nestle, Firmenich, and Givaudan. Through the efforts of our former presidents, Drs. Stuart Firestein, Steve Roper, John Hildebrand, and current president, Dr. John Scott, AChemS has established a good relationship between the academic and industrial sides of research in the Chemical Senses. For the first time in the history of our meeting, we also had the participation of four paid exhibitors, thanks largely to the organizing efforts of Dr. Mary Lucero and Susan Lampman. Lastly Dr. Timothy McClintock, this year's program chair, plans to host a special pre-conference symposium that will likely generate additional revenue for our general scientific programs.

5. We have had the opportunity for support of our activities through the National Institutes of Deafness and Communication Disorders at the NIH for the past 10 years. Dr. Barry Ache and Judith van Houten graciously volunteered to prepare a resubmission of our R13 meeting grant, which was successfully funded for another 5 years! This contribution has a significant impact on the caliber of our scientific programs and our continued ability to reduce travel expenses for clinical and minority scientists. Please thank Dra. Ache and van Houten personally for his service to the society and our program directors at the NIDCD for their sustained support.

6. We do not yet have a fixed cost for the new management team that will be replacing Panacea immediately after our 2004 annual meeting. The search committee is still in the midst of interviewing the top management firms. While some firms require external annual audits (~$4,000), lock boxes for deposits (~1,000/mo.), annual event and liability insurance (~$4,000), and miscellaneous "wild card" costs (i.e. out-sourcing membership data or web design), I assure you that the committee is diligently weighing services against cost to provide the society wise judgement in the selection of our new team. We have budgeted ($10,000) for a training period where both Panacea and the new team will work in tandem before the annual meeting.

7. Lastly we had a wonderful celebration at the Ringling Museum to mark the 25th year for the AChemS Society. In light of this wonderful accomplishment, we elected to make a one time increase in our conference budget of $15,000 in 2003 to celebrate the history and promise of our discipline. We also increased student travel scholarships for this celebratory year from $12,000 to

$15,000. Thus you will see these expenditures reflected in our total 2003 expenses ($244,637.76) that exceed our total 2003 income ($228,813.60).

CHEMA Notes

Susan Sollars (ssollars@mail.unomaha.edu)

The "Blue Dots" have changed their name! We are now CHEMA, the CHemosensory Enterprise and Mentorship Alliance. CHEMA includes all AChemS members who received a Ph.D., M.D., D.D.S., D.V.M., terminal Masters or other graduate degree within the past 10 years and are no longer considered a "student." So far, we have approximately 80 AChemS members identified as part of CHEMA. If you qualify as a CHEMA member, you can identify yourself on the annual membership dues application.

CHEMA's goals include 1) visibility and greater participation within AChemS, 2) building a network among CHEMA members, 3) increasing mentorship opportunities between CHEMA members and others within AChemS and 4) organizing activities during the annual conference that may be of special interest to CHEMA members.

We hope to influence positive change within AChemS for many years to come!

Go to lunch with CHEMA at AChemS 2004! CHEMA is asking for your participation in an exciting new initiative. We hope to match small groups (4 – 5 per group) of CHEMA members with a "senior" member of AChemS willing to go to lunch (or dinner) with them sometime during the annual meeting. These will be informal meetings with the goal in mind of talking, laughing and simply getting to know each other. As a mentor, you can specify a topic area for the lunch if you like (some examples of topics might be: getting a job, family and career, surviving your first job – or just about any topic you might think of). Each participant will pay for themselves.
If you are interested in participating in this initiative and/or have any questions, feel free to contact me.

No more Gordon Conferences on Chemical Senses

John Scott (johns@cellbio.emory.edu)

An important tradition in the Chemical Senses has come to an end with the announcement from the Gordon Research Conferences that they would not approve the conference on Chemical Senses: Taste and Smell for future scheduling. This non-renewal was based largely on declining attendee ratings of the conference as compared to other conferences in the same year. It is sad to see a long tradition in the field die. Susan Travers and I, as Chairs of the 2003 conference, feel this acutely, as do the organizers for the planned 2005 conference, Steve Roper and Linda Buck. However, the substantial difficulty that we found in putting together the program attests to the success of our field. A very large number of the people that we approached about participating were either involved in other conferences at the same time or had just presented their views at similar national and international conferences.

I have researched the history of the Chemical Senses Gordon Conference with the aid of the GRC staff. The early conferences were entitled "Chemistry and Psychophysiology of Odor and Flavor" beginning in 1966 and the title changed slightly over the years.

1966: Chemistry and Psychophysiology of Odor and Flavor (William Sulzbacher & Dean Foster)

1969: Chemistry and Physiology of Odor and Flavor (Lloyd Beidler & David Moulton)

1972: Chemistry and Psychophysiology of Odor and Flavor (Amos Turk & Irwin Hornstein) at the Tilton School

1975: Chemistry and Physiology of Odor and Taste (David Moulton & G. J. Henning) at the Proctor Academy

1978: Chemical senses: Taste and Olfaction (Linda Bartoshuk & Ernest Polak) at the Proctor Academy

1981: Chemical senses: Taste and Olfaction (Thomas Getchell & Steven Price) at the Proctor Academy

1984: Chemical Senses: Taste and Olfaction (Bruce Oakley& David Heckert) at the Proctor Academy

1987: Chemical Senses: Taste and Olfaction (Robert O'Connell & James Kuznicki) at Plymouth State College

1990: Chemical Senses: Taste and Olfaction (Bruce Halpern & David Hill) at Plymouth State College

1994: Chemical Senses: Taste and Smell (John Caprio & Gail Burd) at Plymouth State College

1996: Chemical Senses: Taste and Smell (Barry Ache & Alan Spector) at Salve Regina University

1998: Chemical Senses: Taste and Smell (John Kauer & Marion Frank) at Salve Regina University

2001: Chemical Senses: Taste and Smell (Robert Margolskee & Stuart Firestein) at Salve Regina University

2003: Chemical Senses: Taste and Smell (Susan Travers & John Scott) at Colby-Saywer College

These conferences contained some very significant presentations. In addition, significant steps in the organization of AChemS took place at the 1978 Gordon Conference. Although some people felt that the Gordon Conference, ISOT, and activities at the Neuroscience meeting made a chemical senses society unnecessary, AChemS proved itself quickly. AChemS has significantly impacted the attendance and nature of the Gordon Conference on the Chemical Senses. The Gordon Conference has always been a venue for free discussion and for attracting people on the edges of our community. Perhaps AChemS competed too well in these roles. In the future we may find it fruitful to reapply to the Gordon Research Conferences or to search out other mechanisms for that type of conference. On the other hand, we may find that our best course is to continue with something like the present structure of our own meeting, using extensive symposia to bring new ideas and new colleagues into the AChemS community.

Newsletter Notes

John I. Glendinning (jglendinning@barnard.edu)

There are two important changes to the newsletter. First, based on nearly unanimous support from the membership, the Executive Committee (EC) voted to distribute this document electronically. If you would like to receive a hardcopy of this document, then you will have to request one from the AChemS central office (meredith@panassoc.com).

Second, the EC decided to exclude the minutes of recent EC meetings from the newsletter, and to publish them in a separate document. You will be notified via email when they have been posted on the AChemS website.

You are welcome to contribute profiles of AChemS members, discussions of new research or clinical topics, editorials, obituaries, advertisements for positions, announcements of new books (written or edited by AChemS members), announcements of honors bestowed on society members, announcements of upcoming meetings, and reports on recent meetings. If you have other ideas that you or someone else would like to write, then feel free to contact me via email.

Word limits depend on the type of article. Please submit all material electronically, preferably as an email attachment. Send queries or submissions to me via email.

By the way, the taste team, once again, licked the smell team in the annual softball game at the 2003 AChemS meeting.

Summer Courses, Meeting Announcements & Job postings

"Chemosensory Neurobiology in the Marine Environment"

a 3-week summer course at the
Bermuda Biological Station for Research
June 6-26, 2004

Faculty
Dr. Charles Derby, Georgia State University
Dr. Hank Trapido-Rosenthal, BBSR
Dr. Tim McClintock, University of Kentucky

We will study chemosensory neurobiology in the marine environment at the physio-logical, biochemical, and molecular levels. Lectures will deal with chemoreception in a variety of marine organisms. In laboratory exercises and research projects, the olfactory system of the spiny lobster *Panulirus argus*, will serve as the main teaching and research tool. Emphasis is on experimental techniques and approaches to the study of chemo-sensory biology. Receptor cell electrophysiology, immunocytochemistry, BrdU labeling of cell proliferation, molecular biology (PCR, sequencing, analysis of sequenc data, etc.), and biochemistry of receptor and perireceptor phenomena will be taught and applied to the study of novel research questions relating to chemical sensing, including basic function and applications (*e.g.,* environmental biology).

The course is designed to benefit graduate students and advanced undergraduates with interests in organismal, systems, cellular, or molecular biology.

Competitive scholarships are available to cover tuition, room, and board.

For more information or applications, see http://www.bbsr.edu/Education/summercourses/summercourses.html

For questions, contact:
Charles Derby
Dept. of Biology, Georgia State University, P. O. Box 4010
Atlanta, GA 30302-4010
cderby@gsu.edu
(404) 651-3058
http://www.gsu.edu/~biocdd/
or
Hank Trapido-Rosenthal
Bermuda Biological Station for Research, 17 Biological Lane
Ferry Reach, GE01, Bermuda
hank@bbsr.edu
(441) 297-1880
http://www.bbsr.edu/About_BBSR/Faculty_Profiles/hank/hank.html

Upcoming Meetings of Interest

COMPUTATION IN THE OLFACTORY SYSTEM
The neural representations of odors are shaped not only by the physical parameters of olfactory stimuli but also by organismal factors including motivation and prior experience. This symposium will explore the contributions of centrifugal projections to olfactory sensory processing in the olfactory bulb and piriform cortex, and the mechanisms by which this centrifugal activity is integrated with and shapes the neural representations evoked by odor stimulation. Speakers will approach this topic from diverse perspectives including olfactory learning and the biophysics of odor representation, and employing levels of analysis including animal behavior, cellular and network physiology, and computational modeling.

Speakers include: Edi Barkai (University of Haifa), Matthew Ennis (University of Tennessee Health Sciences Center), Leslie Kay (University of Chicago), Michael Leon (University of California, Davis), Christiane Linster (Cornell University), Pierre-Marie Lledo (Institut Pasteur), Barry Richmond (Section on Neural Coding and Computation, NIMH), Michael Shipley (University of Maryland)

Saturday, 17 July 2004, 9:00 am – 4:30 pm, Radisson Plaza Lord Hotel, Baltimore, MD

Lodging at reduced rate has been arranged at the hotel. Please consult the web sites below for additional information.

Organizer: Thomas Cleland, Cornell University (*tac29@cornell.edu*)
CNS Organization: **http://www.cnsorg.org**
Program in Neuroscience @ Univ. Maryland: **http://neuroscience.umaryland.edu/**

Postdoctoral Positions

NEUROSCIENCE (OLFACTION)
Position available at NIH (< 5 years from degree). Lab focuses on mechanisms underlying 1) Neuronal migration, 2) Axonal pathfinding 3) synchronized neuronal activity and 4) pulsatile secretion. Projects utilize the GnRH-1 neuroendocrine system and olfactory system to study cellular properties at different developmental and/or reproductive states and molecules involved in differentiation and migration of GnRH cells and olfactory axon outgrowth during development. Multidisciplinary approaches are employed including nasal explants, calcium imaging, immunocytochemistry, in situ histochemistry, single-cell PCR, and subtractive cDNA screening. Candidates should have training in one of the following: Neurobiology, Developmental biology, Molecular biology or Neuroendocrinology.

