Future Meetings

April 17-21, 1996

July 7-12, 1997 (ISOT, San Diego)

April 21-25, 1998

ACHEMS - 1995

PROGRAM

THE SEVENTEENTH ANNUAL MEETING OF THE ASSOCIATION FOR CHEMORECEPTION SCIENCES

Hyatt, Sarasota
Florida
April 19 - 23, 1995

The Association for Chemoreception Sciences gratefully acknowledges the support of its corporate members:

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GENERAL INFORMATION

1. Registration in the Longboat Room

Wednesday evening: 5:00-7:30pm
Thursday, Friday and Saturday mornings: 7:30-9:00am
Thursday evening: 6:00-7:00pm

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

3. All poster sessions will be held in the Hernando Desoto Ballroom. All morning posters should be removed by 3:00pm. All evening posters should be removed by midnight.

4. The Clinical Luncheon will take place on Thursday at 1:00pm in the Florida Room. Tickets are on sale in the Longboat Room.

5. The Industry/Academia Panel discussion will take place on Friday at 4:00pm in the Sarasota Room, followed by a reception with cash bar and buffet in the Florida Room. Tickets are on sale in the Longboat Room.

6. The Wine Tasting will be held in the Florida Room on Saturday at 5:00pm. Tickets are on sale in the Longboat Room

7. There will be a van from the hotel to Lido Beach Thursday, Friday and Saturday afternoons. The van will leave from the front of the hotel on the hour, beginning at 1:00pm. It will leave Lido Beach to return to the hotel on the half hour. The last van will leave Lido Beach at 4:30 pm.

8. The Hyatt will provide a cash "Quick-Lunch Sandwich Cart" at the conference center daily at 12:30PM. The Prefunction area is reserved for eating your lunch and socializing if you do not care to go outside and wish to meet other conferees.

Wednesday April 19, 1995

ASSOCIATION FOR CHEMORECEPTION SCIENCES

Seventeenth Annual Meeting

12:00 noon	Executive Committee Meeting
3:00	Education Outreach Workshop *Organizer: Celeste Wirsig-Weichmann*
5:00 - 7:30	Registration
6:00 - 6:30	Minority Fellows Orientation *Diego Restrepo*
6:30 - 8:00	Opening Buffet
8:00 - 8:30	Welcome, Opening Remarks and Awards *John S. Kauer, Executive Chairperson*
8:30 - 9:30	**GIVAUDAN-ROURE LECTURE** Dr. Robert Horvitz Howard Hughes Medical Institute Research Labs Massachusetts Institute of Technology Cambridge, MA "Genetic Control of Programmed Cell Death in the Nematode, *Caenorhabditis elegans*"
9:30	Social Reception and Cash Bar
9:40	Organizational Meeting for Graduate Students *Coordinator: Joel White*

SLIDES

Thursday Morning – 8:00-12:45

Human Psychophysics--Taste/Olfactory--Common Chemical Sense

Chairperson: Robert A. Frank

8:00 #1 Taste And Solution Properties Of D-Glucono 1,5-Lactone. GORDON G. BIRCH[1], DAVID KILCAST[2], MARIE-ODILE PORTMANN[2], MIRJANA GRANOV[1] and NICOLAS BUTU[1], *[1]Department of Food Science and Technology, University of Reading RG6 2AP, UK, [2]Leatherhead Food RA, Surrey, UK.*

8:15 #2 Taste And Touch In Aging: Assessment By Repeated Threshold Measures. JOSEPH C. STEVENS and L. ALBERTO CRUZ, *John B. Pierce Laboratory, New Haven, CT.*

8:30 #3 Analysis Of Taste Mixtures By Children And Adults. M.H. FREEMAN, N. ORAM, D.G. LAING and I. HUTCHINSON, *University of Western Sydney, Sydney, Australia.*

8:45 #4 Cognitive Factors Influence Odor-Induced Enhancement Of Sweetness: Rating Versus Attending To Attributes. NICOLETTE J. VAN DER KLAAUW and ROBERT A. FRANK, *University of Cincinnati, Cincinnati, Ohio.*

9:00 **Refreshment Break**

9:15 #5 Perceived Odor Character Of Concord Grape Juice Components Determined By Gas Chromatography-Olfactometry (GCO) With Eight Subjects. RHONDA L. SMITH[1], ANNA B. MARIN[2], JOHN BARNARD[1] and TERRY E. ACREE[1], *[1]Cornell University-Geneva, NYSAES, Geneva, NY 14456, [2]International Flavors and Fragrances, Union Beach, NJ 07735.*

9:30 #6 The Perceived Odor Character Of Concord Grape Juice Determined By Quantitative Descriptive Analyses (QDA) With Eight Subjects For Natural And Flavor Enhanced Concord Grape Juice. ANNA B. MARIN[1], TERRY E. ACREE[2] and JOHN BARNARD[2], *[1]International Flavors and Fragrances R&D, 1515 HWY 36, Union Beach, NJ 07735, [2]Cornell University-Geneva, NYSAES, Geneva, NY 14456.*

9:45 #7 Adaptation To Capsaicin Within And Across Days. DONALD H. McBURNEY, CAREY D. BALABAN and DALE E. CHRISTOPHER, *University of Pittsburgh, Pittsburgh, PA.*

10:00 #8 Description And Prediction Of Human Nasal Pungency Thresholds By A Solvation Equation. J. ENRIQUE COMETTO-MUÑIZ[1], WILLIAM S. CAIN[1], MICHAEL H. ABRAHAM[2] and JENIK ANDONIAN-HAFTVAN[2], *[1]Department of Surgery -Otolaryngology- University of California, San Diego, San Diego, CA 92103-8895, [2]Department of Chemistry, University College London, London WC1H OAJ, UK.*

10:15 **Refreshment Break**

10:30-12:45 **Symposium: Pheromones and other semiochemicals: Tools for Olfactory Research**

Organizers: Tom Christensen and Peter Sorensen

10:30 #9 Introduction and Historical Perspectives: THOMAS A. CHRISTENSEN[1] and PETER W. SORENSEN[2], *[1]Arizona Research Laboratories, Division of Neurobiology, University of Arizona, Tucson, AZ 85721, [2]Dept. of Fisheries and Wildlife, University of Minnesota, St. Paul, MN 55108.*

10:45 #10 Behavioral Responsiveness To Pheromones Provides Fundamental And Unique Insight Into Olfactory Function. PETER W. SORENSEN, *Dept. Fisheries & Wildlife, Univ. of MN., St. Paul, MN 55108.*

11:10 #11 Peripheral Mechanisms Of Pheromone Reception. KARL-ERNST KAISSLING, *Max-Planck-Institut für Verhaltensphysiologie Seewiesen, 82319, Starnberg, Germany.*

11:35 #12 Central Mechanisms Of Pheromone-Information Processing. HANNA MUSTAPARTA, *Dept. of Zoology, University of Trondheim 7055, Dragvoll, Norway.*

12:00 Synthesis, Overview & Future Directions: *Tom Christensen and Peter Sorensen*

12:15 Open discussion

Thursday Afternoon

1:00 **Clinical Luncheon: "Hyperosmia"**

Coordinator: April Mott
Drs. A. Mott, W. Cain and I. Bell

2:00-4:00 **Carl Pfaffmann Memorial Workshop**

Organizer: Linda Bartoshuk

POSTERS

Thursday morning – 8:00-1:00

Peripheral Olfactory Structures
Olfactory Epithelium, Clinical--Rat and Human
Development and Differentiation--Olfactory, VNO, Common Chemical Sense
Behavioral Models of Taste Discrimination

#13 P1 Ultrastructural Localization Of Putative Odor Receptors And Cyclic Nucleotide-Gated Channels In Rat Olfactory Epithelia. B. PH. M. MENCO[1], O. MATSUZAKI[2], R. E. BAKIN[2], G. V. RONNETT[2], J. STROTMANN[3] and H. BREER[3], *[1]Department of Neurobiology & Physiology, Hogan Hall, Northwestern University, Evanston, IL 60208, [2]Department of Neurosciences, Johns Hopkins University School of Medicine, 725 N. Wolfe Street, Baltimore, MD 21205, [3]Institut für Zoophysiologie, Garbenstraße 30, D-7000 Stuttgart 70, Germany.*

#14 P2 GBC-1, A Monoclonal Antibody Against Globose Basal Cells. BRADLEY J. GOLDSTEIN and JAMES E. SCHWOB, *Department of Anatomy and Cell Biology, and Chemosensory Disorders Group, SUNY Health Science Center, Syracuse.*

#15 P3 Selective Transport Of RNA In Sensory Neurons Of The Olfactory Neuroepithelium. C. DELLACORTE, L.C. JOHNSON and D. LYNN KALINOSKI, *Monell Chemical Senses Center, Philadelphia, PA 19104.*

#16 P4 OMP-lacZ Transgenic Mice Express lacZ And DBA Binding Sites In Distinct Subpopulations Of Olfactory Neurons. ERIC WALTERS[1], HELEN B. TRELOAR[2], BRIAN KEY[2] and FRANK MARGOLIS[2], *[1]Roche Institute of Molecular Biology, Nutley, NJ, [2]Univ. of Melbourne, Australia.*

#17 P5 Stress-Related Proteins: Hsp70 And Ubiquitin In The Olfactory Organ Of The Channel Catfish (*Ictalurus Punctatus*). ISABELLA ANDREINI[1,2], CHRISTIAN DELLACORTE[1], MUZ ZVIMAN[1] and D. LYNN KALINOSKI[1], *[1]Monell Chemical Senses Center, Philadelphia, PA 19104, [2]School of Veterinary of Pisa, Pisa, Italy 56124.*

#18 P6 Ultrastructural Localization Of NADPH-Diaphorase Activity In The Olfactory Mucosa Of Larval Sea Lamprey (*Petromyzon Marinus*). JASBIR K. OSAHAN, MANSOUR HOSSEINI, ELLA WONG and BARBARA S. ZIELINSKI, *University of Windsor, Windsor, ON Canada N9B 3P4.*

#19 P7 Immunohistochemical Localization Of Two Enzymes Associated With Glutathione Metabolism: Glutathione S-Transferase Pi And g-Glutamyl Transpeptidase In The Olfactory Epithelium Of Rainbow Trout. SUSAN L. STARCEVIC and BARBARA S. ZIELINSKI, *University of Windsor, Windsor, Ontario, Canada, N9B 3P4.*

#20 P8 Solitary Chemosensory Cells In The Olfactory Organs Of Fish. ANNE HANSEN[1] and HANS PETER ZIPPEL[2], [1]*Zoological Institute, University of Hamburg, Hamburg, Germany,* [2]*Physiological Institute, University of Göttingen, Göttingen, Germany.*

#21 P9 Different Types Of Olfactory Receptor Cells Project To Different Areas Of The Olfactory Bulb In Catfish. Y. MORITA and T.E. FINGER, *Rocky Mountain Taste & Smell Center, Denver, CO 80262.*

#22 P10 DNA *In Situ* Hybridization Localization Of Herpes Simplex Virus Type I In The Rat Olfactory Mucosa And The Early Immune Effector Cell Response. MARILYN L. GETCHELL[1,2] and ANJALI KULKARNI-NARLA[3], [1]*Div. Otolaryngol., Dept. Surg.,* [2]*Sanders-Brown Ctr. on Aging,* [3]*Dept. Physiol., University of Kentucky College of Medicine, Lexington, KY 40536.*

#23 P11 A Hypothesis About Delayed Recovery Of Inflamed Olfactory Epithelium In Cases Of Sinusitis. MASAHIKO EGAWA, SHOJI MATSUNE, SHIGERU FURUTA and MASARU OHYAMA, *Department of Otolaryngology, Kagoshima University, Kagoshima, Japan.*

#24 P12 Insulin-Like Growth Factor I Receptor Immunoreactivity In Rat Olfactory Epithelium; Effect Of Diabetes. NANCY E. RAWSON[1], CHRISTIAN DELLACORTE[1], ISABELLA ANDREINI[2], MENEKHEM ZVIMAN[1] and DIEGO RESTREPO[1,3], [1]*Monell Chemical Senses Center, Philadelphia PA 19104,* [2]*Dept. Veterinary, Univ. of Pisa, Italy,* [3]*Dept. Physiology, Univ. of Pennsylvania, Philadelphia PA 19107.*

#25 P13 Quantitative Evaluation Of Mitochondrial Size And Distribution In Olfactory Biopsies From Alzheimer's And Control Subjects. PAMELA M. ELLER, EDWARD W. JOHNSON, MIRIAM R. LINSCHOTEN and BRUCE W. JAFEK, *Rocky Mountain Taste and Smell Center (RMTSC), University of Colorado Health Sciences Center (UCHSC), Denver, CO.*

#26 P14 Olfactory Epithelium Slice Cultures: A Method For Investigating Olfactory Neuronal Differentiation, Axon Outgrowth And Target Interaction. WEI-LIN LIU[1], QI-ZHI GONG[2], MONICA SRODON[1] and MICHAEL T. SHIPLEY[1], [1]*University of Maryland,* [2]*Rockefeller University.*

#27 P15 Expression And Induction Of Cyclin D1 And PCNA During Cell Cycle Progression And Apoptosis In The Rat Olfactory Epithelium. N.S. RAMA KRISHNA[1], MARILYN L. GETCHELL[1,2] and THOMAS V. GETCHELL[1,2,3], [1]*Div. Otolaryngology, Dept. of Surgery,* [2]*Sanders-Brown Center on Aging, and* [3]*Dept. of Physiology, Univ. of Kentucky College of Medicine, Lexington, KY 40536.*

#28 P16 L uteinizing Hormone-Releasing Hormone (LHRH) Neurons Migrate Normally In Neural Cell Adhesion Molecule (N-CAM)-Deficient Mice. M. SCHWANZEL-FUKUDA[1], D.W. PFAFF[1], K.L. CROSSIN[2], H. CREMER[3], J.-P. HARDELIN[4] and C. PETIT[4], [1]*Rockefeller University, New York,* [2]*Scripps Research Institute, La Jolla, CA,* [3]*Developmental Biology Institute of Marseilles, Marseilles, France,* [4]*Pasteur Institute, Paris, France.*

#29 P17 Long Term Growth Of Rat Olfactory Epithelium Transplants In Host Brain. JOHN C. DENNIS and EDWARD E. MORRISON, *Department of Anatomy and Histology, College of Veterinary Medicine, Auburn University, AL 36849-5518.*

#30 P18 Development Of Rat Olfactory Receptor Neurons Subclass Reactive With A Monoclonal Antibody To HSP70. VIRGINIA MCMILLAN CARR and ALBERT I. FARBMAN, *Northwestern University, Evanston, IL 60208-3520.*

#31 P19 Expression Of Hu Neuronal Proteins During Early Olfactory Development. MICHAEL T. SHIPLEY[1], WEI-LIN LIU[1] and HENRY FURNEAUX[2], [1]*University of Maryland,* [2]*Sloan-Kettering.*

#32 P20 The Dynamics Of Morphological Transformations In The Olfactory Sensilla Of Blue Crabs As A Function Of Salinity. RICHARD A. GLEESON[1], LORRAINE M. MCDOWELL[2] and HENRY C. ALDRICH[2], *[1]The Whitney Lab. and [2]Dept. of Microbiology and Cell Science, University of Florida.*

#33 P21 Localization Of Superoxide Dismutases In Rat Olfactory And Vomeronasal Receptor Neurons During Ontogeny. A. KULKARNI-NARLA[1], T.V. GETCHELL[1,2,3] and M. L. GETCHELL[2,3], *[1]Dept. Physiol., [2]Div. Otolaryngol., Dept. Surg., [3]Sanders-Brown Ctr. on Aging, University of Kentucky Coll. of Medicine, Lexington, KY 40536.*

#34 P22 Comparison Of Olfactory And Vomeronasal Receptor Cell Division Rate In Breeding And Non-Breeding Salamanders: Variation With Natural Life Cycle. ELLEN DAWLEY, CORRIE STANKIEWICZ, STEVEN WAGNER and AMANDA FINGERLIN, *Ursinus College, Collegeville, PA 19426.*

#35 P23 Distribution Of Nestin Positive Cells In The Developing Rat Vomeronasal Organ. TOSHIYA OSADA[1], MASUMI ICHIKAWA[2] and RICHARD M. COSTANZO[1], *[1]Virginia Commonwealth University, Richmond Virginia, [2]Tokyo Metropolitan Institute for Neuroscience, Tokyo Japan.*

#36 P24 Taste Properties Of The Quaternary Amine: Benzyltriethylammonium Chloride (BTAC) In Rats. CHARLES N. STEWART and MARCUS W. THOMSEN, *Franklin and Marshall College, Lancaster, PA.*

#37 P25 Amylase-Like Enzymes Mediate Polysaccharide Feeding Responses In *Uca pugilator*. D. RITTSCHOF, M. JACKSON, J. BASKIN and E. BERGSON, *Duke University Marine Laboratory, Beaufort, NC 28516-9721.*

#38 P26 Synergism Between MSG And IMP In Taste Preference Of Rats. E. R. DELAY[1], J. O. HARBAUGH[1], K. D. CATRON[1] and S. D. ROPER[2,3], *[1]Department of Psychology, Regis University, Denver, CO, [2]Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO, [3]Department of Anatomy and Neurobiology, Colorado State University, Ft. Collins, CO.*

#39 P27 The Role Of Taste In Oral Self-Administration Of Phencyclidine-Like Compounds. JENNIFER M. ASPEN[1], ERIC D. PAKARINEN[2] and JAMES H. WOODS[2], *[1]University of Chicago, Chicago, Illinois, [2]University of Michigan, Ann Arbor, Michigan.*

#40 P28 Preference For Glucose And L-Amino Acids In Streptozotocin-Induced Diabetic Rats. K. TAJIMA[1], M. MORI[1], H. FUJIMURA[1] and K. TORII[1,2], *[1]Torii Nutrient-stasis Project, ERATO, R&D Corp. of Japan, Yokohama 221, Japan, [2]Ajinomoto Co. Inc., Central Res. Lab., Yokohama 244, Japan.*

#41 P29 Effect Of Selective Vagotomy On Dietary Choice Between L-Lysine Deficient And Protein-Free Diets In Rats. M. INOUE[1], M. FUNABA[1], R.L. HAWKINS[1], M. MORI[1] and K. TORII[1,2], *[1]Torii Nutrient-stasis Project, ERATO, R&D Corp. of Japan, Yokohama 221, Japan, [2]Ajinomoto Co. Inc., Central Res. Lab., Yokohama 244, Japan.*

#42 P30 Preference For Glucose And Changes Among Activin ßA Subunit, Follistatin And Insulin In Pancreatic Islet Of Diabetic Rats Induced By Cyproheptadine. M. TAKEZAWA[1], T. MURATA[1], H. FUJIMURA[1], K. OGAWA[2] and K. TORII[1,3], *[1]Torii Nutrient-stasis Project, ERATO R&D Corp. of Japan, Yokohama 221, Japan, [2]Tokyo University, Tokyo 113, Japan, [3]Ajinomoto Co. Inc., Central Res. Lab., Yokohama 244, Japan.*

#43 P31 Exposure To An Odor Can Affect Later Ingestive Behavior In Preweanling Rat Pups. MARCY C. WILSON, H. MOORE ARNOLD and W.G. HALL, *Duke University.*

#44 P32 Changes In Licking Microstructure During Sucrose Meals In The Rat. PERRIN A. KLUMPP[1], JOEL M. KAPLAN[2] and ALAN C. SPECTOR[1], *[1]University of Florida, Gainesville, FL, [2]University of Pennsylvania, Philadelphia, PA.*

#45 P33 Sucrose/NaCl But Not Saccharin/NaCl Mixtures Increase The Intake Of NaCl By The Sodium Depleted Rat. S.P. FRANKMANN, N.E. EICHELBERGER, F. KNIGHT and M. ZINGG, *University of Southern Colorado, Pueblo, CO.*

#46 P34 Amiloride Is A Poor Conditioned Stimulus In Taste Aversion Learning. STACY MARKISON and ALAN C. SPECTOR, *University of Florida, Gainesville, FL.*

#47 P35 Chorda Tympani Or Glossopharyngeal Nerve Section Does Not Alter Quinine Detection Thresholds In Rats. STEVEN J. ST. JOHN and ALAN C. SPECTOR, *Dept. of Psychology, University of Florida.*

#48 P36 c-Fos Induction In The Nucleus Of The Solitary Tract By Sucrose After Conditioned Taste Aversion Acquisition Is Not Attenuated By Subdiaphragmatic Vagotomy. T.A. HOUPT, R.A. BERLIN and G.P. SMITH, *E.W. Bourne Behav. Res. Lab., Dept. Psychiatry, Cornell Univ. Med. Coll., White Plains, NY.*

#49 P37 Establishment Of Learned Taste Preference For Lysine In Lysine-Deficient Rats: Roles Of Chorda Tympani And Glossopharyngeal Nerves. T. KONDOH[1], H.N. MALLICK[1], E. TABUCHI[1], T. ONO[2] and K. TORII[1,3], *[1]Torii Nutrient-stasis Project, ERATO, Research Development Corporation of Japan, Yokohama 221, Japan, [2]Department of Physiology, Faculty of Medicine, Toyama Medical & Pharmaceutical University, Sugitani 2630, Toyama 930-01, Japan, 3Central Research Laboratories, Ajinomoto Co. Inc., 214 Maeda-cho, Totsuka-ku, Yokohama 244, Japan.*

#50 P38 Taste Thresholds In Nonhuman Primates. THOMAS C. PRITCHARD, JEFFREY A. BOWEN and STEVE REILLY, *The Pennsylvania State University, Hershey, PA 17033.*

#51 P39 Taste Hairs On The Legs Of Tsetse Flies And Their Function. WYNAND M. VAN DER GOES VAN NATERS, *Department of Animal Physiology, University of Groningen, Haren, The Netherlands.*

#52 P40 Recognition Of Glucose Intake And Utilization In The Brain Of Streptozotocin-Treated Adult Rat Using Functional Magnetic Resonance Imaging (MRI) After Insulin Treatment Intraperitoneally. K. TORII[1,2], T. YOKAWA[1], E. TABUCHI[1], T. ONO[3] and T. INUBUSHI[4], *[1]Torii Nutrient-stasis Project, ERATO, R&D Corp. of Japan, Yokohama 221, Japan, [2]Ajinomoto Co., Inc., Central Res. Lab., Yokohama 244, Japan, [3]Toyama Med. & Pharmaceu. Univ., Toyama, 930-01, Japan, [4]Shiga Univ. of Med., Ohtsu, 520-21.*

#53 P41 Altered Acceptance Of Taste Solutions By Calcium-Deprived Rats. MICHAEL G. TORDOFF and SUSAN E. COLDWELL, *Monell Chemical Senses Center, 3500 Market St., Philadelphia, PA 19104-3308.*

#54 P42 Activated Areas In The Brain Of Awake Rats During Ingestion Using Magnetic Resonance Imaging (MRI). E. TABUCHI[1,2], T. YOKAWA[1], T. KONDOH[1], T. ONO[2] and K. TORII[1,3], *[1]ERATO, Research Development Corporation of Japan, [2]Yokohama, Department of Physiology, Toyama Medical and Pharmaceutical University, Toyama, Japan, [3]Ajinomoto Corporation, Incorporation, Central Research Laboratory, Yokohama, Japan.*

#55 P43 Morphological And Neuroanatomical Properties Of A Sex-Specific Chemosensory System: You Can't Judge A Claw By Its Cover. M. WEISSBURG[1], C. DERBY[1], J. PEARCE[2] and C.K. GOVIND[2], *[1]Georgia State University, Atlanta, GA and [2]University of Toronto.*

#56 P44 Differential Roles Of Chemosensory Organs In Food Preference By Larvae Of The Tobacco Hornworm, *Manduca sexta.* GERRIT DE BOER, *Departments of Entomology and Physiology and Cell Biology, University of Kansas, Lawrence, KS 66045.*

Thursday Evening - 7:00-8:20

7:00 **Awards Symposium--Presentations by Recipients of**
7:05 Nakanishi Award
7:30 Frito-Lay Award
7:55 Moskowitz-Jacobs Award

SLIDES

Thursday Evening – 8:30-10:45

Taste--Peripheral Structures

Chairperson: David Hill

8:30 #57 Early Dietary Sodium Restriction Prevents The Development Of Normal Innervation Patterns In The Rat Peripheral Taste System. ROBIN F. KRIMM and DAVID L. HILL, *University Of Virginia, Charlottesville, VA.*

8:45 #58 Fungiform Papillae Develop In Organ Cultures Of The Anterior Half Of Embryonic Rat Tongue Without Intact Neural Ganglia. C.M. MISTRETTA[1], J.P. MBIENE[2] and D.K. MACCALLUM[3], *[1]School of Dentistry, Univ. of Michigan, Ann Arbor, MI, [2]Baylor College of Dentistry, Dallas, TX, [3]Medical School, Univ. of Michigan, Ann Arbor, MI.*

9:00 #59 A Comparative Ultrastructural Analysis Of Circumvallate And Fungiform Taste Buds In The Rat. HEIDI B. LINNEN and JOHN C. KINNAMON, *Dept. of Biological Sciences, University of Denver, Denver, CO and the Rocky Mountain Taste and Smell Center, Denver, CO.*

9:15 #60 Immunocytochemical Studies Of PGP 9.5 In Fetal And Adult Rat Circumvallate Taste Buds. JOHN C. KINNAMON[1,3], EDWARD W. JOHNSON[2,3], SHOJI TABATA[1,3] and HILDEGARD H. CROWLEY[1,3], *[1]Department of Biological Sciences, University of Denver, Denver, CO, [2]Department of Otolaryngology, University of Colorado School of Medicine, Denver, CO, [3]Rocky Mountain Taste and Smell Center, University of Colorado School of Medicine, Denver, CO.*

9:30 #61 Synaptic Connections In Adult Hamster Circumvallate Taste Buds. KATHY ZUBRZYCKI, HILDEGARD H. CROWLEY and JOHN C. KINNAMON, *Department of Biology, University of Denver, Denver, CO and the Rocky Mountain Taste and Smell Center, Denver, CO.*

9:45 #62 Effects Of Chorda/Lingual Denervation On NSE, NCAM And CGRP Immunoreactivity Associated With Fungiform Taste Buds In The Hamster. M.C. WHITEHEAD[1], S.T. McGLATHERY[1], D. GANCHROW[2] and J.R. GANCHROW[3], *[1]UCSD, La Jolla, CA, [2]Tel Aviv Univ. and [3]Hebrew Univ., Israel.*

Olfaction--Peripheral Structures

Chairperson: Marilyn Getchell

10:00 #63 Apolipoprotein E Immunoreactivity In Human Olfactory Receptor Neurons And Its Increase In Alzheimer's Disease. MASUO YAMAGISHI[1], SHIGERU TAKAMI[2], THOMAS V. GETCHELL[1,2,3] and MARILYN L. GETCHELL[1,3], *[1]Div. Otolaryngol., Dept. Surgery, [2]Dept. of Physiology, [3]Sanders-Brown Center on Aging, University of Kentucky College of Medicine, Lexington, KY.*

10:15 #64 FGF2 Induces Differentiation In Adult Olfactory Epithelium Cultures. A. MACKAY-SIM[1], K. P.A. MACDONALD[1], G. R. BUSHELL[1] and P. F. BARTLETT[2], *[1]Griffith University, Brisbane, Australia, Walter and [2]Eliza Hall Institute for Medical Research, Melbourne, Australia.*

10:30 #65 A Light And Electron Microscopic Analysis Of Phagocytic Cells In Rat Olfactory Epithelium After Bulbectomy. YUKO SUZUKI and ALBERT I. FARBMAN, *Dept. of Neurobiology & Physiology, Northwestern University, Evanston, IL 60208.*

POSTERS

Thursday Evening – 8:00-12:00

Olfactory--Central/VNO
VNO/Pheromones

#66 P1 Relationship Between The Spatial Distribution Of The Activity In Salamander Olfactory Bulb And Late Responses In Mitral/Tufted (M/T) Cells. A.R.CINELLI, *Dept.Anat.& Cell Biol., SUNY Brooklyn, NY 11203.*

#67 P2 Odorant Derived Receptive Fields In The Peripheral Olfactory System Of The Salamander Observed By Voltage-Sensitive Dye Video Imaging. JOHN S. KAUER[1] and ANGEL R. CINELLI[2], *[1]Tufts Medical School, NEMC, Boston, MA, [2]SUNY, Brooklyn, New York, NY.*

#68 P3 Neurons Projecting To The Olfactory Bulb In The Salamander Brain. IGOR KRATSKIN and BABAK BINA, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania, PA 19104.*

#69 P4 Dendritic Branching Patterns Of Mitral/Tufted Cells In The Salamander Olfactory Bulb: New Observations From Intracellular Staining. K.A. HAMILTON and R.E. MALONEY, JR, *Dept. of Cellular Biology and Anatomy, Louisiana State Univ. Med. Ctr., Shreveport, LA 71130.*

#70 P5 Long-Term Potentiation (LTP) At The Promary Olfactory Synapse. L.A. ZIMMER, M. ENNIS and M.T. SHIPLEY, *Dept. of Anatomy, University of Maryland School of Medicine, Baltimore, MD 21201.*

#71 P6 Glutamate Receptor Subunit Localization In The Olfactory Bulb. ARTIS A. TAGUE and CHARLES A. GREER, *Yale Univ. School of Medicine, New Haven, CT.*

#72 P7 D2 Receptor Modulation At The Olfactory Nerve Synapse. D.A. BERKOWICZ[1], P.Q. TROMBLEY[2] and G.M. SHEPHERD[2]. [1]*Interdepartmental Neuroscience Program and* [2]*Section of Neurobiology, Yale University School of Medicine, New Haven, CT 06510.*

#73 P8 The Efficacy Of Dendrodendritic Synapses Affected By The Noradrenergic Stimulation In The Rat Olfactory Bulb. FUMINO OKUTANI, HIDETO KABA and TAKASHI HIGUCHI, *Department of Physiology, Kochi Medical School, Nankoku, Kochi 783, Japan.*

#74 P9 Rat Olfactory Bulb Neurons Express Components Of The Cyclic GMP Second Messenger System. PAUL A. KINGSTON[1], COLIN J. BARNSTABLE[2] and FRANK ZUFALL[2], [1]*Interdepartmental Neuroscience Program,* [2]*Section of Neurobiology, Yale. University School of Medicine, New Haven, CT 06510.*

#75 P10 Orbital Cortex Damage Impairs Individual Odor Discrimination In Golden Hamsters. ARAS PETRULIS and ROBERT E. JOHNSTON, *Department of Psychology, Cornell University, NY.*

#76 P11 Altered Levels Of NGF & NGF-Receptor In Olfactory Bulb Of Developing Hypothyroid & Recovering Rats. TIMOTHY JOHN SENDERA and ESMAIL MEISAMI, *Physiology Dept., University of Illinois, Urbana, IL 61801.*

#77 P12 Localization Of Neurotrophic Factor mRNA Expression In The Rat Olfactory Bulb. KATHLEEN M. GUTHRIE and CHRISTINE M. GALL, *Dept.of Anatomy and Neurobiology, University of California, Irvine, CA.*

#78 P13 Early Deafferentation & Development Of Rat Olfactory Bulb Glomeruli: Histo- & Immunochemical Study Of Cytochrome Oxidase, Synaptophysin, NGF & NGF Receptor. NIDA GLEVECKAS and ESMAIL MEISAMI, *Physiology Dept., University of Illinois, Urbana, IL 61801.*

#79 P14 Glial Cell Response To Deafferentation Of The Rat Olfactory Bulb. JOHN H. MCLEAN, ANDREA DARBY-KING and KEEGAN AU, *Div. of Basic Medical Sciences, Memorial Univ. of Newfoundland, St. John's, Nfld., Canada, A1B 3V6.*

#80 P15 Use Of Magnetic Resonance Imaging In Neural Degeneration And Regeneration In Rat Olfactory System. SAIED AGAHI, ESMAIL MEISAMI and PAUL LAUTERBUR, *Dept. Physiol. & Biophys. & Biomedical Magnetic Resonance Lab., Univ Illinois, Urbana, IL 61801.*

#81 P16 The Effects Of Unilateral Naris Occlusion On Spontaneous And Odor-Driven Unit Activity In The Rat Olfactory Bulb. BENJAMIN D. PHILPOT, THOMAS C. FOSTER and PETER C. BRUNJES, *University of Virginia, Department of Psychology, 102 Gilmer Hall, Charlottesville VA 22903.*

#82 P17 Subcutaneous Odorant Administration Increases Tyrosine Hydroxylase Expression In Olfactory Bulbs Of Naris-Occluded Adult Mice. HARRIET BAKER[1], LINDA FRANZEN[1] and JOEL MARUNIAK[2], [1]*Cornell Univ. Med. Coll. at Burke Med. Res. Inst., White Plains, NY,* [2]*Univ. Missouri, Columbia, MO.*

#83 P18 Metabolism And Transport Of Inhaled Xylene To Olfactory Bulb Glomeruli: Nasal Metabolism As A Component Of The Nose-Brain Barrier. J.L. LEWIS, A. R. DAHL and D. A. KRACKO, *Inhalation Toxicology Research Institute, Albuquerque, NM.*

#84 P19 Identification Of A Descrete Subset Of Rat Olfactory Glomeruli And Their Reinnervation Following Methyl Bromide Lesion. G. RING, S.L. YOUNGENTOB and J.E. SCHWOB, *Depts. of Anatomy and Cell Biology and Dept. of Physiology, SUNY Health Science Center, Syracuse, NY.*

#85 P20 A theoretical investigation of the neural mechanisms underlying odor processing in the honey bee antennal lobe. CHRISTIANE LINSTER[1] and CLAUDINE MASSON[2], [1]*Laboratoire d'Electronique, ESPCI, 10, Rue Vauquelin, 75005 Paris, France,* [2]*Laboiratoire de Neurobiologie Comparee des Invertebres, INRA-CRNS (URA 1190), BP23 91 440 Bures-Sur-Yvette, France.*

#86 P21 Assembly Of Afferent And C[illegible]ıbunits In Developing Olfactory Lobes Of Crayfish. RENAT[illegible]ᴊ and DAVID SANDEMAN, *University of N.S. Wales, [illegible], Australia.*

withdrawn

#87 P22 Phylogenetic Analysis Of Main And Accessory Olfactory Bulb Anatomy. KURT SCHWENK[1] and HEATHER L. EISTHEN[2], *[1]Dept. of Ecology and Evolutionary Biology, University of Connecticut, Storrs, CT, [2]Boston University Marine Program, Woods Hole, MA.*

#88 P23 5HT-IR Dorsal Giant Ne... Olfactory Interneurons In The Crayfish Brain. DAVID SA... withdrawn ...ENATE SANDEMAN, *University of New South Wale... , Australia.*

#89 P24 Interpretation Of Olfactory Stimulation By Lateral Protocerebrum Neurons In The Crayfish. DE F. MELLON and V. ALONES, *University of Virginia, Charlottesville.*

#90 P25 Histamine-Mediated Inhibition In The Olfactory Lobe Of The Spiny Lobster. M. WACHOWIAK and B.W. ACHE, *Whitney Laboratory and Dept. Neuroscience, Univ. Florida, St. Augustine, FL, 32086.*

#91 P26 Olfactory And Accessory Lobe Development In *Homarus americanus* And Effects Of Serotonin Depletion. B. BELTZ, J. BENTON and S. HELLUY, *Dept. Biological Sciences, Wellesley College, Wellesley, MA. 02181.*

#92 P27 Neurogenesis In The Olfactory Bulb Of The African Clawed Frog, *Xenopus laevis*. ANNE FRITZ, DENNIS L. GORLICK and GAIL D. BURD, *University of Arizona, Tucson, AZ.*

#93 P28 The Primary Olfactory System Of The Salmon Exhibits Both Punctated And Sustained Growth Across The Life History. H. JARRARD, T. HOFELDT, R. BAIN and A. MOFFETT, *Inst. of Neuroscience, Univ. of Oregon, Eugene, OR.*

#94 P29 Subunit Architecture Of The Macroglomerular Complex And The Integrative Function Of Its Output Neurons In The Moth, *Manduca sexta.* THOMAS HEINBOCKEL, THOMAS A. CHRISTENSEN and JOHN G. HILDEBRAND, *ARL Div. of Neurobiol., Univ. of Arizona, Tucson, AZ 85721.*

#95 P30 Characterization Of Inward Currents In Vomeronasal Receptor Cells Of Neotenic Salamanders (*Ambystoma*). HEATHER L. EISTHEN and VINCENT E. DIONNE, *Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA.*

#96 P31 The Effects Of Olfactory Mucosal Lesion On Vomeronasal Investigative Behavior In The Gray Short-Tailed Opossum. NAOMIE S. PORAN[1] and MARY BETH GENTER[2], *[1]Zoology and [2]Toxicology Depts. NC State Univ. Raleigh, NC.*

#97 P32 Differential Expression Of G Proteins In The Vomeronasal System Of The Opossum (*Monodelphis domestica*). CHANG-PING JIA and MIMI HALPERN, *SUNY Health Science Center at Brooklyn, Program in Neural and Behavioral Sciences, 450 Clarkson Ave., Brooklyn, NY 11203.*

#98 P33 Histochemical, Immunocytochemical, And Tract Tracing Studies Investigating The Heterogeneity Of The Primary Vomeronasal Pathway In The Brazilian Gray Short-Tailed Opossom, *Monodelphis domestica.* LENA SHNAYDER SHAPIRO, CHENG-SHU LI, CHANG-PING JIA and MIMI HALPERN, *SUNY Health Science Center at Brooklyn, Program in Neural and Behavioral Sciences, 450 Clarkson Ave., Brooklyn, NY 11203.*

#99 P34 FOS-ir After Exposure To Chemical Cues That Stimulate Or Block Reproduction In Female Prarie Voles. MAUREEN L. TUBBIOLA and CHARLES J. WYSOCKI, *Monell Chemical Senses Center, Philadelphia, PA.*

#100 P35 Fos Expression During Mating Behavior In Inexperienced Male Hamsters: Contributions Of Main Olfactory Input. GWEN FERNANDEZ-FEWELL and MICHAEL MEREDITH. *Florida State University, Tallahassee FL.*

#101 P36 Induction Of Fos Expression In The Accessory Olfactory Bulb (AOB) Of Female Rats Following Stimulation Of The Vomeronasal Organ. CAROL A. DUDLEY and ROBERT L. MOSS. *University of Texas Southwestern Medical Center, Department of Physiology,5323 Harry Hines Blvd., Dallas, Texas 75235-9040.*

#102 P37 Induction Of c-fos Gene Product In The Male Hamster Accessory Olfactory Bulbs By Natural And Bacterially Cloned Aphrodisin. T. JANG[1], A.G. SINGER[2] and F. MACRIDES[1], *[1]Worchester Foundation for Experimental Biology, Shrewsbury, MA 01545, [2]Monell Chemical Senses Center, Philadelphia, PA 19104.*

#103 P38 Vomeronasal Receptor Neurons: Species Specific Pheromones Decrease Membrane Conductance. ROBERT L. MOSS and ROBERT E. FLYNN, *University of Texas Southwestern Medical Center, Dallas, TX.*

#104 P39 Chemosignal Transduction In The Vomeronasal Organ Of Garter Snakes: Ca^{2+}-Regulation Of cAMP Generation. DALTON WANG, PING CHEN, CHENG-SHU LI and MIMI HALPERN. *State University of New York Health Science Center at Brooklyn, Brooklyn, NY 11203.*

#105 P40 Gender-Specific Activity In Nerves From The Adult Rat Vomeronasal Organ. H. MACK BROWN, ZHIAN WANG and LARRY STENSAAS. *Dept. Physiol., Univ. Utah Sch. Med., Salt Lake City, UT.*

SLIDES

Friday Morning – 8:00-12:45

Olfactory Physiology--Peripheral Transduction

Chairperson: Charles Greer

8:00 #106 Olfactory Transduction Is Intrinsically Noisy. GRAEME LOWE and GEOFFREY H. GOLD. *Monell Chemical Senses Center, Philadelphia, PA.*

8:15 #107 Properties Of Odorants Producing Maximal Responses In Different Parts Of The Rat Olfactory Epithelium. JOHN W. SCOTT, LISA M. DAVIS and DONNA E. SHANNON, *Department of Anatomy and Cell Biology, Emory University School of Medicine, Atlanta, Georgia 30322.*

8:30 #108 Evidence For Imposed And Inherent Olfactory Mucosal Activity Patterns In A Mammalian Species. MAXWELL M. MOZELL, PAUL F. KENT and STEPHEN J. MURPHY, *SUNY Health Science Center, Syracuse, NY.*

8:45 #109 Carbon Monoxide Controls Excitable Properties Of Olfactory Receptor Cells Through Activation Of Cyclic Nucleotide-Gated Channels. TRESE LEINDERS-ZUFALL, GORDON M. SHEPERD and FRANK ZUFALL, *Section of Neurobiology, Yale Medical School, New Haven, CT 06510.*

9:00 **Refreshment Break**

9:15 #110 Involvement Of A Ca^{2+}-Activated K^+ Channel In Odorant-Triggered Inhibitory Responses Of Toad Olfactory Neurons. JUAN BACIGALUPO[1], BERNARDO MORALES[1], PEDRO LABARCA[1,2] and RODOLFO MADRID[1], *[1]Departmento de Biologia, Facultad de Ciencias, Universidad de Chile, and [2]Centro de Estudios Cientificos de Santiago, Santiago, Chile.*

9:30 #111 Expression And Purification Of Rat And Human Olfactory Receptor Proteins. URI GAT, MICHAEL NATOCHIN, ELINA NEKRASOVA and DORON LANCET, *Dept. of Membrane Research & Biophysics, The Weizmann Institute of Science, Rehovot 76100, Israel.*

9:45 #112 Spatial And Temporal Patterns Of Gene Expression On Olfactory Epithelia Of Insect (*Manduca sexta*) And Fish (Zebrafish *Danio rerio*). RICHARD G. VOGT[1], CHRISTINE A. BYRD[1] and MATTHEW E. ROGERS[2], *[1]Univ. of South Carolina, Dept. of Biological Sciences, [2]Univ. Virginia, Dept. of Psychology.*

10:00 #113 A Mutant With Reduced Nitric Oxide Synthase (NOS) Levels In The Olfactory System. DEBASISH RAHA and JOHN CARLSON, *Dept. of Biology, Yale University, New Haven, CT.*

10:15 #114 Sequence Analysis And Expression Of Inositol-1,4,5-Trisphosphate Receptor Amplicons From Chemosensory Tissues Of Channel Catfish And Rat. JOHN ZIMMERMAN, CHANG-GYU HAHN and GREGORY SMUTZER, *Department of Psychiatry, University of Pennsylvania School of Medicine, Philadelphia, PA 19104.*

10:30 **Refreshment Break**

10:45-12:45 **Symposium: Neurotransmitters and Neuromodulators in Gustation**

Chairperson: Robert M. Bradley

10:45 #115 Neuromodulation Of Transduction And Signal Processing In The End Organs Of Taste. S.D. ROPER, D.-J. KIM, D.A. EWALD and R.J. DELAY, *Rocky Mtn. Taste & Smell Center, Denver, CO 80262 and Dept. Anat. Neurobiol., Colo. State Univ., Ft. Collins, CO 80524.*

11:15 #116 Immunohistochemical Localization Of Putative Neurotransmitters In The Nucleus Tractus Solitarii. BRUCE E. MALEY, *Department of Anatomy and Neurobiology, University of Kentucky Medical Center, Lexington, KY 40536.*

11:45 #117 Neurotransmission in the Rostral Nucleus Of The Solitary Tract. R.M. BRADLEY, *Dept. Biologic & Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor, MI 48109-1078.*

12:15 #118 Sensory Afferent Neurotransmission In Caudal Nucleus Tractus Solitarius - Common Denominators. M.C. ANDRESEN, *Dept. of Physiol., Oregon Health Sci. Univ., Portland, OR 97201.*

Friday Afternoon

12:30 **Minority Fellows Luncheon**
Organizer: Diego Restrepo

1:00 **NIH Grants Workshop**
Organizer: Jane Hu, NIH
Panelists: Jack Pearl (NIH), Rochelle Small (NIH), and former study section members David Smith, Barry Green.

4:00 **Industry/Academia Panel**
Organizer: Tracey Karrer
Panelists: Daniel Kurtz (SUNY), Lisa Pennington (Unilever), John Labows (Colgate-Palmolive), Stephen Wiet (McNeil Specialty Products)

POSTERS

Friday Morning – 8:00-1:00 pm

Taste Cell Morphology, Maintenance and Development
Human Psychophysics--Taste/Common Chemical Sense

#119 P1 Taste Bud Number And Asymmetry In Fungiform Papillae. INGLIS J. MILLER, JR. and FRANK P. BREWER, *Wake Forest University, Winston-Salem, North Carolina.*

#120 P2 Metabotropic Glutamate Receptor Expression Is Modulated By Free-Glutamate Content Of Diet. NIRUPA CHAUDHARI[1], CYNTHIA LAMP[1] and STEPHEN D. ROPER[2,3], *[1]Dept. of Physiology, Colorado State University, Ft. Collins, CO 80523, [2]Dept. of Anatomy and Neurobiology, Colorado State University, Ft. Collins, CO 80523, [3]Rocky Mtn Taste and Smell Ctr, Univ. Colo. Health Sci. Ctr., Denver, CO 80262.*

#121 P3 Correlated Light And Electron Microscopic Immunolocalization Of Cell-Surface Antigens On Taste Cells In The Rat Vallate Papilla. CHENGSI YU, DAVID W. PUMPLIN and DAVID V. SMITH, *University of Maryland School of Medicine, Baltimore, MD 21201.*

#122 P4 Immunoelectron Microscopical Analysis Of Gustducin In Taste Cells Of The Rat. SHOJI TABATA[1,2], HILDEGARD H. CROWLEY[1,2], BÄRBEL BÖTTGER[2,3], THOMAS E. FINGER[2,3], ROBERT F. MARGOLSKEE[4] and JOHN C. KINNAMON[1,2], *[1]Department of Biological Sciences, University of Denver, Denver, CO, the [2]Rocky Mountain Taste and Smell Center, Denver, CO, [3]Department of Cellular and Structural Biology, University of Colorado School of Medicine, Denver, CO, [4]Department of Neurosciences, Roche Institute of Molecular Biology, Nutley, NJ.*

#123 P5 Taste Buds In Macaques Show Protein Gene Product 9.5-Like Immunoreactivity In Incoming Fibers. MIRIAM R. LINSCHOTEN, EDWARD W. JOHNSON, PAMELA M. ELLER and BRUCE W. JAFEK, *Department of Otolaryngology and RMTSC; UCHSC; Denver, CO.*

#124 P6 Innervation Patterns Of Fungiform Taste Buds In Adult Rats With A Regenerated Chorda Tympani Nerve. MARSHALL G. SHULER, ROBIN K. KRIMM and DAVID L. HILL, *University Of Virginia, Charlottesville, VA.*

#125 P7 Recovery Of The Chorda Tympani Nerve Following Crush Injury. MICHAEL A.BARRY and PETER CAIN, *Dept. of BioStructure and Function, University of Connecticut Health Center.*

#126 P8 Light Microscopic Analysis Of Degeneration And Regeneration Of Circumvallate Taste Buds In Rats. STACIE ROUGAS, TERRI SHERMAN-CROSBY, HEIDI B. LINNEN, KATHY ZUBRZYCKI, HILDEGARD H. CROWLEY and JOHN C. KINNAMON, *Dept. of Biological Sciences, University of Denver, Denver, CO and the Rocky Mountain Taste and Smell Center, Denver, CO.*

#127 P9 The Effects Of Sialoadenectomy And Exogenous EGF On The Taste Bud Morphology And Maintenance. R. SEGO, L. BRINKLEY, C. DOLCE and J. MORRIS-WIMAN, *University of Florida, Gainesville, Florida.*

#128 P10 The Role Of Chondroitin Sulfate Proteoglycans In The Morphogenesis Of Gustatory Papillae. J. MORRIS-WIMAN, R. SEGO and L. BRINKLEY, *University of Florida, Gainesville, Florida.*

#129 P11 Different Populations Of Taste Cells Exhibit Gustducin And Serotonin Immunoreactivities. B. BOTTGER[1,2], T.E. FINGER[1,2], D.-J. KIM[1,3] and S.D. ROPER[1,3], *[1]Rocky Mtn. Taste & Smell Center, [2]Dept. Cell & Struct. Biol., Univ. Colorado Sch. Medicine, Denver, CO, [3]Dept. of Anat. & Neurobiol., Colo. St. Univ., Ft. Collins, CO.*

#130 P12 Long-Term Culture Of Taste Buds: Gustducin Immunoreactivity And Cell Division. COLLIN RUIZ[1,3], TATSUYA OGURA[1,3], BÄRBEL BÖTTGER[2,3], THOMAS E. FINGER[2,3] and SUE C. KINNAMON[1,3], *[1]Department of Anatomy and Neurobiology, Colorado State University, Fort Collins, CO 80523, [2]Department of Cellular and Structural Biology, University of Colorado Health Sciences Center, Denver, CO 80262, the [3]Rocky Mountain Taste and Smell Center, Denver, CO 80262.*

#131 P13 *In Vitro* Development Of Embryonic Taste Receptors. LINDA A. BARLOW[1], CHI-BIN CHIEN[2] and R. GLENN NORTHCUTT[1], *[1]Neurobiology Unit, Scripps Inst. of Oceanography and Dept. of Neurosciences, Univ. of California, San Diego. La Jolla, CA 92093, [2]Dept. of Biology, Univ. of California, San Diego. La Jolla, CA 92093.*

#132 P14 Both Ectoderm And Endoderm Give Rise To Taste Buds In Mice. LESLIE M. STONE[1], THOMAS E. FINGER[1], PATRICK P.L. TAM[2] and SEONG-SENG TAN[3], *[1]Univ. of Colo. Hlth. Sci. Ctr., Denver, [2]Child. Med. Res. Inst., Australia, [3]Univ. of Melbourne, Australia.*

#133 P15 Developmental features of the human fetal taste bud. M. WITT[1] and K. REUTTER[2], *[1]Department of Anatomy, Fetscherstr. 74, 01307 Dresden, Germany, [2]Department of Anatomy, Österbergstr. 3, 72074 Tübingen, Germany.*

#134 P16 Taste bud development in turbot larvae (Teleostei). K. REUTTER[1], M. WITT[1], J.A. KNUTSEN[2] and K.B. DØVING[2], *[1]Department of Anatomy, Österbergstr. 3, 72074 Tübingen, Germany, [2]Department of Biology, University of Oslo, P.O.-Box 1051, 0316 Oslo, Norway.*

#135 P17 Taste Receptor Topology: Correlation Of Structure And Function. JOHN A. DESIMONE[1], JANET K. TAYLOR[1], GERARD L. HECK[1] and DALE J. BENOS[2], *[1]Virginia Commonwealth University, Richmond, VA and [2]University of Alabama, Birmingham AL.*

#136 P18 Weak Acids Are Indiscriminable From One Another And From HCl. PAUL A.S. BRESLIN and GARY K. BEAUCHAMP, *Monell Chemical Senses Center, Philadelphia, PA 19104.*

#137 P19 Judgments Of "Mental Mixtures" Of Sucrose And Citric Acid. RICHARD J. STEVENSON and JOHN PRESCOTT, *CSIRO, Sensory Research Centre, Sydney, Australia.*

#138 P20 Preference For Sweets In Young Adults Associated With PROP (6-N-Propylthiouracil) Genetic Taster Status And Sex. VALERIE B. DUFFY[1], HARVEY P. WEINGARTEN[2] and LINDA M. BARTOSHUK[3], *[1]University of Connecticut, Storrs, CT, [2]McMaster University, Hamiliton, ON, [3]Yale University School of Medicine, New Haven, CT.*

#139 P21 Potential Human Variants For Glucose Taste Suggest Separate Fructose And Glucose Mechanisms. SHACHAR EYLAM, LINDA M. KENNEDY and DAVID A. STEVENS, *Clark University, Worchester, MA 01610.*

#140 P22 6-N-Propylthiouracil Perception Affects Nutritional Status Of Independent-Living Older Females. LAURIE A. LUCCHINA[1], LINDA M. BARTOSHUK[2], VALERIE B. DUFFY[1], LAWRENCE E. MARKS[3] and ANN M. FERRIS[1], *[1]University of Connecticut, Storrs, CT, [2]Yale University, New Haven, CT, [3]John B. Pierce Laboratory, New Haven, CT.*

#141 P23 Nutritional Information Influences Cognitive Attributes But Not Sensory Perceptions Of Foods. BEVERLY J. TEPPER and AMY C. TRAIL, *Rutgers University, New Brunswick, NJ.*

#142 P24 Effect Of $^{+}$2-(4-Methoxyphenoxy)Propionic Acid On The Sweetness Intensity Ratings Of Fifteen Sweeteners. SUSAN S. SCHIFFMAN[1], BREVICK G. GRAHAM[1], ELIZABETH A. SATTELY-MILLER[1], BARBARA J. BOOTH[2], B. THOMAS CARR[2] and MICHAEL L. LOSEE[2], *[1]Duke University, Durham, NC, [2]The NutraSweet Co., Mt. Prospect, IL.*

#143 P25 Effect Of Gymnemic Acid Rinse On A Taste Confusion Matrix. JANNEANE F. GENT[1], MARION E. FRANK[2], THOMAS P. HETTINGER[2], QUINTEROL MALLETTE[2] and LAWRENCE E. MARKS[1], *[1]J. B. Pierce Laboratory, New Haven, CT, [2]UConn Health Center, Farmington, CT.*

#144 P26 Coding Dimensionality For Sweetness Produced By Nutritive And Non-nutritive Sweetners. GRAHAM A. BELL[1], JOHN PRESCOTT[1] and CHRISTOPHER MAHER[2], *[1]Sensory Research Centre, CSIRO Division of Food Science and Technology, North Ryde, Australia, [2]Faculty of Health Sciences, The University of Sydney, Lidcombe, Australia.*

#145 P27 Novobiocin And Magnitude Estimation Of Saltiness In Humans. ANN M. TENNISSEN, *College of Saint Rose, Albany, NY.*

#146 P28 Amiloride And Judgements Of NaCl Taste: No Consistent Effects On Either Time Course Of Taste Intensity Or Reports Of Salty Taste. B.P. HALPERN[1,2], J.S. MELTZER[1], M. LEE[1] and R.B. DARLINGTON[1], *[1]Department of Psychology, Uris Hall, Cornell University, Ithaca NY 14853-7601, [2]Section of Neurobiology & Behavior, Uris Hall, Cornell University, Ithaca NY 14853-7601.*

#147 P29 The Effect Of Bitter Inhibitors On Taste Perception Of Urea, Quinine HCl, Magnesium Chloride, And Caffeine. SUSAN S. SCHIFFMAN[1], MARK S. SUGGS[1], BREVICK G. GRAHAM[1], ELIZABETH A. SATTELY-MILLER[1] and LARRY A. GATLIN[2], *[1]Duke University, Durham, NC, [2]Glaxo, Inc., RTP, NC.*

#148 P30 Gustatory Sensitivity To PROP In Aging. YOSHIKO YOKOMUKAI[1,2], B.J. COWART[1] and G.K. BEAUCHAMP[1], *[1]Monell Chemical Senses Center, Philadelphia, PA, [2]Kirin Brewery Co., Ltd., Tokyo, Japan.*

#149 P31 Further Evaluations Of The Utility And "Validity" Of The Labeled Magnitude Scale. BARRY GREEN, PAMELA DALTON, BEVERLY COWART, GREG SHAFFER, KRYSTYNA RANKIN, JOHN PIERCE and JENNIFER HIGGINS, *Monell Chemical Senses Center, Philadelphia.*

#150 P32 Flavor Enhancers: A Psychophysical Approach. ATSUSHI OKIYAMA[1,2] and GARY K. BEAUCHAMP[1], *[1]Monell Chemical Senses Center, Philadelphia, PA and [2]Ajinomoto Co., Inc., Kawasaki, Japan.*

#151 P33 Development Of An Automate Regional Taste Testing System. PAUL HEBHARDT and RICHARD DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, PA.*

#152 P34 Evaluation Of Flavor Volatility Using A Retronasal Aroma Simulator. D.D. ROBERTS and T.E. ACREE, *Dept. of Food Science & Technology, Cornell University - NYSAES, Geneva, NY 14456.*

#153 P35 Food Preferences In Individuals With Prader-Willi Syndrome. KRYSTYNA M. RANKIN and RICHARD D. MATTES, *Monell Chemical Senses Center, Philadelphia, PA 19104.*

#154 P36 Chemosensory Complaints And Their Relationships To Malnutrition In ESRD Patients. H.J. DUNCAN[1], R.A. FRANK[2], J.R. KUES[1], L.E. JOHNSON[1], G.A. WARSHAW[1], P.M. HEACOCK[3], S.E. HEILE[3], P.A. NORTON[3] and J.H. GALLA[1], *[1]Univ Cincinnati Coll Med, Cincinnati OH, [2]Univ Cincinnati, Cincinnati OH, [3]Dialysis Clinics, Inc, Cincinnati OH.*

#155 P37 Spontaneous Resolution Dysgeusia. DANIEL A. DEEMS, DAVID M. YEN, ALLYSON KRESHAK and RICHARD L. DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, PA.*

#156 P38 Taste Intensity Performance Of Edentulous Persons: Effects Of Dentures And Dental Implants. JAMES M. WEIFFENBACH[1], CHIH-KO YEH[2], CHERYL K. CHAMBERLAIN[2], JOHN E. CORNELL[2], MICHELE J. SAUNDERS[2] and JON T. MCANEAR[2], *[1]National Institutes of Health, Bethesda MD, [2]Dental Service & GRECC, ALMM Veterans Hospital, San Antonio, TX.*

#157 P39 Development Of A Reliable Method For Determination Of Secretory IgA In Saliva. SUSAN S. SCHIFFMAN, VOJISLAV D. MILETIC and IVANKA D. MILETIC, *Duke University, Durham, NC.*

#158 P40 Determination Of Salivary IgA In Healthy People Of Different Age Groups. SUSAN S. SCHIFFMAN, VOJISLAV D. MILETIC and IVANKA D. MILETIC, *Duke University, Durham, NC.*

#159 P41 Cross-Cultural Differences & World-Wide Segmentation In Acceptance Of Flavors For Coffee - A Conceptual Approach. HOWARD R. MOSKOWITZ, *Moskowitz Jacobs, Inc., White Plains, New York.*

#160 P42 Time Intensity Responses To Single And Multiple Presentations Of Zingerone. JOHN PRESCOTT and RICHARD STEVENSON, *CSIRO Sensory Research Centre, Sydney, Australia.*

#161 P43 Women PerceiveGreater Oral Burn From Capsaicin: Clinical Implications For Oral Pain. LINDA M. BARTOSHUK[1], VALERIE B. DUFFY[2], ANN BERGER[1], TRACY KARRER[3] and CLARENCE SASAKI[1], *[1]Yale University School of Medicine, New Haven, CT, [2]University of Connecticut, Storrs, CT, [3]International Flavors and Fragrances, Union Beach, NJ.*

#162 P44 Astringency And Sourness Of Buffered Acids. HARRY LAWLESS and PAUL GIASI, *Dept. of Food Science, Cornell University, Ithaca, New York.*

#163 P45 Human Responses To Propionic Acid Vapor. MARTIN KENDAL-REED[1] and JAMES C. WALKER[2], *[1]University of North Carolina, Chapel Hill, NC, [2]R.J. Reynolds Tobacco Company, Winston-Salem, NC.*

SLIDES

Friday Evening – 7:00-10:45

7:00-8:30 **Symposium : Antisense Oligonucleotides: Strategies and Successes**

Organizers: Barbara Talamo and Ken Kosik

7:00 #164 Antisense Oligonucleotides, Strategies And Successes: From The Dish To The Whole Organism. BARBARA R. TALAMO, *Neuroscience Program, Tufts University School of Medicine, Boston, MA 02111.*

7:15 #165 Gene Inhibition Using Antisense Oligonucleotides. RICHARD WAGNER, *Gilead Sciences, Inc., 353 Lakeside Drive, Foster City, CA 94404.*

7:40 #166 Use Of Antisense Oligonucleotides In Neuronal Cell Culture. K.S. KOSIK, *Harvard Medical School and Brigham and Women's Hospital, Boston, MA 02115.*

8:05 #167 Direct Intrahypothalamic Applications Of Antisense DNA And Their Behavioral Effects. D.W. PFAFF and S. OGAWA, *Laboratory of Neurobiology and Behavior, The Rockefeller University, 1230 York Avenue, New York, NY 10021.*

8:30 **Refreshment Break**

Taste--Peripheral

Chairperson: Bob Margolskee

8:45 #168 A Mechanism For Signal Transduction In Bitter Taste. A.I. SPIELMAN[1,2], H. NAGAI[3], M. DASSO[1], H. BREER[4], I. BOEKHOFF[4], T. HUQUE[2], G. WHITNEY[5] and J.G. BRAND[2,6], *[1]NYU College of Dentistry, N.Y., NY, [2]Monell Chem. Senses Ctr., Phila., PA, [3]Inst. Fund. Res., Suntory Ltd, Osaka, Japan, [4]Univ. Stuttgart-Hohenheim, Stuttgart, Germany, [5]Florida State Univ., [6]Tallahassee, FL, Univ. PA, VA Med. Ctr., Phila., PA.*

9:00 #169 Studies Of The Taste-Cell Specific G-Protein a-Gustducin Gene In Transgenic And Knock-Out Mice. GWENDOLYN TSE WONG and ROBERT F. MARGOLSKEE, *Roche Institute of Molecular Biology, Roche Research Center, Nutley, New Jersey.*

9:15 #170 Paracellular Junction Potentials And Responses To Impermeant Cations And Potassium Salts In The Hamster *Chorda Tympani*. HARRY WMS. HARPER, *NJ's Neuroscience Institute at JFK Medical Center, Edison, NJ, 08818-3059.*

9:30 #171 Electrophysiological Support For Two Bitter Transduction Mechanisms Within The Same Taste Receptor Of An Insect. JOHN I. GLENDINNING, *University of Arizona, Tucson, AZ.*

9:45 #172 Gustducin And Transducin Couple Reconstituted Bitter Receptor To A Taste Tissue Phosphodiesterase. LUIS RUIZ-AVILA[1], SUSAN K. MCLAUGHLIN[2], DAVID WILDMAN[1], PETER J. MCKINNON[1], NANCY SPICKOFSKY[1] and ROBERT F. MARGOLSKEE[1], *[1]Roche Institute of Molecular Biology, Roche Research Center, Nutley, NJ 07110, [2]S.U.N.Y.-Stony Brook, Stony Brook, NY 11794.*

10:00 #173 Hyperinnervation Of Circumvallate Papillae In Keratin-14-NGF Transgenic Mice. SHIGERU TAKAMI[1], MARILYN L. GETCHELL[2,3], KATHRYN M. ALBERS[4] and THOMAS V. GETCHELL[1,2,3], *[1]Dept. of Physiology, [2]Sanders-Brown Center on Aging, [3]Division of Otolaryngology-Head and Neck Surgery, Dept. of Surgery, [4]Dept. of Pathology, University of Kentucky College of Medicine, Lexington, KY.*

10:15 #174 Subcellular Fractionation And Biochemical Characterization Of Bovine Lingual Epithelium. STEPHEN A. GRAVINA[1] and THOMAS P. SAKMAR[2], *[2]Howard Hughes Medical Institute, [1]Rockefeller University, NY, NY 10021.*

10:30 #175 Taste-Responsive Neurons Of The Chorda Tympani Nerve Of The Pig. VICKTORIA DANILOVA, GÖRAN HELLEKANT and THOMAS ROBERTS, *University of Wisconsin, Madison, WI.*

POSTERS

Friday Evening – 7:00-11:15 pm

Human Olfaction--Psychophysics and Detection
Clinical

#176 P1 Bilateral Olfactory Detection Thresholds Are Lower Than Unilateral Olfactory Detection Thresholds. SIMONE BETCHEN, DONALD A. MCKEOWN, W. SILLIAM LEE, AVRON MARCUS, LYNDA PHAM, PAUL HEBHARDT and RICHARD L. DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, PA.*

#177 P2 Development Of Normative Data For The Modular Smell Identification Test. AVRON MARCUS and RICHARD L. DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, PA.*

#178 P3 Areas Of Cortical Olfactory Activity In Man Identified With Event-Related Magnetic Fields. B. KETTENMANN[1], G. KOBAL[1] and R. HARI[2], *[1]Dept. of Experimental and Clinical Pharmacology and Toxicology, University of Erlangen-Nuremberg 91054 Erlangen, Germany, [2]Low Temperature Laboratory, University of Helsinki, SF-02150 Espoo, Finland.*

#179 P4 Emotion Experienced During Encoding Enhances Odor Retrieval Cue Efficacy. RACHAEL S. HERZ[1] and SHARON B. ZEITLIN[2], *[1]Monell Chemical Senses Center, Philadelphia, PA, [2]University of Toronto, Toronto, Canada.*

#180 P5 A Rose By Any Other Name Does Not Smell As Sweet. BRIAN J. LYMAN, *Trinity University, San Antonio, TX.*

#181 P6 Task And EEG Alpha Effects On Olfactory Event Related Potentials. CARLO QUIÑONEZ[1], CHARLIE D. MORGAN[1], JAMES W. COVINGTON[1], DENNARD ELLISON[2], DERIN WESTER[3], STEVEN NORDIN[1,2], JOHN M. POLICH[4] and CLAIRE MURPHY[1,2], *[1]San Diego State University, [2]UCSD Medical Center, San Diego, CA, [3]Naval Medical Center, San Diego, CA, [4]The Scripps Research Institute, San Diego, CA.*

#182 P7 The Influence Of Perceptual Similarity On Cross-Adaptation In Urinous-Note Compounds. JOHN D. PIERCE, JR.[1], JONATHAN B. WEBB[1], RICHARD M. BODEN[2] and CHARLES J. WYSOCKI[1], *[1]Monell Chemical Senses Center, Philadelphia, PA, [2]International Flavors & Fragrances, Union Beach, NJ.*

#183 P8 Dependency Of Odor Discrimination Upon Controlled Familiarization. CHRISTINE JEHL[1] and ANDRE HOLLEY[2], *[1]San Diego State University, San Diego, CA, [2]Universite Claude-Bernard, Villeurbanne, FRANCE.*

#184 P9 Pemenone And Androstenone Do Not Cross-Adapt Reciprocally. DAVID A. STEVENS[1] and ROBERT J. O'CONNELL[1,2], *[1]Clark University, Worcester, MA, [2]Worcester Foundation for Experimental Biology, Shrewsbury, MA.*

#185 P10 Odors Significantly Improve The Retrievability Of Labels And Words. JODI L. DAY and RICHARD L. METZGER, *The University of Tennessee at Chattanooga.*

#186 P11 Theoretical Model Of Processing, Recognition And Discrimination Of Complex Odors. EVGENY ARONOV, *Monell Chemical Senses Center, 3500 Market St., Philadelphia, PA 19104.*

#187 P12 Orthonasal And Retronasal Identification Of Common Substances Presented As Vapor Phase Stimuli. JOSHUA PIERCE[1] and BRUCE P. HALPERN[1,2], *[1]Section of Neurobiology & Behavior, Uris Hall, Cornell University, Ithaca NY 14853-7601, [2]Department of Psychology, Uris Hall, Cornell University, Ithaca NY 14853-7601.*

#188 P13 Influence Of Ascending And Decending Trial Presentations And The Role Of Feedback On The Odor Detection Threshold. JEFF M. DIEZ, DONALD A. McKEOWN, W. WILLIAM LEE, KELSEY ARMSTRONG, SINAN TURNACIOGLU and RICHARD L. DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, Philadelphia, PA.*

#189 P14 Effect Of Odors From Livestock Wastes On The Mood Of Neighboring Residents. SUSAN S. SCHIFFMAN, ELIZABETH A. SATTELY-MILLER, MARK S. SUGGS and BREVICK G. GRAHAM, *Duke University, Durham, NC.*

PROGRAM-AT-A-GLANCE

TIME	WEDNESDAY	THURSDAY		FRIDAY		SATURDAY		SUNDAY	
8:00 AM		SLIDE SESSIONS	POSTERS	SLIDE SESSIONS	POSTERS	SLIDE SESSIONS	POSTERS	SLIDE SESSION	POSTERS
8:30		Human Psychophysics:	Peripheral Olfactory Str	Olf. Transduction, Physiology	Taste Cell Morphology	Olf. Develop. and Modul.	Taste Behavior	Human Olf.	Animal Behavior-
9:00		Taste	Olfactory Epithelium-Cli	8-10:30 AM	" "	8-9:30 AM	" "	Psychophysics	Chemical Ecology
9:30		8-10:15 AM	Olf. and VNO Developme	" "	Human Taste	" "	Taste Transduction	8-9:30 AM	" "
10:00		" " / BREAK	Taste-Behavior	" "	Psychophysics	Human Olf and VNO:	" "	Human-Olf, Clinical	
10:30		PHEROMONE SYMPOSIUM		" "		In Vivo Recording and Imaging		9:45-11:15 AM	" "
11:00		Org: Christensen and Sorensen		GUSTATION SYMPOSIUM		9:45-11:30 AM	Taste-Central	" "	" "
11:30		10:30-12:30	" "	Org: R.M. Bradley, 10:45-12:45		" "	" "	" "	" "
11:45		" "	" "	" "		BUSINESS MEETING, 11:45 AM		" "	" "
12:00 PM	EXEC. COMM. MTG.	" "		" "		" "	" "	END	" "
12:30				" "		" "			
1:00		CLINICAL LUNCH, "Hyperosmia"		NIH GRANTS WORKSHOP					
1:30		Org: April Mott 1-3 PM		Org: Jane Hu					
2:00		PFAFFMANN WORKSHOP		1 PM					
2:30		Org: L. Bartoshuk, 2-4 PM		" "					
3:00	Education Outreach Works	" "				TRANSDUCTION WORKSHOP			
3:30	Org. C. Wirsig-Wiechmann	" "				Olfactory Signal Transduction: More than Meets the Nose			
4:00	" "			INDUSTRY PANEL		Org: K.Zinn, G. Ronnett, R. Small			
4:30				Organizer: T. Karrer		3-4:45 PM			
5:00	REGISTRATION			4-5:30 PM		WINE TASTING, 5-6:30 PM			
5:30				INDUSTRY BUFFET		" "			
6:00				5:30-6:00 PM		" "			
6:30	OPENING BUFFET					XXXX			
7:00		AWARDS SYMPOSIUM		ANTISENSE SYMPOSIUM	POSTERS	XXXX			
7:30		Talks by awardees		Org: Talamo and Kosik	Human Olfaction	XXXX			
8:00	OPENING	" "	POSTERS	7-8:30 PM	-Psychophysics	SLIDE SESSION	POSTERS		
8:30	GIVAUDAN-ROURE LEC	SLIDE SESSION	Olf-Central; VNO	" "	Olf; Clinical	Taste Genetics and Preferen	Olf: Peripheral Detection and Trans		
8:45	Horvitz: Genetically Progra	Taste-Periph. Structures	" "	SLIDE SESSION		8-9 PM			
9:00	Cell Death in C. elegans	8:30-10 PM	" "	Taste-Peripheral		Olfaction-Discrimination and Recall			
9:30	SOCIAL	" "	" "	8:45-10:45 PM		9:15-10:45 PM			
9:40	GRAD STUD. MTG.	" "	" "	" "		" "			
10:00		Olfaction-Periph. Structu	" "	" "		" "			
11:00		10-10:45 PM	" "						

#190 P15 Implicit Memory Of Odor After Being Exposed 16 Months Previously. TAKAFUMI TERASAWA[1], SAHO AYABE-KANAMURA[1] and SACHIKO SAITO[2], *[1]Institute of Psychology, University of Tsukuba, Tsukuba, Japan, [2]National Institute of Bioscience and Human Technology, Tsukuba, Japan.*

#191 P16 Olfactory Stimuli And Verbal Recoding In Short-Term Memory. THERESA WHITE[1,2], DANIEL KURTZ[1], MICHEL TREISMAN[3] and DAVID HORNUNG[1,4], *[1]Smell and Taste Disorders Clinic of the SUNY Health Science Center, Syracuse, NY, [2]University of Warwick, Coventry, UK, [3]University of Oxford, Oxford, UK, [4]St. Lawrence University.*

#192 P17 Cserps During Active And Passive Odor Administration. TYLER S. LORIG, DOUGLAS MATIA, JENNIFER PESZKA and DAMANTI BRYANT, *Washington and Lee University, Lexington, VA.*

#193 P18 Associations Between Olfactory Ability And Reported Dietary Intake In Elderly Subjects. WAYNE L. SILVER[1], CYNTHIA S. SILVER[2], DIANE B. WALKER[1] and THERESE A. DOLECEK[3], *[1]Wake Forest University, Winston-Salem, NC,[2]Medicorp Nutrition Center, Winston-Salem, NC,[3]American Dietetic Association, Chicago, IL.*

#194 P19 An Application Of "A Smell Test Based On Odor Cognition Of Japanese People" For Aged People . SACHIKO SAITO[1], YASUO KUCHINOMACHI[1] and SAHOAYABE-KANAMURA[2], *[1]National Institute of Bioscience and Human Technology, Tsukuba, Japan, [2]Institute of Psychology, University of Tsukuba, Tsukuba, Japan.*

#195 P20 Effect Of Verbal Cue On Recognition Memory Of Familiar And Unfamiliar Odors. SAHO AYABE-KANAMURA[1], TADASHI KIKUCHI[1] and SACHIKO SAITO[2], *[1]Institute of Psychology, University of Tsukuba, Tsukuba, Japan, [2]National Institute of Bioscience and Human Technology, Tsukuba, Japan.*

#196 P21 Olfactory Testing As An Aid In The Diagnosis Of Parkinson's Disease: Development Of Optimal Discrimination Criteria. STEVEN M. BROMLEY, RICHARD L. DOTY and MATTHEW B. STERN, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, and Department of Neurology, University of Pennsylvania Medical Center, Philadelphia, PA.*

#197 P22 Olfactory Dysfunction In Patients With Minamata Disease. SHIGERU FURUTA, KENGO NISHIMOTO and MASAHIKO EGAWA, *Department of Otolaryngology, Kagoshima University, Kagoshima, Japan.*

#198 P23 Relationship Between CT Scan Findings And Sense Of Smell. S.C. HONG[1], D.A. LEOPOLD[1], S.J. ZINREICH[2], P.J. OLIVERIO[2], M.L. BENSON[2], E.D. MELLITS[3] and S.A. QUASKEY[3], *[1]Dept. of OTOL-HNS, [2]Dept. of Radiology, [3]Dept. of Neurol., Johns Hopkins Medical Institutions.*

#199 P24 Variation In The Olfactory Event-Related Potential During The Menstrual Cycle. PHIOANH NGHIEMPHU, LIYING CUI and W. JAMES EVANS, *University of California, Irvine.*

#200 P25 Weber Ratios For Odor Are Greater For Elderly Than Young Persons. JILL RAZANI[1], DIANE WILSON[2] and CLAIRE MURPHY[2,3], *[1]SDSU-UCSD Joint Doctoral Program, San Diego, CA, [2]San Diego State University, San Diego, CA, [3]UCSD Medical Center, San Diego, CA.*

#201 P26 Development Of A Non-Lexical Odor Identification Test For Alzheimer's Disease. JODI HARVEY[1], JILL RAZANI[2] and CLAIRE MURPHY[1,3], *[1]San Diego State University, San Diego, CA, [2]SDSU-UCSD Joint Doctoral Program, San Diego, CA, [3]UCSD Medical Center, San Diego, CA.*

#202 P27 Colds As A Model System For Conduction Loss: Mechanisms For Changes In Odorant Identification In The OCM. DAVID E. HORNUNG[1,2], DANIEL KURTZ[1], MARCUS E. MARTINEZ[2] and THERESA L. WHITE[1], *[1]Smell and Taste Disorders Clinic of the SUNY Health Science Center, Syracuse, NY and [2]St. Lawrence University, Canton, NY.*

#203 P28 Olfactory Manifestations Of Multiple Chemical Sensitivity. JAMES D. PRAH[1], H. KEHRL[1], B. BALL[2] and D. ASHLEY[3], *[1]U.S. Environmental Protection Agency, Research Triangle Park, NC, [2]Univ. N. Carolina, Chapel Hill, NC, CDC3, Atlanta, GA.*

#204 P29 Allergen Risk Ratios For A Community Sample With And Without Self-Reports Of Chemical Sensitivity. CAROL M. BALDWIN, IRIS R. BELL, MARY KAY O'ROURKE, SURESH NADELLA and MICHAEL D. LEBOWITZ, *University of Arizona Health Sciences Center, Tucson, AZ.*

#205 P30 Olfactory Performance In Early Alzheimer Patients. BARBARA KELLY[1] and JEANNE N. RIDGLEY[2], *[1]York University, Toronto, Canada, [2]Toronto Hospital, Toronto, Canada.*

#206 P31 The Role Of Rhinomanometry In Evaluating The Results Of Endoscopic Sinus Surgery In Patients With Chronic Sinus Disease. ALFREDO A. JALOWAYSKI[1], KRISTEN KONAR[1,2], TERENCE M. DAVIDSON[1] and CLAIRE MURPHY[3], *[1]UCSD Medical Center,[2]San Diego State University,[3]San Diego State University, San Diego, CA.*

#207 P32 MR Of Patients With Congenital Anosmia. RENA J. GECKLE, DAVID M. YOUSEM and RICHARD L. DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania, Philadelphia, PA.*

#208 P33 Use Of The Chicago Smell Test (CST) As A Predictor Of Depression. ALAN R. HIRSCH[1] and JOYCE M. KOCHER[2], *[1]Smell and Taste Treatment and Research Foundation, Chicago, Illinois, [2]University of Illinois Medical School, Chicago, Il.*

#350 P34 Exploratory Sniffing in Humans. BRYAN RAUDENBUSH and ROBERT A. FRANK. *University of Cincinnati Dept. Psychology, Cincinnati, OH.*

SLIDES

Saturday Morning – 8:00-11:30

Olfactory Development and Modulation

Chairperson: Peter Brunjes

8:00 #209 Cyclin-Dependent Kinases Regulate Postnatal Cell Division In The Main And Accessory Olfactory Bulbs Of Corn Snakes. DAVID A. HOLTZMAN, LINDA LEIMBACHand DAVID T. KUHAR,*Neuroscience & Biopsychology Program, Oberlin College, Oberlin, OH.*

8:15 #210 Transmitter Phenotype Of Olfactory Bulb Interneurons Derived From Neuronal Progenitor Cells Of The Neonatal Subventricular Zone. R. BETARBET[1,2], T. ZIGOVA[2], R.A.E. BAKAY[1] and M.B. LUSKIN[2], *[1]Department of Neurosurgery and [2]Anatomy and Cell Biology, Emory University School of Medicine, Atlanta, GA 30322.*

8:30 #211 A Reversible Technique For Unilateral Naris Occlusion. DIANA M. CUMMINGS, HEATHER E. HENNING and PETER C. BRUNJES, *Neuroscience Program, University of Virginia, Charlottesville, Virginia.*

8:45 #212 The Ferret Olfactory Bulb In View Of The Postnatal Development Of Granule Cell Spines. ELKE WEILER, *University of Tübingen, Institute of Zoology, Dept. Animal Physiology, Auf der Morgenstelle 28, 72076, Tübingen, Germany.*

9:00 #213 Two Populations Of Cells Expressing GnRH-Like Immunoreactivity Migrate From The Olfactory Organ To The Central Nervous System In The Zebrafish. KATHLEEN WHITLOCK and MONTE WESTERFIELD, *Institute of Neuroscience, University of Oregon, Eugene, Oregon 97403.*

9:15 #214 Modulation Of Amino Acid Receptors By Transition Metals And Carnosine. PAUL Q. TROMBLEY and GORDON SHEPHERD, *Section of Neurobiology, Yale Medical School, New Haven, CT 06501.*

#205 P30 Olfactory Performance In Early Alzheimer Patients. BARBARA KELLY[1] and JEANNE N. RIDGLEY[2], *[1]York University, Toronto, Canada, [2]Toronto Hospital, Toronto, Canada.*

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9:15 #214 Modulation Of Amino Acid Receptors By Transition Metals And Carnosine. PAUL Q. TROMBLEY and GORDON SHEPHERD, *Section of Neurobiology, Yale Medical School, New Haven, CT 06501.*

9:30 **Refreshment Break**

Human Olfactory and VNO System--Morphology and Functional Imaging

Chairperson: Jim Schwob

9:45 #215 More Evidence That The Human Vomeronasal Organ Has Unique Epithelial Cells: Calbindin-, NSE-, OMP-, And PGP-Like Immunoreactivity In Two Fetuses. EDWARD W. JOHNSON, PAMELA M. ELLER and BRUCE W. JAFEK, *Department of Otolaryngology and RMTSC; UCHSC; Denver, CO.*

10:00 #216 Patch Recorded Isolated Adult Human Vomeronasal Cells Are Electrically Excitable And Respond To Skin Steroidal Substances: Androsta-4,16-dien-3-one And Estra-1,3,5(10),16-tetraen-3-ol. L. MONTI-BLOCH, *Dept. of Psychiatry, Univ. of Utah, Salt Lake City, UT 84108 and Pherin Corporation, Menlo Park, CA 94025.*

10:15 #217 Anterior Distribution Of Human Olfactory Neuroepithelium. D.A. LEOPOLD[1], J.E. SCHWOB[2], T. HUMMEL[3], G. KOBAL[3], M. KNECHT[3] and S.C. HONG[1], *[1]Dept. of OTOL-HNS, Johns Hopkins Med. Institutions, 4940 Eastern Ave., Baltimore, MD 21224-2780, [2]Dept. Anat. & Cell Biol., SUNY Health Science Ctr., 766 Irving Ave., Syracuse, NY 13210, [3]Dept. of Pharmacology, Univ. of Erlangen-Nurmberg, Kranken hausstr. 9, 91054 Erlangen.*

10:30 #218 The Peripheral Input Signal To The Olfactory System In Man: The Electro-Olfactogram. T. HUMMEL[1], M. KNECHT[1], S. WOLF[2] and G. KOBAL[1], *[1]Dept. of Pharmacology, [2]Krankenhausstr. 9, ENT Clinic, Waldstr. 1, Univ. of Erlangen-Nürnberg, 91054 Erlangen, Germany.*

10:45 #219 An fMRI Study Of Human Brain Response To Attractant And Aversive Odors. B.E. WEXLER, R.K. FULBRIGHT, C. GREER, G.M. SHEPHERD, A. BOWERS, C. LACADIE and J.C. GORE, *Yale University, New Haven.*

11:00 #220 Functional Imaging Of Olfactory Cortical Activity Using Electrical And Magnetical Recordings In Combination With Magnetic Resonance Imaging. G. KOBAL[1], B. KETTENMANN[1], H. STEFAN[2] and R. HARI[3], *[1]Dept. of Experimental and Clinical Pharmacology and Toxicology, [2]Dept. of Neurology, University of Erlangen-Nürnberg 91054 Erlangen, Germany, [3]Low Temperature Laroratory, University of Helsinki, SF-02150 Espoo, Finland.*

11:15 #221 MR Of Patients With Post-Traumatic Olfactory Deficits. DAVID M. YOUSEM, RENA GECKLE and RICHARD L. DOTY, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania, Philadelphia, PA.*

Saturday Afternoon

11:45 **AChemS Business Meeting**

3:00-4:45 **Workshop--Olfactory Signal Transduction: More than Meets the Nose**

Organizers: Kai Zinn and Gabrielle Ronnett, Rochelle Small (NIH)

3:00 #222 Expression And Analysis Of Subunits Of The Olfactory Cyclic Nucleotide-gated Channel. JONATHAN BRADLEY[1], JUN LI[1], YINONG ZHANG[1], ROBERT BAKIN[2], OSAMU MATSUZAKI[2], GABRIELE RONNETT[2], NORMAN DAVIDSON[1], HENRY LESTER[1] and KAI ZINN[1], *[1]Division of Biology, California Institute of Technology, Pasadena CA 91125, [2]Departments of Neuroscience and Neurology, Johns hopkins University School of Medicine, Baltimore MD 21205.*

3:25 #223 Modulation Of Olfactory Cyclic Nucleotide-Gated Cation Channel By Calcium-Calmodulin. KING-WAI YAU, T.-Y. CHEN and M. LIU, *Howard Hughes Med. Inst. and Johns Hopkins Univ. Sch. of Med., Baltimore, MD 21205.*

3:50 #224 Gaseous Messengers In Olfaction. GABRIELE V. RONNETT, ANGELA-JANE ROSKAMS and TATSUYA INGI, *Johns Hopkins University School of Medicine, Baltimore, MD.*

4:15 #225 Olfactory Signalling And Olfactory Development In *C. elegans*. CORI BARGMANN, JOE CHOU, CARA COBURN, PIALI SENGUPTA and JEN ZALLEN, *The University of California, San Francisco.*

5:00-6:30 **Wine Tasting**
Organizers: John Kinnamon and Charles Greer

POSTERS

Saturday Morning – 8:00-1:00

Taste - Peripheral Responses to Tastants
Taste Transduction
Taste - Central Mechanisms

#226 P1 Distribution And Characterization Of Functional Amiloride-Sensitive Sodium Channels In Rat Tongue. RICHARD E. DOOLIN and TIMOTHY A. GILBERTSON, *Pennington Biomedical Research Center, LSU, Baton Rouge LA and the Department of Zoology & Physiology; Louisiana State University, Baton Rouge LA.*

#227 P2 Specificity Of Hamster Fungiform Taste Cells. CHRISTI DANIELS and SUE C. KINNAMON, *Dept. ofAnatomy & Neurobiology, Colorado State University, Fort Collins, CO 80523 and Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO 80262.*

#228 P3 Field Potential- And Competition-Mediated Suppression Of Chorda Tympani Responses To Mixtures Of Sodium And Potassium Salts. ROBERT E. STEWART, GERARD L. HECK and JOHN A. DESIMONE, *Virginia Commonwealth University, Richmond, Virginia.*

#229 P4 Effects Of Adapting The Tongue With NaCl On Taste-Nerve Responses. B.I. MACKINNON, A.J. SESSA and M.E. FRANK, *UCONN Health Center, Farmington, CT.*

#230 P5 The Chorda Tympani Nerve Response To Salt Stimulation Is Temperature And Anion Dependent In Rats. ROBERT FRANK LUNDY, JR. and ROBERT JOHN CONTRERAS, *Department of Psychology, Florida State University, Tallahassee, FL.*

#231 P6 Chronic Recordings From Fibers Of Rat Glossopharyngeal Nerve Regenerated Through A Micromachkned Sieve Electrode Array. R. M. BRADLEY[1], T. AKIN[2], S. GURKAN[3], X. CAO[3] and K. NAJAFI[2], *[1]Dept. Biologic & Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor, MI 48109-1078, [2]Center for Integrated Circuits and Sensors, College of Engineering, University of Michigan, Ann Arbor, MI 48109-1078, [3]Dept. Biologic & Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor, MI 48109-1078.*

#232 P7 Single Fiber Recordings From The Chorda Tympani And Glossopharyngeal Nerves Of Rhesus Monkeys. GÖRAN HELLEKANT[1], YUZO NINOMIYA[2], VICKTORIA DANILOVA[1] and THOMAS ROBERTS[1], *[1]University of Wisconsin and Wisconsin Regional Primate Center, Madison, WI, [2]Asahi University, Gifu Prefecture, Japan.*

#233 P8 Novel Mediation Of Peripheral Taste Function By The Immune System. LYNNETTE M. PHILLIPS and DAVID L. HILL, *The University of Virginia, Charlottesville, Virginia.*

#234 P9 Spectral Tuning Properties Of The Walking Legs Of The Red-Jointed-Fiddler Crab. THOMAS J. TROTT, RAINER VOIGT and JELLE ATEMA, *Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.*

#235 P10 Citrate Enhances Behavioral And Cellular Gustatory Responses To Sweet And Amino Acid Stimuli In Mammals. TIMOTHY A. GILBERTSON, DONNA M. GILBERTSON[1], W.TODD MONROE[1], JODI R. MILLIET[1] and JOHN CAPRIO[2], *[1]Pennington Biomedical Research Center, LSU, Baton Rouge LA, the [2]Department of Zoology & Physiology, Louisiana State University, Baton Rouge LA.*

#236 P11 Citrate Enhances Glossopharyngeal Taste Responses To Arginine In The Largemouth Bass. K. OGAWA and J. CAPRIO, *Louisiana State University, Baton Rouge, LA 70803.*

#237 P12 Expression Of Sweet Protein Brazzein By *Saccharomyces cerevisiae*. ZHENGYU GUAN, GÖRAN HELLEKANT and WEI YAN, *University of Wisconsin, Madison, WI.*

#238 P13 Time-Course Of Bitter-Induced Levels of IP_3 And cAMP In Mouse Taste Tissue. GULSHAN SUNAVALA, MAX DASSO and ANDREW I. SPIELMAN, *New York University College of Dentistry, New York.*

#239 P14 Forskolin Closes Potassium Channels In Taste Cells Via A Cyclic AMP Independent Mechanism. XIAO-DONG SUN, YUSHE CHEN and SCOTT HERNESS. *Indiana University School of Medicine, Ctr. Med. Ed., BSU, Muncie, IN 47306.*

#240 P15 Partial Purification Of A Bitter Receptor That Activates Gustducin And Transducin From Taste Membranes. LUIS RUIZ-AVILA and ROBERT F. MARGOLSKEE, *Roche Institute of Molecular Biology, 340 Kingsland Street, Nutley, NJ 07110.*

#241 P16 A Cyclic Nucleotide Suppressible Conductance Is The Target Of The Transducin-PDE Based Taste Transduction Cascade. STANISLAV KOLENIKOV[1] and ROBERT F. MARGOLSKEE[2], *[2]Roche Institute of Molecular Biology, Roche Research Center, Nutley, NJ 07110, [1]Institute of Cell Biophysics of Russian Academy of Science Puschino, Moscow Region, 142292, Russia.*

#242 P17 Characterization Of Inward Rectifying Potassium Current In Rat Taste Receptor Cells. SCOTT HERNESS, XIAO-DONG SUN and YUSHE CHEN, *Indiana University School of Medicine, Ctr. Med. Ed., BSU, Muncie, IN 47306.*

#243 P18 Basolateral Chloride Conductance In Rat Fungiform Taste Cells. STACIE L. WLADKOWSKI[1], WEIHONG LIN[2,3], MARTHA MCPHEETERS[2,3], SUE C. KINNAMON[2,3] and SHEELLA MIERSON[1], *[1]Univ. of Delaware, Newark, DE, [2]Colorado State Univ., Fort Collins, CO, [3]Rocky Mountain Taste and Smell Center, Denver, CO.*

#244 P19 Responses To Monosodium Glutamate In Mouse Taste Cells. YUKAKO HAYASHI[1], DIEGO RESTREPO[1,2] and JOHN CAPRIO[1,2], *[1]Monell Chemical Senses Center, Philadelphia, PA 19104, [2]Department of Physiology, University of Pennsylvania, Philadelphia, PA 19107.*

#245 P20 Artificial Sweeteners And Denatonium Increase $[Ca^{2+}]_i$ In Isolated Hamster Taste Cells. TATSUYA OGURA[1,2], PETER GUTHRIE[1] and SUE C. KINNAMON[1,2], *[1]Dept. Anatomy and Neurobiology, Colorado State University, Fort Collins, CO 80523, [2]Rocky Mountain Taste and Smell Center, University of Colorado Health Science Center, Denver, CO 80262.*

#246 P21 Changes In Intracellular Ca^{++} In Isolated Catfish Taste Cells Induced By Changes In Extracellular K^+ And Na^+, M. MUZ. ZVIMAN[1], DIEGO RESTREPO[1,2] and JOHN H. TEETER[1,2], *[1]Monell Chemical Senses Center, Philadelphia, PA 19104, [2]Department of Physiology, University of Pennsylvania, Philadelphia, PA 19104.*

#247 P22 Glutamate Chemoresponse In Paramecium. X. LI[1], W.Q. YANG[3], J. YANO[1], C. BRAUN[2], H. PLATTNER[2], W. E. BELL[1] and J. VAN HOUTEN[1], *[1]Dept. of Biology, University of Vermont, Burlington, VT 05405, [2]Universität Konstanz, Germany, 3NHLBI, Bethesda, MD.*

#248 P23 Saline Induced C-Fos-Like Expression In Sodium Restricted And Replete Rats. BENJAMIN R. WALKER and DAVID L. HILL, *University of Virginia, Charlottesville, Va 22903.*

#249 P24 Distribution Of Calbindin D-28k Immunoreactive Neurons In Gustatory NST And PBN Of The Rat. THERESA A. HARRISON, GERNOT S. DOETSCH and NANCY W. MILLER, *Medical College of Georgia, Augusta, GA.*

#250 P25 Immunohistochemical Localization Of Protein A1 In Geniculate Ganglia And Medulla. PHILLIP S. LASITER[1] and G.W. PERRY[2], *[1]Department of Psychology, [2]Center for Complex Systems, Florida Atlantic University.*

#251 P26 Cyto-, Myelo-, And Chemoarchitecture Of The Insular Cortex Of The Syrian Golden Hamster. RICHARD G. WEHBY and JILL A. LONDON, *Center for Neurological Sciences and Department of BioStructure and Function, University of Connecticut Health Center, Farmington, CT 06030.*

#252 P27 The Ventromedial Hypothalamic Neuronal Responses To Iontophoretic Application Of Amino Acids In Lysine Deficient Rats. HRUDANANDA MALLICK[1], TAKASHI KONDOH[1], EIICHI TABUCHI[1], TAKASHI YOKAWA[1], TAKETOSHI ONO[2] and KUNIO TORII[1,3], *[1]ERATO, Research Development Corporation of Japan, Yokohama, Japan, [2]Department of Physiology, Toyama Medical and Pharmaceutical University, Toyama, Japan, [3]Ajinomoto Corporation, Incorporation, Central Research Laboratory, Yokohama, Japan.*

#253 P28 The Lateral Hypothalamic Area As A Recognition Site For Lysine Deficiency: Effect Of Inhibin Or Activin Infusion. R. HAWKINS[1], M. INOUE[1], M. MORI[1] and K. TORII[1,2], *[1]Torii Nutrient-stasis Project, ERATO, R&D Corp. of Japan, Yokohama 221, [2]Ajinomoto Co. Inc., Central Res. Lab., Yokohama 244, Japan.*

#254 P29 Taste-Elicited Responses Of Hamster NST Neurons Are Blocked By A Glutamate Antagonist. CHENG-SHU LI and DAVID V. SMITH, *University of Maryland School of Medicine, Baltimore, MD 21201.*

#255 P30 The Effects Of NaCl Adaptation And Amiloride Treatment On Taste Responses Of Hamster NST Cells. DAVID V. SMITH[1], HONGYANG LIU[2] and MARK B. VOGT[1], *[1]University of Maryland School of Medicine, Baltimore, MD 21201, [2]University of Cincinnati College of Medicine, Cincinnati, OH 45267.*

#256 P31 Effects Of Adaptation Of Best And Non-Best Stimuli On Evoked Taste Response In The Nucleus Of The Solitary Tract. M.D. KAWAMOTO, C. LEMON and P.M. DI LORENZO, *Dept. of Psychology, Box 6000, SUNY at Binghamton, NY 13902-6000.*

#257 P32 Morphology And Location Of Neurons In The Rat Rostral NST Which Project To The Parabrachial Nucleus And An Investigation Of The Chemical Nature Of The Projection From The Central Amygdala To The rNST. DAVID M. MURPHY, MATTHEW NYSTROM, EMILY C. CREWS, KATHERYN E. REYNOLDS and MICHAEL S. KING, *Biology Department, Stetson University, DeLand, FL.*

#258 P33 Characteristics Of Rat Nucleus Tractus Solitarius Neurons That Respond To Chemical Stimulation Of The Epiglottis. R.D. SWEAZEY and J.A. COOK, *Indiana Univ. Sch. Med., Fort Wayne, IN.*

#259 P34 Acute Isolation Of Neurons From The Gustatory Zone Of The Rat Nucleus Of The Solitary Tract. J. DU and R. M. BRADLEY, *Dept. Biologic & Materials Sciences, School of Dentistry, University of Michigan, Ann Arbor, MI 48109-1078.*

#260 P35 Receptive Field Organization Of Gustatory Neurons In The Parabrachial Nucleus Of The Rat. CHRISTOPHER B. HALSELL and SUSAN P. TRAVERS, *Section of Oral Biology, College of Dentistry, The Ohio State Univ. Columbus OH 43202.*

#261 P36 A Comparison Of Structure-Function Relationships In Early Postnatal And Adult Rats. WILLIAM E. RENEHAN[1], ZHIGAO JIN[1], XUEGUO ZHANG[1] and LAURA SCHWEITZER[2], *[1]Laboratory of Gastrointestinal, Gustatory and Somatic Sensation, Henry Ford Hospital, Detroit, MI, [2]University of Louisville, Louisville, KY.*

#262 P37 The Emergence Of Abnormal Dendritic Morphologies In NTS Neurons Of Developmentally Sodium Restricted Rats. A. KURT THAW and DAVID L. HILL, *University of Virginia, Charlottesville, VA 22903.*

#263 P38 Gustatory-Evoked Potentials: GEPs Varied According To The Concentration. TATSU KOBAYAKAWA[1], SACHIKO SAITO[1] and SAHO AYABE-KANAMURA[2], *[1]National Institute of Bioscience and Human Technology, Tsukuba, Japan, [2]Institute of Psychology, University of Tsukuba, Tsukuba, Japan.*

#264 P39 Comparison Of Voltage-Sensitive Dyes For Optical Recording From Hamster Gustatory Cortex. J. D. ZEIGER[1] and J. A. LONDON[1,2], *[1]Center for Neurological Sciences, Univ. of Connecticut Health Center, Farmington , CT 06030, [2]Department of BioStructure and Function, Univ. of Connecticut Health Center, Farmington , CT 06030.*

#265 P40 Facial Lobe Taste Responses To Binary Mixtures Of Amino Acids In The Channel Catfish. NORITAKA SAKO and JOHN CAPRIO, *Louisiana State University, Baton Rouge, LA 70803.*

Saturday Evening

5:00-6:30 **Wine Tasting**
Organizers: John Kinnamon and Charles Greer

SLIDES

Saturday Evening - 8:00 - 11:00

Taste - Genetics and Preferences

Chairperson: Gary Beauchamp

8:00 #266 The *Soa* Taste Gene Confers Sensitivity To Bitter Alkaloids, Including Quinine, In Mice. J.D. BOUGHTER, D.B. HARDER and G. WHITNEY, *Florida State University, Tallahassee, FL, 32306-1051.*

8:15 #267 Taste Preference And Ethanol Consumption In Mice: A Genetic Analysis. ALEXANDER A. BACHMANOV, MICHAEL G. TORDOFF and GARY K. BEAUCHAMP, *Monell Chemical Senses Center, Philadelphia, PA 19104.*

8:30 #268 Phenotypic Variation For The Production Of Salivary Proline Rich Proteins Among Inbred Mice: Preliminary Evidence For The Independence Of *Soa* And *Prp*. CHRISTOPHER G. CAPELESS and GLAYDE WHITNEY, *Psychology Department, Florida State University.*

8:45 #269 Nutrient-Flavor Preferences Are Altered By Food Restrictions In Rats. ANTHONY SCLAFANI and FRANÇOIS LUCAS, *Dept. of Psychology, Brooklyn College of CUNY, Brooklyn, NY.*

9:00 **Refreshment Break**

Olfaction--Discrimination and Recall

Chairperson: John Caprio

9:15 #270 Following Odor Plumes: How Behavior Is Controlled By The Interaction Of Fluid Dynamics With Sensory Systems. N.D. PENTCHEFF, C.M. FINELLI, D.S. WETHEY and R.K. ZIMMER-FAUST, *University of South Carolina, Columbia, SC.*

9:30 #271 Dimethyl Sulfide Is Part Of The Olfactory Landscape Detectable To Antartic Procellariiform Seabirds. G.A. NEVITT, *Institute of Neuroscience, University of Oregon, Eugene, OR 97403.*

9:45 #272 Perception Of "Depth" In Arrays Of Individual Odors: How Do Animals Determine Which Individual's Scent Is On Top? ROBERT E. JOHNSTON and ANJALI BHORADE, *Dept. of Psychology, Cornell University, Ithaca, NY 14853.*

10:00 #273 Olfactory Identification Of Binary Mixtures And Their Components In Catfish. TINE VALENTINCIC[1,2], VLADO PIRC[1], MATJAZ STENOVEC[1] and JOHN CAPRIO[2], *[1]Department of Biology, University of Ljubljana, Ljubljana, Slovenia, [2]Department of Zoology & Physiology, Louisiana State University, Baton Rouge, LA 70803-1725.*

10:15 #274 Discrimination Of Familiarity And Dominance Status By Odor Cues In The American Lobster, *Homarus americanus*. CHRISTY KARAVANICH and JELLE ATEMA, *Boston Univ. Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.*

10:30 #275 A Study Of Long-Term Odor Memory In Squirrel Monkeys. MATTHIAS LASKA, THOMAS ALICKE and ROBYN HUDSON, *Department of Medical Psychology, University of Munich Medical School D-80336, Munich, Germany.*

10:45 #276 Response Of Cochroach Olfactory Receptor Neurons To Selected Alcohols And Their Binary Combinations. WAYNE M. GETZ[1] and R. PATRICK AKERS[2], *[1]Dept. Env. Sci., Policy, & Mangement, University of California, Berkeley, CA 94720-3112, [2]California Dept. of Pesticide Regulation, 1020 N St., Sacremento, CA 95814.*

POSTERS

Saturday Evening – 8:00-12:00

Olfaction - Peripheral: Detection and Transduction

#277 P1 Olfactory Marker Protein (OMP) Null Mice: Generation And Characterization. O. BUIAKOVA[1], H. BAKER[2], C. STEWART[1], S. ABBONDANZO[1], L. FRANZEN[2] and F.L. MARGOLIS[1], *[1]Roche Inst. Molec. Biol., Nutley N.J., [2]Cornell Univ. Coll. Med., N.Y., N.Y.*

#278 P2 Expression Of The EGF Family Of Receptors In The Olfactory Epithelium. KOUROSH SALEHI-ASHTIANI and ALBERT I. FARBMAN, *Northwestern University, Evanston, Illinois.*

#279 P3 Strategies For The Isolation Of Cell Lines Derived From The Olfactory Epithelium. DALE D. HUNTER, THOMAS C. BOZZA and JOHN S. KAUER, *Tufts University School of Medicine, Boston, Mass.*

#280 P4 Survival Of Cultured Olfactory Sensory Neurons Is Enhanced By Co-Culture With Target And Non-Target CNS Tissues. RAYMOND J. GRILL and SARAH K, PIXLEY, *Dept. of Cell Biology, Neurobiology and Anatomy, University of Cincinnati, College of Medicine, Cincinnati, Ohio 45267-0521.*

#281 P5 Response Characteristics Of Human Olfactory Neuroblastoma Cells: A Possible Model For The Study Of Human Olfaction. GEORGE GOMEZ[1], DIEGO RESTREPO[1] and JAY ROTHSTEIN[2], *[1]Monell Chemical Senses Center, 3500 Market St., Philadelphia, PA, [2]Jefferson Cancer Center, Thomas Jefferson University, Philadelphia, PA.*

#282 P6 Competence And Specification Of The Olfactory Placode In Xenopus. CHRISTINE A. BYRD[1], PETER C. BRUNJES[1] and ROBERT M. GRAINGER[2], *[1]Department of Psychology, University of Virginia, Charlottesville, VA 22901, [2]Department of Biology, University of Virginia, Charlottesville, VA 22901.*

#283 P7 Thyroid Hormone Induces Changes In The Nasal Capsules That Parallel Those Observed At Metamorphosis. MARY A. PETTI[1] and GAIL D. BURD[2], *[1]Tucson High School and [2]University of Arizona, Tucson, AZ.*

#284 P8 Do NGF-Positive Mast Cells Participate In Target-Derived Neurotrophin Enhancement Of Extrinsic Innervation In Chemosensory Organs In NGF-Transgenic Mice? T. V. GETCHELL[1,2,3], S. TAKAMI[1], A. KULKARNI-NARLA[1], K. M. ALBERS[4] and M. L. GETCHELL[2,3], *[1]Dept. Physiol., [2]Sanders-Brown Ctr. on Aging, [3]Div. Otolaryngol.-Head and Neck Surg., Dept. Surg., [4]Dept. Pathol., Univ. of Kentucky Coll. of Med., Lexington, KY.*

#285 P9 Evidence For A Stereotyped And Highly Organized Spatial Map Of Sensory Input In The Olfactory Bulb. SUSAN L. SULLIVAN, KERRY J. RESSLER and LINDA B. BUCK, *Dept. of Neurobiology, Harvard Medical School, 220 Longwood Ave., Boston, MA 02115.*

#286 P10 Spatial Patterns Of Olfactory Receptors Expression. H. BREER, A. BECK, I. WANNER, T. HELFRICH, S. KONZELMANN and J. STROTMANN, *Institute of Zoophysiology, University Stuttgart-Hohenheim, 70599 Stuttgart, Germany.*

#287 P11 Lack Of Evidence For An Inherent Spatial Patterning Of Olfactory Receptor Sensitivities In The Olfactory Organ Of The Channel Catfish. QINHUI CHANG and JOHN CAPRIO, *Louisiana State University, Baton Rouge, LA. 70803.*

#288 P12 Cloning And Sequencing Of An IP_3 Receptor Partial cDNA From Lobster Olfactory Organ. S.D. MUNGER[1,2], B.W. ACHE[1,2,3], R.M. GREENBERG[1], *[1]Whitney Laboratory, [2]Depts. of Neuroscience, and [3]Zoology, Univ. of Florida, St. Augustine, FL.*

#289 P13 Proteins Mediating Phosphoinositide Signaling In Olfactory Rosettes From Channel Catfish. RICHARD C. BRUCH and JIESHENG KANG, *Department of Zoology & Physiology, Louisiana State Univerity, Baton Rouge, LA 70803.*

#290 P14 Studies Of Gene Expression In Single Rat Olfactory Neurons. DIEGO RESTREPO[1,2] and NANCY E. RAWSON[1], *[1]Monell Chemical Senses Center, [2]Univ. of Pennsylvania, Philadelphia PA 19104.*

#291 P15 A molecular approach of odor detection in the honey bee *A. Mellifera.* E. DANTY[1], J.-M. CORNUET[1], J.-C. HUET[2], J.-C. PERNOLLET[2] and C. MASSON[1], *[1]Laboratoire de Neurobiology Comparee des Invertebres, INRA-CRNS (URA 1190), [2]Laboratoire d'Etude des Proteines, INRA, Domaine de Vilvert, 78 352 Jouy-en-Josas.*

#292 P16 Isolation And Characterization Of An Abundant Olfactory Specific Membrane Protein In A. Polyphemus. MATTHEW E. ROGERS and RICHARD G. VOGT, *University of South Carolina, Department of Biological Sciences.*

#293 P17 Determination Of Kinetic Rate Constants From Rapid Perfusion Experiments With Olfactory Cyclic Nucleotide-Gated Channels. RODERICK V. JENSEN[1], TRESE LEINDERS-ZUFALL[2], HANNS HATT[2], GORDON M. SHEPHERD[2] and FRANK ZUFALL[2], *[1]Department of Physics, Wesleyan University, Middletown, CT 06457, [2]Section of Neurobiology, Yale Medical School, New Haven, CT 06501.*

#294 P18 Effect Of Nitric Oxide Donors On The Cyclic Nucleotide Gated Channels Of Olfactory Receptor Neurons. MARIE-CHRISTINE BROILLET[1], GRIGORII KALAMKAROV[2] and STUART FIRESTEIN[1], *[1]Columbia University, New York, NY, [2]Institute of Biological Physics, Moscow.*

#295 P19 Noise Analysis Of cAMP- And Ca^{2+}-Gated Channels In Isolated Olfactory Cilia. S.J. KLEENE[1], H.P. LARSSON[2] AND H. LECAR[2], *[1]University of Cincinnati, Cincinnati, OH 45267-0521, [2]University of California, Berkeley, CA 94720.*

#296 P20 Characterization Of Ins-P$_3$ Activated Channels In Reconstituted Membranes And Excised Patches From Rat Olfactory Neurons. FRITZ W. LISCHKA[1], EIKO HONDA[2], JOHN H. TEETER[1] and DIEGO RESTREPO[1], *[1]Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104, [2]Department of Physiology, Kyushu Dental College, 2-6-1 Manazuru Kokurakita-ku, Kitakyushu 803 Japan.*

#297 P21 Patch Clamp Analysis Of Necturus Olfactory Receptor Neurons In A Semi-Intact Slice Preparation. RONA J. DELAY AND VINCENT E. DIONNE, *Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.*

#298 P22 Whole-Cell Currents Of Isolated Zebrafish Olfactory Receptor Neurons. WILLIAM C. MICHEL, FRANK S. COROTTO and DAVID. R. PIPER, *Department of Physiology, University of Utah School of Medicine, Salt Lake City, UT 84108.*

#299 P23 Dual Effects of Odorants on the Olfactory receptor cell. TAKASHI KURAHASHI[1], GRAEME LOWE[2], GEOFFREY H. GOLD[2] and AKIMICHI KANEKO[1,3], *[1]National Institute for Physiological Sciences, Okazaki, Japan, [2]Monell Chemical Senses Center, Philadelphia, PA, [3]Keio University School of Medicine, Tokyo, Japan.*

#300 P24 Antisense Oligonucleotides To Disrupt Paramecium Chemoresponse. J. YANO, W. E. BELL and J. VAN HOUTEN, *University of Vermont, Burlington, VT.*

#301 P25 Ionic Basis Of Odor-Activated Currents In Cultured Lobster Olfactory Receptor Cells. BARRY W. ACHE and ASLBEK ZHAINAZAROV, *Whitney Laboratory and Depts. Zoology & Neuroscience, Univ. of Florida, St. Augustine, FL 32086.*

#302 P26 Two Different G-Proteins Mediate Odor-Evoked Currents In Cultured Lobster Olfactory Neurons. S.J. ESTEY[1], D.A. FADOOL[1,2] and B.W. ACHE[1], *[1]Whitney Laboratory and Depts. of Zoology & Neuroscience, Univ. of Florida, St. Augustine, FL 32086, [2]Volen Center for Complex Systems, Brandeis University, Waltham, MA 02254.*

#303 P27 Na^+-Activated Non-Selective Cation Channels In Primary Olfactory Neurons. ASLBEK ZHAINAZAROV and BARRY W. ACHE, *Whitney Laboratory and Depts. Zoology & Neuroscience, Univ. of Florida, St. Augustine, FL 32086.*

#304 P28 L-Glutamate's Excitatory And Inhibitory Effects On Olfactory Receptor Neurons Of Spiny Lobsters May Be Mediated By Dissimilar Receptor Types. MICHELE BURGESS and CHARLES D. DERBY, *Georgia State University, Atlanta, Georgia.*

#305 P29 Identification Of Potential Ligand-Binding Residues In Rat Olfactory Receptors By Correlated Mutation Analysis. MICHAEL S. SINGER[1], GORDON M. SHEPHERD[1] and GERRIT VRIEND[2], *[1]Sections of Neurobiology, Yale Medical School, New Haven, CT 06510 and [2]Biocomputing, European Molecular Biology Laboratory, Heidelberg, Germany D-69012.*

#306 P30 Determinant-Based Model For Ligand-Receptor Interactions In Olfactory Receptors. GORDON M. SHEPHERD and MICHAEL S. SINGER, *Section of Neurobiology, Yale Medical School, New Haven, CT 06510.*

#307 P31 Tuning Specificities To Aliphatic Odorants In Mouse Olfactory Receptor Cells. TAKAAKI SATO[1,2], JUNZO HIRONO[1] and MASAMINE TAKEBAYASHI[1], *[1]Life Electronics Research Center, Amagasaki, Hyogo, 661, Japan, [2]Monell Chemical Senses Center, Philadelphia, PA.*

#308 P32 Responses Of A Population Of Olfactory Receptor Cells In The Spiny Lobster To Binary Mixtures Are Predictable Using A Noncompetitive Model That Incorporates Multiple Transduction Pathways. PETER C. DANIEL[1] and CHARLES DERBY[2], *[1]Hofstra University, Hempstead, NY, [2]Georgia State University, Atlanta, GA.*

#309 P33 *In Vivo* Responses Of Single Olfactory Receptor Neurons To Binary Mixtures Of Amino Acids In The Channel Catfish. JIESHENG KANG and JOHN CAPRIO, *Louisiana State University, Baton Rouge, LA. 70803.*

#310 P34 Effect Of Stimulus Onset On Chemoreceptor Cell Responses In The Lobster. RAINER VOIGT and JELLE ATEMA, *Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.*

#311 P35 Comparison Of Peripheral And Bulbar Responses To Sex Pheromones And Amino In The Goldfish. LEAH R. BRESIN[1], P.W. SORENSEN[1], J. KANG[2] and J. CAPRIO[2], *[1]Dept. of Fisheries & Wildlife, Univ. of Minnesota, St. Paul, MN, [2]Dept. of Zoology & Physiology, Louisiana State Univ.*

#312 P36 Peripheral Olfactory Sensitivity Of Sea Lamprey Is Greatest Just Prior To Their Spawning Migration And Then Rapidly Deteriorates. P.W. SORENSEN[1], W. LI[1], R. BJERSELIUS, B. ZIELINSKI[2], L. BOWDIN[1] and J. SEELYE[3], *[1]Dept. of Fisheries & Wildlife, Univ. of Minnesota, St. Paul, MN, [2]Univ. of Windsor, Canada, [3]National Biological Survey, 2, MI.*

#313 P37 Discovery And Characterization Of An Antennal-Specific Protein Associated With Development Of Antennal Sensilla, Electrical Responses To Odorants, And Onset Of Sexual Behavior In A Hemimetabolous Insect. J.C. DICKENS[1], F.E. CALLAHAN[2], W.P. WERGIN[3] and E.F. ERBE[3], *[1]USDA, ARS, Boll Weevil Research Unit, Mississippi State, MS, [2]USDA, ARS, Crop Science Research Lab, Mississippi State, MS, [3]USDA, ARS, Electron Microscopy Lab, Beltsville, MD.*

#314 P38 Capsaicin/Lipid Interactions: Relationship To Biological Activity. ALEXANDER M. FEIGIN, EVGENEY V. ARONOV, JOHN H. TEETER and JOSEPH G. BRAND, *Monell Chem. Senses Ctr., 3500 Market St., Philadelphia, PA 19104.*

#315 P39 Characterization Of Human Genes Related To Olfactory-Specific P450 2G1. XINXIN DING[1], JIANGJUN SHENG[1] and MINOR J. COON[2], *[1]Wadsworth Center for Laboratories and Research, NYSDH, Albany, NY 12201-0509 and [2]Department of Biological Chemistry, Medical School, University of Michigan, Ann Arbor, MI 48109.*

#316 P40 Entry Of Chromium Into The CNS Via Olfactory Receptor Neurons. L. HASTINGS, M. MILLER, J. EVANS, E. O'FLAHERTY and L. OLSON, *University of Cincinnati, Cincinnati, OH.*

#317 P41 Changes In Immediate-Early Gene Expression In The Lobster Olfactory Organ Following Osmotic Stress. E. ORONA, A. BARNHART and R.A. GLEESON, *The Whitney Laboratory, University of Florida, St. Augustine, FL 32086.*

#318 P42 A Subpopulation Of Cultured Neonatal Rat Trigeminal Neurons Expresses Both CGRP And Capsaicin Sensitivity. XUE-SONG ZHANG and BRUCE P. BRYANT, *Monell Chemical Senses Center, 3500 Market St., Philadelphia, PA 19104.*

SLIDES

Sunday Morning – 8:00-11:15

Human Olfactory Psychophysics

Chairperson: Claire Murphy

8:00 #319 Determinants Of Measured Olfactory Thresholds In Normal Persons. KYUNG H. YANG and WILLIAM S. CAIN, *Dept. of Surgery, Div. of Otolaryngology, University of California, San Diego, CA 92103-8895.*

8:15 #320 A Comparative Study Of The Reliability Of 10 Olfactory Tests And Mathematical Models Of The Relationship Between Reliability And Test Length. RICHARD L. DOTY, DONALD A. MCKEOWN, W. WILLIAM LEE and PAUL SHAMAN, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania Medical Center, and Department of Statistics, The Wharton School, University of Pennsylvania, Philadelphia, PA.*

8:30 #321 How Shall We Measure Odor Quality? WILLIAM S. CAIN and MATS J. OLSSON, *Dept. of Surgery, Div. of Otolaryngology, University of California, San Diego, CA 92103-8895.*

8:45 #322 Early Temporal Events In Odor Identification. MATS J. OLSSON and WILLIAM S. CAIN, *Dept. of Surgery, Div. of Otolaryngology, University of California, San Diego, CA 92103-8895.*

9:00 #323 Blindsmell: An Olfactory Analogue Of Blindsight? GARY E. SCHWARTZ, JOHN P. KLINE, MERCEDES FERNANDEZ, ZIYA V. DICKMAN, LYNN TURKSTRA and ERNEST H. POLAK, *University of Arizona.*

9:15 #324 The Effects Of Long-Term Exposure To Odorants On Olfactory Thresholds And Perceived Odor Intensity. PAMELA DALTON and CHARLES J. WYSOCKI, *Monell Chemical Senses Center, Philadelphia, PA.*

9:30 **Refreshment Break**

Human Olfactory Psychophysics--Clinical

Chairperson: Richard Doty

9:45 #325 Odorant Dissimilarity As A Measure Of Changes In The Human Olfactory System: Implications For The Evaluation Of Dysosmia. DANIEL KURTZ[1], DAVID HORNUNG[1,2], PAUL KENT[1], PRECHA EMKO[1], THERESA WHITE[1] and PAUL SHEEHE[1], *[1]Smell and Taste Disorders Clinic of the SUNY Health Science Center, Syracuse, NY and [2]St. Lawrence University, Canton, NY.*

10:00 #326 Absence Of Olfactory Event-Related Potentials To Amyl Acetate In Idiopathic Congenital Anosmia. JAMES W. EVANS and LIYING CUI, *University of California, Irvine.*

10:15 #327 Very Early Decline In Recognition Memory For Odors In Alzheimer's Disease. STEVEN NORDIN and CLAIRE MURPHY, *UCSD Medical Center, San Diego and San Diego State University, CA.*

10:30 #328 Olfactory Tasks Differentiate Between Patients With Alzheimer's Disease And Huntington's Disease. CLAIRE MURPHY[1,2], JILL RAZANI[3], STEVEN NORDIN[1,2], ANNA BACON[3] and JOANNE HAMILTON[3], *[1]San Diego State University, [2]UCSD Medical Center, San Diego, CA, [3]SDSU-UCSD Joint Doctoral Program, San Diego, CA.*

10:45 #329 Olfactory Function In Schizophrenia: Relationship To Clinical, Neuropsychological, And MRI Volumetric Measures. PAUL J. MOBERG, RICHARD L. DOTY, DONALD A. McKEOWN, BRUCE I. TURETSKY, RAQUEL E. GUR and RUBEN C. GUR, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery and Department of Psychiatry, University of Pennsylvania Medical Center, Philadelphia, PA.*

11:00 #330 Olfactory Function In Multiple Sclerosis: Correlation With Plaque Numbers In Olfactory Cortex. CHENG LI, RICHARD L. DOTY, DAVID M. YOUSEM and WILLIAM LEE, *Smell and Taste Center, Department of Otorhinolaryngology: Head and Neck Surgery, University of Pennsylvania, Philadelphia, PA.*

POSTERS

Sunday Morning – 8:00-11:30

Animal Behavior--Olfactory and Chemical Ecology

#331 P1 Localization Of Pheromones And Peptides That Induce Attachment Of Balanus Amphitrite (Darwin). MARION McCLARY, JR. and DAN RITTSCHOF, *Duke Marine Laboratory, Beaufort, NC.*

#332 P2 Chemical Ecology Of The Seastar, *Asterias forbesi*: The Role Of Chemical Signals In Foraging Behavior. DEBORAH M.E. LEPPER and PAUL A. MOORE, *Department of Biological Sciences, Bowling Green State University, Bowling Green, OH 43403.*

#333 P3 Behavioural Responses Of Prolarval And Larval Sea Lamprey (*Petromyzon marinus*) To L-arginine. B.S. ZIELINSKI[1], S. ISRAEL[1], M. MASTELLOTTO[1], E. WONG[1] and T.J. HARA[2], *[1]University of Windsor, Windsor, ON Canada, [2]Freshwater Institute, Canada Department of Fisheries and Oceans, Winnipeg, MB, Canada.*

#334 P4 A Behavioral Assay To Characterize The Ontogeny Of Chemosensory Behavior In The Zebrafish *Danio rerio*. SARA M. LINDSAY, RICHARD K. ZIMMER-FAUST and RICHARD G. VOGT, *University of South Carolina, Department of Biological Sciences.*

#335 P5 Discrimination Of Related Complex Mixtures And Their Components: Analysis Of Mixture Perception Using The Spiny Lobster In A Generalization Assay. CHARLES DERBY, MICHELLE HUTSON and WILLERT LYNN, *Georgia State University, Atlanta, GA.*

#336 P6 High Resolution Odor Measurements From Freely Moving Lobsters In Turbulent Odor Plumes. JENNIFER BASIL, FRANK GRASSO and JELLE ATEMA, *Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA 02543.*

#337 P7 Spatial Features Of Turbulent Odor Plumes: Potential Information In Phase-Portrait Reconstruction. KUN SHAO and PAUL A. MOORE, *Department of Biological Sciences, Bowling Green State University, Bowling Green, OH 43403.*

#338 P8 Inhibition Of Upwind Flight In A Pheromone Plume Tainted With A Behavioral Antagonist Is Correlated With Deformed Responses To Single Filaments. NEIL J. VICKERS[1], AGENOR MAFRA-NETO[2] and THOMAS C. BAKER[2], *[1]ARLDN, University of Arizona, Tucson, AZ 85721, [2]Department of Entomology, Iowa State University, Ames, IA 50011.*

#339 P9 Relationship Between Individual HS(a) Neuron Spike Output, Electroantennograms, And Behavior Of The Cabbage Looper, *Trichoplusia ni*. M.S. MAYER, *USDA, ARS, PO Box 14565, Gaines ville, FL.*

#340 P10 The Sublingual Plicae (Anterior Processes) Are Not Necessary For Garter Snake Vomeronasal Function. MIMI HALPERN and SAI HAN, *Department of Anatomy and Cell Biology, SUNY Health Science Center at Brooklyn, Brooklyn, NY.*

#341 P11 Seasonal Changes In Olfactory Preference Of Male Ferrets Towards Female Odors. RAIMUND APFELBACH and ELKE WEILER, *University of Tübingen, Institute of Zoology/Animal Physiology, Auf der Morganstelle 28, 72076 Tübingen, Germany.*

#342 P12 Isolation Of The MHC-Associated Odor-Active Substances That Promote Outbreeding In Mice: A New Approach. IGOR A. MEZINE, KUNIO YAMAZAKI, GARRY K. BEAUCHAMP and ALAN SINGER, *Monell Chemical Senses Center, Philadelphia, PA 19104.*

#343 P13 Learning Of Old Aged Rats In An Olfactory Skinner Box. SIMONE KRÄMER and ELKE WEILER, *University of Tübingen, Institute of Zoology/Animal Physiology, Auf der Morgenstelle 28, 72076 Tübingen, Germany.*

#344 P14 Evidence For Long-Term Chemical Memory In Elephants. L.E.L. RASMUSSEN, *Oregon Graduate Institute, Portland, OR 97291.*

#345 P15 Chemosensory Directional Tracking In Dogs: Enhancing The Track's Polarity. EVAN MILLER, REBECCA HOUGHTON and WILLIAM CARR, *Beaver College, Glenside, PA 19038.*

#346 P16 Odorant Threshold Following Methyl Bromide Induced Lesions Of The Olfactory Epithelium. S.L. YOUNGENTOB[1,3] and J.E. SCHWOB[2,3], *[1]Physiology Dept., [2]Anatomy and Cell Biology Dept., [3]Clinical Olfactory Research Center, SUNY Health Science Center, Syracuse, NY 13210.*

#347 P18 The Characteristic Female Axillary Odors And Their Precursor Proteins: Qualitative Comparison To Males. G. PRETI[1,2], A.I. SPIELMAN[1,3], X-N. ZENG[1] and J.J. LEYDEN[2], *[1]Monell Chemical Sensee Center, 3500 Market St., Philadelphia, PA 19104, [2]Dept. of Dermatology, School of Medicine, Univ. of Pennsylvania, [3]College of Dentistry, Division of Basic Sciences, New York Univ., New York, NY 10010.*

#348 P19 Evidence Suggesting That The Odortypes Of Pregnant Women Are A Compound Of Maternal And Fetal Odortypes. KIYOAKI KATAHIRA[1,3], GARY BEAUCHAMP[1], KUNIO YAMAZAKI[1], JULIE A. MENNELLA[1], JUDITH BARD[2] and EDWARD A. BOYSE[2], *[1]Monell Chemical Censes Center, Phila. PA 19104, [2]University of Arizona, Tucson, AZ 85724, [3]Fukushima Medical College, Fukushima, 960-12, Japan.*

#349 P20 Garlic Ingestion By Pregnant Women Alters The Odor Of Amniotic Fluid. JULIE A. MENNELLA[1], ANTHONY JOHNSON[2], CAROL STALEY[1] and GARY K. BEAUCHAMP[1], *[1]Monell Chemical Senses Center, Philadelphia, PA, [2]Jefferson Medical College of Thomas Jefferson University, Philadelphia, PA.*

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