ACHEMS-1990

THE TWELFTH ANNUAL MEETING OF THE ASSOCIATION FOR CHEMORECEPTION SCIENCES

PROGRAM

Hyatt Sarasota
Sarasota Florida

April 18 - 22, 1990

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

Brown and Williamson Tobacco Corporation
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The Association also acknowledges the following corporations for their generous support of the following awards, fellowships and lectures:

AChemS Traveling Fellowship
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2nd Annual Frito-Lay Award for Research in Taste
Frito-Lay, Inc.

12th Annual Givaudan Lecture
Givaudan Corporation

5th Annual Takasago Award for Research in Olfaction
Takasago Corporation

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GENERAL INFORMATION

1. Registration:

Wednesday evening: 5:00-7:30 pm (in Sara Desoto South)

Thursday-Saturday morning: 7:30-8:00 am (in Longboat)

Thursday & Friday evenings: 6:00-7:00 pm (in Longboat)

2. All slide sessions will be held in the Hernando Desoto Ballroom.

3. All poster sessions will be held in the Sara Desoto Ballroom.

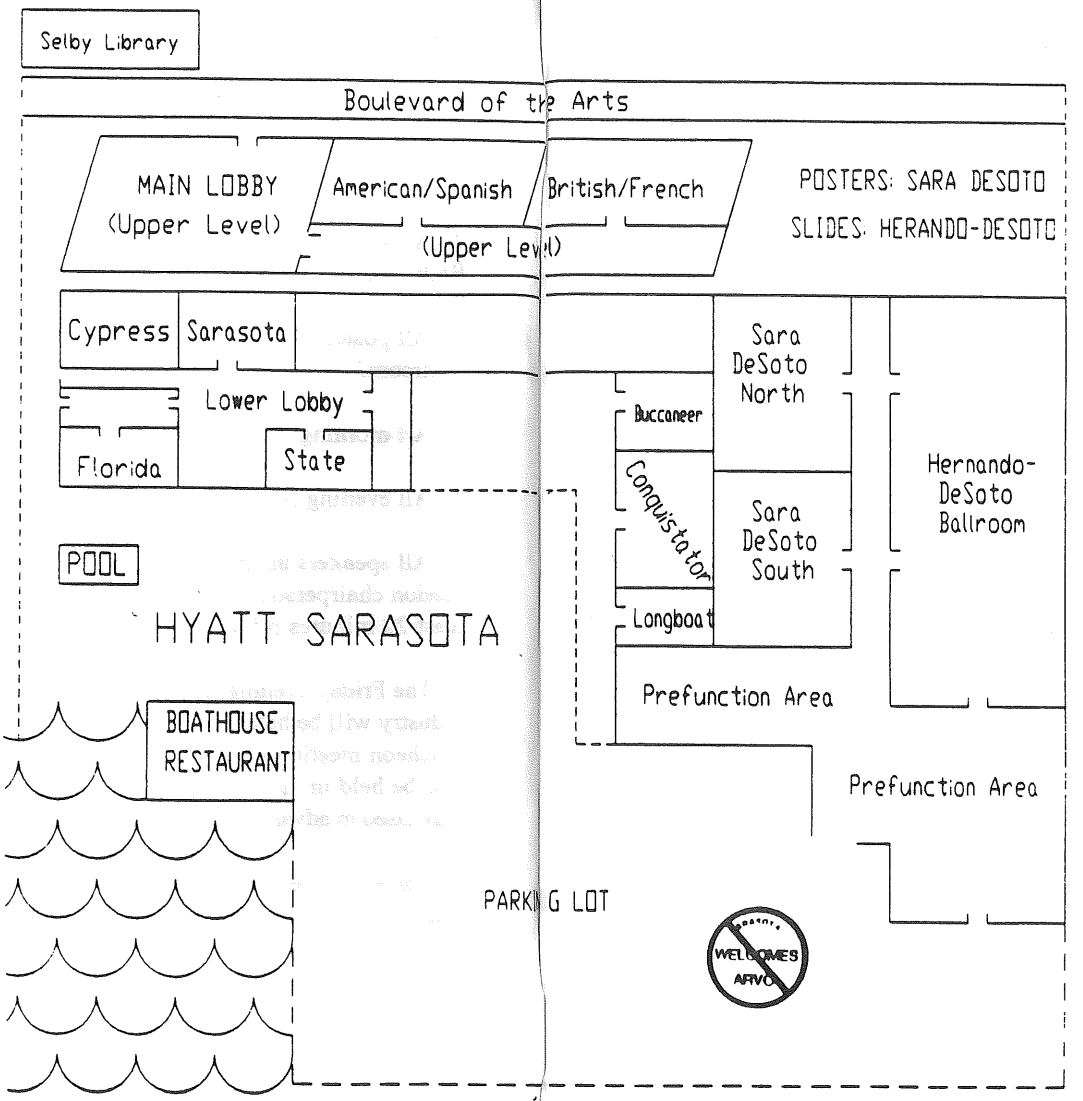
4. All morning posters should be removed by 3:00 pm.

5. All evening posters should be removed by midnight.

6. All speakers in slide sessions should meet with the session chairperson and give slides to the projectionist at least 20 minutes prior to start of the session.

7. The Friday evening dinner for representatives from industry will be held in the Florida Room. The Saturday luncheon meeting for those interested in clinical issues will also be held in the Florida Room. Tickets should be purchased in advance.

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


Selby Library
Boulevard of the Arts
MAIN LOBBY
(Upper Level)
American/Spanish
British/French
(Upper Level)
POSTERS: SARA DESOTO
SLIDES: HERANDO-DESOTO
Cypress
Sarasota
Lower Lobby
Florida
State
Buccaneer
Conquistador
Longboat
Sara DeSoto North
Sara DeSoto South
Hernando-DeSoto Ballroom
POOL
HYATT SARASOTA
Prefunction Area
Prefunction Area
BOATHOUSE RESTAURANT
PARKING LOT
WELCOMES
ARRIVO

ASSOCIATION FOR CHEMORECEPTION SCIENCES TWELFTH ANNUAL MEETING

Wednesday evening, April 18

5:00-7:30 REGISTRATION

Sara Desoto South

6:00-6:30 MEETING FOR GRADUATE STUDENTS RECEIVING TRAVEL/HOUSING AWARDS: MEETING ASSIGNMENTS & INFORMATION

Hernando Desoto Ballroom

6:30 RECEPTION FOR GRADUATE STUDENTS

Hernando Desoto Ballroom

6:30-8:00 OPENING BUFFET

Prefunction Area

8:00-8:30 WELCOME, OPENING REMARKS AND PRESENTATION OF AWARDS

Robert J. O'Connell, *President of The Association for Chemoreception Sciences*

Hernando Desoto Ballroom

8:30-9:30 **THE GIVAUDAN LECTURE**

Vernon B. Mountcastle, *the Johns Hopkins University School of Medicine*

Hernando Desoto Ballroom

9:30 SOCIAL RECEPTION & CASH BAR

Prefunction Area

7:30 CONTINENTAL BREAKFAST
Prefunction Area

Thursday morning slide session

HUMAN CHEMOSENSORY PSYCHOPHYSICS

Chairperson: Barry G. Green
Monell Chemical Senses Center

8:00 #1 **Age-Related Deficits in Odor Recognition Performance as a Function of Retention Interval: Sensory or Cognitive?** MAGDALENA M. GILMORE AND TRYGG ENGEN, *Brown University.*

8:15 #2 **The Human Sense of Smell Has a Limited Capacity For Identifying Odors in Mixtures.** D.G. LAING AND G.W. FRANCIS, *CSIRO Food Research Laboratory,* B.A. LIVERMORE, *Macquarie University.*

8:30 #3 **Conditioned "Taste" Aversions in Humans: Are They Olfactory Aversions?** LINDA M. BARTOSHUK, *Yale University,* JEREMY M. WOLFE, *Massachusetts Institute of Technology.*

8:45 #4 **Role of Olfaction in Perception of Nontraditional "Taste" Stimuli.** THOMAS P. HETTINGER, WALTER E. MYERS AND MARION E. FRANK, *University of Connecticut Health Center.*

9:00 #5 **Human Obesities and Sensory Preferences for Sugar/Fat Mixtures: Effects of Weight Cycling.** ADAM DREWNOWSKI, CANDACE KURTH AND JO RAHAIM, *School of Public Health, University of Michigan.*

9:15 #6 **Time-quality Tracking: Temporal Patterns of Taste Quality.** S.A. ZWILLINGER, S.T. KELLING AND B.P. HALPERN, *Cornell University.*

9:30 #7 **Towards Quantitative Analysis of Gusto- and Nasofacial Reflexes.** J. E. STEINER, *The Hebrew University*

9:45 #8 **Preferred Salt Concentration in a Southwestern Sample of 200: Differences among Anglo and Hispanic Preschoolers and Their Parents.** CLAIRE MURPHY, KRISTY STRAITS, RANI NIJJAR, JILL SNIFFEN, MAGDALENA M. GILMORE, LISA TSUMURA, SAMUEL JINICH AND MARICELA LEON-FUENTES. *San Diego State University AND UCSD*

10:00 REFRESHMENT BREAK
Prefunction Area

Thursday morning slide session

CENTRAL PATHWAYS: SOLITARY NUCLEUS

Chairperson: Charlotte M. Mistretta
University of Michigan

10:15 #9 **GABA-like Immunoreactivity in the Gustatory Zone of the Nucleus of the Solitary Tract in the Hamster: Light and Electron Microscopic Studies.** BARRY J. DAVIS, *University of Alabama at Birmingham.*

