Program

7th Annual Meeting

Association for Chemoreception Sciences

April 24-28, 1985

Sarasota, Florida

THE ASSOCIATION FOR CHEMORECEPTION SCIENCES
SEVENTH ANNUAL MEETING, 1985
PROGRAM

WEDNESDAY EVENING, APRIL 24

6:00 - 11:00 pm	**Registration**, Hyatt Sarasota, The Gallery
6:00 - 8:00 pm	**Reception and Buffet**, The Gallery
8:00 - 9:00 pm	**The Seventh Annual Givaudan Lecture** Room: Hernando De Soto, South "Explorations of the Insect Olfactory System" Dr. John G. Hildebrand, Columbia University
9:00 - 11:00 pm	**Social Hour**, The Gallery

THURSDAY MORNING, APRIL 25

8:00 am - 1:45 pm	Registration, Hyatt Sarasota, The Gallery
8:00 - 8:30 am	Coffee and Donuts, The Gallery
8:30 - 9:45 am	**Oral Session 1: Neurophysiological Approaches to Chemoreception** Room: Hernando De Soto, South Chair: J. Kauer

1 Odor-elicited spike patterns and related synaptic potentials of mitral/tufted neurons. K. A. Hamilton and J. S. Kauer, Department of Neurosurgery, Tufts University-New England Medical Center, Boston, MA.

2 Some consequences of two chorda tympani nerves in one peripheral field. S. E. Hughes and B. Oakley, Neuroscience Laboratory Building, University of Michigan, Ann Arbor, MI.

3 Responses of single cells in the lamb nucleus of the solitary tract to chemical stimulation of the epiglottis. R. D. Sweazey and R. M. Bradley, University of Michigan, Ann Arbor, MI.

4 The effect of intravenous insulin injections on responsiveness of taste neurons in the rat nucleus tractus solitarius. B. K. Giza and T. R. Scott, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE.

5 Gustatory responses of single neurons in the orbitofrontal cortex of the macaque monkey. E. T. Rolls, S. Yaxley, Z. Sienkiewicz and T. R. Scott, Department of Experimental Psychology, Oxford University, Oxford, England.

9:45 - 10:05 am	Coffee Break
10:05 - 11:20 am	**Oral Session 2: Chemosensory Control of Behavior** Room: Hernando De Soto, South Chair: C. J. Wysocki

1 Effect of taste experience during the suckling period on adult taste preference of rats. I. L. Bernstein, D. P. Fenner and J. Diaz, Department of Psychology, University of Washington, Seattle, WA.

2 Preference for calcium salts and hypertension in Dahl salt-sensitive rats fed two levels of NaCl. **F. Ferrell**, Department of Nutrition, University of California, Davis, CA, and **N. L. Braito**, El Molino High School, Forestville, CA.

3 Rats display varying salt preferences in foods. **M. Bertino** and **G. K. Beauchamp**, Monell Chemical Senses Center, Philadelphia, PA.

4 Vomeronasal stimuli can be reinforcing. **M. Halpern**, **L. Scribani** and **J. L. Kubie**, Downstate Medical Center, Brooklyn, NY.

5 Terminal nerve damage affects hamster mating behavior. **C. R. Wirsig** and **C. M. Leonard**, University of Florida, Gainesville, FL.

11:20 - 11:40 am Coffee Break

11:40 am - 1:25 pm **Oral Session 3: Membranes and Receptors**
Room: Hernando De Soto, South
Chair: **J. G. Brand**

1 Simultaneous recordings of the transepithelial lingual potential and integrated neural response of the rat. **G. L. Heck**, **M. E. Welter**, **J. A. DeSimone**, Department of Physiology and Biophysics, Medical College of Virginia, Richmond, VA.

2 Membranes versus cytoskeleton; their respective roles in olfactory reception. **B. Ph. M. Menco** and **A. I. Farbman**, Neurobiology and Physiology, Northwestern University, Evanston, IL.

3 Covalent modification of receptor sites *in vivo*. Two step labelling of a Schiff base-forming protein and chemical blockade of the sense of smell. **T. H. Morton**, **F. C. Leong**, **K. W. Plaxco**, Chemistry Department, University of California, Riverside, CA, and **J. R. Mason**, Monell Chemical Senses Center, Philadelphia, PA.

4 Purification and characterization of a putative olfactory receptor for odorant pyrazines. **J. Pevsner**, **R. R. Trifiletti**, **S. M. Strittmatter**, **P. B. Sklar** and **S. H. Snyder**, Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, MD.

5 Biochemical characterization of isolated cilia from the olfactory epithelium of the bullfrog, *Rana catesbeiana*. **R. R. H. Anholt** and **S. H. Snyder**, Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, MD.

6 Odorant-sensitive adenylate cyclase in olfactory cilia. **D. Lancet**, **J. Heldman**, **Z. Chen** and **U. Pace**, Department of Membrane Research, The Weizmann Institute of Science, Rehovot, Israel.

7 Olfaction: Stimulus-receptor interaction. **R. H. Wright**, Vancouver, Canada.

THURSDAY EVENING, APRIL 25

7:15 - 8:30 pm **Oral Session 4: Chemosensory Interactions**
Room: Hernando De Soto, South
Chair: **D. Hornung**

1 The effect of *l*-menthol on perceptions of warmth and heat pain. **B. G. Green**, Monell Chemical Senses Center, Philadelphia, PA.

2 Caffeine selectively enhances taste: Role of adenosine receptor. **S. S. Schiffman**, **J. M. Gill II**, **T. G. Beeker** and **C. Diaz**, Duke University, Durham, NC.

3 Human ability to perceive sour is related to salivary flow rate. **C. M. Christensen**, Monell Chemical Senses Center, Philadelphia, PA, and **D. Malamud**, School of Dental Medicine, University of Pennsylvania, Philadelphia, PA.

4 Effects of gymnemic acid on the chorda tympani proper nerve responses to sweet, sour, salty and bitter taste stimuli in the chimpanzee. **G. Hellekant**, **C. H. af Segerstad**, **T. Roberts**, Department of Veterinary Science, University of Wisconsin, Madison, WI, **H. van der Wel**, **J. N. Brouwer**, Unilever Research, Netherlands, and **D. Glaser**, Anthropologisches Institut, Switzerland.

5 Inhibition of the gerbil's electrophysiological sweetener response by methyl 4,6 dichloro-4,6-dideoxy α-*D*-galactopyranoside, P-nitrophenyl α-*D*-glucopyranoside and chloramphenicol. **V. Vlahopoulos** and **W. Jakinovich**, Lehman College, CUNY.

8:30 - 11:00 pm **Poster Session 1**
Room: Hernando de Soto, North
Chair: **C. Murphy**

1 Self-adaptation of receptor cells in the lobster: Effects of elevated backgrounds on responses to repeated stimulation. **R. Voigt** and **J. Atema**, Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA.

2 Mechanisms of enhancement by nucleotides in rat taste responses to various amino acids. **K. Yoshii** and **K. Kurihara**, Hokkaido University, Sapporo, Japan.

3 Chemosensory identity is altered in radiation chimera mice. **K. Yamazaki**, **G. K. Beauchamp**, Monell Chemical Senses Center, Philadelphia, PA, **J. Bard**, **L. Thomas** and **E. A. Boyse**, Memorial Sloan-Kettering Cancer Center, New York, NY.

4 Chemosensory recognition of mouse major histocompatibility types by the rat. **K. Yamazaki**, **G. K. Beauchamp**, **C. J. Wysocki**, **O. Matsuzaki**, Monell Chemical Senses Center, Philadelphia, PA, **B. M. Slotnick**, American University, Washington, DC, and **E. A. Boyse**, Memorial Sloan-Kettering Cancer Center, New York, NY.

5 Septal organ of Masera: Projections onto the guinea pig main olfactory bulb (MOB) determined by silver impregnation and anterograde transport of horseradish peroxidase (HRP). **C. J. Wysocki**, **R. Mittelberg**, **L. M. Wysocki** and **G. K. Beauchamp**, Monell Chemical Senses Center, Philadelphia, PA.

6 Olfaction: Stimulus-receptor interaction. **R. H. Wright**, Vancouver, Canada.

7 The neuronal architecture of the solitary nucleus of the hamster. **M. C. Whitehead**, Department of Oral Biology, University of Connecticut Health Center, Farmington, CT.

8 Investigations of the nervus terminalis in elasmobranchs. **J. White** and **M. Meredith**, Department of Biological Science, Florida State University, Tallahassee, FL.

9 Psychophysical comparison of olfactory and trigeminal sensitivity to several odorants. **J. C. Walker** and **D. B. Walker**, Davidson College, Davidson, NC.

10 Development of the Picture Identification Test (PIT): A research companion to the University of Pennsylvania Smell Identification Test (UPSIT). **T. A. Vollmecke** and **R. L. Doty**, Department of Psychology and the Smell and Taste Center, University of Pennsylvania, Philadelphia, PA.

11 Separation of the effects of sweetness and viscosity of sucrose on perceived sweetness, viscosity, and bitterness of vermouth. **A. C. Noble**, University of California, Davis, CA, and **D. J. W. Burns**, DSIR, Auckland, New Zealand.

12 Neural activities of the greater superficial petrosal nerve of the rat in response to chemical stimulation of the palate. **M. S. Nejad** and **L. M. Beidler**, The Florida State University, Tallahassee, FL.

13 Evaluation of canine olfactory function in health and disease by innate behavioral and electrophysiological techniques. **L. J. Myers**, **L. A. Hanrahan**, **K. E. Nusbaum** and **L. J. Swango**, Auburn University, Auburn, AL.

14 Development of a clinical test of olfactory function in children. **C. Murphy**, San Diego State University, San Diego, CA.

15 The effects of age, nasal airway resistance and nasal cytology on olfactory threshold for butanol. **C. Murphy**, **K. Nunez**, San Diego State University, San Diego, CA, and **A. A. Jalowayski**, University of California at San Diego Medical Center, San Diego, CA.

16 Area postrema, an internal chemoreceptor organ: Inputs and immunocytochemistry in the goldfish. **Y. Morita** and **T. E. Finger**, Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO.

17 Ultrastructure of the vomeronasal organ in man: A pilot study. **D. T. Moran**, **B. W. Jafek** and **J. C. Rowley III**, Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO.

18 Human fungiform taste bud number, density, and distribution. **I. J. Miller, Jr.**, Wake Forest University, Winston-Salem, NC.

19 Decreased NaCl response of lingual epithelium *in vitro* in spontaneously hypertensive rats. **S. Mierson**, **M. E. Welter** and **J. A. DeSimone**, Department of Physiology and Biophysics, Medical College of Virginia, Richmond, VA.

20 Salt preference and salt appetite of Fischer-344 rats. **E. E. Midkiff**, **I. L. Bernstein**, **D. A. Fitts** and **J. B. Simpson**, Department of Psychology, University of Washington, Seattle, WA.

21 Suppression of the rat's chorda tympani responses by taste inhibitors. **P. Blochaviak** and **W. Jakinovich, Jr.**, Lehman College, CUNY.

22 A bioassay to determine chemical signal to noise ratios required for lobster feeding. **L. S. Handrich** and **J. Atema**, Boston University Marine Program, Marine Biological Laboratory, Boston, MA.

23 Contributions of smell and taste to overall intensity: A model. **D. E. Hornung** and **M. P. Enns**, St. Lawrence University, Canton, NY.

24 Detection and food search thresholds of *Macrobrachium rosenbergii*. **K. Holland**, Hawaii Institute of Marine Biology, Kaneohe, HI.

25 Olfactory bulb responses to familiar odors early in life. **M. Leon**, **R. Coopersmith** and **S. Lee**, University of California, Irvine, CA.

26 Standardization of methods for the clinical evaluation of olfactory function. **P. G. Heywood** and **R. M. Costanzo**, Medical College of Virginia, Richmond, VA.

27 Preferences of hamsters for solutions of chemicals with sweet, salty, sour, bitter, sulfurous, soapy, alkaline, or combined flavors: Analytic hedonic processing. **T. P. Hettinger** and **M. E. Frank**, University of Connecticut Health Center, Farmington, CT.

28 The cathodal OFF response of electric taste in rats. **M. S. Herness**, The Rockefeller University, New York, NY.

29 Molecular characteristics of stimulants for the crayfish amino acid and pyridine receptor. **H. Hatt**, Physiologisches Institut der Technischen Universitat, Munchen, West Germany.

30 Responses to changes in odor concentration and quality in identified cell types of rat olfactory bulb. **T. A. Harrison** and **J. W. Scott**, Emory University, Atlanta, GA.

31 A behavioral method for evaluating perceived intensity of glucose solutions in the behaving rat. **B. K. Giza** and **T. R. Scott**, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE.

32 Intravenous glucose loads decrease sweet intensity judgments in behaving rats. **B. K. Giza** and **T. R. Scott**, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE.

33 Comparisons of the estimates of smell, taste, and overall intensity in young and elderly people. **M. P. Enns**, **D. E. Hornung**, **D. J. Hagberg** and **C. A. Russell**, St. Lawrence University, Canton, NY.

34 Discrimination between stimulus sets: The effect of a multidimensional context. **D. M. Ennis**, Philip Morris, U.S.A., and **K. Mullen**, University of Guelph, Guelph, Ontario, Canada.

35 Nerve root responses to chemical stimulation of dorsal lip sensilla in the leech. **E. J. Elliott**, Department of Zoology, University of Maryland, College Park, MD.

36 The "rod cell" in trout olfactory epithelium: Fact or artefact? **P. A. Eller**, **J. C. Rowley III** and **D. T. Moran**, Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO.

37 Comparison of visual and olfactory stimuli in reversal learning with pigeons. **H. J. Duncan**, Monell Chemical Senses Center, Philadelphia, PA, and **B. M. Slotnick**, The American University, Washington, DC.

38 "Additional" evidence for acidic, basic and neutral amino acid olfactory receptor sites in the catfish. **J. Dudek** and **J. Caprio**, Department of Zoology and Physiology, Louisiana State University, Baton Rouge, LA.

39 Taste and eating disorders: Hedonic responsiveness in anorexia nervosa and bulimia. **A. Drewnowski**, University of Michigan, Ann Arbor, MI, **P. Duberstein**, **J. Gibbs**, **K. A. Halmi**, **B. Pierce**, **G. P. Smith**, New York Hospital-Cornell Medical Center, New York, NY.

40 Chemosensory dysfunction following upper respiratory illness. **R. B. Goodspeed**, **J. F. Gent** and **F. A. Catalanotto**. University of Connecticut School of Medicine and Dental Medicine, Storrs, CT; Connecticut Chemosensory Clinical Research Center.

41 Fourier analysis of receptor cell field potential waveforms. **G. D. Adamek**, **H. C. Cejtin** and **R. C. Gesteland**, Northwestern University, Evanston, IL.

FRIDAY MORNING, APRIL 26

8:00 - 8:30 am — Coffee and Donuts

8:30 - 10:00 am — **Oral Session 5: CNS Neuroanatomy**
Room: Hernando De Soto, South
Chair: **B. Slotnick**

1 Gustatory recipient zone of the nucleus of the solitary tract in the hamster: Light microscopic observations. **T. Jang** and **B. J. Davis**, University of Alabama, Birmingham, AL.

2 Central afferent and motor connections from the region of the geniculate ganglion in the chicken. **D. Ganchrow**, **J. R. Ganchrow**, The Hebrew University, Jerusalem, Israel, **M. J. Gentle**, Agricultural Research Council's Poultry Research Centre, Rehovot, Israel.

3 Delimination of rat gustatory cortex, **E. Kosar**, Monell Chemical Senses Center, Philadelphia, PA, **R. Norgren**, Hershey School of Medicine, Hershey, PA, and **H. J. Grill**, University of Pennsylvania, Philadelphia, PA.

4 The topography of olfactory epithelium to olfactory bulb projections in the rat. **W. B. Stewart**, **P. E. Pedersen**, **C. A. Greer** and **G. M. Shepherd**, Yale University School of Medicine, New Haven, CT.

5 Cytoarchitectural diversity in the main olfactory bulb: Are there olfactory foveas? **E. Meisami**, Physiology-Anatomy, University of California, Berkeley, CA, and **S. Emamian**, Institute of Biochemistry and Biophysics, University of Tehran, Tehran, Iran.

6 Olfactory nerve pathways in the Old World monkey. **S. F. Takagi**, Gunma University, Japan.

10:00 - 10:20 am — Coffee Break

10:20 - 11:50 am — **Oral Session 6: Development and Plasticity**
Room: Hernando De Soto, South
Chair: **B. Cowart**

1 Cell lineage in the mouse vallate taste bud. **R. Delay**, **J. C. Kinnamon** and **S. Roper**, Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO.

2 Experiments on the development of rat vallate taste buds. **B. Oakley**, University of Michigan, Ann Arbor, MI, **M. A. Hosley**, Brown University, Providence, RI, and **S. E. Hughes**, Neuroscience Laboratory Building, University of Michigan, Ann Arbor, MI.

3 Chorda tympani fiber receptive fields: Size and salt responses in fetal and postnatal sheep. **T. Nagai**, **C. Mistretta** and **R. Bradley**, University of Michigan, Ann Arbor, MI.

4 Effects of early exposure to a low-NaCl diet on rat chorda tympani taste responses. **D. L. Hill**, Department of Psychology, University of Toledo, Toledo, OH.

5 The effect of odor deprivation on olfactory epithelium in developing rats. **A. I. Farbman**, **S. M. Ritz**, Department of Neurobiology and Physiology, Northwestern University, Evanston, IL, and **P. Brunjes**, Department of Psychology, University of Virginia, Charlottesville, VA.

6 Determinant factors in the formation of olfactory glomeruli: Preliminary studies. **P. P. C. Graziadei**, **J. A. Heckroth**, **E. E. Morrison** and **G. A. Monti Graziadei**, Department of Biological Science, Florida State University, Tallahassee, FL.

11:50 am - 12:10 pm — Coffee Break

12:10 - 1:25 pm — **Oral Session 7: Analyzing Sensory Quality**
Room: Hernando De Soto, South
Chair: **H. J. Grill**

1 Quantitative covariance of taste responses: Empirical criteria for "natural" types of mammalian peripheral gustatory neurons. **M. E. Frank**, University of Connecticut Health Center, Farmington, CT.

2 About 1500 impulses are necessary for discrimination in the rat NTS. **J. M. Gill II** and **R. P. Erickson**, Duke University, Durham, NC.

3 Gustatory responses in opercular cortex of the alert cynomolgous monkey. **T. R. Scott**, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE, **S. Yaxley**, **Z. J. Sienkiewicz** and **E. T. Rolls**, Department of Experimental Psychology, Oxford University, Oxford, England.

4 Orofacial motor behavior-patterns induced by gustatory stimuli in apes. **J. E. Steiner**, Department of Oral Biology, Hebrew University-Hadassah Faculty of Dental Medicine, Jerusalem, Israel, and **D. Glaser**, Institute of Anthropology, University of Zurich-Irchel, Zurich, Switzerland.

5 Categorical perception. **H. N. Wright**, SUNY-Upstate Olfactory Clinical Research Center, Syracuse, NY.

FRIDAY AFTERNOON, APRIL 26

5:00 - 6:00 p.m. — **General Business Meeting**
Room: Hernando De Soto, South

FRIDAY EVENING, APRIL 26

8:00 - 11:00 pm — **Poster Session 2**
Room: Hernando De Soto, North
Chair: **W. Silver**

1 A quantitative analysis of sniffing strategies in rats performing odor detection tasks. **S. L. Youngentob** and **M. M. Mozell**, Department of Physiology, SUNY-Upstate Medical Center.

2 Effect of amiloride on Paramecium chemoresponse. **J. Van Houten** and **R. Preston**, Department of Zoology, University of Vermont, Burlington, VT.

3 Responses of taste cells of mouse. **K. Tonosaki** and **M. Funakoshi**, Department of Oral Physiology, Gifu College of Dentistry, Gifu, Japan.

4 Behavioral classification of saccharin taste qualities in rats. **C. N. Stewart** and **S. A. Krafczek**, Franklin and Marshall College, Lancaster, PA.

5 A detailed analysis of maltose, fructose, and glucose drinking in the rat. **A. C. Spector**, Florida State University, Tallahassee, FL.

6 Electrophysiological comparison of trigeminal and olfactory responses. **W. L. Silver**, **J. R. Mason** and **A. H. Arzt**, Monell Chemical Senses Center, Philadelphia, PA.

7 Developmental expression of transmitter phenotype in brain dopaminergic neurons. **M. T. Shipley**, **E. G. Sieloff**, **M. Lazoff** and **J. McLean**, University of Cincinnati College of Medicine, Cincinnati, OH.

8 Satiety does not affect gustatory-evoked activity in the nucleus tractus solitarius or opercular cortex of the alert cynomolgous monkey. **T. R. Scott**, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE, **S. Yaxley**, **Z. J. Sienkiewicz** and **E. T. Rolls**, Department of Experimental Psychology, Oxford University, Oxford, England.

9 Gustatory responses in the nucleus tractus solitarius of the alert cynomolgous monkey. **T. R. Scott**, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE, **S. Yaxley**, **Z. J. Sienkiewicz** and **E. T. Rolls**, Department of Experimental Psychology, Oxford University, Oxford, England.

10 Demonstration of the sublaminar pattern of the rat olfactory bulb external plexiform layer with cytochrome oxidase staining. **L. Mouradian** and **J. W. Scott**, Emory University, Atlanta, GA.

11 The ontogenic development of serotonergic fibers in the rat olfactory bulb. **J. H. McLean**, **M. Lazoff**, **E. B. Sieloff**, **W. T. Nickell** and **M. T. Shipley**, University of Cincinnati College of Medicine, Cincinnati, OH.

12 Failure to find specific anosmias in rats with olfactory bulb lesions. **S. A. McBride**, **B. M. Slotnick**, **S. J. Graham**, The American University, Washington, DC, and **P. P. C. Graziadei**, The Florida State University, Tallahassee, FL.

13 Gustation and Nutrition. **R. D. Mattes**, Monell Chemical Senses Center, Philadelphia, PA.

14 Structure and neural responses of the facial lobe of the Japanese sea catfish. **T. Marui**, Oral Physiology, Kagoshima University, Japan, **J. Caprio**, Department of Zoology and Physiology, Louisiana State University, Baton Rouge, LA, **S. Kiyohara**, Biology Institute, Kagoshima University, Japan, and **Y. Kasahara**.

15 Sodium and potassium preferences in pyridoxine deficient rats. **S. Marra**, **C. N. Stewart**, Franklin and Marshall College, Lancaster, PA, **Y. Katz** and **R. M. Threatte**, Monell Chemical Senses Center, Philadelphia, PA.

16 Taste responses to an extended stimulus array in the rat nucleus tractus solitarius. **G. P. Mark** and **T. R. Scott**, Department of Psychology and Institute for Neuroscience, University of Delaware, Newark, DE.

17 Clinical investigation of threshold sensitivity for NaCl in depressed patients. **N. E. Lohr**, University of Michigan, Ann Arbor, MI, **A. L. Jacobs**, Washington University, St. Louis, MO, and **D. King**, Vanderbilt University, Nashville, TN.

18 Olfactory epithelium with a developmentally synchronized population of receptor cells. **M. S. Lidow**, **S. J. Kleene** and **R. C. Gesteland**, Northwestern University, Evanston, IL.

19 Convergence of olfactory and vomeronasal pathways in the amygdala. **G. Licht** and **M. Meredith**, Department of Biology, Florida State University, Tallahassee, FL.

20 Inhibition of chemosensory responses of the ciliate, Tetrahymena, by calmodulin antagonists. **M. Levandowsky**, Haskins Laboratories, Pace University, New York, NY.

21 Maltose taste threshold estimation in mice from a combination of free-preference and conditioned taste-aversion procedures. **D. B. Harder**, **M. E. Rashotte**, **J. C. Smith** and **G. Whitney**, Psychology Department, Florida State University, Tallahassee, FL.

22 Innervation and structure of taste buds in hamsters following unilateral chorda tympani neurectomy. **L.-T. Hou**, **T. P. Hettinger** and **M. E. Frank**, University of Connecticut Health Center, Farmington, CT.

23 Brainstem projections of the superior laryngeal nerve in the hamster. **T. Hanamori** and **D. V. Smith**, Department of Psychology, University of Wyoming, Laramie, WY.

24 Temporal bitterness and astringency upon repeated stimulus ingestion. **J.-X. Guinard**, **R. M. Pangborn** and **M. J. Lewis**, University of California, Davis, CA.

25 Fatness and taste: Longitudinal studies in familial obesity. **J. A. Grinker**, **A. Singleton** and **J. Gropman**, University of Michigan, Ann Arbor, MI.

26 A quantitative Golgi analysis of granule cell development in the neonatal rat olfactory bulb. **C. A. Greer**, Section of Neurosurgery and Neuroanatomy, Yale University School of Medicine, New Haven, CT.

27 Vomeronasal organ transplant in the rat brain. **E. E. Morrison**, **J. A. Heckroth**, **M. Meredith** and **P. P. C. Graziadei**, Department of Biological Science, Florida State University, Tallahassee, FL.

28 Studies on the morphological changes in the diencephalon of *Xenopus laevis*, following olfactory placode transplantation. **L. Magrassi** and **P. P. C. Graziadei**, Department of Biological Science, Florida State University, Tallahassee, FL.

29 Characteristics of neurophysiological responses of insect olfactory receptor neurons under different stimulation regimes. **A. J. Grant**, Worcester Foundation for Experimental Biology, Shrewsbury, MA, **R. W. Mankin** and **M. S. Mayer**, U.S.D.A., Insects Attractants, Behavior and Basic Biology Research Laboratory, Gainesville, FL.

30 Sex differences in odor identification ability: A cross-cultural analysis. **R. L. Doty**, **S. Applebaum**, **H. Zusho** and **R. G. Settle**, Smell and Taste Center, University of Pennsylvania, and Kanto Rosai Hospital, Kanagawa, Japan.

31 Influence of intertrial interval and sniff bottle volume on phenyl ethyl alcohol odor detection thresholds. **R. L. Doty**, **S. A. Applebaum**, **R. G. Settle** and **T. Vollmecke**, Smell and Taste Center and Department of Psychology, University of Pennsylvania, Philadelphia, PA.

32 Smell dysfunction in Parkinson's disease. **R. L. Doty**, **S. Stellar**, **T. Gregor**, **R. Hartikka** and **S. Rosen**, Smell and Taste Center, University of Pennsylvania, Philadelphia, PA; and Department of Neurology, St. Barnabas Medical Center, Livingston, NJ.

33 Responses to NaCl of parabrachial units that were conditioned with intravenous LiCl. **P. M. DiLorenzo**, Department of Psychology, Smith College, Northampton, MA.

34 Response properties of fibers in the hamster superior laryngeal nerve. **J. D. Dickman** and **D. V. Smith**, Department of Psychology, University of Wyoming, Laramie, WY.

35 The voltage-clamped frog olfactory mucosa: Odor-stimulated current transients. **J. A. DeSimone**, **G. L. Heck**, **S. Mierson**, Department of Physiology and Biophysics, Medical College of Virginia, Richmond, VA, **M. L. Getchell** and **T. V. Getchell**, Department of Anatomy and Cell Biology, Wayne State University School of Medicine, Detroit, MI.

36 Mixture suppression in olfaction: Identification of suppressants and analysis of peripheral and central components of suppression. **C. D. Derby**, **R. A. Gleeson** and **B. W. Ache**, C. V. Whitney Lab, University of Florida, Gainesville, FL.

37 Gustatory recipient zone of the nucleus of the solitary tract in the hamster: Electron microscopic observations. **B. J. Davis** and **T. Jang**, University of Alabama, Birmingham, AL.

38 Chemical nature and release characteristics of lobster (*Homarus americanus*) feeding attractants in natural baits. **P. C. Daniel** and **R. C. Bayer**, University of Maine, Orono, ME.

39 Acceptance of salty tastes by human infants and children. **B. J. Cowart** and **G. K. Beauchamp**, Monell Chemical Senses Center, Philadelphia, PA.

40 Amiloride alters behavioral and neural gustatory responses to salt solutions. **R. J. Contreras**, **E. K. Farnum** and **E. Bird**, Yale University, New Haven, CT.

41 Effects of temperature on the sweetness of polyols. **G. G. Birch**, University of Reading, Reading, UK.

42 High salt diet: Lower NaCl preference and increased neural taste responses to salt, but paradoxical increase in NaCl intake. **R. A. Bernard** and **T. W. Priehs**, Department of Physiology, Michigan State University, East Lansing, MI.

43 The comparative gustatory response profile of the greater superficial petrosal and chorda tympani nerves of the hamster and the rat to some chemical stimuli. **L. M. Beidler** and **M. S. Nejad**, The Florida State University, Tallahassee, FL.

44 Behavioral effects of removal of the vomeronasal organ in neonatal mice. **N. J. Bean**, Monell Chemical Senses Center, Philadelphia, PA, and Vassar College, Poughkeepsie, NY, and **C. J. Wysocki**, Monell Chemical Senses Center, Philadelphia, PA.

45 Taste stimulation of localized tongue areas: The Q-tip test. **L. M. Bartoshuk**, Pierce Foundation and Yale University, New Haven, CT, **S. Desnoyers**, Albertus Magnus College, New Haven, CT, **M. O'Brien**, Vassar College, Poughkeepsie, NY, **J. F. Gent** and **F. C. Catalanotto**, University of Connecticut, Storrs, CT.

46 Strain differences in expression of the dopamine phenotype in normal and deafferented olfactory bulb. **H. Baker**, Cornell University Medical College, Ithaca, NY, and **F. L. Margolis**, Roche Institute of Molecular Biology, Nutley, NJ.

SATURDAY MORNING, APRIL 27

8:00 - 8:30 am — Coffee and Donuts

8:30 - 10:00 am — **Oral Session 8: Peripheral Factors in Chemoreception**
Room: Hernando De Soto, South
Chair: **J. DeSimone**

1 Obtaining human fungiform papillae taste buds. **B. W. Jafek**, **T. A. Fisher**, **R. K. Jafek**, **P. Eller** and **D. Moran**, Rocky Mountain Taste and Smell Center, University of Colorado School of Medicine, Denver, CO.

2 3-D reconstructions of nerve fiber arborizations and patterns of synaptic connectivity in murine taste buds. **J. C. Kinnamon** and **T. Sherman**, University of Colorado, Boulder, CO.

3 Isolated taste cells from the mudpuppy. **M. McPheeters**, **S. C. Kinnamon** and **S. D. Roper**, Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO.

4 Pore tubules as possible pathways for odor molecules in insect olfactory sensilla. **T. A. Keil**, Max-Planck-Institut fur Verhaltensphysiologie, Seewiesen, West Germany.

5 Pyrazine-mediated neural and secretory activity in the olfactory mucosa of the salamander. **T. V. Getchell**, **B. Zielinski** and **M. L. Getchell**, Department of Anatomy and Cell Biology, Wayne State University, Detroit, MI.

6 Mixture effects in primary olfactory receptor cells in the lobster. **B. R. Johnson** and **J. Atema**, Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA.

10:00 - 10:20 am — Coffee Break

10:20 - 11:50 am — **Oral Session 9: Sampling Olfactory Stimuli**
Room: Hernando De Soto, South
Chair: **F. Catalanotto**

1 The characteristics of human sniffing behavior that provide optimum perception of odors. **D. G. Laing**, CSIRO Division of Food Research, North Ryde NSW, Australia.

2 Airflow patterns in a human nasal model. **D. E. Hornung**, **D. A. Leopold**, **S. L. Youngentob**, **P. R. Sheehe**, **M. M. Mozell**, **F. D. Thomas** and **J. H. Greenberg**, SUNY-Upstate Olfactory Clinical Research Center, Syracuse, NY.

3 Relationship between olfactory sensitivity and nasal airway resistance during alternate phases of the nasal cycle. **R. L. Doty**, **R. Frye**, **R. Hartikka** and **B. Londa**, Smell and Taste Center, University of Pennsylvania, Philadelphia, PA.

4 Handedness, sex, and the individual nostrils in the odor perception of normal humans. **A. N. Gilbert**, Monell Chemical Senses Center, Philadelphia, PA, **M. S. Greenberg**, Department of Psychiatry, Harvard Medical School and New England Deaconess Hospital, Boston, MA, and **G. K. Beauchamp**, Monell Chemical Senses Center.

5 The effect of airway resistance on perceived odor intensity. **S. L. Youngentob**, **N. M. Stern**, **D. A. Leopold** and **M. M. Mozell**, SUNY-Upstate Clinical Olfactory Research Center, Syracuse, NY.

6 Reversal of hyposmia in laryngectomized patients. **M. Mozell**, **D. Schwartz**, **D. Leopold** and **S. Youngentob**, SUNY-Upstate Olfactory Clinical Research Center, Syracuse, NY.

11:50 am - 12:10 pm Coffee Break

12:10 - 1:25 pm **Oral Session 10: Human Chemosensory Function**
Room: Hernando De Soto, South
Chair: **J. Kuznicki**

1 Relationship between etiology and zinc in patients with chemosensory dysfunction. **F. A. Catalanotto**, **K. M. Ostrom**, **J. F. Gent**, **R. B. Goodspeed**, **M. Peterson**, **M. Testa**, University of Connecticut Health Center, Farmington, CT, **L. Bartoshuk** and **W. Cain**, John B. Pierce Foundation, New Haven, CT.

2 On the relationship between oral and systemic glucose sensitivity. **R. G. Settle**, Smell and Taste Center, University of Pennsylvania, Philadelphia, PA.

3 Aging blunts the perceived magnitude of most if not all odors. **J. C. Stevens**, **W. S. Cain** and **T. D. Myers**, John B. Pierce Foundation Laboratory, New Haven, CT.

4 Odor perception and odor memory in temporal lobe epilepsy patients with and without temporal lobectomy. **B. Eskenazi**, University of California, Berkeley, CA, **W. S. Cain**, John B. Pierce Foundation and Yale University, New Haven, CT, **R. A. Novelly** and **R. Mattson**, West Haven VA Hospital and Yale School of Medicine, New Haven, CT.

5 Odor pleasantness judgments compared among samples from 20 nations using microfragrances. **R. G. Davis**, VA Medical Center, Lexington, KY, and **R. M. Pangborn**, University of California at Davis, CA.

SATURDAY EVENING, APRIL 27

5:30 - 7:00 pm Buffet, Stanley K. Freeman Award, The Gallery

7:00 - 8:15 pm Award Presentation, Stanley K. Freeman Award
Special Address: "Intrinsic Connections and Functional Architecture of the Visual System"
Dr. Torsten Wiesel, The Rockefeller University

8:15 - 11:00 pm **Poster Session 3**
Chair: **M. Halpern**

1 Chronic exposure to bitter tastes alters ingestive behavior of rats. **G. J. Schwartz** and **H. J. Grill**, University of Pennsylvania, Philadelphia, PA.

2 Characterization of putative Paramecium chemoreceptors. **S. Schulz**, **R. R. Preston** and **J. Van Houten**, Department of Zoology, University of Vermont, Burlington, VT.

3 Selective suppression of sweetness by an extract from *Hovenia dulcis* leaves. **L. R. Saul**, **L. M. Kennedy** and **D. A. Stevens**, Clark University, Worcester, MA.

4 HRP applied to transected trout olfactory nerves fills ciliated receptors, microvillar receptors, and some basal cells. **J. Carter Rowley III** and **D. T. Moran**, Rocky Mountain Taste and Smell Center, University of Colorado Health Sciences Center, Denver, CO.

5 Gustatory responses of single neurons in the insula of the macaque monkey. **S. Yaxley**, **E. T. Rolls**, **Z. Sienkiewicz** and **T. R. Scott**, Department of Experimental Psychology, Oxford University, Oxford, England.

6 Larval release in the crab *Rhithropanopeus harrisii* (Gould): Chemical cues from hatching eggs. **D. Rittschof**, **R. B. Forward, Jr.**, Duke University Marine Lab, Beaufort, NC, and **D. D. Mott**, Duke University, Durham, NC.

7 Complete but not partial olfactory bulbectomies block suckling behavior in neonatal rats. **J. M. Risser** and **B. M. Slotnick**, The American University, Washington, DC.

8 Orofacial responses to gustatory stimulation in the hamster. **D. H. Petty** and **D. V. Smith**, Department of Psychology, University of Wyoming, Laramie, WY.

9 Effects of oral sensory field loss on taste scaling ability. **K. M. Ostrom**, **F. A. Catalanotto**, **J. Gent**, University of Connecticut Health Center, Farmington, CT, and **L. Bartoshuk**, The John B. