Future Meetings

AChemS XXII
April 26 – 30, 2000

AChemS XXIII
April 25 – 29, 2001

The Association for Chemoreception Sciences
presents

Impressions on Olfaction and Taste

A Feast for the Chemical Senses
AChemS XXI April 1999
Sarasota, Fla.
The Association for Chemoreception Sciences gratefully acknowledges support from its corporate members:

**Firmenich, SA**

The Association is also grateful for the generous support of its corporate sponsors:

**Twenty-First Annual Givaudan-Roure Lectureship**
**Givaudan Corporation**

**Fourteenth Annual Takasago Award for Research in Olfaction**
**Takasago Corporation**

**Eighth Annual Moskowitz Jacobs Award for Research in Psychophysics of Taste and Olfaction**
**Moskowitz Jacobs Incorporated**

**Sixth Annual Award to Promising Young Researchers in the Field of Gustation**
**Ajinomoto USA**

**Support for the Symposium on Adaptation in Vision and Olfaction**
**Unilever Research Vlaardingen**

**Support for the Symposium on Short Term Impact of Environmental Changes**
**Chemical Manufacturers Association, Florida State University Sensory Research Institute, IMBIFO, International Flavors and Fragrances, Sales Advantage Group, Unilever Research US**

**Support for the Clinical Luncheon**
**Campbell Soup**

The Association acknowledges grant support from:

**The National Institutes of Deafness and Other Communicative Disorders**
**National Institutes of Health**

**ACChemS Executive Board 1998-1999**

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<td>Joel White</td>
<td>Tufts University School of Medicine</td>
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**Program Committee 1998-1999**

Larry Clark, Richard M. Costanzo, Beverly J. Cowart, Thomas E. Finger, Stuart Firestein, Suzanne Sollars
GENERAL INFORMATION

1. Registration will be in the Longboat Room & Gallery on Wednesday evening, 5:00-7:00 P.M., and in the morning during the meeting.

2. All slide sessions will be held in the Sara Desoto Room. All speakers in slide sessions should meet with the session chairperson and give the slides to the projectionist at least 20 minutes prior to the start of the session.

3. The poster sessions will be held in the Hernando Desoto Room. Posters should be put on the appropriate board (as indicated by the number with a “P” in the program book). Posters for morning sessions should be posted before 8 A.M. and should be left up until at least 2:00 P.M., but should be removed by 4:30 P.M.; posters for the evening sessions should be posted by 5:00 P.M. and must be removed by midnight.

4. The Clinical Luncheon will take place on Saturday from 12:15 - 2:00 P.M. in the Florida Room. Tickets are on sale in the Longboat Room.

5. The Industrial Reception will take place on Friday from 5:30-7:00 P.M. in the Florida Room. Tickets are on sale in the Longboat Room.

6. The Beer Tasting will be held in the Florida Room on Saturday from 5:00-7:00 P.M. Tickets are on sale in the Longboat Room. Admission also requires two bottles of your favorite microbrew. Also, bring an unmarked bottle of your best for the home brew contest!

7. There will be a van from the hotel to Lido Beach Thursday and Saturday afternoons. The van will leave from the front of the hotel on the hour, beginning at 1:00 P.M. and returning on the half-hour from Lido Beach. The last van will leave the beach at 4:30 P.M.

8. There will be a van from the hotel to the softball game. The van will leave from the hotel at 3:00 P.M. on Friday and return to the hotel at the end of the game.

9. AChemS will sponsor an opening buffet reception on Wednesday from 6:30-8:00 P.M., and a limited number of breakfast pastries will be available each morning beginning at 7:00 A.M.

10. The Hyatt will provide a cash “Quick-Lunch Sandwich Cart” at the conference center daily at 12:00 P.M. The Prefunction area is reserved for eating your lunch and socializing if you do not care to go outside and wish to meet with other conferees.

Please refer to the program book for listings of Symposia, Special Lectures, and other Special Events.

Wednesday, April 14, 1999

ASSOCIATION FOR CHEMORECEPTION SCIENCES

Twenty-first Annual Meeting

12:00-4:30 p.m.  
Executive Committee Meeting

12:00-4:30 p.m.  
Satellite Symposia:

Advances in Brain Imaging and Electrophysiological Measurement of Human Olfactory Function in Health and Disease (Four Flags Court)  
Organizer: R.L. Doty

Nutritional Implications of Cephalic Phase Responses (Florida Room)  
Organizer: R.D. Mattes and K. Teff

5:00-7:00 p.m.  
Registration (Long Boat & Gallery)

6:00-6:30 p.m.  
Minority Fellows Organization Meeting (State Room)  
Organizer: J. Caprio

6:30-8:00 p.m.  
Opening Buffet (Sara and Outdoors)

8:00-8:30 p.m.  
Welcome, Opening Remarks & Awards Ceremony (Hernando Desoto Room)  
C.A. Greer, President

8:30-9:30 p.m.  
Givaudan-Roure Lecture (Hernando North and South)  
Dr. A.J. Hudspeth  
Howard Hughes Medical Institute and Laboratory of Sensory Neuroscience, The Rockefeller University, New York  
Chairperson: S.C. Kinnamon

"How Hearing Happens: Transduction, Tuning, and Transmission by Hair Cells of the Internal Ear”

9:30 p.m.  
Social Reception and Cash Bar (Gallery)

9:30 p.m.  
Organizational Meeting for Students with Travel Awards (Hernando Desoto Room)  
Organizer: A.J. Nighorn
Thursday, April 15, 1999

SLIDES

Thursday Morning - 8:00 a.m. - 10:00 a.m.

Olfactory/Vomeronasal Epithelium
Chairperson: S. Firestein

8:00 a.m.  A Novel Family of Seven-Transmembrane Proteins: Candidate Olfactory Receptors in Drosophila.
Warr, C., Clyne, P., Freeman, M., Lessing, D., Kim, J., and Carlson, J.R. Dept. Molecular, Cellular and Developmental Biology, Yale University, New Haven CT 06520, USA; Dept. Ecology and Evolutionary Biology, Yale University, New Haven CT 06520, USA

8:15 a.m.  High Resolution Ca²⁺ Imaging of Olfactory Epithelium and Vomeronasal Organ in a Novel Mouse Slice Preparation.
Leinders-Zufall, T., Puche, A.C., Shipley, M.T. and Zufall, F. Department of Anatomy and Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201

8:30 a.m.  Electrophysiological Characterization of Odor Responses of Rat and Mouse Olfactory Receptor Neurons in Isolated Epithelial Patches.
Ma, M., Chen, W.R., and Shepherd, G.M. Section of Neurobiology, Yale University School of Medicine, New Haven, CT 06510

8:45 a.m.  Targeted Disruption of the OCNC-2 Gene Reveals a Restricted Pattern of Expression.
Munger, S.D., and Reed, R.R. Howard Hughes Medical Institute, Dept. Molecular Biology and Genetics, Johns Hopkins Medical Institutions, 725 N. Wolfe St., PCTB 818, Baltimore, MD 21205

9:00 a.m.  Odor Transduction in Normal Mice and Mice Deficient in Subunit 1 of the Olfactory CNG Channel.
Delay, R. J. and Restrepo, D. Department of Cellular & Structural Biology and the Rocky Mountain Taste & Smell Center, University of Colorado Health Science Center, Denver CO 80262

9:15 a.m.  Functional Cloning and Reconstitution of an Odorant Receptor in Single Olfactory Neurons.
Touhara, K., Shintaro S., Inaki, K., Hirono, J., Sato, T., Sakano, H. Dept. of Integrated Biosciences, Graduate School of Frontier Sciences, The University of Tokyo, Tokyo 113, Japan, and Department of Neurochemistry, University of Tokyo, Tokyo 113, Japan

9:30 a.m.  A Central Role for the Gα Subunit of Heterotrimeric G-proteins in Regulating Lobster Olfactory Signalling.
McClintock T.S., Xu, F., Hollins, B. and Bose, S.C. University of Kentucky College of Medicine, Lexington, KY 40536-0298.

9:45 a.m.  Cloning of TRP2, A Candidate Transduction Channel for Mammalian Pheromone Reception.
Liman, E.R., Dulac, C., and Corey, D.P. Department of Neurobiology and Howard Hughes Medical Institute, Massachusetts General Hospital, Boston, MA 02114; Department of Molecular and Cellular Biology and Howard Hughes Medical Institute, Harvard University, Cambridge, MA 02138

10:00 a.m.  Refreshment Break

10:15 a.m. - 12:15 p.m.  Symposium: Adaptation in Vision and Olfaction
Chairperson: D. Restrepo

Dr. Edward Pugh, Jr.
Department of Psychology & Institute of Neurological Sciences, Univ. of Pennsylvania, Phila. PA 19104
"Partitioning Light Adaptation in Salamander Rod Photoreceptors"

Dr. Pamela Dalton
Monell Chemical Senses Center, Philadelphia, PA 19104
"Psychophysical and Behavioral Characteristics of Olfactory Adaptation"

Dr. Frank Zufall
Department of Anatomy and Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201
"Cellular and Molecular Basis of Odorant Adaptation"

Dr. Johannes Reisert
Physiological Laboratory, University of Cambridge, Downing Street, Cambridge CB2 3EG, U.K.
"Adaptation-induced changes in sensitivity in frog olfactory receptor cells."
POSTERS

Thursday Morning - 8:00 - 12:15 p.m.

Feeding and Reproductive Behavior I
Olfactory Systems: Central Mechanisms

Feeding and Reproductive Behavior I

P1
Chemosignalling in Rat: Unique Chemical Structures and Behavioral Responses.
Novotny, M.V.1, Ma, W.1, Zidek, L.1 and Alberts, J.3 1Department of Chemistry, Indiana University, Bloomington, IN 47405; 2Department of Psychology, Indiana University, Bloomington, IN 47405.

P2
Repellent Effects of Capsaicin, Denatonium, and Vexar Plastic Mesh Plant Protectors on Gnawing Behavior of Wild Norway Rats.
Shumate, S. A., Sterner, R. T., and Gaddis, S. E. National Wildlife Research Center, 4101 LaPorte Avenue, Fort Collins, CO 80521

P3
The Effects of Chorda Tympani Transection and Regeneration on NaCl Detection Threshold.
Kopka, S.L., and Spector, A.C. University of Florida, Department of Psychology, Gainesville, FL 32611

P4
Effect of Aging on Bitter Taste Response and Gene Expression in Rats
Hoy, E. A.1, Huque, T. 1, Stewart, C. N.1, Brand, J. G.1,2,4, and Mackler, S. A. 1,4 1Dept. Psychology, Franklin & Marshall College, Lancaster, PA 17604; 2Monell Chemical Senses Center, Philadelphia, PA 19104; 4University of Pennsylvania, Philadelphia, PA 19104; 4Veterans Affairs Medical Center, Philadelphia, PA 19104

P5
Genetic Variation in the Syrian Hamster: Influence on Intake of Taste Solutions.
Frank, M.E.2, and Blizard, D.A.1 1Center for Developmental and Health Genetics, Pennsylvania State University, University Park, PA 16802; 2Department of BioStructure & Function, School of Dental Medicine, University of Connecticut Health Center, Farmington, CT 06030

P6
Salt Appetite is Null Mutation of the Isk Gene.
Puchalski, R. B.1, Kelly, E.1, Bachmanov, A.A.1, Tordoff, M.G.1, Brazier, S.P.1, Kuang, J.1, Arrighi, L2, and Barhanin, J.1 1Monell Chemical Senses Center, Philadelphia, PA 19104; 2Department of Pharmacology, University of Pennsylvania, Philadelphia, PA 19104; 1Institut de Pharmacologie Moleculaire et Cellulaire, CNRS-UPR 411, Valbonne, France

P7
NaCl Preferences in 13 Inbred Mouse Strains.
Bachmanov, A.A., Tordoff, M.G., and Beauchamp, G.K. Monell Chemical Senses Center, 3300 Market St., Philadelphia, PA 19104

P8
Sodium Detectability in Rats Is Not Influenced by Dietary NaCl Exposure or Size of Anion.
Geran, L.C., and Spector, A.C. Department of Psychology, University of Florida, Gainesville, FL 32611

P9
The Effects of Dietary Salt Exposure After Weaning on Adult Solution Intake in Rats
Snyder, D. J., Contreras, R. J., and Smith, J.C. Program in Neuroscience, Department of Psychology, The Florida State University, Tallahassee, FL 32306-1270

P10
The Effect of Water Deprivation and Early Developmental Dietary NaCl Exposure on Taste Reactivity of Rats to NaCl and Water.
Couch, J.A., Markison, A., Sauer, B.C. and Spector, A.C. Department of Psychology, University of Florida, Gainesville, FL 32611

P11
Rapid and Labile Short-Term Conditioned Taste Aversion in Free-Licking Rats.
Nardos, R.1, Smith, J.C.2, and Houpt, T.A.1 1Department of Biological Science, Florida State University, Tallahassee FL 32306; 2Department of Psychology, Florida State University, Tallahassee FL 32306

P12
Conditioned Aversions and Preferences for Solid Foods in Rats.
Smith, P.L., and Smith, J.C. Program in Neuroscience, Department of Psychology, The Florida State University, Tallahassee, FL 32306-1270

P13
The Role of Stimulus Intensity in Conditioned Taste Aversion.
Formaker, B.K., Frank, M.E., and MacKinnon, B.I. Dept. of BioStructure & Function, School of Dental Medicine, University of Connecticut Health Center, Farmington, CT. 06030-3705

P14
The Taste of Linoleic Acid to the Male Albino Rat.
Smith, J. C., and Fisher, E. M. Department of Psychology, The Florida State University, Tallahassee, FL 32306-1270

P15
Taste Synergy Between Imp and Glutamate Ligands.
Delay, E.R.1, and Roper, S.D.1 1Regis University, Denver Colorado, 80221; 2University of Miami Medical School, Miami, FL
Olfactory System: Central Mechanisms

P24  The Organization of Serotonin-immunoreactive Fibers in the Olfactory Nerve and in Glomerular Units of the Larval Sea Lamprey
Zielinski, B.S., and Hua, H.N. Dept. of Biological Sciences University of Windsor, Windsor, Canada N9B 3P4

P25  Labeling of Olfactory Ensheathing Cells by the Lectin Phaseolus vulgaris (PHA-E).
Lipscomb, B.W., Treloar, H.B., and Greer, C.A. Department of Neurosurgery and Section of Neurobiology, Yale University School of Medicine, New Haven, CT 06520-8039

P26  Recovery of Olfactory Bulb Laminar Volumes Following Olfactory Nerve Regeneration.
Kamik, S., Kaner, D., Kallwitz, E. and Meisami, E. Department of Molecular & Integrative Physiology, University of Illinois, Urbana, IL 61801

P27  Neuronal Fate and Afferent Control of Proliferating Cells in the Olfactory Brain of Adult Decapod Crustaceans.
Hansen, A., and Schmidt, M. Zoological Institute, University of Hamburg, D-20146 Hamburg, Germany.

P28  Possible Functions of Taurine in the Primary Olfactory Pathway.
Kratsch, J.1, Belluzzi, O.1, Smutcer, G.1, Ross, D.1, and Hastings, L.1 1Smell and Taste Center, University of Pennsylvania School of Medicine, Philadelphia, PA 19104, USA; 2Dipartimento di Scienze Biomediche, Sez. di Fisiologia, Università di Modena, 41100 Modena, Italy; 3Dept. of Otokinolaryngology, University of Oklahoma Health Sci. Ctr., Oklahoma City, OK 73190, USA

P29  Subsets of IHRH-ir Cells in Bonnethead Shark Nervus Terminalis Ganglia May Differ in Cholinergic Function.
Moeller, J.F., and Meredith, M. Program in Neuroscience, Florida State University, Tallahassee, FL 32306-0434

P30  Olfactory Receptor Neuronal Activity Determines Mitral Cell Dendritic Arbor During Development and Regeneration.
Puche, A.C.1, Munger, S.D.2, Reed, R.R.3, Margolis, F.L.1, and Shipley, M.T.1 1Dept. Anatomy and Neurobiology, Program in Neuroscience, University of Maryland, Baltimore, MD 21201; 2Howard Hughes Medical Institute, Dept. Molecular Biology and Genetics, Johns Hopkins Medical Institute, Baltimore, MD 21205;
Determination of mRNA for Low Voltage Activated Calcium Channels in the Developing Rat Olfactory Bulb. Brown, C., Best, P., and Meisami, E. Department of Molecular & Integrative Physiology, University of Illinois, Urbana, IL 61801

Localization of Protein Kinases in Adult Mouse Olfactory Bulb. Liu, N., Berlin, R.A., Chang, H. and Baker, H. Cornell University Medical College at The Burke Medical Research Institute, White Plains, NY 10605


Ultrastructure of Tyrosine Hydroxylase-Immunoreactive Neuronal Profiles in the Glomular Layer of the Salamander Olfactory Bulb. Allen, D.M., and Hamilton, K.A. Department of Cellular Biology and Anatomy, Louisiana State University Medical Center, Shreveport, LA 71130-3932

Comparison of Immunoneactivity for the Gap Junction Protein Connexin43 in the Rat and Salamander Olfactory Bulbs. Hamilton, K.A. Department of Cellular Biology and Anatomy, Louisiana State University Medical Center, Shreveport, LA 71130-3932


Mapping the Distribution of Ionotropic Glutamate Receptors in the Olfactory Bulb of Zebrafish using a Channel Permeant Probe, Agmatine (AGB). Edwards, J.G., and Michel, W.C. Department of Physiology, University of Utah School of Medicine, Salt Lake City, Utah, 84108

Intracerebro-ventricular (icv) LHRH Injections Increase c-fos Expression in the Medial Preoptic Area of Male Hamsters Exposed to Female Pheromones. Westberry, J. M., and Meredith, M. Program in Neuroscience, Florida State University, Tallahassee FL 32306-4340

Activation of an Anatomically Distinct Subpopulation of Neurons in the Male Mouse Accessory Olfactory Bulb (AOB) Following Exposure to Female Mouse Urine: Effect of Endocrine Status. Dudley, C.A., Kumar, A., and Moss, R.L. University of Texas Southwestern Medical Center, Dallas, Texas 75235

Functional Mapping of Urine-activated Glomeruli in the Main Olfactory Bulbs of Mice. Schaefer, M. L., and Restrepo, D. Program in Neuroscience and Department of Cellular and Structural Biology, University of Colorado Health Science Center, Denver, CO 80262

Functional Mapping of the Developing Olfactory Bulb. Guthrie, K.M., and Gall, C.M. Dept. of Anatomy and Neurobiology, University of California, Irvine, CA 92697

Con A Selectively Influences Neuronal Processing of Odor Stimuli in the Rat Olfactory Bulb. Kimer, A., and Apfelbach, R. University of Tübingen, Dept. of Animal Physiology, 72076 Tübingen, Germany


Dependence of Olfactory Bulb Activation on the Duration of Odor Exposure Revealed by fMRI. Yang, X., Xu, F., Renken, R., Greer, C.A. Department of Molecular Biology and Biophysics, Yale Univ., New Haven, CT 06520; 2Section of Neurobiology, Medical School, Yale Univ., New Haven, CT 06520; 3Department of Neurosurgery, Medical School, Yale Univ., New Haven, CT 06520.

Modulation of Neuronal Activities in Olfactory Bulb Layers Studied by Functional Magnetic Resonance Imaging. Xu, F., Yang, X., Hyder, F., Greer, C.A. 2Section of Neurobiology, Medical School, Yale Univ., New Haven, CT 06520; 3Department of Molecular Biology and Biophysics, Yale Univ., New Haven, CT 06520; 4Dept. of Neurosurgery, Medical School, Yale Univ., New Haven, CT 06520.
Thursday, April 15, 1999

Thursday Afternoon - 12:15 p.m. - 6:00 p.m.

12:15 p.m.-2:00 p.m.  Minority Luncheon (State Room)
                      Organizer: J. Caprio

2:00 p.m. - 4:00 p.m.  Educational Outreach Workshop (Sarasota Room)
                      Organizer: C. Byrd

2:00 p.m. - 4:00 p.m.  NIH Workshop (Florida Room)
                      Organizers: D. Sklare, R. Small, and J. Finkelstein

4:00 p.m. - 6:00 p.m.  Transgenics Workshop (Sara Desoto Room)
                      Organizer: R.F. Margolskee

Dr. Robert F. Margolskee
Introductory Comments

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Dr. Gwen Wong
Department of CNS/CV Discovery Research, Schering Plough Research Institute, Kenilworth, NJ
"Transgenetic Approaches to Study Taste: Targeting a Null Mutation in α-Gustducin and Directing Heterologous Gene Expression in Taste Cells with the Gustducin Promoter."

60

Dr. Paul Feinstein
The Rockefeller University, 1230 York Avenue, New York, NY 10021, email: feinstein@rockvax.rockefeller.edu
"Odorant Receptors Have Dual Roles."

Dr. Barry Knox
Biochemistry& Molecular Biology, State University of New York, Syracuse, NY
"Dissecting the Visual System using Transgenetic and Transfected Xenopus"

General Discussion

7:00 p.m. - 8:30 p.m.  Awards Symposium (Sara Desoto)
                      Organizer: D.L. Hill

8:30 p.m. - 8:45 p.m.  Refreshment Break

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Thursday Evening - 8:45 p.m. - 11:00 p.m.

The Chemical Ecology of Dominance, Sex, and Food
Chairperson: L. Clark

8:45 p.m.  Disruption of the Gene Encoding a Dyrk2 Kinase Homologue Causes Olfactory Impairment in Drosophila melanogaster.

Fedorowicz, G. 1, Kulkarni, N. 2, Roote, J. 1, Ashburner, M. 1, Mackay, T. 1 and Anholt, R. 2
1Department of Genetics, North Carolina State University, Raleigh, NC 27695; 2Department of Genetics, North Carolina State University, Raleigh, NC 27695; 3Department of Genetics, University of Cambridge, CB2 3EH, England

9:00 p.m.  Specialization of Receptor Neurons to Naturally Produced Plant Odoirs

Mustaparta H., Restelien T., and Stranden M. Department of Zoology, Norwegian University of Science and Technology, N-7834 Trondheim, Norway

9:15 p.m.  Orientation In Complex Odor Landscapes: Spatial Arrangement Of Odor Sources Influences Crayfish Food-Finding Efficiency In Streams

Keller, T.A., Tomba, A.M., and Moore, P.A. Laboratory for Sensory Ecology, Bowling Green State University, Bowling Green, OH 43403

9:30 p.m.  Is Crayfish Dominance Communicated Through Recognition of Individuals or Dominance Statues?

Zulandt, R.A., Huber, R., and Moore, P.A. Laboratory for Sensory Ecology, Department of Biological Sciences, Bowling Green State University, Bowling Green, OH 43403

Assessment of Olfactory Function in Human
Chairperson: D.A. Leopold

9:45 p.m.  Olfactory and Trigeminal Event-Related Brain Potentials to Attended and Ignored Stimuli

Geisler, M.W. 1,2, Middleton, C.B. 1, Dalve-Endres, A. 3 and Murphy, C. 1
1University of California Medical Center, San Diego, CA; 2San Diego State University, Department of Psychology, San Diego, CA

10:00 p.m.  Odorants Increase the Variance but not the Amplitude of fMRI Activation in the Ventral Temporal Lobe of the Human.

Sobel, N. 1, Prabhakaran, V. 2, Zhao, Z. 1, Desmond, J.E. 1, Glover, G.H. 3, Sullivan, E.V. 4,5 and Gabrieli, J.D.E. 4,5 Depts. of 1Neuroscience, 2Psychology, 3Radiology, 4Psychiatry and Behavioral Science, Stanford University, Stanford, CA, 94303 USA.
Thursday, April 15, 1999

10:15 p.m.
67    Olfactory Activity in the Human Cingulate Cortex Identified by FMRI.  
Kettenmann, B., Francis, S.T., 2 Bowtell, R.W., McGlone, F.,  Renner, B.,  Ahne,  
G.,  Rolls, E., and Kobal G. 1 Dept. of Experimental and Clinical Pharmacology  
and Toxicology, Univ. of Erlangen-Nuremberg, Erlangen, Germany; 2 Magnetic  
Resonance Centre, School of Physics and Astronomy, Univ. of Nottingham, UK;  
3 Unilever Research, Port Sunlight Laboratory, Wirral, UK; 4 Dept. of Experimental  
Psychology, Univ. of Oxford, Oxford, UK

10:30 p.m. 
68    Functional Mapping of Different Olfactory Functions in Humans  
Savic, I., 1, 2 Gulyas, B., 3 Larsson, M.,  and Roland, P. 1 Div of Human Brain  
Research, Dept Neuroscience, 2 Dept of Neurology, 3 Dept of Clinical Neuroscience  
and Family Medicine, Div of Geriatric Medicine, Karolinska Institute, Stockholm,  
Sweden

10:45 p.m.
69    Olfactory Epithelial Morphology in Children with and without Rett Syndrome.  
G.V. Johns Hopkins University School of Medicine

POSTERS

Thursday Evening - 7:00 p.m. - 11:00 p.m.

Chemistry: From Molecules to Behavior  
Food Preference and Nutrition in Humans  
Taste in the CNS

Chemistry: From Molecules to Behavior

P1    Neurophysiological Differences Between Embryonic Rat Trigeminal and Geniculate  
Ganglion Cells in Culture.  
Al-Hadlq, S., 1 Bradley, R. M., 2 MacCallum, D. K.,  and Mistretta, C. M. 1 Oral  
Health Sciences Ph.D. Program, Dentistry, University of Michigan, Ann Arbor, MI  
48109; 2 Biologic and Materials Sciences, School of Dentistry, University of  
Michigan, Ann Arbor, MI 48109; 3 Anatomy and Cell Biology, Medical School,  
University of Michigan, Ann Arbor, MI 48109.

P2    Assessing Trigeminal-Based Repellents In vitro: Comparative Studies.  
Savchenko, A., 1 Bryant, B.,  Mason, J.R.,  and Clark, L. 1 Monell Chemical Senses  
Center, 3500 Market St., Philadelphia, PA 19104; 2 USDA/ADC, Utah State  
University, Logan, UT, 84322; 3 USDA National Wildlife Research Center, Fort  
Collins, CO 80521-2154

P3    Expression of an Acid Sensitive Ion Channel (ASIC) in Cultured Rat Trigeminal  
Neurons.  
Huque, T., 1 Bryant B.P., 2 Mackler, S.A. 1 Monell Chemical Senses Center,  
Philadelphia, PA 19104, University of Pennsylvania, Philadelphia, PA, 19104,  
2 Veterans Affairs Medical Center, Philadelphia, PA 19104

P4    The Effect of Specific N-Acetylcholine Receptor Blockers on Nasal Trigeminal  
Nerve Responses to R- and S-Nicotin in Rats  
Renner, B., 1 Meindorfer, F., 2 Kaegler, M., 3 Thueruf, N., 3 Baroeka, A., 3 and Kobal,  
G. 3 Institute of Experimental and Clinical Pharmacology and Toxicology,  
University of Erlangen-Nuremberg, D-91054 Erlangen, Germany; 4 INBIFO Institut  
fur biologische Forschung GmbH, D-51149 Cologne, Germany; 5 Department of  
Psychiatry, University of Erlangen-Nuremberg, D-91054 Erlangen, Germany

P5    Role Of Neuronal Nicotinic Receptors In The Activation Of Neurons In Trigeminal  
Subnucleus Caudalis By Nicotine Delivered To The Oral Mucosa.  
Carstens, E., 1 Simons, C.T., 2 Dessirier, J.-M., 2 Iodi-Carstens, M., 3 and Jinks, S.L.  
1 Section of Neurobiology, Physiology & Behavior, Univ. of California, Davis, CA  
95616; 2 Department of Food Science and Technology, Univ. of California, Davis  
CA 95616

P6    C-fos Expression in Trigeminal Nucleus Caudalis Neurons Evoked by Application  
of Carbonated Water to the Tongue Is Reduced by Blockers of Carboxic Anhydrase  
Jinks, S.L., 1 Simons, C.T., 2 Dessirier, J.-M., 2 Iodi-Carstens, M., 3 and Carstens, E.  
1 Section of Neurobiology, Physiology & Behavior, Univ. of California, Davis, CA  
95616; 2 Department of Food Science and Technology, Univ. of California, Davis  
CA 95616

P7    Responses of Neurons in Trigeminal Nucleus Caudalis to Introraal Application  
of Carbonated Water Are Reduced by Dorzolomide, a Blocker of Carboxic Anhydrase  
Simons, C.T., 1 Dessirier, J.-M., 1 and Carstens, E. 1 Section of Neurobiology,  
Physiology & Behavior, Univ. of California, Davis, CA 95616; 2 Department of  
Food Science & Technology, Univ. of California, Davis, CA 95616

P8    Oral Irritation by Carbonated Water Is Reduced by the Carboxic Anhydrase  
Inhibitors, Acetazolamide and Dorzolamide  
Dessirier, J.-M., 1 Simons, C.T., 1 O=Mahony, M., 3 and Carstens, E. 1 Section of  
Neurobiology, Physiology & Behavior; Univ. of California, Davis CA 95616; 2 Dept.  
of Food Science & Technology, Univ. of California, Davis, CA 95616
Thursday, April 15, 1999

P9 Oral Irritation by Carbonated Water Is Reduced by Capsaicin Desensitization
O'Mahony, M.1, Dessirier, J.-M.1,2, Simmons, C.T.1,2, and Carstens, E.1 1Section of Neurobiology, Physiology & Behavior, Univ. of California, Davis, CA 95616; 2Dept. of Food Science & Technology, Univ. of California, Davis, CA 95616; 3Dept. Sciences Alimentaires, ENSIA, Massy, France

P10 The Effect of Capsaicin Desensitization on Differential Sensitivity for Sour Taste Zuniqa, J.R.1, and Chen, N.1 1Department of Oral and Maxillofacial Surgery, Univ. North Carolina, Chapel Hill, NC, USA 27599-7450; 2Department of Oral and Maxillofacial Surgery, Nanjing Medical University, Nanjing, P. R. China 210029

P11 Time Course of Capsaicin Burn to a Double-Step Input.
McBurney, D.H.1, Balaban, C.D.2, Affeltranger, M.1, Deithorn, A.1, and Puskar, A.1 1Department of Psychology, University of Pittsburgh, Pittsburgh, PA 15260; 2Departments of Otolaryngology and Neurobiology, University of Pittsburgh, Pittsburgh, PA 15261

P12 Effect of Long Term Exposure to Trigeminal Irritants Dalton, P. Monell Chemical Senses Center, Philadelphia, PA 19104

P13 Structure - Activity Relationship of Analogs of Plant Unsaturated Alkylamides Mezine, I., and Bryant, B. Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104

P14 Interactions of Tannins and Human Salivary Proteins Assessed by Turbidity Measurements.
Lawless, H. T., Hartono, C.1, Horne, J.1, and Siebert, K.J.1 1Cornell University Department of Food Science, Ithaca, NY 14853; 2Cornell University, New York State Agricultural Experiment Station, Geneva, NY 14456

P15 The Effects of Gender, Allergic Rhinitis, and Test System on Perceptual Acuity to Nasal Irritants.
Shusterman, D., and Balmes, J. University of California, San Francisco, CA 94143

P16 Objective Correlates of Nasal Irritation Caused by Exposure to Ethanol Vapor.
de Wijk, R.A., Jalowsky, A., Pillai-Caminha, G., and Cain, W.S. Department of Surgery, and Department of Pediatrics, University of California, San Diego, CA.

P17 Predicting Everyday Responses from Psychophysical Data: Problems Encountered and a Solution Proposed.
Walker, J.C.1,2, Polyaakov, V.V.1, Connell, V.L.1, Barreto, A.D.1, Kendal-Reed, M.1, Howell, M.A.1, and Smith, C.J.1 1R & D, R. J. Reynolds Tobacco Co., Winston-Salem, NC 27102; 2University of North Carolina School of Dentistry, Chapel Hill, NC 27599; 3Wake Forest University School of Medicine, Winston-Salem, NC 27103.
Taste in the CNS

P26  Characterization of the Chorda Tympani Nerve Terminal Field in the Rat Nucleus of the Solitary Tract with Anterograde Dil Transport. Pittman, D. W. 1, and Contreras, R. J. 1 1Department of Psychology, The Florida State University, Tallahassee, FL 32306-1270

P27  Effects of Brief Pulses of Tastants on Neuronal Sensibilities in The Nucleus of the Solitary Tract. Lemon, C.H., Di Lorenzo, P.M., and Reich, C.G. Department of Psychology, Binghamton University, Binghamton, New York 13902-6000

P28  Salt Taste Discrimination by Rats Depends upon Differential Responses across Gustatory Neuron Types. St. John, S.J., and Smith, D.V. Department of Anatomy & Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201

P29  Gustatory Quality and Intensity Affect Fos Expression in the rNST. Travers, S.P., Hauswirth, E.J., and Hanin, J. College of Dentistry, The Ohio State University, Columbus, OH 43210

P30  Lithium Chloride-Induced Taste Aversion and c-Fos Expression in Area Postrema-Lesioned Rats. Spencer, C.M. 1, Eckel, L.A. 2, Nardos, R. 1 and Houpt, T.A. 1 1Dept. of Biological Science, Florida State University, Tallahassee, FL 32306; 2Bourne Laboratory, Dept. of Psychiatry, Weill Medical College of Cornell University, White Plains, NY 10605.

P31  The Influence of a Modified Salt Diet on Dendritic Remodeling in the Rostral Nucleus of the Solitary Tract (rNST) of the Rat. Liu, Y.-Z. 1, Schweitzer, L. 2, and Rennah, W.E. 1 1Division of Gastroenterology, Henry Ford Health System, Case Western Reserve Univ., Detroit, MI; 2Department of Anatomical Sciences and Neurobiology, Univ. of Louisville, Louisville, KY

Friday, April 16, 1999

SLIDES

Cell Culture and the Development of Chemosensory Systems
Chairperson: T.E. Finger

8:00 a.m.  Generation of an Immortal Olfactory Receptor Neuron Cell Culture
Barber, R.D.,* 1, Jaworsky, D.E., 1, Yau, K.-W., 1,1 and Ronnett, G.V., 1 1Department of Neuroscience, 1 Howard Hughes Medical Institute, 1 Department of Neurology, Johns Hopkins University School of Medicine, 725 N. Wolfe St., Baltimore, MD 21205

8:15 a.m.  Primary Olfactory Neuroepithelial Cultures Are GDNF Responsive.
Cunningham, A.M., and Doyle, K.L.  Sensory Neurobiology Group, Garvan Institute of Medical Research, 384 Victoria St, Darlinghurst, NSW 2010, AUSTRALIA

8:30 a.m.  Cloning and Characterizing NIP: A PDZ Domain-Containing Protein Interacts with the Cytoplasmic Domain of Neurexin-1.
Reed, R.R., 1,2, and Cai, H. 1Howard Hughes Medical Institutes, 1Department of Neuroscience and 1Department of Molecular Biology and Genetics, The Johns Hopkins University School of Medicine, Baltimore, MD 21205

8:45 a.m.  Convergent Ideas on Olfactory Organ Development in the Zebrafish Danio rerio.
Whitlock, K.E.  Section of Genetics and Development, Biotechnology Building, Cornell University, Ithaca, NY 14853

9:00 a.m.  Perturbation of Gastrulation Does Not Block Taste Bud Genesis.

9:15 a.m.  Neurexin-1 Dependent Repulsion Guides Geminulate Axons Destined for Lingual Taste Buds.
Rochlin, M.W., 1, O’Connor, R. 2, Giger, R.J. 1, Verhaagen, J. 1, Tessier-Lavigne, M. 3 and Farbman, A.I. 1Neurobiology & Physiology, Northwestern Univ. Evanston, IL 60208; 1Anatomy, Univ Calif San Francisco & Howard Hughes Med Inst 94143-0452; 1Dept of Neuroscience, Johns Hopkins Univ School of Medicine, Baltimore, MD 21205; 1Netherlands Institute for Brain Research, Amsterdam, Netherlands

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Friday, April 16, 1999

9:30 am. - 9:45 a.m.  Refreshment Break

9:45 a.m. - 10:45 a.m.  Special Lecture (Sara Desoto Room)
Organizer: R.F. Margolskee

Dr. David Julius
Department of Cell Biology and Molecular Pharmacology, University of California, San Francisco, San Francisco, CA
"Peppers and Pain: Molecular Biology of Nociception"

General Discussion

THEMATIC SLIDE SESSION

Friday Morning - 10:45 a.m. - 12:00 p.m.

Trigeminal Chemoreception
Chair: S.A. Simon

10:45 a.m.  Trigeminal Collaterals In The Olfactory Epithelium and Bulb: A Route For Direct Modulation Of Olfactory Information By Trigeminal Stimuli?

11:00 a.m.  Activation of Trigeminal Neurons by Acid, Capsaicin, and Nicotine
Simon, S.A., and Liu, L.  Departments of Neurobiology and Anesthesiology, Duke University Medical Center, Durham, NC 27710

11:15 a.m.  Trigeminal Mechanisms of Oral Irritation
Carstens, E.  Section of Neurobiology, Physiology and Behavior, Univ. of California, Davis, CA 95616

11:30 a.m.  Responses to Irritation of the Nasal Mucosa Using Short- and Long-lasting Painful Stimuli.
Hummel, T.  Department of Otorhinolaryngology, University of Dresden, Fetscherstr. 74, 01307 Dresden, Germany

11:45 a.m.  Current Understanding of the Oral Sensory Effects of Capsaicin in Humans
Green, B.G. 1,2 and Cruz, A. 1The John B. Pierce Laboratory, 290 Congress Avenue, New Haven, CT 06519; 1Department of Surgery (Otolaryngology), Yale School of Medicine.

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POSTERS

Friday Morning - 8:00 a.m. - 12:00 p.m.

Peripheral Olfactory System: Biochemistry and Anatomy
Olfactory System: Central Pathways

Peripheral Olfactory System: Biochemistry and Anatomy

P1
Comparison of Sonication and Calcium Shock Methods of Preparing Olfactory Cilia
Washburn, K.1,2, Turner, T.3, and Talamo, B.R.1,2 1Department of Neuroscience, Tufts University School of Medicine, Boston, MA 02111; 2Department of Physiology, Tufts University School of Medicine, Boston, MA 02111

P2
Calcium-Activated Neutral Protease in Olfactory Tissues of the Catfish and Rat
Kalinoski, D.L., Hilmi, S., and Herman, S. Monell Chemical Sense Center, 3500 Market St., Philadelphia, PA 19104-3308

P3
Localization of IP3 Receptor type 1 and type 3, Olfactory Epithelium of Rat and Catfish
Hilmi, S., Rawson, N., and Kalinoski, D.L. Monell Chemical Senses Center, Philadelphia, PA 10104-3308

P4
Regulation of the Generation of cGMP in the Olfactory System of Manduca sexta
Nighorn, A.J., and Simpson, P.J. ARL Division of Neurobiology, The University of Arizona, Tucson, AZ, 85721

P5
Kinases and Phosphorylation in Lobster Olfactory System
Stoss, T.D., Xu, F., and McClinton, T.S. Department of Physiology, University of Kentucky, Lexington, KY 40536

P6

P7
Annexin-1 in the Rat Olfactory Epithelium
Farbman, A.I., Buchholz, J.A., and Weiler, E. Department of Neurobiology & Physiology, Northwestern University, Evanston, IL 60208-3520, USA

Friday, April 16, 1999

P8
Olfactory Marker Protein May Function as a Mitogen in Rat Olfactory Epithelium.
Ezeh, P.I., and Farbman, A.I. Department of Neurobiology & Physiology, Northwestern University, Evanston, IL 60208-3520 USA

P9
Exposure-Induced Odor Sensitivity: Evidence for Peripheral Involvement.
Yee, K. K., and Wysocki, C. J. Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104-3308 USA

P10
A Distinct Ubiquitin-positive Ultrastructural Array in the Supranuclear Region of Olfactory Epithelial Supporting Cells Following Extended Odor Exposure of Rats
Carr, V, McM., Farbman, A.I., and Menco, B. Ph.M. Dept. of Neurobiology and Physiology, Northwestern University, Evanston, IL 60208

P11
Increased HSP70(+) Olfactory Receptor Neuron (ORN) Density and Expansion of Bulbar Projections Following Methyl Bromide (MeBr) Lesion of Rat Olfactory Epithelium (OE).
Carr, V, McM.1, Ring, G.2, Youngentob, S.L.3, Schwob, J.E.4, and Farbman, A.I.1 Dept. of Neurobiology and Physiology, Northwestern Univ., Evanston, IL 60208; 2Dept. of Anat. & Cell Biol, SUNY Health Science Center, Syracuse, NY 13214; 3Dept. of Physiology, SUNY Health Science Center, Syracuse, NY 13214

P12
Feline Olfactory Anatomy.
Crenshaw, O.1, Haskins, M.2, Ulrich, P.1 and Rawson, N.E.1 Monell Chemical Senses Center, 3500 Market St, Philadelphia, PA 19104; Dept. of Veterinary Medicine, University of Pennsylvania, Philadelphia PA 19104

P13
Bowman's Glands and Nasal Mucosa Contain Gonadotropin-Releasing Hormone.
Wirsig-Wiechmann, C.R.1, and Matsumoto, H.1 Department of Cell Biology, University of Oklahoma, Oklahoma City, OK, 73104; Department of Biochemistry and Molecular Biology, University of Oklahoma, Oklahoma City, OK, 73104

P14
Expression of Estrogen Receptor (ERα) mRNA and Protein in the Olfactory Mucosa
Fong, K.J., Robinson, A.M., Kern, R.C. and Pitovski, D.Z. Department of Otolaryngology Head and Neck Surgery, Northwestern University Medical School, Chicago, IL 60611

P15
Does Estrogen Protect Olfactory Neurons From Apoptosis Through Up regulation of The Bel 2 Proto Oncogene?
Robinson, A.M., Fong, K.J., Kern R.C., and Pitovski, D.Z. Dept. of Otolaryngology Head and Neck Surgery, Northwestern University School of Medicine, Chicago, IL 60611.
P16
Apoptotic death of olfactory neurons during different estrogen conditions
Pitovski, D.Z., Fong, K.J., Robinson, A.M. and Kern R.C. Dept. of Otolaryngology Head and Neck Surgery, Northwestern University School of Medicine, Chicago, IL 60611

P17
The Olfactory Epithelium of the Zebrafish and the Giant Danio: Morphological and Proliferative Differences.
Poling, K.R., and Brunjes, P.C. 102 Gilmer Hall, University of Virginia, Charlottesville, VA 22903 U.S.A.

P18
Activity-dependent Labeling of the Olfactory Organ of Blue Crabs Suggests that Pheromone-sensitive and Food Odor-sensitive Receptor Neurons are Packaged Together in Aesthetasc Sensilla.
Cate, H.S. 1, Gleeson, R.A. 2, and Derby, C.D. 1 1Department of Biology, Georgia State University, Atlanta, Georgia 30303; 2Whitney Laboratory, University of Florida, St. Augustine, Florida 32084

P19
Abnormal Growth in the Olfactory Epithelium Induced by a Parasitic Nematode
Weller, E. Northwestern University, 2153 North Campus Drive, Evanston, Illinois 60208, USA, emw884@nwu.edu

Olfactory System: Central Pathways

P20
A Portable Artificial Nose Based on Multiple Olfactory Principles.
Kauer, J. S. 1, Walt, D. R. 2, and White, J. 1 1Dept. of Neuroscience, Tufts University School of Medicine. Boston, MA 02111; 2Dept. of Chemistry, Tufts University, Medford, MA

P21
Techniques for Quantifying Information in Olfactory Sensor Arrays.
Alkatas, T. K., Kauer, J. S., and White, J. Dept. of Neuroscience, Tufts University School of Medicine, Boston, MA 02111

P22
Functional Expression of AMPA and Kainate Receptors in the Olfactory Bulb
Hornig, M.S., and Trombley, P.Q. Department of Biological Science, Florida State University, Tallahassee, FL 32306

P23
Presynaptic Inhibition of Primary Olfactory Afferents Mediated by Different Mechanisms in the Lobster and Turtle.
Wachowiak, M., and Cohen, L. B. Dept. Mol. and Cell. Physiol., Yale University, New Haven, CT 06520; Marine Biological Laboratory, Woods Hole, MA 02546

P24
Lam, Y.-W., Cohen, L.B., Wachowiak, M. and Zochowski, M. Dept. of Cellular and Molecular Physiology, Yale University School of Medicine, New Haven, CT 06520.

P25
Vickers, N.J. 1, Christensen, T.A. 2, Baker, T.C. 3 and Hildebrand, J.G. 1 1Department of Biology, University of Utah, Salt Lake City, UT 84112; 2 ARL, Division of Neurobiology, University of Arizona, Tucson, AZ 85721; 3Department of Entomology, Iowa State University, Ames, IA 50011

P26
Contextual Influences on the Central Processing of Chemical Signals by Ensembles of Olfactory Interneurons in the Moth Antennal Lobe.
Christensen, T.A., and Hildebrand, J.G. Arizona Research Labs Division of Neurobiology, University of Arizona, PO Box 21077, Tucson, AZ 85721-0077

P27
Number and Timing of Spikes as Measures of Mitral/tufted Cell Response Strength.
Dorries, K.M., and Kauer, J.S. Department of Neuroscience, Tufts University School of Medicine, Boston, MA 02111

P28
Goldfish Olfactory Bulb Relay Neurons Demonstrate a Great Variety of Response Characteristics During Epithelial Cross-adaptation Experiments with Various Pheromones.
Lütjhe, L.G., and Zippel, H.P. Physiol. Inst. der Universität, Humboldtallee 23, 37073 Göttingen, Germany

P29

P30
Electrophysiology of identified mitral and tufted cells in the main olfactory bulb (MOB).
Heyward, P.M., Tian, Y., and Shipley M.T. Department of Anatomy and Neurobiology, University of Maryland, Baltimore.

P31
Multiple Effects of Zinc and Copper on Neuronal Excitability
Trombley, P.Q., Hornig, M.S., and Blakemore, L.J. Department of Biological Science, Florida State University, Tallahassee, FL 32306
Excitatory Interaction Among Olfactory Bulb Mitral Cells in the Absence of Synapses
Zhou, F.-M., Ennis, M., Davis, B. and Shipley, M. *Department of Anatomy and Neurobiology, University of Maryland at Baltimore, Baltimore, MD 21201;*

NMDA Receptor-Dependent, Recurrent and Neighboring Excitation of Mitral Cell Dendrites in the Rat Olfactory Bulb.
Aroniadou-Anderjaska, V., Ennis, M., and Shipley, M. T. *Department of Anatomy and Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD, 21201.*

Some Periglomerular Cells of the Rat Accessory Olfactory Bulb May Be Excited by GABA.
Goldmakher, G.V., and Moss, R.L. *UT Southwestern Medical Center, Dallas, TX 75235*

Calcium Influx Through NMDA Receptors Directly Triggers Neurotransmitter Release at Olfactory Dendrodendritic Reciprocal Synapses.
Chen, W.R., and Shepherd, G.M. *Yale University Section of Neurobiology, 333 Cedar Street, C303 SHM, New Haven, CT 06510.*

Group I Metabotropic Glutamate Receptors (mGlurS) Modulate Transmission from Mitr/Tofted (M/T) to Granule Cells in *Vitro*.
Ciombor, K.J., Aroniadou-Anderjaska, V., Shipley, M.T. and Ennis, M. *Department of Anatomy and Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201*

Group II Metabotropic Glutamate Receptor Reduces Synaptic Transmission from Mitr/Tofted to Granule Cells in the Rat Accessory Olfactory Bulb (AOB).
Jia, C., Chen, W., Ma, M. and Shepherd, G.M. *Section of Neurobiology, Yale Medical School, New Haven, CT 06510*

Long Term Potentiation (LTP) in the Rat Accessory Olfactory Bulb.
Jia, C., Ma, M., Chen, W. and Shepherd, G.M. *Section of Neurobiology, Yale Medical School, New Haven, CT 06510*

Increase in Network Excitability Following High Frequency Stimulation of Association Fibers in Piriform Cortex.
Stripling, J. S., and Cauthron, J. L. *Department of Psychology, University of Arkansas, Fayetteville, AR 72701.*

Cortical Mechanisms of Olfactory Coding: Adaptation and Cross-adaptation to Odorants Presented Singly and in Mixtures.
Wilson, D.A. *Department of Zoology, University of Oklahoma, Norman, OK 73019*

Reduced Habituation is Achieved with a Five Minute Inter-Stimulus Interval in the Olfactory Event-Related Potential.
Wetter, S., Geisler, M.W., and Murphy, C. *SDSU Department of Psychology, 6363 Alvarado Cte., Ste. 101, San Diego, CA 92120-4913; UC San Diego Medical Center, San Diego, CA 92103.*

Sensitization of the Human EEG During Chemical Exposure.
Fernandez, M. R., Bell, I. R. 1,2, and Schwartz, G. E. R. 1,3 *Department of Psychology, The University of Arizona, Tucson, AZ 85721; 2Veterans Affairs Medical Center, Tucson, AZ 85723*

Response Profiles of Midbrain and Forebrain Neurons in the Central Olfactory Pathway of the American Lobster, *Homarus americanus.*
Mellon, D.F. 1,2, and Ataia, J. 1,3 *University of Virginia, Department of Biology, Charlottesville VA 22903; 2Boston University Marine Program, Marine Biological Laboratory, Woods Hole MA 02543*

**Friday Afternoon - 12:00 p.m. - 7:00 p.m.**

**12:00 p.m. - 1:30 p.m.**
**Business Meeting (Sara Desoto Room)**

**1:30 p.m. - 3:30 p.m.**
**Careers Panel (Sara Desoto Room)**
Organizer: G.D. Burd
Participants: J. Finkelstein, Program Officer, NIH-National Institute on Aging; A. Gilbert, CEO, Synthetics Inc.; D. Ming, Research Scientist, Monsanto; M. Roshold, Instructor, Culinary Institute; P. Scott-Johnson, Faculty Member, Spelman College; V. (Kit) Streusand Goldman, Staff Scientist and Project Leader, Gillette Research Institute.

**3:30 p.m. - 5:30 p.m.**
**Smell vs. Taste Softball Game**
Organizer: J. Caprio

**5:30 p.m. - 7:00 p.m.**
**Industrial Reception (Florida Room)**
Organizer: G. DuBois
SLIDES

Friday Evening - 7:00 p.m. - 8:30 p.m.

Central Olfactory Pathways
Chairperson: P. Brunjes

7:00 p.m. The Macrogglomerular Complex in Two Related Species of Moths: Specified Subdivision According to Input Information.
Berg, B.G., Almaas, T.J., and Mustaparta, H. Department of Zoology, Norwegian University of Science and Technology, N-7034 Trondheim, Norway

7:15 p.m. Developmental and Activity-dependent Cell Death in the Rat Olfactory Bulb.
Fiske, B.K.1, Norman, C.C.2, and Brunjes, P.C.1,2 1Neuroscience Graduate Program, University of Virginia, Charlottesville, VA 22903; 2Department of Psychology, University of Virginia, Charlottesville, VA 22903

7:30 p.m. Pheromone-Sensitive Mitral Cells in the Goldfish Respond to More than One Odor.
Hanson, L.R.1, Caprio, J.2, and Sorensen, P.W.1 1University of Minnesota, St. Paul, MN 55108; 2Louisiana State University, Baton Rouge, LA 70803.

8:00 p.m. Neural Substrates for Sex and Individual Recognition by Odors in Female Golden Hamsters.
Johnston, R.E., and Petrulis, A. Dept. of Psychology, Cornell University, Ithaca, NY

8:15 p.m. Organization of the Ophidian Amygdala: Chemosensory Pathways to the Hypothalamus.
Martinéz-Marcos, A.1, Lanuza, E.2, and Halpern, M.1 1Dept. of Anatomy and Cell Biology, HSCB, SUNY, Brooklyn, NY11203; 2Dept. de Biología Animal, Universitat de Valéncia, 46100 Burjassot, Valéncia, Spain.

8:30 p.m. - 8:45 p.m. Refreshment Break

8:45 p.m. - 10:30 p.m.

Presidential Symposium
Organizer: C. A. Greer

168 Dr. Charles A. Greer
Department of Neurosurgery and Section of Neurobiology, Yale University School of Medicine, New Haven, CT 06520-8039
"Olfactory Glomeruli: Intrinsic Organization"

169 Dr. Peter Mombaerts
The Rockefeller University, New York, NY 10021-6399
"Targeting Olfaction"

170 Dr. Peter C. Brunjes
Department of Psychology, University of Virginia, Charlottesville, VA 22903
"Afferent Influences on Glomerular Development"

171 Dr. Michael T. Shipley
Department of Anatomy & Neurobiology, Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201
"Integrative Properties of Olfactory Bulb Neurons"

172 Dr. Kensaku Mori
Laboratory for Neuronal Recognition Molecules, Brain Science Institute RIKEN, Wako, Saitama 351-0198, Japan
"Functional Meaning Of Glomerular Units And Their Spatial Arrangement In The Mammalian Olfactory Bulb"
POSTERS

Friday Evening - 7:00 p.m. - 11:00 p.m.

Taste Receptor Cell and Peripheral Nerve Function I
Development of Chemosensory Systems
Olfactory Sensory Neurons - Physiology

Taste Receptor Cell and Peripheral Nerve Function I

P1
Chronic Recordings from the Rat Chorda Tympani Nerve.  
Bradley, R.M., and Grabauskiene, S. Dept. Biological and Materials Sciences,  
School of Dentistry, University of Michigan, Ann Arbor, MI 48109.

P2
Chemical, Thermal, and Pharmacological Sensitivities of Lingual Geniculate  
Ganglion Neurons in Rats.  
Lundy Jr., R.F., and Contreras, R.I.  
Department of Psychology, Florida State University, Tallahassee, FL. 32304-1072;  
Department of Behavioral Science, Penn State College of Medicine, Hershey, PA. 17033-H181.

P3
Salt-evoked Lingual Surface Potentials in Humans.  
Department of Medicine, VCU/College of Virginia, Richmond, VA 23298;  
Department of Physiology, VCU/Medical College of Virginia, Richmond, VA 23298;  
Hunter Holmes McGuire VAMC, Richmond, VA 23249.

P4
Rate Coding in Hamster Taste Buds?  
Dept. of Anatomy and Neurobiology, Dept. of Computer Science, Colorado State University, Ft. Collins, CO. 80523;  
Rocky Mountain Taste and Smell Center, Denver, CO 80262.

P5
The Water Response in Taste Cells: Expression of Aquaporin-1 and -2 and the  
Effects of Osmotic Changes on Voltage-activated Currents in Mammalian Taste  
Cells  
Gilbertson, T. A., Kim, I., Siears, N. L., Zhang, H., and Liu, L. Pennington  
Biomedical Research Center, LSU, Baton Rouge, LA 70808

P6
Multiple Sensitivity of Rat Fungiform Taste Cells: Whole Cell Responses to  
Apical Chemical Stimulation  
Gilbertson, T.A., Zhang, H., Boughter, J.D., Jr. and Smith, D.V.  
Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, LA 70808;  
Department of Anatomy & Neurobiology and Program in Neuroscience,  
University of Maryland School of Medicine, Baltimore, MD 21201

Effects of External Osmolarity on Taste Receptor Cell (TRC) Volume and  
Intracellular pH (pH).  
Lyall, V., Heck, G.L., DeSimone, J.A. and Feldman, G.M.  
Department of Physiology, Virginia Commonwealth University, Richmond, VA 23298;  
Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA 23294.

Genetic Dissection of Biotin and Acetate Induced Membrane Currents in  
Paramecium Chemosensory.  
Bell, W.E., Preston, R.R., Yano, J., Fiekers, J.F., and Van Houten, J.L.  
Department of Biology, University of Vermont, Burlington, VT 05405;  
Department of Physiology, Allegheny University of the Health Sciences,  
Philadelphia, PA 19129;  
Department of Anatomy and Neurobiology, University of Vermont, Burlington, VT 05405;  
Department of Biology, Virginia Military Institute, Lexington, VA 24450.

Proton-Activated Currents in Taste Cells of Rat Vallate Papilla.  
Lin, W., and Kinnaman, S. C.  
Colorado State University, Fort Collins, CO 80523;  
Rocky Mountain Taste and Smell Center, University of Colorado Health Center, Denver, CO 80262.

Additive Effects of Fatty Acids and Denatonium or Saccharin in Isolated Taste  
Receptor Cells  
Boughter, Jr., J.D., Christy, R.C., Smith, D.V. and Gilbertson, T.A.  
Department of Anatomy & Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201;  
Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, LA 70808.

Effects of Zinc and other Metal Ions on Delayed Rectifying K⁺ Channels in Rat  
Taste Cells.  
Schilleci, J. T., and Gilbertson, T.A. Pennington Biomedical Research Center,  
LSU, Baton Rouge, LA 70808

The Role of Delayed Rectifying K⁺ Channels in Chemosensory Fat Signaling in the  
Gut  
Biomedical Research Center, LSU, Baton Rouge, LA 70808
Development of Chemosensory Systems

Sequential Activation of Basic Helix Loop Helix and Repeat Helix Loop Helix Transcription Factors During Olfactory Placode Development. Burns, C.J.1, Pozzoli, O.1, Consalez, G.1, and Vetter, M.L.1 1Department of Neurobiology and Anatomy, University of Utah, Salt Lake City, Utah 84132; 2Department of Biological and Technological Research (DBIT) San Raffaele Scientific Institute (HSR), Via Olgettina 58, 20132 Milano, Italy

TGF-α Overexpression Modulates Terminal Differentiation of Olfactory Receptor Neurons: Involvement of TGF-β Receptors. Getchell, T.V.1,2, Boggess, M.A.3, and Getchell, M.L.3 1Department of Physiology; 3Sanders-Brown Center on Aging; 2Division of Otolaryngology/Head & Neck Surgery, Department of Surgery, University of Kentucky College of Medicine, Lexington, KY 40536.

Expression of Biotransformation Enzymes in Human Fetal Olfactory Macosa. Gu, J.1, Su, T.1,2, Chen, Y.1, Zhang, Q.1, and Ding, X.1 1Wadsworth Center, New York State Department of Health, Albany, NY 12201; 2School of Public Health, State University of New York at Albany, NY 12201

Sonic Hedgehog Signaling in Rodent Tongue Cultures. Hall, J.M.1, Finger, T.E.1, MacCullogh, D.K.2 and Mistretta, C.M.3 1Rocky Mountain Taste and Smell Center and Department of Cellular and Structural Biology, University of Colorado Health Sciences Center, Denver, CO 80262; 2Anatomy and Cell Biology, Medical School, University of Michigan, Ann Arbor, MI 48109; 3Biologic and Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor, MI 48109

BDNF and NT-3 mRNA Expression Patterns in the Developing and Adult Human Tongue. Nosrat, I. V.1, Seiger, 2, and Nosrat, C. A.1 1Department of Neuroscience, Karolinska Institutet, S-171 77, Stockholm, Sweden; 2Department of Clinical Neuroscience and Family Medicine, Karolinska Institute, S-141 86, Huddinge, Sweden

Development of Extra-Oral Taste Buds in the Rat. Popovska, Z., Jain, S., and Sweazy, R.D. Department of Anatomy, Indiana University School of Medicine, Fort Wayne, IN 46805


Olfactory Sensory Neurons - Physiology

Phosphodiesterases and Calcium Signaling in Mouse Olfactory Receptor Neurons. Liu, G., and Talamo, B. Department of Neuroscience, Tufts University School of Medicine, 136 Harrison Ave, Boston, MA 02111

Intracellular Ca2+ Stores Control the Waveform of Odor-Induced Ca2+ Transients in the Dendrite and Soma but not in the Cilia of Olfactory Receptor Neurons. Zulfakar, F., Leinders-Zufall, T., Shepherd, G.M.1, Greer, C.A.1, and 1Department of Anatomy and Neurobiology, University of Maryland School of Medicine, Baltimore, MD 21201; 2Section of Neurobiology, Yale University School of Medicine, New Haven, CT 06510

Odor-elicted Intracellular Calcium Changes in Cultured Human Olfactory Cells. Gomez, G.1, Restrepo, D.1, and Rawson, N.B.1 1Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104; 2University of Colorado Health Sciences Center, Denver, CO 80262

Both External and Internal Calcium Reduce the Sensitivity of the Olfactory Cyclic-Nucleotide-Gated Channel to cAMP. Kleene, S.J. Department of Cell Biology, Neurobiology, and Anatomy, University of Cincinnati, Cincinnati, OH 45267-0521
Electrical Communication Among Olfactory Receptor Neurons by Peripheral Waves.
Parker, J.M. 1, Lindemann, B. 2, and Caprio, J. 1 1Department of Biological Sciences, Louisiana State University, Baton Rouge, LA. 70803; 2Department of Physiology, Saar University, D-66421 Homburg, Germany.

Expression of mRNA Encoding for Gap Junctional Proteins in Mouse Olfactory Epithelium.
Zhang, C., and Restrepo, D. Department of Cellular and Structural Biology, University of Colorado Health Sciences Center, Denver, CO 80262

Effect of Inhibitors on Cyclic Nucleotide and Nitric Oxide Activated Potassium Fluxes in the Olfactory Nerve of the Garfish, Lepisosteus platostomus
Kracke, G.R., Krambeck, A., and Speelhinger, E.D. Dept. of Anesthesiology, University of Missouri, Columbia, MO 65212

Effect of Protein Phosphorylation on the Hyperpolarization-activated Current, I h, in Rat Olfactory Receptor Neurons.
Vargas, G., and Lucero, M. T. University of Utah, Department of Physiology, Salt Lake City, UT 84108

Reversible Disruption of Odor Transduction by Adenyl Cyclase Inhibitors.
Chen, S., Leinders-Zufall, T., and Zufall, F. Department of Anatomy and Neurobiology, University of Maryland School of Medicine, Baltimore, MD 21201

Nitric Oxide Activates an Outward Current in Olfactory Receptor Neurons from C. caudiverbera and X. laevis.
Schuchtenberg, O., and Baccigalupo, J. Departamento de Biologia, Facultad de Ciencias, Universidad de Chile, Santiago, Chile

Odor Suppression of V-gated Currents Contributes to the Net Odor-induced Response in Vertebrate Isolated Olfactory Neurons
Sanhueza, M., and Baccigalupo, J. Departamento de Biologia, Facultad de Ciencias, Universidad de Chile, Santiago, Chile

Mixture Suppression and Odor Suppression of cAMP-induced Current in Olfactory Receptor Neurons.
Yamada, H., and Nakatani, K. Institute of Biological Sciences, University of Tsukuba, Tsukuba, Ibaraki, 305-8572, Japan

Electrophysiology of OMP-Null ORNs and Rescue with an OMP-IRES-GFP Adenovirus.
Ivic, L. 1, Pyrska, M. 2, Richards, L. 1, Firestein, S. 1, and Margolis, P.L. 1 1Columbia University, Dept. Biol. Sci., New York, NY 10027; 2University of Maryland, School of Medicine, Dept. Anat. and Neurobiol., Baltimore, MD 21201

Biophysical Properties of Feline Olfactory Receptor Neurons.
Lischka, F. 1, Gomez, G. 1, Haskins, M. 2, and Rawson, N.E. 1 1Monell Chemical Senses Center, Philadelphia PA 19104; 2Dept. of Veterinary Medicine, University of Pennsylvania, Philadelphia PA 19104

Pheromone-Sensitive Olfactory Receptor Neurons in the Moth Manduca sexta: Circadian Changes in the Spontaneous Activity and Adaptation of the Olfactory Response.
Bittmann, K. 1, Dolzer, J. 1, and Stingl, M. 1 1University of Regensburg. Biology I, Dept. of Zoology, 93040 Regensburg, Germany; 2University of Marburg, Biology, Animal Physiology, 35032 Marburg, Germany

Odor-evoked, Chloride-mediated Conductance in Lobster Olfactory Receptor Neurons.
Doolin, R.E., and Ache, B.W. The Whitney Lab 9505 Ocean Shore Blvd, St. Augustine, FL 32086

Regulation of a Na+-gated nonselcetive cation channel by PI(4,5)P2 and PI(4)P
Zhanazarov, A.B. 1, and Ache, B.W. 1 1Whitney Laboratory, University of Florida, St. Augustine, FL 32086; 2Departments of Zoology and Neuroscience, University of Florida, Gainesville, FL 32610

An Electrogenic Na+/Ca2+ Exchanger in Squid Olfactory Neurons.
Danaeau, J.P., and Lucero, M.T. University of Utah Department of Physiology, Salt Lake City, UT.

Sustaining Olfaction at Low Salinities: Evidence for a Dynamically Maintained Ionic Microenvironment Associated with the Olfactory Sensilla (Aesthetasces) of the Blue Crab, Callinectes sapidus.
Gleeson, R.A. 1, Hamm, K., 2 and Smith, P.J.S. 1 1The Whitney Laboratory, University of Florida, St. Augustine, FL 32086; 2The BioCurrents Research Center, Marine Biological Laboratory, Woods Hole, MA 02543

Survey of Ionic Channels in Identified Chemosensory Neurons of the Nematode Caenorhabditis elegans
Nickell, W.T. 1, Pun, R.Y.K. 1, and Kleene, S.J. 1 1Department of Cell Biology, Neurobiology, and Anatomy, 2Department of Molecular and Cellular Physiology, University of Cincinnati, Cincinnati, OH 45267
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Functional Mapping of Olfactory Receptor Cells within Aesthetasc Sensilla of the Spiny Lobster.
Steullet, P., Cate, H.S., Ngo, V., Michel, W.C., and Derby, C.D. 1Department of Biology, Georgia State University, Atlanta, GA 30303 USA; 2Department of Physiology, University of Utah Medical School, Salt Lake City, UT

Olfactory Responses to Hostplant Volatiles Recorded from Sensory Cells of Long Trichoid Sensilla on the Antennae of the Female Sphinx Moth Manduca sexta.
Shields, V.D.C., and Hildebrand, J.G. ARL Division of Neurobiology, University of Arizona, Tucson, AZ 85721, USA

Saturday, April 17, 1999

SLIDES

Saturday Morning - 8:00 a.m. - 10:00 a.m.

Human Olfactory Perception
Chairperson: P. Dalton

8:00 a.m.
A Comparison of GC Olfactometry Charm™ to a Static Headspace Method for Measuring Odor Detection Thresholds.
Marin, A. B. International Flavors and Fragrances, R&D, 1515 Hwy 36, Union Beach, NJ 07740

8:15 a.m.
Unconscious Odor Discrimination, Detection and Quality Thresholds.
Radi, T. 1,2, and Wysocki, C.J. 1,2 1Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104; 2Institute of Physiology, Czech Academy of Sciences, Prague, Czech Republic; 3Department of Animal Biology, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA 19104

8:30 a.m.
Synthesis, Olfactory Properties and Molecular Modeling of Aliphatic Ketones Identified from Solitary Bees
Finke, A., Sonnenberg, S. 1, and Weyerstahl, P. 1 1Technical University Berlin, Institut für Organische Chemie, D-10623 Berlin, Germany; 2Haarmann & Reimer GmbH, D-37601 Holzminden, Germany

8:45 a.m.
Formulation of a Standard Odorant Mixture to Test Human Sniffers for Specific Anosmia.
Friedrich, J.E., and Acree, T.E. Department of Food Science & Technology, Cornell University, New York State Agricultural Experiment Station (NYSAES), Geneva, New York 14456, USA.

9:00 a.m.
Sniffing Longer rather than Stronger to Maintain Olfactory Constancy.
Sobel, N., 1, Hartley, C.A., 2, Khan, R., 3, Sullivan, E.V., 1, and Gabrieli, J.D.E. 1,3 Depts. of 1Neuroscience, 2Symbolic Systems, 3Psychology, 4Psychiatry and Behavioral Science, Stanford University, Stanford, CA, 94305 USA

9:15 a.m.
Odor Identification in Mixtures: Is Olfactory Working Memory the Ultimate Limitation?
Laing, D.G., and Jinks, A. Centre For Advanced Food Research, University of Western Sydney, Bourke Street, Richmond, NSW, Australia, 2753

9:30 a.m.
The Effect of Human Axillary Odors on Memory Recollections
Chen, D., 1, and Haviland, J. 1,2 Monell Chemical Senses Center, 3500 Market St., Philadelphia, PA 19104; 3Psychology Department, Rutgers University, 53 Ave E, New Brunswick, NJ 08854

9:45 a.m.
Psychological Effects of Musky Compounds: Comparison of 4,16-Androstadien-3-one, Androstenol and Muscone.
Jacob, S., McClintock, M., Department of Psychology, University of Chicago, 5730 S. Woodlawn Avenue, Chicago, IL 60637.
Dr. Dennis J. Shusterman  
University of California, San Francisco, Campus Box 0843, San Francisco, CA 94143.  
"Odor-associated health complaints: Competing explanatory models."

Dr. Pawel Wargocki  
International Centre for Indoor Environment and Energy, Technical University of Denmark, DK-2800 Lyngby, Denmark  
"Acceptability of Perceived Odor and Irritation: A Tool for Measuring Human Discomfort and Ventilation Requirements"

POSTERS

Saturday Morning - 8:00 - 12:15 p.m.

Taste Receptor Cell and Peripheral Nerve Function II  
Taste Buds: Cellular Organization  
Olfactory Receptors: Function and Zonal Expression

Taste Receptor Cell and Peripheral Nerve Function II

P1  
Taste Reactivity to Sucrose After Taste Aversion Conditioning Is Unaffected By Glosopharyngeal Nerve Transection.  
Eylam, S., Garcea, M., and Spector, A.C. Department of Psychology, University of Florida, Gainesville, FL 32611.

P2  
Gustatory Responses of Common Marmoset to Compounds Sweet in Humans: Conditional Taste Aversion Test.  
Danilova, V., Hellekant, G., and Roberts, T. Department of Animal Health and Biomedical Sciences, University of Wisconsin-Madison, Madison, WI 53706.

P3  
Use of the Cytosensor Microphysiometer to Study Hamster Taste Bud Cell Responses to Sweet Compounds  
Khare, S., Gokulan, K., McGregor, R. and Linthicum, D.S.  
'Department of Veterinary Pathobiology, College of Veterinary Medicine, Texas A&M University, College Station, TX 77843;  
'Institute Corp., Nutley, NJ

P4  
Adenovirus mediated gene transfer of GFP into cultured rat taste cells.  
Stone, L. M. 1,2, Wilcox, C. L. 1, Ruiz, C. J.1,2 and Kinnamon, S.C.1,2  
'Department of Anatomy and Neurobiology, Colorado State University, Fort Collins, Colorado 80523;  
'Rocky Mountain Taste and Smell Center, Denver, Colorado;  
'Department of Microbiology, Colorado State University, Fort Collins, Colorado 80523

P5  
Physiological Recordings from Gustducin Expressing Taste Cells in GFP-Tagged Transgenic Mice.  
Ogura, T.1,2, Lin, W.1,2, Kozak, J.A.2, Zheng, Z.2, Margolskee, R.F.2 and Kinnamon, S.C.1,2  
'Colorado State University, Fort Collins, CO 80523;  
'Howard Hughes Medical Institute, The Mount Sinai School of Medicine, New York, NY 10029;  
'The Rocky Mountain Taste and Smell Center, Denver, CO 80262

P6  
Molecular Cloning and Characterization of Genes Specifically Expressed in Gustducin-Positive Taste Receptor Cells.  
Huang, L., Zheng, Z., and Margolskee, R. F. Department of Physiology and Biophysics, Howard Hughes Medical Institute, Mount Sinai School of Medicine, 1425 Madison Avenue, Box 1677, New York, New York 10029

P7  
Partial Rescue of Gustducin Null Mice by Transgenic Expression of Transducin.  
He, W., and Margolskee, R.F. Department of Physiology and Biophysics, Howard Hughes Medical Institute, Mount Sinai School of Medicine, 1425 Madison Avenue, Box 1677, New York, New York 10029

P8  
Glutamate Chemoreception in Paramaecium.  
Bergeron, A., and Van Houten, J.L. University of Vermont, Department of Biology, Burlington, VT 05405 USA

P9  
Functional Expression of Brain and Taste Forms of Metabotropic Glutamate Receptor 4 (mGluR4) in Cultured Chinese Hamster Ovary (CHO) Cells.  
Landin, A.M., and Chaudhari, N. Dept. of Physiology and Biophysics, University of Miami School of Medicine, Miami, FL 33101

P10  
Development of Glutamate Receptors in Rat Taste Buds  
Kim, K.N.1,2, Calcedo, A., and Roper S.D.  
'Department of Physiology and Biophysics, University of Miami School of Medicine, Miami, FL;  
'Department of Oral Physiology, College of Dentistry, Kangnung National University, Kangnung, Korea

P11  
Synaptic Glutamate Receptors in Rat Taste Buds.  
Calcedo, A., Kim, K. N., and Roper, S. D. Department of Physiology and Biophysics, University of Miami School of Medicine, Miami, FL 33136
Taste Buds: Cellular Organization

Migration of BrdU-Labeled Cells in Rat Vallate Taste Buds During Cell Renewal
Cho, Y.K., Ndubuizu, O., and Smith, D.V. \textit{Department of Anatomy & Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201}

Proliferation of Taste Receptor Cells is Lower During Early Postnatal Rat Development as Compared to Adults.
Hendricks, S. J., and Hill, D. L. \textit{University of Virginia, Charlottesville, VA 22903}

Molecular cloning of novel type calpains from catfish barbel epithelium
Ookura, T., Koyama, E, Brand, J.G., and Kawamura, V* \textit{National Food Research Institute, Tsukuba, Ibaraki 305-8642, Japan; \textsuperscript{2}Univ. of Pennsylvania, Philadelphia 19104; \textsuperscript{3}Monell Chemical Senses Center, Philadelphia, PA 19104, USA}

Localization of ENaC in Taste Buds, Vinnikova, A. K., DeSimone, J. A. \textsuperscript{1}, McCarty, J. M. \textsuperscript{1}, Feldman, G. M. \textsuperscript{1}, and Benos, D.J. \textsuperscript{1} \textit{Department of Veterans Affairs Medical Center, Richmond, VA 23249; \textsuperscript{2}Virginia Commonwealth University, Richmond, VA 23298; \textsuperscript{3}University of Alabama, Birmingham, AL 35294}

Immunocytochemical Markers for Light and Dark Cells in Mouse Taste Buds
Christy, R.C. \textsuperscript{1}, Yu, C. \textsuperscript{1}, Pardo, J.M. \textsuperscript{1}, Boughter, J.D. \textsuperscript{1}, and Smith, D.V. \textit{Department of Anatomy & Neurobiology and Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD 21201; \textsuperscript{2}Division of Otolaryngology-Head and Neck Surgery, University of Maryland School of Medicine, Baltimore, MD 21201}

Are Neuron Specific Enolase, Serotonin and Protein Gene Product 9.5 Present in “Type III” Cells of Rat Taste Buds?
Yee, C.L., Böttger, B., and Finger, T.E. \textit{Rocky Mountain Taste and Smell Center and Department of Cellular and Structural Biology, University of Colorado Health Sciences Center, Denver, CO 80262}

Relation of the Lewis-a carbohydrate epitope to functional markers in rat taste-bud cells
Pumphrey, D.W. \textit{Dept. of Anatomy/Neurobiology, Univ. of Maryland Sch. of Med.}
Guandinium-based Arginine Analogs Are Detected by Multiple Odorant Receptors (OR) in the Zebrafish (Danio rerio) Olfactory System.
Lipschitz, D.L., and Michel, W.C. Department of Physiology, University of Utah School of Medicine, Salt Lake City, Utah, 84108

Localization of Olfactory-Type (OR's) and Vomeronasal-Type (V2R's)
Receptors in Different Olfactory Receptor Neurons of Goldfish
Anderson, K.T., and Finger, T.E. Rocky Mountain Taste and Smell Center and Department of Cellular and Structural Biology, University of Colorado Health Sciences Center, Denver, CO 80262

Analysis of Individual Olfactory Receptors within the Expression Zones of the Rat Olfactory Epithelium.
Iwema, C.L., and Schwob, J.E. Department of Anatomy & Cell Biology, SUNY Health Science Center, Syracuse, NY 13210

Zone-specific Differential Regulation of mamFas/OCAM is Maintained in vitro
Hamlin, J.A., and Schwob, J.E. Department of Anatomy and Cell Biology, SUNY Health Science Center, 750 E Adams Street, Syracuse, NY, 13210

The Role of O-CAM in Establishing Topographic Projections Between the Olfactory Neuroepithelium and the Olfactory Bulb.

NT-3 Expression in Olfactory Receptor Neurons and Specific Glomeruli of the Olfactory Bulb in Adult Mice.

Molecular Models of Aldehyde Interactions in the I7 Olfactory Receptor
Singer, M.S., and Shepherd, G.M. Section of Neurobiology, Yale University School of Medicine, 236 FMB, 333 Cedar Street, New Haven, CT 06510; http://habibi.med.yale.edu/mike
Saturday, April 17, 1999

Saturday Afternoon - 12:15 p.m. - 7:00 p.m.

12:15 p.m. - 2:00 p.m.  Clinical Luncheon: Retinoic Acid: Is There Evidence to Support a Multi-Center Clinical Trial? (Florida Room)
Organizers: N. Rawson and B. Cowart

Dr. A. - S. LaMantia
"Retinoic Acid and Regeneration of the Olfactory Epithelium: Clinical Implications"

2:00 p.m. - 5:00 p.m.  Beach Time!

5:00 p.m. - 7:00 p.m.  Beer Tasting (Florida Room)
Organizer: J. Kinnaman

Saturday Evening - 7:00 p.m. - 8:00 p.m.

SLIDES

Mechanisms of Taste
Chairperson: J.I Glendinning

7:00 p.m.  Role for Two Messengers in Bitter Taste Transduction.
Yan, W.1, Sunavala, G.1, Rosenzweig, S.2, Dasso, M.1, Brand, J.G.1 and Spielman, A.I.1,2 1Basic Science Division, New York University College of Dentistry, New York, NY 10010; 2Monell Chemical Senses Center, Philadelphia, PA 19104.

7:15 p.m.  Peripheral Mechanisms For Discriminating Between Different 'Bitter' Compounds
In A Caterpillar
Glendinning, J.I. Department of Biological Science, Barnard College, Columbia University, New York, NY 10027, USA. e-mail: jglendinning@barnard.columbia.edu

7:30 p.m.  Rapid Kinetics of Receptor Cell Firing and Second Messenger Modulation in an Insect Model System.
Foster, K.D.1, Spielman, A.I.1, and Kennedy, L.M.1 1Neuroscience Program, Department of Biology, Clark University, Worcester MA 01610; 2New York University College of Dentistry, Basic Science Division, New York, NY 10010

7:45 p.m.  Taste Perception And Responses To L-Glutamate In The Vagus Nerve Innervated Into The Alimentary Organs In Rats.
Tori, K.1, Smriga, M.1, and Niijima, A.1 1Ajinomoto Co., Inc. Central Research Laboratories, Kawasaki 210 - 8681, Japan; 2Niigata University School of Medicine, Niigata 951 - 8511, Japan

8:00 p.m. - 9:00 p.m. Special Lecture
Organizer: S.C. Kinnaman

Dr. Charles S. Zuker
Howard Hughes Medical Institute, University of California, San Diego, CA

and

Dr. Nick Ryba
National Institute on Deafness and Other Communications Disorders
"Candidate Mammalian Taste Receptors"

General Discussion

9:00 - 9:15 p.m. Refreshment Break
POSTERS

Saturday Evening - 7:00 p.m. - 11:00 p.m.

Human Olfactory Perception
Human Taste Perception
Clinical Studies

Human Olfactory Perception

P1 Structural Equation Modeling of the Relationship Between Olfactory Functioning and Cognitive Functioning in Non-demented Younger and Older Adults. Dulay, M. F., 1 Hattrup, K., 1 and Murphy, C. 1, 2 San Diego State University, Department of Psychology; 2 University of California Medical Center, at San Diego.
P2 Non-uniformity of Olfactory Loss with Age. Pelchat, M.L. Monell Chemical Senses Center, Philadelphia, PA 19104
P3 Topical Ephedrine Administration and Nasal Chemosensory Function in Healthy Human Subjects. Temmel, A.F.P. 1, Quint, C. 1, Toth, J. 1, Herneth, A. 2, and Hummel, T. 1 Department of Otorhinolaryngology, University of Vienna, AKH Wien, Währinger Gütel 18-20, 1090 Vienna, Austria; 2 Department of Radiodiagnostics, University of Vienna, AKH Wien, Währinger Gütel 18-20, 1090 Vienna, Austria; 3 Department of Otorhinolaryngology, University of Dresden, Fetscherstr. 74, 01307 Dresden, Germany.
P4 Reduction in Perceived, Sulphurous Malodor via Cross-adaptation with Ethyl Esters. Preti, G. 1, 2 Gill, M.S. 1, and Wysocki, C.J. 1, 3 Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104; 2 Department of Dermatology, School of Medicine, University of Pennsylvania, Philadelphia, PA 19104; 3 Department of Animal Biology, School of Veterinary Medicine, University of Pennsylvania, PA, 19104
P6 Olfactory Communication of Emotion in Humans. Haviland, J. 1, and Chen, D. 2 Psychology Department, Rutgers University, 53 Ave E, New Brunswick, NJ 08854; 2 Monell Chemical Senses Center, 3500 Market St, Philadelphia, PA 19104
Cross-Cultural Variation in Responses to Malodors
Dilks, D.D., Dalton, P., and Beauchamp, G.K. *Monell Chemical Senses Center, Philadelphia, PA 19104*

The Influence Of Verbal Labeling On The Perception Of Ambiguous Odors
Herz, R.S., and von Clef, J.C. *Monell Chemical Senses Center, Philadelphia, PA 19104-3308*

Latency, Confidence, and Consistency as Reflections of the Stability of Olfactory Knowledge.
Wise, P.M., and Cain, W.S. *Chemosensory Perception Laboratory, Department of Surgery, U.C. San Diego, La Jolla, CA 92039-0937*

Semantic-free Sorting of Odor Qualities by Osmic, Allosmic, and Anosmic Subjects.
Stevens, D.A., and O'Connell, R.J. *Dept. of Psychology, Clark University, Worcester, MA 01610; Dept. of Physiology, University of Massachusetts Medical Center, Worcester, MA 01655*

Retronasal And Orthonasal Odorant Identification Without Sniffing.
Wininger, D. A., and Halpern, B. P. *Department of Psychology, Barnard College, Columbia Univ., New York NY 10027; Psychology and Neurobiology & Behavior, Cornell Univ., Ithaca NY 14853-7601*

Effects of Different Perceptual Strategies During Exposure to Taste/Odor Mixtures.
Prestcott, J., and Francis, J. *Sensory Science Research Centre, University of Otago, Dunedin, New Zealand*

Right Nostril Superiority in Odor Discrimination of Non-familiar but Not Familiar Odors
Savic, I., and Torper, M. *Dept of Neuroscience, Karolinska Institute, Stockholm, Sweden*

Olfactory Discrimination Ability of Human and Nonhuman Primates for 10 Pairs of Enantiomers.
Laska, M., and Teubner, P. *Department of Medical Psychology, University of Munich Medical School, Goethestr. 31, D-80336 Munich, Germany*

Partial Concordance between Ratings of Perceived Odorant Dissimilarity and Latency to Discriminate Odorant Pairs
Newlon, JW, Kurtz, DB, White, TL and Wise, PM *Clinical Olfactory Research Center, SUNY Health Science Center, Syracuse, NY 13210; Department of Surgery, University of California at San Diego, La Jolla, CA 92039*

Influence of Training on the Evaluation of Odor Similarity
Ayabe-Kanamura, S., Kikuchi, T., Kawakami, T., and Saito, S. *Institute of Psychology, University of Tsukuba, Tsukuba, Ibaraki 3058572, Japan; Kyara Workshop, 6-14-1-201 Toyotama-Kita, Nerima, Tokyo 176, Japan; National Institute of Bioscience and Human-Technology, AIST, MITI, Tsukuba, Ibaraki 3058566, Japan.*

The Recollective Experience of Odors and Effects of Level of Processing: A Comparison to Memory for Words.
Olsson, M. J., and Lundgren, E. B. *Department of Psychology, Uppsala University, Box 1225, S-751 42, Uppsala, Sweden.*

Recollective Experience in Odor Memory: Influences of Age and Olfactory Familiarity
Larsson, M. Bjertsjö, C., and Bäckman, L. *Department of Clinical Neuroscience and Family Medicine, Division of Geriatric Medicine, Karolinska Institute, Stockholm, Sweden; Department of Psychology, Uppsala University, Sweden*

Human Taste Perception

Distribution of Tastant Concentrations Affects Psychophysical Functions: Implications for Taste Mixture Effects.
Stevens, D.A. *Clark University, Worcester, MA 01610*

Attentional Mechanisms in Taste Detection
Marks, L.E., and Marshall, S.P. *John B. Pierce Laboratory, New Haven, CT 06519; Yale University, New Haven, CT 06510*

Taste Matching Among Three Bitter Compounds.
Breslin, P.A.S., Culotta, A.J., Kwon, M.S., and Beauchamp, G.K. *Monell Chemical Senses Center, Philadelphia, PA. 19104*

PROP status does not predict sensitivity to all bitter compounds nor to suprathereshold bitterness ratings
Cubero, E.M., and Noble, A.C. *Dept. of Viticulture and Enology, University of California, One Shields Dr., Davis, CA 95616*

Genetic Variation and Videomicroscopy of Fungiform Papillae
Cohen, Z.D., Bartoshuk, L.M., and Duffy, V.B. *Department of Surgery, Yale University School of Medicine, New Haven, CT 06520; School of Allied Health, University of Connecticut, Storrs, CT 06269-2101*
P24 Spatial Taste Testing and Genetic Taste Variation.
Prutkin, J.M., Fast, K., Luccioni, L.A., Snyder, D.J., and Bartoshuk, L.M. 
1Yale University School of Medicine, New Haven, CT 06520; 2Unilever Research U.S., Edgewater, NJ 07020; 3Florida State University, Tallahassee, FL 32312

Delwiche, J.F., Lera, M.F., and Breslin, P.A.S. Monell Chemical Senses Center, Philadelphia, PA, 19104

P26 Psychophysical Evidence of Monosodium Glutamate Enhancing Effect on Saltiness Perception.

P27 Increases in Sensitivity for Monosodium Glutamate (MSG) After Repeated Exposures to MSG in Food.
Kobayashi, C., and Kennedy, L.M. Neuroscience Laboratory, Biology Department, Clark University, Worcester, MA 01610

P28 Contribution of Interfacial Properties of Sapid Substances in Predicting Their Taste Quality
Mathlouthi, M., and Hutteau, F. Laboratoire de Chimie Physique Industrielle, Faculté des Sciences, Université de Reims Champagne-Ardenne, BP 1039 B F-51687 REIMS Cedex 2, France

P29 Effects of Gymnemic Acid on Taste Stimulus Intensity and Identification.
Hettinger, T.P., Lent, J.F., Frank, M.E., and Marks, L.E. 
1Department of Biostructure & Function, School of Dental Medicine, University of Connecticut Health Center, Farmington, CT 06030; 2J.B. Pierce Laboratory and Yale University, New Haven, CT 06519.

P30 Selective Sweetness Inhibitors and A Biochemical Mechanism for Sweet Water Aftertaste

P31 The Effect of L-Lactic Acid on Solutions of D- and L-Arabinose.
Siertsma, R.W., and Birch, G.G. Department of Food Science and Technology, The University of Reading, Whiteknights, PO Box 226, Reading, RG6 6AP, UK

P32 Chlorhexidine Affects Anion Taste in Humans.
Gent, J.F., Frank, M.E., Popin, A. and Nadeau, M. Department of BioStructure & Function, School of Dental Medicine, University of Connecticut Health Center, Farmington, CT 06030

Clinical Studies

P33 Non-demented Older Adults with the APOE ε4 Allele Perform Poorly on Odor Memory Tasks.
Sliger, M.L., Dula, M.F., Landor, T.A., Kim, C., Ranzani, J., Thal, L., and Murphy, C. 
1San Diego State University; 2UCSD Medical Center; 3SDSU/UCSD Joint Doctoral Program in Clinical Psychology, San Diego, CA 92129-4913; FAX: (619) 594-3773

P34 Olfactory Function and Cirrhosis of the Liver
Pabinger, S., Temmel, A.F.P., Quint, C., Herneth, A.M., Muda, P., and Ferenci, P. 
1Dept. of Otolaryngology, University of Vienna, Austria; 2Dept. of Radiology, University of Vienna, Austria; 3Dept. of Gastroenterology, University of Vienna, Austria

P35 Monorhinal Odor Identification and Detection Thresholds in Patients with Seasonal Affective Disorder.
1Section on Biological Rhythms, NIMH, 10 Center Drive, Room 3S-231, Bethesda MD, 20892-1390; 2Smell and Taste Center. University of Pennsylvania Medical Center, 3400 Spruce Street PA 19104

P36 A Biopsychosocial Model of Depression/Emotional Distress in Smell Disordered Patients.
Ossebaard, C.A., Tayer, W.G., Nicassio, P.M., and Cain, W.S. University of California San Diego, San Diego, CA 92037

P37 Failure of Physicians to Assess Olfactory Ability in Neurologic Inpatients.
Hirsch, A.R., and Colavincenzo, M.L. Smell & Taste Treatment and Research Foundation, Chicago, IL 60611

P38 Solid-state Olfactometer for the Diagnostic Clinic
Frederickson, Christopher J., Taylor, D., Friedrichson, Cathy J., Kesslak, J.P., Asherioicu, I., Stewart, M., Comparini, N., and Amoore, J.L. Laboratory for Neurobiology, MicroFab Technologies, Inc. Plano TX; 2Fogelson Neuroscience Center, Presbyterian Hospital, Dallas TX; 3Univ. of Calif. - Irvine; 4deceased: Formerly of OlfactoLabs, CA.

P39 Perturbations of the Peripheral Olfactory System Produce Distinct Patterns of
316 Odorant Identification at Similar Performance Levels
Kuritz, D.B., White, T.L., Newlon, J.W., Hornung, D.E., Sheehe, P.R., Kent, P.F.,
Enko, P. Clinical Olfactory Research Center, SUNY Health Science Center,
Syracuse, NY 13210

40 P40 A Clinical Test of Retronasal Olfactory Function.
Cowart, B.J. 1, Halpern, B.P. 2, and Varga, E.K. 1 1Monell Chemical Senses
Center, Philadelphia, PA 19104; 2Dept. Otolaryngology-Head & Neck Surgery,
Thomas Jefferson University, Philadelphia, PA 19107; 3Dept. Psychology and
Sect. Neurobiology & Behavior, Cornell University, Ithaca, NY 14853

318 P41 Anesthesia of Chorda Tympani Nerve and Effect on Oral Pain
Tie, K., Fast, K., Kveton, J., Cohen, Z., Duffy, V.B., Green, B., Prutkin, J. and
Bartoshuk, L. Department of Surgery, Yale University School of Medicine, New
Haven, CT 06520

319 P42 Burning Mouth Syndrome: Damage to CN VII and Pain Phantoms in CN V
Bartoshuk, L.M. 1, Grushka, M. 2, Duffy, V.B. 1, Fast, K. 3, Lucchina, L. 4, Prutkin,
J. 1, and Synder, D. 1 1Yale University School of Medicine; 2Case Western Reserve
University; 3University of Connecticut; 4Unlever Research U.S.; 5State University of
Florida

320 P43 Radiation Induced Changes in Taste Sensitivity.
Linschoten, M.R., and Jafek, B.W. Rocky Mountain Taste and Smell Center,
UCHSC Box B-205, 4200 East 9th Avenue, Denver CO 80262

321 P44 The Effect of Space Flight and Microgravity on the Stimulation of the Chemical
Senses
Olabi, A. 1, Hunter, J.B. 3, Lawless, H.T. 1 and Levitsky, D.A. 1, 4 1Department of
Food Science, Cornell University, Ithaca, NY 14853; 2Department of Agricultural
and Biological Engineering, Cornell University, Ithaca, NY 14853; 3Department of
Psychology, Cornell University, Ithaca, NY 14853; 4Department of Nutritional
Sciences Cornell University, Ithaca, NY 14853

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Sunday, April 18, 1999

SLIDES

Sunday Morning - 8:00 a.m. - 11:15 a.m.

Oral Perception in Humans
Chairperson: B. J. Cowart

8:00 a.m. Oral Stimulation with Dietary Fat Raises Postprandial Serum Triacylglycerol
Levels in Humans.
Matts R.D., and Bormann, L. Purdue University, Department of Foods and
Nutrition, W. Lafayette, IN 47906

8:15 a.m. The Effect Of Sodium Gluconate On The Sweetness Of Selected Intense
Sweeteners And Their Synergistic Binary Mixtures
Parke, S.A., Birch, G.G., and Place, R. Department of Food Science and
Technology, University of Reading, Whiteknights, P.O. Box 226, Reading, RG6
6AP, U.K.

8:30 a.m. Human Taste Sensitivity to Glucose is Greater after Repeated Exposure to Fructose
Rather than to Glucose in Lememade.
Sullivan, K.D., Adamia, B., and Kennedy, L.M. Neuroscience Laboratory,
Biology Department, Clark University, Worcester, MA 01610

8:45 a.m. Thermal Induction of Taste
Green, B.G. The John B. Pierce Laboratory and Department of Surgery
(Otolaryngology), Yale School of Medicine, 290 Congress Avenue, New Haven, CT
06519

9:00 a.m. Refreshment Break

Clinical Issues
Organizer: J.F. Gent

9:15 a.m. The Nose as a Route of Administration for Therapeutic Drugs: Nasal Metabolism
as a Possible Determinant of Efficacy or Toxicity
Genter, M.B. 1, Deshpande, V.S. 1, and Desai, P.B. 2
1Department of Environmental Health, College of Medicine, University of
Cincinnati, Cincinnati, OH 45267-0056; 2Division of Pharmaceutical Sciences,
College of Pharmacy, University of Cincinnati, Cincinnati, OH 45267-0004

A New Clinical Test for the Determination of Olfactory Recognition Thresholds

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Sunday, April 18, 1999

9:30 a.m.  Kobal, G., Roscher, S., and Gisbert, F. *Institute of Experimental and Clinical Pharmacology and Toxicology, University of Erlangen-Nuremberg, D-91054 Erlangen, Germany*

9:45 a.m.  Etiologies of Olfactory Loss with Similar Performance Levels Produce Unique Patterns of Correct and Incorrect Odorant Identifications. White, T. L., Kurtz, D. B., Sheehan, P. R. and Newlon, J. W. *Clinical Olfactory Research Center, SUNY Health Science Center, Syracuse, NY 13210.*

10:00 a.m.  Long Term Follow-up on Patients with Surgically Treated Phantosmia Loebr, T., Schwob, J., and Leopold, D.A. *Johns Hopkins School of Medicine; SUNY Health Science Center of Syracuse*

10:15 a.m.  Olfactory Recognition in Sjogren's Syndrome: A Twelve Year Longitudinal Follow-up. Weißenbach, J. M., and Brennan, M.T. *National Institute of Dental and Craniofacial Research, Bethesda, Maryland, USA.*

10:30 a.m.  Testing Olfactory Performance in Endocrinological Patients Steiner, J.B., and Bar-Dayan, G. *Department of Oral Biology, The Hebrew University Hadassah School of Dental Medicine, POB 12272, Jerusalem 91120, Israel*

10:45 a.m.  Traumatic Brain Injury Assessed with Olfactory Event-Related Brain Potentials Geisler, M.W.1,2, Schlotfeldt, C.R.2, Middleton, C.B.3, Dulay, M.F.1, and Murphy, C.1,3,1 *University of California Medical Center, San Diego, CA; San Diego State University, Department of Psychology, San Diego, CA*

11:00 a.m.  Structural MRI Volume and Psychophysical Measurement of Olfactory Function in Persons with the Apo E Genotype and in Persons with Alzheimer's Disease. Murphy, C.1,2, Fenema-Notestine, C.3,2, Wiser, A.1 and Jernigan, T. L.1,3 *San Diego State University, San Diego, CA; VA Medical Center, La Jolla, CA; UCSD School of Medicine, San Diego, CA*

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Sunday Morning - 8:00 a.m. - 11:00 a.m.

Feeding and Reproductive Behavior II

Vomeronasal Organ

Feeding and Reproductive Behavior II

P1  The Aesthetasc-Olfactory Lobe Pathway of Spiny Lobsters is not Necessary for Odor-Activated Searching Behavior, Odor-Associative Learning, and Discrimination of Complex Odors. Steulert, P., Flavus, T., Radman, D., Hanidi, G., Zhou, M., Duder, O., Hill, R. and Derby, C.D. *Department of Biology, Georgia State University, Atlanta, GA 30303 USA*

P2  Effect of Complex Odor Cues and Shelter Availability on Crayfish Foraging Behavior. Tomba, A., Keller, T.A., and Moore, P.A. *Lab for Sensory Ecology, Bowling Green State University, Bowling Green, OH 43402*

P3  Occupation of Chemoreceptors and Presence of Intracellular Cyclic AMP Are Associated with Export of Photosynthetically-Generated Carbohydrate by Algae Living in Symbiotic Relationships with Cnidarian Hosts. Trapido-Rosenthal, H.1, Austin, J.1,3, Ferrier, D.1,3, and Zielke, S.1,4 *Bermuda Biological Station for Research, Ferry Reach GE-01, Bermuda; Florida State University, Tallahassee, Florida 32306, USA; Hood College, Frederick, Maryland 21701, USA; Technical University of Mannheim, Mannheim D-68305, Germany*

P4  Electrophysiological Recordings Demonstrate That the Antennules of the Barnacle Cyprid Larva Bear Functional Chemo- and Mechanoreceptors. Harrison, P.H.1,2, and Sandeman, D.C.1 *School Biological Science, University of New South Wales, Sydney, Australia 2052; Dept. of Biology, Georgia State University, Atlanta Georgia USA 30303*

P5  The Nose of the Lobster may also Function as a Hydrodynamic Receptor Organ. Weaver, M., Guenther, C., and Atessa, J. *Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543*

P6  Chemosensory Mediation of Antennular Grooming in the Florida Spiny Lobster Requires Olfactory Input Wroblewska, J., Daniel, P.C., Whalley, S. and Fischetti, M. *Department of Biology, Hofstra University, Hempstead, NY 11549-1140*
P7 Chemosensory Mediation of Antennular Grooming Behavior in Decapod Crustacea. Daniel, P.1, Shumen, M.2, and Fischetti, M.1 1Department of Biology, Hofstra University, Hempstead, NY 11549-1140; 2Huntington Senior High School, Huntington, NY

P8 Sensory Information Used in Female Assessment of Males in Procamburus clarkii Shauver, L. M., and Moore, P. A. Laboratory for Sensory Ecology, Bowling Green State University, Bowling Green, Ohio 43403

P9 Urine Pheromones in the Lobster, Homarus americanus: Both Males and Females Recognize Individuals and Only Use the Lateral Antennule for This Task Atena, J., Breithaupt, T., LeVay, A., Morrison, J., Mallidis, M. and Edattukaran, M. Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543


P11 Miniature Solid-State Pheromone-Jet for Piccoliter Dispensing Fredericksen, Christopher J.1, Comparini, N.1, Romero, A.1, Wright, E.1, Fredericksen, I.1, Sinks, M.1, Knutson, A.1 and Frederickson, Cathy J.1 1MicroFab Technologies, Inc., Plano TX 75080; 2Texas A&M University, Richardson Extension, Richardson TX.

P12 Cloning of Sodelfin-like Peptide Cdna of the Sword-tailed Newt Kikuyama, S.1, Iwata, T.2, and Toyoda, F.2 1Department of Biology, School of Education, Waseda University, Tokyo, Japan; 2Department of Physiology, Nara Medical University, Kashihara, Japan

P13 Effects of Methimazole on a Complex Odor Discrimination Task. Hastings, L., and Doty, R.L. Smell and Taste Center, University of Pennsylvania School of Medicine, Philadelphia, PA 19104, USA

P14 Effects of Extraneous Odors on Canine Olfactory Detection. Jones, M.1,2, Boussom, T.1,2, Paletz, E.1, Langston, J.1,2, Waggoner, P.1 and Williams, M.1 1Department of Psychology, Auburn University, Auburn University, AL 36849; 2Institute for Biological Detection Systems, Auburn University, Auburn University, AL 36849

P15 Chemistry of the Urine and the Vaginal Secretions of Golden Hamsters (Mesocricetus auratus). Ma, W., Wiesler, D., and Novotny, M.V. Department of Chemistry, Indiana University, Bloomington, IN 47405.

P16 Sex and Systematic Genetic Differences in Sensitivity to Androstenone in Inbred Mice. Voznesenskaya, V.V.1,2, and Wysocki, C.J.1,3 1Monell Chemical Senses Center, 3300 Market Street, Philadelphia, PA 19104; 2A.N. Severtsov Institute of Ecology & Evolution, Russian Academy of Sciences, Moscow 117071 Russia; 3Department of Animal Biology, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA 19104

P17 Fetal MHC odotypes influence behavior toward female mice. Yamazaki, K., Curran, M., and Beauchamp, G.K. Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104

P18 Olfactory Conditioning and Differential Immediate Early Gene Expression in Mice. Forestell, C.A., Schellenick, H.M., Brown, R.E. and LoLordo, V.M. Dalhousie University, Halifax, Canada B3H 4J1

P19 Olfactory Learning-set Formation in old Wistar Rats. Krämer, S., and Apfelbach, R. Dept. of Zoology, University of Tübingen, 72076 Tübingen, Germany

P20 Olfaction in Rats with Depletion of Olfactory Bulb Serotonin Hanford, L.1, Teldon, S.1, Slotnick, B.1, Coelen, L.1, and Shipley, M.T.2 1American University, Washington DC 20016; 2University of Maryland School of Medicine, Baltimore, MD 21201

P21 Odor Quality Recognition in Rats with Reduced Connections to the Olfactory Bulb Slotnick, B., and Bodyk, N. American University, Washington, DC 20016


P23 Olfactory testing in rats without deprivation. Rawson, N.E., Crenshaw, O., and Hyman S. Monell Chemical Senses Center, 3500 Market St., Philadelphia PA 19104.
Vomeronasal Organ

Sunday, April 18, 1999

P24 Quantitative Analysis of Changes in the Rat Vomeronasal Epithelium during Degeneration and Regeneration.
Matsuoka, M.1,2, Costanzo, R.M.1, Yoshida-Matsuoka, J.1 and Ichikawa, M.1
1Anatomy and Embryology, Tokyo Metropolitan Institute for Neuroscience, Fuchu, Tokyo 183-8526, JAPAN; 2JSPS Research Fellowships for Young Scientists; 3Department of Physiology, Medical College of Virginia Campus, Virginia Commonwealth University, Richmond, VA 23298-0551, USA

Layer Organization of the Vomeronasal Epithelium During Regeneration
Yoshida-Matsuoka, J.1, Ryba, N.J.P.1, and Costanzo, R.M.1 1Department of Physiology, Virginia Commonwealth University, MCV campus, P.O.Box 900551, Richmond, Virginia 23298-0551; 3Taste and Smell Unit, NIDCR, National Institutes of Health, Bethesda, Maryland 20892

Culture of Rat Vomeronasal Neurons.
Osada, T.1,4, Ikai, A., Costanzo, R.M.5, Matsuoka, M.3, and Ichikawa, M.1,4
1Department of Biological Sciences, Tokyo Institute of Technology, Nagatsuta, Midori-ku, Yokohama 226-0026, Japan; 2Department of Physiology, Medical College of Virginia Campus, Virginia Commonwealth University, Richmond, VA 23298-0551, USA; 3Anatomy and Embryology, Tokyo Metropolitan Institute for Neuroscience, Fuchu, Tokyo 183-8526, Japan; 4CREST of Japan Science and Technology Corporation

Evidence For Receptor Neurons In The Thick Epithelium Of A Newborn Elephant's Vomeronasal Organ.
Johnson, E.W.1, and Rasmussen, L.E.L.1 1Dept. of Biological Sciences, Idaho State University, Pocatello, ID 83209; 2Dept. of Biochemistry and Molecular Biology, Oregon Graduate Institute of Science and Technology, P.O. Box 91000, Portland, OR 97291

Passage of the Harderian Gland Secretions to the Vomeronasal Organ of the Snake, Thamnophis sirtalis.
Rehzenk, S.J., Hillenius, W.J.2, Quan, W.1, and Halpern, M.1 1Department of Anatomy, NYCOM, Long Island, NY 11568-8000, 2Department of Biology, College of Charleston, Charleston, SC 29424-0001, 3Department of Anatomy and Cell Biology, SUNY, Brooklyn, 11203-2008.

Selective Activation of G Protein β Subtypes in the Vomeronasal Organ
Boekhoff, I., Krieger, J., Schmitt, A., Løbel, D., and Breer; H. University Stuttgart-Hohenheim, Institute of Physiology, 70593 Stuttgart, Germany

Electrophysiological Properties and GTP-binding Proteins Putatively Involved in Vomeronasal Signal Transduction.
Murphy, F.1, Tucker, K.1, Morrison, E.E.1, Dennis, J.C.1, Voydanoy, V.1, Sri Kumar, D.2, Kehli, J.H.1, and Fadool, D.A.1 1Zoology Department, College of Science and Mathematics, Auburn University, Auburn, AL 36849; 2 Department of Anatomy, Physiology, and Pharmacology, Auburn University, Auburn, AL 36849; 1Laboratory of Immunoregulation, National Institute of Allergy and

Initial Molecular Studies of (Z)-7-Dodeceny1 Acetate as a Mammalian Pheromone.
Rasmussen, L. E. L.1, Lazar, J.2, and Prestwich, G.3 1Dept. of Chemistry, Oregon Graduate Institute, Beaverton, OR 97006; 2 Dept. of Medicinal Chemistry, University of Utah, Salt Lake City, Utah

The Anatomy of the Vomeronasal Organ: Characterization by Means of Nasal Endoscopy and Magnetic Resonance Imaging
Hummel, T.1, Kühnau, D.1, Knecht, M.1, Abolmaali, N.1, and Hüttenbrink, K.B.1 1Department of Otorhinolaryngology, University of Dresden, Fetscherstr. 74, 01307 Dresden, Germany; 1 Department of Radiology, University of Dresden, Fetscherstr. 74, 01307 Dresden, Germany

Immunohistochemical Analysis of Rat Vomeronasal Organ Transplanted to Brain.
Dennis, J.C., Wolfe, K.G., and Morrison, E.E. College of Veterinary Medicine, Auburn University, Alabama 36849

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