Please send a letter describing your interest and long term goals, a curriculum vitae and three letters of reference to Dr. Susan Wray, Cellular & Developmental Neurobiology Section, NINDS, NIH, Bldg 36/Rm 5A-21, Bethesda, MD, Email: wrays@codon.nih.gov. NIH is an equal opportunity employer

Faculty Positions

MOLECULAR GENETICS
The Department of Biology at Wake Forest University is seeking an Assistant Professor for a tenure-track position in the area of molecular genetics to begin in August, 2004. The successful candidate will be expected to teach both undergraduate and graduate courses and to develop an independent research program that involves MS, PhD and undergraduate students. The ability to teach genetics and/or biochemistry will be considered an important asset. For a description of the department, please consult our web site: http://www.wfu.edu/academics/biology/.

Please submit curriculum vitae, a statement of current and future research plans, up to three representative publications and, because we are committed to excellence in teaching as well as research, a statement of interests and philosophy in teaching. In addition, please have letters of reference from three referees sent directly to: Dr. Clifford W. Zeyl, Department of Biology, P.O. Box 7325, Wake Forest University, Winston-Salem, NC 27109. FAX (336) 758-6008; e-mail: zeylcw@wfu.edu. We will begin reviewing applications as they are received and will continue until the position is filled.

Wake Forest University is an equal opportunity employer and is committed to increasing the diversity of its faculty.

INTEGRATIVE PHYSIOLOGIST
The Department of Biological Sciences at Louisiana State University **(http://www.biology.lsu.edu)** invites applications for a tenure-track Assistant Professor position in Integrative Physiology. A PhD or equivalent degree in a biological sciences or related field, postdoctoral experience and a record of creative and significant research in any area of animal physiology (non-mammalian models preferred) are required. Integrative physiology involves understanding function at multiple levels from cells to systems. The successful candidate will be expected to develop a vigorous, extramurally funded research program and contribute to undergraduate

and graduate teaching. Send curriculum vitae, incl. email address, statement of research and teaching interests, three letters of recommendation and reprints of key publications to: Integrative Physiology Search Committee, Ref. Log # 0327, Department of Biological Sciences, 202 Life Sciences Building, LSU, Baton Rouge, LA 70803. Review of applications will begin October 15, 2003 and continue until the position is filled. *LSU in an Equal Opportunity/Equal Access Employer*

RESEARCH SCIENTIST

Givaudan, one of the foremost innovators, creators and suppliers of flavors and fragrances in the world, is seeking an innovative individual to fill the position of Research Scientist II in its Flavor Research and Development laboratories. In this challenging position, the successful applicant will collaborate with internal scientists to develop novel small molecules that modulate taste.

The major focus of research activity will be development of biochemical assays to be used for the identification of novel ingredients for the flavor and food industry. The successful applicant will join a group of interdisciplinary scientists, including microbiologists, biochemists, molecular biologists, physical and analytical chemists and food scientists, in a collaborative effort to investigate taste and flavor perception, flavor enhancement and flavor-food matrix interactions.

Candidates for this position must have a PhD in biochemistry or pharmacology with a strong background in receptor biology, including purification of functional membrane preparations and /or ligand-receptor binding assay development. In addition, familiarity with receptor-dependent signal transduction is preferred and experience with modern molecular biology techniques is also desired. Strong oral and written communication skills and computer skills are essential.

Our state-of-the-art Flavor Research and Development laboratories for Givaudan Flavors are located at our US headquarters in Cincinnati, Ohio, situated on a campus like setting, which affords easy access to very attractive and affordable suburban and urban communities. In addition, Cincinnati combines the quality of life of a small midwestern city with many of the same cultural attractions found in a much larger metropolitan area.

Givaudan offers a very attractive compensation and benefits package including medical, dental, vision, matched 401(k) and more.

CONTACT: For immediate consideration fax or send cover letter and a current resume with salary requirements to the attention of: Givaudan, Human Resources, 1199 Edison Drive, Cincinnati, OH 45216, Fax: (513) 948-5607 **cincinnati.human-resources@givaudan.com**