10:30 #10 **Intracellular Recording from Brainstem Taste Neurons.** MARTHA MCPHEETERS, THOMAS P. HETTINGER, LAWRENCE D. SAVOY AND MARION E. FRANK, *University of Connecticut Health Center.*

10:45 #11 **Separation of Neuron Types in the Gustatory Zone of the Rat Solitary Nucleus Based on Intracellular Electrophysiological Characteristics.** ROBERT M. BRADLEY AND ROBERT D. SWEAZEY, *School of Dentistry, University of Michigan.*

11:00 #12 **Taste, Tactile and Gastric Inputs Converge onto Multimodal Neurons in the Medulla: Analysis of Single Units from Multiunit, Extracellular recordings.** JAGMEET S. KANWAL, *University of Colorado School of Medicine.*

11:15 #13 **The Effect of Amiloride on Single Taste Neurons In Rat Nucleus Tractus Solitarius.** BARBARA K. GIZA, THOMAS R. SCOTT, ROBERT F. ANTONUCCI AND KATHERINE T. SPENCE, *University of Delaware.*

CENTRAL PATHWAYS: FRONTAL CORTEX

Chairperson: Joseph L. Price
Washington University School of Medicine

11:30 #14 **Olfactory Input to the Orbital Cortex in the Monkey, *Macaca fascicularis.*** J.L. PRICE, S.T. CARMICHAEL AND M.C. CLUGNET, *Washington University School of Medicine.*

11:45 #15 **Effect of Amygdala and Orbitofrontal Cortex Lesions on Taste Preferences in the Primate.** LESLIE L. BAYLIS, *U.C. Irvine,* DAVID GAFFAN, *Oxford University*

12:00 #16 **Taste-evoked Activity in the Insular-opercular Cortex of the Alert Cynomolgus Monkey.** THOMAS R. SCOTT, CARLOS R. PLATA-SALAMAN AND VIRGINIA L. SMITH, *University of Delaware.*

12:15 #17 **The Formation of Bimodal Taste and Visual or Taste and Olfactory Neurons in the Orbitofrontal Cortex of Primates.** EDMUND T. ROLLS, SIMON J. THORPE, ROGER MASON, EDWARD A. WAKEMAN AND TERESA L. WHITE, *University of Oxford.*

12:30 **EXECUTIVE COMMITTEE MEETING**
Stateroom

Thursday morning poster session (8:00-12:00)

Chairperson: Gary K. Beauchamp
Monell Chemical Senses Center

ANIMAL BEHAVIOR - FEEDING & TASTE AVERSION

P1 #18 **Behavioral Responses to Chemical Food Signals by a Salt Marsh Protozoan.** M. LEVANDOWSKY. *Pace University.*

P2 #19 **Comparative Plant Recognition Systems of Eastern North American Limenitis (Lepidoptera: *Nymphalidae*).** DAVID FLAIM. *University of Maryland.*

P3 #20 **Endocrine Control of Feeding Behavior in Sand Fiddler Crabs.** M. SEARS. *Duke University Marine Laboratory.*

P4 #21 **Chemo-orientation of the Lobster, *Homarus americanus,* to a Point Source in a Laboratory Flume.** NAT SCHOLZ, PAUL A. MOORE, LYNNE LACOMIS, AND JELLE ATEMA. *Boston University Marine Program.*

P5 #22 **High-Speed Electrochemical Recordings With Microvoltammetric Electrodes: A New Tool For High-Resolution Analysis of Aquatic Odor Signals.** GREG A. GERHARDT. *University of Colorado.*

P6 #23 **Taste-dependent Selection and Rejection by toads.** STEVEN T. KELLING, BRUCE P. HALPERN. *Cornell University.*

P7 #24 **Microstructure of Salt Intake During Successive Sodium Depletions.** S.P. FRANKMANN, C.J. O'CONNOR, G.P. SMITH. *NYU-Cornell Medical Center.* J.D. DAVIS. *University of Illinois, Chicago.*

P8 #25 **Changes in Blood Pressure and Urinary Electrolyte Levels With Dietary Obesity and Weight Cycling in Rats.** ROBERT J. CONTRERAS, SANDI KING, LAWRENCE RIVES, AMY WILLIAMS AND TIFFANY WATTLETON. *University of Alabama.*

P9 #26 **Preference for Fat-Rich Foods is Related to the Level of Fat in the Rearing Diet.** Z.S. WARWICK AND S.S. SCHIFFMAN. *Duke University.*

P10 #27 **The Role of Sucrose-sensitive Neurons in Ingestion of Sweet Stimuli by Hamsters.** BRADLEY G. REHNBERG, MARION E. FRANK & THOMAS P. HETTINGER. *University of Connecticut.*

P11 #28 **Independent Processing of Ingestive and Aversive Affective Taste Characteristics: A Detailed Analysis of Oral Motor and Somatic Taste Responses.** PAUL A.S. BRESLIN, ALAN C. SPECTOR, HARVEY J. GRILL. *University of Pennsylvania.*

P12 #29 **Ibotenic Acid Lesions of the Dorsomedial Hypothalamic Nuclei Induce Enhanced Taste Aversion Learning.** SHIGERU FURUTA AND DANIEL A. DEEMS. *University of Pennsylvania.*

GENETICS

P13 #30 **RNAs for Proline-Rich Proteins in von Ebner's Gland of Mice and Macaques and for Statherin and Histatins in von Ebner's Gland Containing Tissues of Macaques.** E.A. AZEN, L.M. SABATINI, G. HELLEKANT AND T.F. WARNER. *University of Wisconsin.*

P14 #31 **Mouse Taste Genes: Identification, Chromosomal Locations, and Phenotypic Domains.** DAVID B. HARDER. *Florida State University.*

P15 #32 **The Sucrose Octaacetate Taste Gene (Soa) is on Distal Mouse Chromosome 6 and is Closely Linked (or Identical) to Salivary Proline Rich Protein Genes (Prp).** G. WHITNEY, C.G. CAPELESS, K.S. GANNON, D.B. HARDER. *Florida State University.* E.A. AZEN. *University of Wisconsin.* W.G. BEAMER, B.A. TAYLOR. *The Jackson Laboratory.*

P16 #33 **The Sucrose Octaacetate Taste Gene (Soa) Influences Response to Some Other Bitter Tastants.** G. WHITNEY, J.C. MAGGIO, D.B. HARDER AND J.D. BOUGHTER, JR. *Florida State University.*

P17 #34 **Pattern Analysis of SOA Drinking for B6.SW-Soa^a, C57BL/6J and SWR/J Mice.** KIMBERLEY S. GANNON, JAMES C. SMITH AND GLAYDE WHITNEY. *Florida State University.*

P18 #35 **Amino Acid Preference/Aversion Among Inbred Mice: Multivariate Implications for Genetic Architecture of Taste.** C.G. CAPELESS, G. WHITNEY AND D.B. HARDER. *Florida State University.*

P19 #36 **Interspecific Differences in Bitter Taste Sensitivity Influence whether Mice Eat Monarch Butterflies.** JOHN I. GLENDINNING. *Florida State University.*

P20 #37 **MHC-Determined Odors are Present in Germ-Free Mice.** KUNIO YAMAZAKI, GARY K. BEAUCHAMP. *Monell Chemical Senses Center.* LEWIS THOMAS. *Cornell University Medical College.* JUDITH BARD AND EDWARD A. BOYSE. *University of Arizona.*

P21 #38 **Genetic Control Over Salt Preference in Inbred Strains of Mice.** GARY K. BEAUCHAMP. *Monell Chemical Senses Center.*

OLFACTORY RECEPTOR CELL AND PERIPHERAL NERVE FUNCTION

P22 #39 **Acute Olfactory Sensitivity and Specificity of Mature Male Goldfish to Water-borne Androgenic Steroids: A Class of Inhibitory Pheromones?** PETER W. SORENSEN. *University of Minnesota.* NORMAN E. STACEY. *University of Alberta.* TOSHIAKI J. HARA. *Freshwater Institute.*

P23 #40 **Efflux and Uptake of Amino Acids by the Olfactory Organ of the Spiny Lobster: Effects on the Background Concentrations of Chemoexcitants in the Receptor Environment.** H.G. TRAPIDO-ROSENTHAL, R.A. GLEESON AND W.E.S. CARR. *University of Florida.*

P24 #41 **Leakage and Reuptake of Intracellular Amino Acids: Implications for Olfactory Cell Sensitivity.** R.A. GLEESON, H.G. TRAPIDO-ROSENTHAL AND W.E.S. CARR. *University of Florida.*

P25 #42 **Response Reliability of Chemoreceptor Cells: of Backgrounds and Mixtures.** JENNIFER CASTERLINE, CARL MERRILL, RAINER VOIGT AND JELLE ATEMA. *Boston University Marine Program.*

P26 #43 **Boundary Layers and Microscale Fluid Dynamics around Chemosensory Appendages.** PAUL A. MOORE AND JELLE ATEMA. *Boston University Marine Program.*

P27 #44 **Effects of Stimulus and Background Concentration on Cumulative Adaptation in Chemoreceptor Cells.** RAINER VOIGT AND JELLE ATEMA. *Boston University Marine Program.*

P28 #45 **Spectral Tuning of Lobster Olfactory Cells and their Response to Defined Mixtures and Natural Food Extracts.** ANNA WEINSTEIN, RAINER VOIGT AND JELLE ATEMA. *Boston University Marine Program.*

P29 #46 **Olfactory Receptors in Arctic Char (*Salvelinus alpinus*) with High Sensitivity and Specificity for Prostaglandin f_2a.** TORARINN SVEINSSON AND TOSHIAKI J. HARA. *University of Manitoba and Freshwater Institute.*

Thursday afternoon symposium

INDIVIDUAL DIFFERENCES: WHAT DO THEY MEAN IN THE CHEMICAL SENSES AND HOW SHOULD THEY BE TREATED?

Chairperson: Joseph G. Brand
Monell Chemical Senses Center

4:00 **Introduction.** Joseph G. Brand. *Monell Chemical Senses Center.*

Thursday evening slide session

OLFACTORY RECEPTOR PROCESSES

Chairperson: Vincent Dionne
University of California, San Diego

7:00 #48 **Olfactory Receptor Neurons from Developing Male Manduca Sexta Antennae Respond to Species-specific Sex Pheromone in Vitro.** M. STENGL, J.G. HILDEBRAND, *University of Arizona,* F. ZUFALL, H. HATT, *Technical University of Munich.*

7:15 #49 **Odor-activated K+ Conductance Inhibits Lobster Olfactory Receptor Cells.** W.C. MICHEL AND B.W. ACHE, *Whitney Lab and Depts. of Zoology and Neuroscience, University of Florida.*

7:30 #50 **Excitatory and Inhibitory Responses Induced by Amino Acids in Isolated Mudpuppy Olfactory Receptor Neurons.** VINCENT E. DIONNE, *University of California, San Diego.*

7:45 #51 **The Role of Cyclic AMP as a Second Messenger in Vertebrate Olfactory Transduction.** STUART FIRESTEIN AND GORDON M. SHEPHERD, *Yale University Medical School.*

8:00 #52 **Purification and Characterization of Odorant Binding Proteins from Nasal Mucosa of Pig and Rabbit.** P. PELOSI AND M. DAL MONTE, *Istituto di Industrie Agrarie, University of Pisa.*

8:15 #53 **Whole Cell Patch Recordings Show Frog and Salamander Olfactory Receptor Neurons are Different.** RAYMUND PUN AND ROBERT C. GESTELAND, *University of Cincinnati.*

8:30 #54 **Mixture Interactions towards Binary Odorant Mixtures in Spiny Lobster: Electrophysiological Assay using Single Antennular Olfactory Receptor Cells.** CHARLES D. DERBY, MARIE-NADIA GIRARDOT AND PETER C. DANIEL, *Georgia State University.*

Thursday evening slide session

PHYSICAL AND ANATOMICAL FACTORS AFFECTING OLFACTORY FUNCTION

Chairperson: Maxwell M. Mozell
SUNY Health Science Center, Syracuse

9:00 #55 **The Spatial Distribution of Olfactory Receptor Currents.** GRAEME LOWE AND GEOFFREY H. GOLD, *Monell Chemical Senses Center.*

9:15 #56 **Temporal Characteristics in Mucosal Inherent Activity Patterns: Evidence from Voltage-Sensitive Dyes.** P.F. KENT, M.M. MOZELL AND S.J. MURPHY, *Clinical Olfactory Research Center, SUNY Health Science Center.*

9:30 #57 **Different Odorants Give Different Flow Rate Effects on The Magnitude of The Olfactory Response.** M. M. MOZELL, P.F. KENT AND S.J. MURPHY, *Clinical Olfactory Research Center, SUNY Health Science Center.*

9:45 #58 **Olfactory Cavities of Rodents: Novel Problems Arising from Unique Features.** ESSIE MEISAMI, *University of Illinois.*

Thursday evening poster session (7:00-11:00)

Chairperson: William S. Cain
John B. Pierce Foundation and Yale University

PSYCHOPHYSICS : CLINICAL ISSUES AND BASIC SCIENCE

P1 #59 **Taste Loss Due to Herpes Zoster Oticus: An Update after 19 months.** CARL PFAFFMANN. *Rockefeller University.* LINDA M. BARTOSHUK. *Yale University.*

P2 #60 **Olfactory Responses to Enantiomers.** B.J. COWART. *Monell Chemical Senses Center.*

P3 #61 **Qualitative and Quantitative Responses of Osmic and Anosmic Subjects to Threshold Concentrations of Various Odors.** DAVID A. STEVENS. *Clark University.* ROBERT J. O'CONNELL. *Worcester Foundation for Experimental Biology*

P4 #62 **Clinical Diagnosis and Treatment of Olfactory Dysfunction: Sensorineural vs. Conductive Disorders.** PETER G. HEYWOOD, ROBERT J. DELORENZO, WILLIAM W. CAMPBELL, ARISTIDES SISMANIS, AND RICHARD M. COSTANZO. *Medical College of Virginia.*

P5 #63 **Bilateral Olfactory Dysfunction in Early Stage Medicated and Unmedicated Parkinson's Disease Patients.** CHERYL A. PFEIFFER AND RICHARD L. DOTY. *University of Pennsylvania.* MATTHEW B. STERN, STEVE M. GOLLOMP AND HOWARD I. HURTIG. *Graduate Hospital, Philadelphia.*

P6 #64 **Human Olfactory Biopsy: Comparison of Light and Electron Microscopic Observations from Autopsy Patients.** SEOG I. PAIK, MICHAEL N. LEHMAN, DAVID V. SMITH AND ALLEN M. SEIDEN. *University of Cincinnati.*

P7 #65 **Olfactory Threshold and Otolaryngologic Examination in Alzheimer's Disease.** JEFFREY I. FELDMAN, CLAIRE MURPHY, T.M. DAVIDSON, G. GALINDA AND A.A. JALOWAYSKI. *UCSD Medical Center and San Diego State University.*

P8 #66 **Olfaction in Alzheimer's Disease.** SAMUEL JINICH, ROBBIE RHODES AND CLAIRE MURPHY. *UCSD and San Diego State University.*

P9 #67 **Missing Ingredients I: Aging and the Discrimination of an Aromatic Flavor.** JOSEPH C. STEVENS, WILLIAM S. CAIN AND FELICITA REID. *John B. Pierce Foundation Laboratory.*

P10 #68 **Missing Ingredients II: Aging and the Discrimination of the Taste of Sodium Chloride.** AMY M. RUTHRUFF, JOSEPH C. STEVENS, WILLIAM S. CAIN AND ANNICK DEMARQUE. *John B. Pierce Foundation Laboratory.*

P11 #69 **Nutritional Assessment of Elderly Persons Eating Flavor Enhanced Foods.** S.S. SCHIFFMAN, A.E. FREY AND Z.S. WARWICK. *Duke University.*

P12 #70 **Adult-like Hedonic Responses to Odors in 9-month-old Infants.** HILARY J. SCHMIDT. *Monell Chemical Senses Center.*

P13 #71 **Pica, Chemosensation and Iron Deficiency: A Pilot Study.** WAYNE L. KLEIN AND THOMAS B. FAST. *University of Florida.*

P14 #72 **Cephalic Phase Insulin Release in Humans.** KAREN TEFF AND RICK MATTES. *Monell Chemical Senses Center.* KARL ENGELMAN. *University of Pennsylvania.*

P15 #73 **Sweet Taste and Energy Intake in Humans.** RICHARD MATTES. *Monell Chemical Senses Center.*

P16 #74 **Individual Differences in Perceptions of Selected Gustatory Stimuli and Their Relationships with Food Acceptance.** DEIDRE M. BLANK, RICHARD D. MATTES AND DAVID J. MELA. *Monell Chemical Senses Center.*

P17 #75 **Tracking Foodstuff Location Within the Mouth in Real Time.** W.E. LEE III AND M.A. CAMPS. *University of South Florida.*

P18 #76 **Quantum Chemical Study of Sweet and Anti-Sweet Principles: Molecular Similarities and Chemo-Receptive Activity.** DENNIS GERSON AND RICHARD SEFECKA. *IBM Corporation.*

P19 #77 **An Experimental and Computational Study of the Relationship Between the Volumes and Properties of Sweet Molecules.** IVAN BARTOLO, MICHAEL G.B. DREW AND GORDON G. BIRCH. *University of Reading.*

P20 #78 **Solute-Water Interactions as Studied by Nuclear Magnetic Resonance Spectrometry: A Contribution to Taste Investigations.** JOHN M. GRIGOR AND GORDON G. BIRCH, *University of Reading.*

P21 #79 **Open Label Trial of Phosphatidylcholine for Olfactory and Gustatory Problems.** ALAN R. HIRSCH. *Smell & Taste Treatment and Research Foundation, Chicago.*

P22 #80 **Electrophysiological Indicators of Laterality in the Human Olfactory System.** JAMES D. PRAH. *U.S. Environmental Protection Agency.*

P23 #81 **Chemosensory Evoked Potentials in Patients with Olfactory Disturbances.** T.H. HUMMEL, H. PIETSCH, T.H. MOKRUSCH AND G. KOBAL. *University of Erlangen-Nurnberg.*

P24 #82 **First Recordings of the Cognitive Component P300 Using Olfactory Stimuli.** G. KOBAL AND M. DURAND-LAGARDE. *University of Erlangen-Nurnberg.*

P25 #83 **Odor and Cognitive Modulation of the Contingent Negative Variation.** TYLER S. LORIG AND MELISSA ROBERTS. *Washington & Lee University.*

P26 #84 **Human Infant Olfactory Processing - the Brain Electrical Activity Mapping (BEAM) Technique.** MARTIN KENDAL-REED AND STEVE VAN TOLLER. *University of Warwick.*

NIH REPRESENTATIVES

P27 **Funding Opportunities at the NIDR.** PATRICIA BRYANT, *NIH.*

P28 **Funding Opportunities at the NIH.** JACK PEARL, *NIH*

7:30 CONTINENTAL BREAKFAST
Prefunction Area

Friday morning slide session

HUMAN PSYCHOPHYSICS: TRIGEMINAL FUNCTION

Joseph C. Stevens
John B. Pierce Foundation Laboratory

8:00 #85 **Thresholds for Odor and Pungency.** J. ENRIQUE COMETTO-MUNIZ AND WILLIAM S. CAIN, *John B. Pierce Foundation Laboratory and Yale University.*

8:15 #86 **Cross-Sensitization and Desensitization Between Capsaicin and Piperine: Evidence of Partial Independence of Sensory Mechanisms.** BARRY G. GREEN, *Monell Chemical Senses Center.*

8:30 #87 **Oral Capsaicin Desensitization and its Effects on Taste.** TRACY KARRER. *Yale University.* LINDA BARTOSHUK. *Yale School of Medicine.*

8:45 #88 **The Effects of Ethanol and pH on Sourness, Bitterness and Astringency Intensity and Temporal Perception.** U. FISCHER AND A.C. NOBLE, *University of California, Davis.*

9:00 #89 **Qualitative and Quantitative Perceptual Attributes of Astringent Substances.** HARRY T. LAWLESS, CHRISTOPHER B. LEE AND RICHARD A. TUCCIARONE, *Cornell University.*

Friday morning slide session

Chairperson: Inglis J. Miller, Jr.
Bowman Gray School of Medicine

TASTE: STRUCTURAL FEATURES

9:15 #90 **Taste Bud Quantification in Human Vallate and Foliate Papillae.** INGLIS MILLER, JR., RUOYU XIAO AND ROBIN KRIMM, *Bowman Gray School of Medicine, Wake Forest University.*

9:30 #91 **Immuno-Electron Microscopy of Glutamate-Containing Nerve Fibers in the Taste Bud of Mudpuppy (*Necturus maculosus*).** KUO-SHYAN LU AND STEPHEN D. ROPER, *Colorado State University, and the Rocky Mountain Taste and Smell Center.*

9:45 #92 **Pre- and Postnatal Development of Fungiform Papillae and Their Innervation in Hamster.** MARK C. WHITEHEAD AND DIANE L. KACHELE. *Ohio State University.*

10:00 #93 **Posterior Diencephalic Connections of the Gustatory System in the Catfish.** C.F. LAMB AND J. CAPRIO, *Louisiana State University.*

10:15 REFRESHMENT BREAK

OLFACTORY EPITHELIUM

10:45 #94 **Differences in Distribution of Sialated Glycoconjugates in Secretory Cells of the Salamander Olfactory Mucosa.** JAMES D. FOSTER, MARILYN L. GETCHELL AND THOMAS V. GETCHELL, *University of Kentucky College of Medicine.*

11:00 #95 **Pokeweed Agglutinin Labels a Subpopulation of Olfactory Receptor Neurons in Rainbow Trout.** DAVID R. RIDDLE AND BRUCE OAKLEY, *University of Michigan.*

11:15 #96 **Transmembrane Currents in Frog Olfactory Cilia.** STEVEN J. KLEENE AND ROBERT C. GESTELAND, *University of Cincinnati.*

11:30 #97 **Patch Recording Implications for Olfactory Transduction.** ROBERT C. GESTELAND, STEVEN J. KLEENE AND RAYMUND PUN, *University of Cincinnati.*

12:00 *ACHEMS BUSINESS MEETING*

Friday morning poster session (8:00-12:00)

Chairperson: James C. Smith
Florida State University

HUMAN CHEMOSENSORY PSYCHOPHYSICS

P1 #98 **An Investigation of Taste-Smell Interactions Across Four Tastants and Six Odorants.** G. SHAFFER AND R.A. FRANK. *University of Cincinnati.*

P2 #99 **The Enchancement of Sweetness by Strawberry Odor is Instruction-dependent.** ROBERT A. FRANK, NANCY WESSEL AND GREGORY SHAFFER. *University of Cincinnati.*

P3 #100 **The Effect of Different Color Intensities on Color-Induced Odor Enhancement.** LORI A. WHITTEN AND DEBRA A. ZELLNER. *Shippensburg University.*

P4 #101 **Influence of Acid, Salt, and Fat on the Perception of Saltiness, Sourness, and Selected Texture Parameters of a Cheese Analog.** C.R. STAMPANONI, R.M. PANGBORN AND A.C. NOBLE. *University of California, Davis.*

P5 #102 **Making the Taste of Salt More Detectable in Forced Choice Procedures: Implications for Sensory Difference Tests.** MICHAEL O'MAHONY. *University of California, Davis.*

P6 #103 **Flavour Enchancing Properties of Talin.** A.F. BINGHAM and G.G. BIRCH. *Reading University.*

P7 #104 **The Effect of Caffeine, Ethanol, and Sucrose on Temporal Perception of Menthol.** J.M. OPET, R.M. PANGBORN, A.C. NOBLE. *University of California, Davis.*
T.A. PERFETTI. *R.J. Reynolds.*

P8 #105 **Molecular Mixture Models.** DANIEL M. ENNIS, *Philip Morris Research Center.*

P9 #106 **The Effect of Ambient Odor on Creativity.** SUSAN C. KNASKO. *Monell Chemical Senses Center.*

P10 #107 **Dose-Related Effects of Cigarette Smoking on Olfactory Function.** RICHARD E. FRYE, RICHARD L. DOTY AND BRIAN S. SCHWARTZ. *University of Pennsylvania.*

P11 #108 **Analysis of Trial Sequence Position and Diluent Type on the Single Staircase Odor Detection Threshold Value for Phenyl Ethyl Alcohol.** JOHN D. PIERCE, JR., UDAYAN AGRAWAL AND RICHARD L. DOTY. *University of Pennsylvania.*

P12 #109 **The Relationship Between Nasal Anatomy and Uninasal Human Olfaction.** DAVID HORNUNG. *SUNY Health Science Center.*

ANIMAL PSYCHOPHYSICS

P13 #110 **The Insect Behavioral Response to Sex Pheromone Is Inflected near Threshold: Evidence of Feature Detection?** R.W. MANKIN. *U.S.D.A.*

P14 #111 **Peptide and Amino Acid Mimics of Crab Pumping Pheromones.** DAN RITTSCHOF, RICHARD B. FORWARD, JR., CARRIE U. BUSWELL AND D. MATT WACHOWIAK. *Duke University.*

P15 #112 **Effect of Stimulus Intensity on Discrimination of Odorant Mixture Quality by Spiny Lobsters in an Associative Learning Paradigm.** J.B. FINE-LEVY AND C.D. DERBY. *Georgia State University.*

P16 #113 **The Effect of Capsaicin Treatment on Tiger Salamander Responses to Chemical Irritation.** C.C. KEELEY AND W.L. SILVER. *Wake Forest University.*

P17 #114 **Effects of Deoxycorticosterone Acetate (DOCA) on Salt and Water Intake and Metabolism in Rats.** R.A. BERNARD AND K.J. MOONEY. *Michigan State University.*

P18 #115 **A Computerized Method for the Determination of Odor Detection Thresholds in Mice.** CHRISTOPHER M. PALATUCCI AND ROBERT J. O'CONNELL. *Worcester Foundation for Experimental Biology.*

P19 #116 **A Detailed Comparison of Sucrose and Saccharin Drinking by the Laboratory Rat.** JAMES C. SMITH. *Florida State University.*

P20 #117 **A Moment-by-moment Comparison of Intake of Five Bitter Compounds by Sprague-Dawley Rats.** JOHN I. GLENDINNING AND JAMES C. SMITH. *Florida State University.*

P21 #118 **Conditioned Suppression as a Psychophysical Method for Taste Threshold Determination.** A. KURT THAW AND JAMES C. SMITH. *Florida State University.*

P22 #119 **Influence of the D-1 Dopamine Receptor Agonist SKF 38393 on the Odor Detection Performance of Male and Female Rats.** CHENG LI, CHERYL A. PFEIFFER, JUDITH M. RISSER, AND RICHARD L. DOTY. *University of Pennsylvania.*

P23 #120 **Concanavalin A Selectively Inhibits Odor Detection in the Rat.** R. APFELBACH AND A. NAGORNY-DEBUS. *University of Tubingen.* W.F. ASSELBERGS AND E.H. POLAK. *University of Warwick.*

ANIMAL BEHAVIOR

P24 #121 **Domestic Pig: Possible Model for Study of Specific Anosmia to Androstenone.** KATHLEEN M. DORRIES, ELIZABETH ADKINS-REGAN, BRUCE P. HALPERN. *Cornell University.*

P25 #122 **Micro-anatomy of the Trunk Tip of *Elephas maximus*.** L. E. L. RASMUSSEN *Oregon Graduate Institute* AND BRYCE L. MUNGER. *Pennsylvania State University*

P25 #123 **Chemical Profiles of Temporal Gland Secretions from Captive Asian Bull Elephants During Musth and from African Bull Elephants, Living in Wild but Crowded Conditions.** L.E.L. RASMUSSEN. *Oregon Graduate Institute.* D.L. HESS. *Oregon Regional Primate Center.* A. HALL-MARTIN. *Inland Parks, S. Africa.*

P27 #124 **Molt Control in Sexually Mature Female Lobsters.** DIANE F. COWAN. *Boston University.*

12:00 ***ACHEMS BUSINESS MEETING***

4:00 ***WORKSHOP ON COMPUTATIONAL MODELING OF CHEMO-RECEPTION AGENTS***

Workshop Chairpersons: Dennis Gerson and Richard Sefecka, IBM Corporation

5:30 ***DINNER FOR INDUSTRY***
Florida Room
Carol Christensen, Hostess
The Pillsbury Company

Friday evening slide sessions

6:30 ***EVOLUTION OF RECEPTOR CELLS,*** YAKOV A. VINNIKOV, *Sechenov Institute of the USSR Academy of Sciences, Leningrad*

CALCIUM ION ACTIVITY IN CHEMOSENSORY TRANSDUCTION

Symposium Chairperson: Joseph G. Brand
Monell Chemical Senses Center

7:15 **Inositol Polyphosphates and Calcium Signalling.** JAMES PUTNEY, *NIEHS, Research Triangle Park.*

7:45 #125 **Characterization of a *Paramecium* Ca^{2+}-ATPase: Putative Transduction Component.** V.M. WRIGHT AND J. VAN HOUTEN, *University of Vermont.*

8:00 #126 **Distribution of Ca^2 –ATPase Activity in the Olfactory Rosette of Atlantic Salmon: Comparison with NA, K^1–ATPase and Alanine Receptors.** Y.H. LO, T.M. BRADLEY AND D.E. RHOADS, *University of Rhode Island.*

8:15 #127 **Activation of Olfactory Adenylate Cyclase by Calcium via Calmodulin.** ROBERT R.H. ANHOLT, ANN M. RIVERS, *Duke University Medical Center.*

8:30 #128 **Inositol-1,4,5-trisphos- phate (IP_3): An Alternate Second Messenger For Olfactory Transduction?** JOHN H. TEETER, TAUFIQUL HUQUE AND DIEGO RESTREPO, *Monell Chemical Senses Center.*

ANIMAL BEHAVIOR/CHEMICAL ECOLOGY

Chairperson: Charles J. Wysocki
Monell Chemical Senses Center

9:00 #129 **Structural Features of Ventral Chemosensory Organs in Scorpions and Solpugids Suggest Common Evolutionary Origin.** PHILIP H. BROWNELL, *Oregon State University.*

9:15 #130 **Bilateral Chorda Tympani Transection Causes Severe Impairments in the Rat's Ability to Discriminate NaCl from KCI.** ALAN C. SPECTOR, DAVID DE LANGE, TAKESHI KASAGI, CHRISTINE A. KORNET AND HARVEY J. GRILL, *University of Pennsylvania.*

9:30 #131 **Removal of the Vomeronasal Organ Inhibits Reproductive Physiology and Behavior in Female Prairie Voles.** JOHN J. LEPRI, *Department of Biology, University of North Carolina,* CHARLES J. WYSOCKI, LINDA M. WYSOCKI, *Monell Chemical Senses Center,* MAGORZATA KRUCZEK, *Jagellonian University, Krakow, Poland and Monell Chemical Senses Center.*

9:45 #132 **Contribution of Acidic Compounds to Gender Specific Scent Images in the Tamarin, *Saguinus fuscicollis*.** A.M. BELCHER, G. EPPLE AND AMOS B. SMITH, III, *Monell Chemical Senses Center and University of Pennsylvania.*

Friday evening poster session (7:00-11:00)

Chairperson: Michael Leon
University of California, Irvine

DEVELOPMENT AND PLASTICITY OF CENTRAL PATHWAYS: OLFACTION AND TASTE

P1 #133 **Rat Olfactory Bulb has High Levels of Glycogen as Measured by *In Situ* Freezing.** ROBERT COOPERSMITH, SUZANNE M. COOPER AND MICHAEL LEON. *University of California, Irvine.*

P2 #134 **Evidence of Functional Topography Following Complete and Partial Bulbectomy.** KATHLEEN M. GUTHRIE, J.M. HOLMES AND M. LEON. *University of California, Irvine.*

P3 #135 **Neurobehavioral Correlates of Olfactory Preference and Aversive Associative Conditioning in Infant Rats.** REGINA M. SULLIVAN AND DONALD A. WILSON. *University of Oklahoma.*

P4 #136 **Time Course of Olfactory Deprivation-induced Changes in Olfactory Bulb Function.** DONALD A. WILSON. *University of Oklahoma.*

P5 #137 **Can Rats Smell If They Have One Olfactory Bulb Removed and the Contralateral Naris Closed?** NANCY L. HUNT, ALEJANDRA J. PAZOS AND BURTON M. SLOTNICK. *The American University.*

P6 #138 **Quantification of the Effects of Unilateral Naris Closure on the Olfactory Bulb of Adult Mice.** JEFFREY R. HENEGAR AND JOEL A. MARUNIAK. *University of Missouri-Columbia.*

P7 #139 **Deafferented Main Olfactory Bulb Glomeruli Have Elevated Levels of Glial Fibrillary Acidic Protein.** MICHAEL POSTON, MOLLY BAILEY, RICHARD AKESON AND MICHAEL SHIPLEY. *University of Cincinnati.*

P8 #140 **Transplant of Fetal Brain Tissue into the Olfactory Bulb of Adult Rats.** JOHN H. MCLEAN AND QUOC TRAN. *Memorial University of Newfoundland.*

P9 #141 **Anatomical Evidence For Alterations in Receptive Fields of Rostral NST Neurons During Normal Postnatal Development.** PHILLIP S. LASITER. *Florida Atlantic University.*

P10 #142 **Pre- and Postnatal Development of the Rostral Nucleus Tractus Solitarius (NTS) and Geniculate Afference in Hamster.** DIANE L. KACHELE, MARK C. WHITEHEAD. *Ohio State U.* PHILLIP S. LASITER. *Flordia Atlantic University.*

P11 #143 **Restriction of Dietary Sodium During Early Development Alters the Salt Responses of NST Taste Neurons: Reduced Responses in "Deprived" Rats, Hyper-responsivity in "Recovered" Rats.** MARK B. VOGT AND DAVID L. HILL. *University of Virginia.*

P12 #144 **Restriction of Dietary Sodium During Early Development Alters the Central Anatomical Organization of the NTS.** CAMILLE T. KING AND DAVID L. HILL. *University of Virginia.*

P13 #145 **Neuronal Geometry during Development of a Functionally Defined Region of the Nucleus of the Solitary Tract.** CHARLOTTE M. MISTRETTA, MARY WOMBLE AND SUAT GURKAN. *University of Michigan.*

OLFACTORY RECEPTOR CELL AND PERIPHERAL NERVE FUNCTION

P14 #146 **Electrophysiological Studies of the Pectinal Chemosensory System of the Scorpion.** D.D. GAFFIN AND P.H. BROWNELL. *Oregon State U.*

P15 #147 **Uptake of Immunoglobulins by Olfactory Receptor Neurons.** THOMAS A. BAKER AND JOEL MARUNIAK. *University of Missouri.*

P16 #148 **Trace Metal Content of Olfactory Bulbs in Alzheimer's and Parkinson's Disease.** J. EVANS, L. HASTINGS, L. OLSON AND B. SHEPPARD. *University of Cincinnati.*

P17 #149 **Effects of Unilateral Naris Closure on the Rate of Neurogenesis in the Olfactory Epithelium of Adult Mice.** FRANK COROTTO AND JOEL MARUNIAK. *University of Missouri.*

P18 #150 **Complete Dependence of Maturation of Olfactory Receptor Neurons in the Postsuckling Rats on Thyroid Hormones.** MARK PATER-NOSTRO AND ESSIE MEISAMI. *University of Illinois.*

P19 #151 **Development of the Olfactory Epithelium: A Combined Histochemical and 2-Deoxyglucose Study in the Mouse.** DAVID S. REASNER AND ROBERT J. O'CONNELL. *Worcester Foundation for Experimental Biology.*

P20 #152 **Regional Odor Stimulation of Glandular Activity in the Olfactory Epithelium.** G.A. BELL. *CSIRO,* S.E. DYSON. *University of Western Australia.*

P21 #153 **Expression of Carbohydrate Antigens on Rat Olfactory Neurons.** G.A. SCHWARTING, M. YAMAMOTO, J.E. CRANDALL. *E.K. Shriver Center.*

P22 #154 **Human Odor Intensity Perception: Correlation with Frog Epithelial Adenylate Cyclase Activity and Transepithelial Voltage Response.** DEBORAH S. KREISS, RICHARD L. DOTY, RICHARD E. FRYE. *University of Pennsylvania.*

P23 #155 **Pertussis Toxin Substrates and G-protein-like Immunoreactivity in the Olfactory Organ and CNS of the Spiny Lobster.** TIMOTHY S. MCCLINTOCK. *Yale University.* SAMUEL C. EDWARDS. *University of South Florida.* BARRY W. ACHE. *The Whitney Laboratory.*

P24 #156 **Specificity of Olfactory Receptor Neurons For Pheromones and Host Odors In the Boll Weevil, *Anthonomus grandis Boh. (Coleoptera: Curculionidea).*** JOSEPH C. DICKINS, *USDA, ARS, MIississippi State.*

P25 #157 **Initial Characterization of Inositol-1,4,5-trisphosphate Binding to Isolated Olfactory Cilia.** D. LYNN KALINOSKI, ARDITHANNE G. BOYLE, SCOTT ALDINGER AND DIEGO RESTREPO, *Monell Chemical Senses Center.*

P26 **Techniques Corner**

Saturday, April 21

7:30 CONTINENTAL BREAKFAST

Saturday morning slide session

Chairperson: John Kauer
New England Medical Center

OLFACTORY DEVELOPMENT

8:00 #158 **Development of the Olfactory Epithelium in Normal and Hypothroid Xenopus Larvae.** GAIL D. BURD AND LAURIE THOMAS, *University of Arizona.*

8:15 #159 **Development of Calcitonin Gene-Related Peptide in the Mouse Olfactory System.** HARRIET BAKER, *Cornell University Medical College.*

8:30 #160 **Olfactory Neurogenesis: Genetic or Environmental Controls?** ALBERT I. FARBMAN AND VIRGINIA M. McCARR, *Northwestern University.*

8:45 #161 **Incorporation of ^{3}H-thymidine in the Embryonic Vomeronasal and Olfactory Epithelia of Garter Snakes.** DAVID HOLTZMAN AND MIMI HALPERN, *State University of New York.*

9:00 #162 **Neonatal Learning Increases a Focal Olfactory Bulb Neuronal Population.** CYNTHIA C. WOO AND MICHAEL LEON, *University of California, Irvine.*

Saturday morning oral presentation

9:15 ***UPDATE FROM THE NIH***
James Snow, *NIH*
Patricia Bryant, *NIH*
Jack Pearl, *NIH*

9:45 REFRESHMENT BREAK

Saturday morning symposium

ADVANCES IN DIAGNOSIS AND TREATMENT OF TASTE AND SMELL DISORDERS

Chairperson: Claire Murphy
San Diego State University and UCSD Medical Center

10:00 Robert I. Henkin, *Georgetown University*

10:15 Terence M. Davidson, *Nasal Dysfunction Clinic, UCSD Medical Center*

10:30 April E. Scott, *Connecticut Chemosensory Clinical Research Center*

10:45 Richard Doty, *University of Pennsylvania Taste and Smell Center*

11:00 Beverly Cowart, *Monell Chemosensory Clinical Research Center*

11:15 Allen Seiden, *University of Cincinnati College of Medicine*

11:30 Donald Leopold, *Clinical Olfactory Research Center, SUNY Health Science Center*

11:45 Bruce Jafek, *Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center*

12:00 William S. Cain, Discussant, *Pierce Foundation, Yale University and Connecticut Chemosensory Clinical Research Center*

12:30 **CLINICAL LUNCHEON MEETING**
Florida Room
William S. Cain, Host, *Pierce Foundation, Yale University and Connecticut Chemosensory Clinical Research Center*

1:30 **Case Presentations**

2:00 **Differences Between Single Center and Multi-Center Studies.** #163 Mary Folkes, *NIH*

2:15 **A Multi-center Clinical Trial.** Jack Pearl, *NIH*

2:25 **Discussion of Clinical Issues and Multi-center Clinical Trial.** Donald Leopold, Moderator, *Clinical Olfactory Research Center, SUNY*

Saturday morning poster session (8:00-12:00)

TASTE: PERIPHERAL AND CENTRAL PATHWAYS

P1 Techniques Corner

P2 #164 **Functional Recovery of Sodium Responses in Sodium Deprived Rats: Induction by Anesthetics.** ROBERT E. STEWART AND DAVID L. HILL. *University of Virginia.*

P3 #165 **Sensory Coding of Deterrent Phytochemicals by Gustatory Organs of the Tobacco Hornworm.** FRANK HANSON AND STEPHEN PETERSON. *University of Maryland Baltimore County.*

P4 #166 **Bilateral Lesions of the Chorda Tympani or Glossopharyngeal Nerve Do Not Alter NaCl Preferences in the WKY and SHR.** BRADLEY K. FORMAKER AND DAVID L. HILL. *University of Virginia.*

P5 #167 **Quantitative Development of Taste Buds in the Human Fetus.** RUOYU XIAO AND INGLIS MILLER, JR. *Wake Forest University.*

P6 #168 **Distribution of Substance P-Immunoreactive Nerve Terminals in Gustatory Regions of the Hamster Solitary Nucleus.** HEATHER J. DUNCAN, SHERYL K. BRINING AND DAVID V. SMITH. *University of Cincinnati.*

P7 #169 **An Examination of the Projection from the Gustatory Cortex to the NTS in the Hamster.** J.A. LONDON, C.B. HALSELL, M.B. BARRY, T.S. DONTA. *University of Connecticut.*

P8 #170 **Specificity of Visceral and Pharyngeal Taste Reflex Systems in the Goldfish, *Carassius auratus*.** L.E. GOEHLER AND T.E. FINGER. *University of Colorado.*

P9 #171 **In Vitro Electrophysiology from a Primary Gustatory Nucleus; The Vagal Lobe of Goldfish.** T.E. FINGER AND T.V. DUNWIDDIE. *University of Colorado.*

P10 #172 **Behavioral Effects of Descending Input from the Gustatory Neocortex to the Parabrachial Pons in the Rat.** S. MONROE AND P.M. DI LORENZO. *SUNY at Binghamton.*

P11 #173 **Lesions of the Thalamic Gustatory Nucleus Produce Deficits in Taste Sensitivity and in Cue Salience.** H.K. RENTMEISTER, S. SHEELAR, K. MARTIN and B.M. SLOTNIK. *American University.*

P12 #174 **Intensity Coding in the Gustatory Cortex of the Alert Cynomolgus Monkey.** CARLOS R. PLATA-SALAMAN, VIRGINIA L. SMITH AND THOMAS R. SCOTT. *University of Delaware.*

P13 #175 **Quality Coding in the Gustatory Cortex of the Alert Cynomolgus Monkey.** VIRGINIA L. SMITH, THOMAS R. SCOTT AND CARLOS R. PLATA-SALAMAN. *University of Delaware.*

P14 #176 **Coding of Sweet Stimuli in the Gustatory Cortex of the Alert Cynomolgus Monkey.** THOMAS R. SCOTT, CARLOS R. PLATA-SALAMAN AND VIRGINIA L. SMITH. *University of Delaware.*

P15 #177 **Coding of Sodium and Lithium Salts in the Gustatory Cortex of the Alert Cynomolgus Monkey.** CARLOS R. PLATA-SALAMAN, VIRGINIA L. SMITH AND THOMAS R. SCOTT. *University of Delaware.*

P16 #178 **Coding of Acids in the Gustatory Cortex of the Alert Cynomolgus Monkey.** VIRGINIA L. SMITH, THOMAS R. SCOTT, AND CARLOS R. PLATA-SALAMAN. *University of Delaware.*

P17 #179 **Coding of Amino Acids in the Gustatory Cortex of the Alert Cynomolgus Monkey.** THOMAS R. SCOTT, VIRGINIA L. SMITH AND CARLOS R. PLATA-SALAMAN. *University of Delaware.*

P18 #180 **Coding of Taste Mixtures in the Gustatory Cortex of the Alert Cynomolgus Monkey.** CARLOS R. PLATA-SALAMAN, VIRGINIA L. SMITH AND THOMAS R. SCOTT. *University of Delaware.*

P19 #181 **Glucagon Administration Affects Taste Responsiveness in Rat Nucleus Tractus Solitarius.** BARBARA K. GIZA AND THOMAS R. SCOTT. *University of Delaware.* RHONDA O. DEEMS. *Sandoz Pharmacy.* DENNIS A. VANDERWEELE. *Occidental College.*

Saturday evening slide session

Chairperson: David V. Smith
University of Cincinnati

HUMAN OLFACTORY ANATOMY AND PHYSIOLOGY

7:00 #182 **Immunohistochemical Localization of Tyrosine Hydroxylase and Olfactory Marker Protein to the Glomerular Layer of the Human Olfactory Bulb.** CHARLES A. GREER, ROBIN L. SMITH AND DENNIS D. SPENCER, *Yale University School of Medicine,* HARRIET BAKER, *Cornell University Medical College.*

7:15 #183 **Staining For Olfactory Marker Protein in Human Olfactory Epithelium Obtained From In Vivo Biopsies And Cadaver Specimens.** E.W. JOHNSON, R.C. STRAHAN, P.M. ELLER, B.W. JAFEK AND D.T. MORAN, *Rocky Mountain Taste and Smell Center.*

7:30 #184 **Morphological Observations and Distribution of the Human Olfactory Neuroepithelium.** EDWARD E. MORRISON AND RICHARD M. COSTANZO, *Medical College of Virginia.*

7:45 #185 **Successful Treatment of Phantosmia with Preservation Of Olfaction: A Case Report.** D.A. LEOPOLD, S.L. YOUNGENTOB, J.E. SCHWOB, D.E. HORNUNG, M.M. MOZELL AND H.N. WRIGHT, *Clinical Olfactory Research Center, SUNY Health Sciences Center*

NASAL AIRFLOW

8:00 #186 **Rhinomanometric Evaluation of Patients with Anosmia.** ALFREDO A. JALOWAYSKI AND TERENCE M. DAVIDSON, *UCSD Medical Center,* CLAIRE MURPHY, *San Diego State University and UCSD Medical Center.*

8:15 #187 **Rhythmicity of Nasal Airflow in Children and Adolescents.** JULIE A. MENNELLA AND GARY K. BEAUCHAMP, *Monell Chemical Senses Center.*

8:30 #188 **Effects of Odorants on Respiratory Behavior and Nasal Patency.** DONALD W. WARREN, *University of North Carolina at Chapel Hill,* JAMES C. WALKER, *R.J. Reynolds Tobacco Co.*

CLINICAL ISSUES

Chairperson: April E. Scott
University of Connecticut Health Sciences Center

9:00 #189 **Chemosensory Function and Appetite in Liver Disease: An Evaluation of 111 Patients.** MARK I. FRIEDMAN, RHONDA O. DEEMS, LAWRENCE S. FRIEDMAN, SANTIAGO J. MUNOZ AND WILLIS C. MADDREY, *Monell Chemical Senses Center and Jefferson Medical College.*

9:15 #190 **Chemosensory Dysfunction, Burning Mouth Syndrome (BMS) and Sjogren's Syndrome (SS).** APRIL E. SCOTT AND LESLIE BOUVIER, *University of Connecticut.*

9:30 #191 **Taste Performance of Sjogren's Syndrome Patients.** J.M. WEIFFENBACH AND P.C. FOX, *NIH.*

9:45 #192 **Drug-related MPTP-Induced Parkinsonism: No Evidence of an Olfactory Deficit.** RICHARD L. DOTY, *Smell and Taste Center, University of Pennsylvania,* ANU SINGH, JAMES TETRUD AND J. WILLIAM LANGSTON, *California Parkinson's Foundation.*

10:00 #193 **Olfactory System Involvement in the Amyotrophic Lateral Sclerosis/Parkinsonism -Dementia Complex of Guam.** DANIEL PERL, *Mount Sinai Medical Center,* RICHARD L. DOTY AND JOHN D. PIERCE, JR., *University of Pennsylvania,* DANIEL LEVY, *Mount Sinai Medical Center,* JOHN C. STEELE AND KWANG MING CHEN, *Guam Memorial Hospital,* LEONARD T. KURLAND, *Department of Health Sciences Research, Mayo Clinic.*

Saturday evening poster session (7:00-11:00)

Chairperson: Barry W. Ache
University of Florida

TASTE RECEPTOR ANATOMY AND IMMUNOHISTO-CHEMISTRY

P1 #194 **Expression of Cell Surface Molecules in Rat Taste Cells Depends Upon Their Innervation.** DAVID V. SMITH, MICHAEL T. SHIPLEY. *University of Cincinnati.* RICHARD A. AKESON. *Cincinnati Children's Hospital.*

P2 #195 **Localization of Synaptophysin Immunoreactivity in Rat Lingual Tissue.** GINA M. NELSON AND THOMAS E. FINGER. *University of Colorado.*

P3 #196 **Keratin 19-like Immunoreactivity is Specific to Fusiform Cells of Taste Buds.** BRUCE OAKLEY, ANNE LAWTON, *University of Michigan*, YOSHIKI SHIBA, *Hiroshima University Dental School,* AND LIANNA WONG, *University of Michigan.*

P4 #197 **Transneuronal Labeling of Taste Receptor Cells by Carbocyanine Dye Applied to Peripheral Gustatory Nerves.** B. BOTTGER AND T.E. FINGER. *University of Colorado.*

P5 #198 **Elevated Calcium Dependent ATPase Activity of Plasma Membranes of Normal and Denervated Fungiform Taste Bud Cells.** M.A. BARRY, L.D. SAVOY. *University of Connecticut.*

P6 #199 **Quantitative Analysis of Mitoses Inside Taste Buds.** E.M. GRANGER AND L.M. BEIDLER. *Florida State University.*

P7 #200 **Observations of Taste Pore Degeneration in Living Rabbits.** ROBIN F. KRIMM AND INGLIS J. MILLER, JR. *Wake Forest University.*

P8 #201 **Ultrastructure of Rabbit Fungiform Taste Buds.** ANDREW J. BARBER, SUZANNE M. ROYER AND JOHN C. KINNAMON. *University of Colorado.*

P9 #202 **Ultrastructure of Rabbit Circumvallate Taste Buds.** JOHN C. GILL, SUZANNE M. ROYER AND JOHN C. KINNAMON. *University of Colorado.*

TASTE TRANSDUCTION

P10 #203 **Characteristics of the Amiloride-sensitive Na^+ Channel in Taste Cells: Results from Computer Simulation.** SHEELLA MIERSON. *Virginia Commonwealth University.*

P11 #204 **Protein Composition of the Von Ebner Gland Secretions.** JOHN L. BEIDLER. *Florida State University.*

P12 #205 **Evidence for $Ins(1,4,5)P^3$ as a Second Messenger in Rat Taste Receptor Cell Signal Transduction.** P.M. HWANG, A. VERMA, D.S. BREDT, C. ROSS AND S.H. SNYDER, *Johns Hopkins University School of Medicine.*

P13 #206 **Structure/Activity Studies of Alanine and Arginine Taste Receptors in Channel Catfish.** KATERINA LEFTHERIS, BRUCE P. BRYANT, JOSEPH G. BRAND. *Monell Chemical Senses Center.*

P14 #207 **Molecular Recognition: A Quantum Mechanical Study of Amiloride Analogs.** C.A. VENANZI, C. PLANT. *New Jersey Institute of Technology.* T.J. VENANZI. *College of New Rochelle.*

P15 #208 **Inhibition of Taste Responses to Na^+ Salts by Epithelial Na^+ Channel Blockers in Gerbil.** S.S. SCHIFFMAN, M.S. SUGGS, E.J. CRAGOE, JR. AND R.P. ERICKSON. *Duke University.*

P16 #209 **The Effect of Amiloride Analogs on Taste Responses in Gerbil.** S.S. SCHIFFMAN, A.E. FREY, M.S. SUGGS, E.J. CRAGOE, JR. AND R.P. ERICKSON. *Duke University.*

P17 #210 **L-Proline Activates Cation Channels Different from Those Activated by L-Arginine in Reconstituted Taste Epithelial Membranes from Channel Catfish.** TAKASHI KUMAZAWA, JOHN H. TEETER AND JOSEPH G. BRAND. *Monell Chemical Senses Center.*

P18 #211 **Two Types of Arginine-Best Taste Units in the Channel Catfish.** J. KOHBARA, S. WEGERT AND J. CAPRIO. *Louisiana State University.*

CHEMORECEPTION: ALTERNATIVES

P19 #212 **Garter Snake Accessory Olfactory Bulb Neurons Respond to a Chemoattractive Protein Purified from Earthworm Secretions.** JUN INOUCHI, XIAN-CHENG JIANG, DALTON WANG, JOHN KUBIE AND MIMI HALPERN. *SUNY*

P20 #213 **Immunological Analysis of Chemoattractants From Earthworm To Garter Snakes.** DALTON WANG, PING CHEN AND MIMI HALPERN. *SUNY*

P21 #214 **Projections of the Terminal Nerve to the Perygopalatine Ganglion in Voles, *Microtus ochrogaster*.** CELESTE R. WIRSIG-WIECHMANN. *Wake Forest University.* JOHN J. LEPRI. *University of North Carolina at Greensboro.*

P22 #215 **ACh and NE Effects on Elasmobranch Nervus Terminalis Ganglion Cells: Spectral Analysis and Computer Modelling.** JOEL WHITE. *Tufts-New England Medical Center.* MICHAEL MEREDITH. *Florida State University.*

P23 #216 **Vomeronasal Systems in Salamanders: Comparison across Larval and Adult Phases of Species with Differing Life-history Strategies.** HEATHER L. EISTHEN, DALE R. SENGELAUB AND JEFFREY R. ALBERTS. *Indiana University.*

P24 #217 **LHRH Injected Intracerebrally, Relieves Some Behavioral Deficits of Male Hamsters after Vomeronasal Organ Lesions.** MICHAEL MEREDITH, GAY HOWARD AND MARY WISGIRDA. *Florida State University.*

P25 #218 **Nuzzling In The Grey Short-Tailed Oppossum Delivers Odorants To The Vomeronasal Organ.** NAOMIE S. PORAN, ALEXANDRA VANDOROS AND MIMI HALPERN. *State University of New York.*

P26 #219 **Neural Cross- and Self- Adaptation of Trigeminal Nerve Responses to a Variety of Chemical Stimuli.** L.G. FARLEY, W.L. SILVER. *Wake Forest University.*

P27 #220 **The System of Solitary Epidermal Chemoreceptor Cells: A Novel Vertebrate Chemosense.** KURT KOTRSCHAL. *University of Colorado.* ROB PETERS. *University of Utrecht.*

P28 #221 **Glutathione Chemoreceptor of Hydra.** W. GROSVENOR, S. BELLIS, G. KASS-SIMON AND D.E. RHOADS. *University of Rhode Island.*

P29 #222 **Chemoreception in Fossilized Trilobites: Behavioral, Physiological and Structural Analyses.** NEE ANN DERTHAL, MIKE FOOT, TOM TOE, SUE KUMIN, WAYNE PLATINUM-IRIDIUM, TOM GOINGS AND JOHN C. KUMIN. *Morrison Formation Geological Laboratory.*

Sunday , April 22

7:30 CONTINENTAL BREAKFAST

Sunday morning slide session

Chairperson: Thomas R. Scott
University of Delaware

TASTE CODING

8:00 #223 **Voltage-dependent Whole-cell Currents in Isolated Fungiform Taste Buds of the Hamster.** THOMAS A. CUMMINGS AND SUE C. KINNAMON, *Colorado State University and Rocky Mountain Taste and Smell Center.*

8:15 #224 **Identification of Potassium Currents in Rat Taste Cells and Their Modulation by Tastants: Whole Cell Patch Clamp Analysis.** M. SCOTT HERNESS, *The Rockefeller University.*

8:30 #225 **The Anion in Mammalian Salt Taste - a Paracellular Hypothesis.** ELLEN J. ELLIOTT AND SIDNEY A. SIMON, *Duke University.*

8: 45 #226 **The Pattern of Kinetics for Hodulcin Suppression of Fly Receptor Cell Responses to Sucrose is Characteristic of an Effect on Breakdown of a Stimulus-receptor Complex.** DOUGLAS E. KOLODNY AND LINDA M. KENNEDY, *Clark University.*

9:00 #227 **The Pattern of Kinetics for Gymnemic Acids Suppression of Human Sweetness Perception is Characteristic of an Effect on Breakdown of a Stimulus-receptor Complex.** HANNA C. DE LOS SANTOS, SHARON GREEN AND LINDA M. KENNEDY, *Clark University.*

9:15 #228 **Salt Responses of Lingual Branch of Trigeminal Nerve are Inhibited by Lanthanum.** A.L. SOSTMAN AND S.A. SIMON, *Duke University.*

9:30 #229 **A New Method for Recording from the Gerbil's Single Chorda Tympani Neurons.** LATCHMAN SOMENARAIN AND WILLIAM JAKINOVICH, JR., *City University of New York.*

9:45 REFRESHMENT BREAK

Sunday morning slide session

Chairperson: Marion Frank
University of Connecticut Health Center

TASTE NEUROPHYSIOLOGY

10:15 #230 **Acid-salt, Sucrose and Quinine Sensitive Fibers in the Glossopharyngeal Nerve of the Rat.** MARION E. FRANK, *University of Connecticut Health Center.*

10:30 #231 **Depolarizing Responses of Taste Cells to Chemical and Electrical Stimuli at the Apical Pore in Slices of Necturus Lingual Epithelium.** DOUGLAS A. EWALD AND STEPHEN D. ROPER, *Colorado State University and Rocky Mountain Taste and Smell Center.*

10:45 #232 **Amliloride-Sensitivity of the Chorda Tympani Response to NaCl in Fischer-344 and Wistar Rats.** ILENE L. BERNSTEIN AND ALISON LONGLEY, *University of Washington.*

ANIMAL BEHAVIOR/CHEMICAL ECOLOGY: AQUATIC SPECIES

11:00 #233 **Mixture Suppression Toward Binary Odorant Mixtures in Spiny Lobsters: Behavioral Assay using the Antennular Flick Response.** PETER C. DANIEL AND CHARLES D. DERBY, *Georgia State University.*

11:15 #234 **Fine Structure of Aquatic Odor Plumes in Laboratory and Deep Sea Conditions.** JELLE ATEMA, PAUL A. MOORE, *Boston University Marine Program,* LAWRENCE MADIN, *Woods Hole Oceanographic Institute,* AND GREG A. GERHARDT, *Department of Psychiatry and Pharmacology, University of Colorado.*

11:30 #235 **Odor Perception in a Marine Predator.** RICHARD K. ZIMMER-FAUST, *Marine Environmental Sciences Consortium and University of Alabama.*

11:45 #236 **Chemosensory Similarity of Amino Acids and Other Low Molecular Compounds by Catfish.** T. VALENTINCIC, D. OTA, A. BLEJEC AND J. METELKO, *University of Ljubljana, Yugoslavia.*

Sunday morning poster session

Chairperson: Michael Meredith
Florida State University

OLFACTORY EPITHELIUM

P1 #237 **Carnosine Synthetase Immunoreactivity in the Olfactory Epithelia of Amphibia.** MARIA J. CROWE AND SARAH K. PIXLEY. *University of Cincinnati.*

P2 #238 **Transplantation of Embryonic Cat Nasal Tissue into Adult Cat Spinal Cord.** S.K. PIXLEY. *University of Cincinnati.* D. ANDERSON. *Veteran's Administration.* P. REIER. *University of Florida.*

P3 #239 **Survival of Olfactory Receptor Neurons in Dissociated Cell Culture is Enhanced by 2-Mercaptoethanol.** R.J. GRILL AND S.K. PIXLEY. *University of Cincinnati.*

P4 #240 **Glutathione in the Olfactory Epithelium.** C.L. KIRSTEIN, R.J. BRIDGES, R. COOPERSMITH AND M. LEON. *University of California, Irvine.*

P5 #241 **Localization of the Cyanide Metabolizing Enzyme, Rhodanese, with the Olfactory Epithelium.** J.L. LEWIS, C.E. RHOADES, D.E. BICE, J.R. HARKEMA, J.A. HOTCHKISS AND A.R. DAHL. *Lovelace Inhalation Toxicology Research Institute.*

P6 #242 **Effect of Olfactory Epithelial Regeneration and Cage Environment on the Sensitivity of the Rat Olfactory Epithelium to Methyl Bromide.** BRAD BOLON, MARC BONNEFOI, KEVIN T. MORGAN. *Chemical Industry Institute of Toxicology.*

P7 #243 **Effects of Unilateral Naris Closure on the Olfactory Epithelia of Adult Mice.** JOEL MARUNIAK, JEFF HENEGAR AND T.P. SWEENEY. *University of Missouri.*

P8 #244 **Two-Dimensional Models and Morphometry of Individual Olfactory Conchae in Growing rats.** MICHAEL SICHLAU, MARK PATERNOSTRO AND ESSIE MEISAMI. *University of Illinois.*

OLFACTORY TRANSDUCTION

P9 #245 **Voltage-Dependent and Stimulus-Activated Membrane Currents in Isolated Olfactory Neurons of the Channel Catfish (Ictalurus punctatus).** TAKENORI MIYAMOTO, DIEGO RESTREPO AND JOHN H. TEETER. *Monell Chemical Senses Center.*

P10 #246 **Mechanism of Olfactory Signal Transduction in Primary Cultures of Rat Olfactory Neurons.** GABRIELE V. RONNETT, LYNDA D. HESTER, SOLOMON H. SNYDER. *Johns Hopkins University.*

P11 #247 **Activation of Inositol-Phosphate Metabolism in Primary Olfactory Cell Cultures.** SUSAN F. WOOD, GABRIELE V. RONNETT, AND SOLOMON H. SNYDER. *Johns Hopkins University.*

P12 #248 **Dynamics of Cyclic AMP Regulation in Olfactory Cell Lines.** FELICE F. BORISY, GABRIELE V. RONNETT, SOLOMON H. SNYDER. *Johns Hopkins University.* RENE HEN. *Columbia University.*

P13 #249 **Odorant Binding Protein: Possible Binding Site and Multiple Sites of Production.** A.A. KHAN AND S.H. SNYDER. *Johns Hopkins University.*

P14 #250 **Responses in Slices of Olfactory Epithelium Visualized with Voltage Sensitive Dyes and Video Image Analysis.** J.N. BROUWER, P. FARMER, C.S. LUO AND R.C. GESTELAND. *University of Cincinnati.*

P15 #251 **Olfactory Receptor Processes.** HANS BREER, *Stuttgaard*

OLFACTION: CENTRAL PATHWAYS

P16 #252 **Biophysical Properties of Amphibian Olfactory Receptor Axons: Semi-Quantitative Analysis Using Optical Recording Techniques.** RAYMOND GALINDO, PATRICK NASH, DAVID SENSEMAN AND SYLVIA VASQUEZ. *University of Texas at San Antonio.*

P17 #253 **Examination of the Lineage of Adult Olfactory Receptors by Autoradiography and Intracellular Injection of Vital Dyes.** M.A. SCHWARTZ AND J.S. KAUER. *New England Medical Center*

P18 #254 **Voltage-sensitive Dye Recordings from the Salamander Olfactory Bulb after Global and Local Odor Stimulation.** A.R. CINELLI AND J.S. KAUER. *New England Medical Center*

P19 #255 **Distribution of Globuli Cell Dendritic Arbors in The Crayfish Olfactory Midbrain.** DE FOREST MELLON, JR. AND VINESSA ALONES. *University of Virginia.*

P20 #256 **Serotonin in the Central Olfactory System of the Spiny Lobster.** M. SCHMIDT, E. ORONA, S. WAECHTER, B.A. BATTELLE AND B.W. ACHE. *University of Florida.*

P21 #257 **Pharmacological and Physiological Evidence for Histamine as a Neurotransmitter in the Olfactory CNS of the Spiny Lobster.** E. ORONA AND B.W. ACHE. *University of Florida.*

P22 #258 **Differential Synaptic Processing on Apical Versus Lateral Mitral/Tufted Cell Dendrites.** M.T. SHIPLEY. *University of Cincinnati.* D.S. ZAHM. *St. Louis University.*

P23 #259 **Somatostatin-like Immunoreactivity in the Rat Accessory and Main Olfactory Bulbs.** SHIGERU TAKAMI AND PASQUALE P.C. GRAZIADEI. *Florida State University.* MISBAH S. EL-HAWARY. *Assiut University.*

P24 #260 **Pharmacological Characterization of Dopamine Receptors in the Olfactory Bulb.** WILLIAM T. NICKELL, ANDREW B. NORMAN AND MICHAEL T. SHIPLEY. *University of Cincinnati.*

P25 #261 **Comparison of GABA-like Immunoreactivity in the Salamander Olfactory Bulb Using Two Antisera.** K.A. HAMILTON. *Louisiana State University.*

P26 #262 **GABAergic Modulation of EEG and Evoked Potentials In The Rat Olfactory Rat.** BARRY K. RHOADES AND WALTER J. FREEMAN. *University of California, Berkeley.*

P27 #263 **Modulation of Olfactory Seizures by Valproate and Pentylene Tetrazol.** BARRY K. RHOADES, EDMUN W. LEO AND WALTER J. FREEMAN. *University of California, Berkeley.*

P28 #264 **Intracellular Recordings of Rat Olfactory Bulb Interneurons.** DAVID P. WELLIS AND JOHN W. SCOTT, *Emory University School of Medicine.*

P29 #265 **Olfactory Discrimination Learning is Unimpaired Following Depletion of Norepinephrine in the Cortex and Olfactory Bulbs by Injection of 6-Hydroxydopamine Into the Dorsal Noradrenergic Bundle.** LOREDANA M. HARRISON AND ROBERT G. MAIR. *University of New Hampshire.*

P30 #266 **Saliency of Olfactory Cues: The Blocking Phenomena.** L. HASTINGS AND J. EVANS. *University of Cincinnati.*

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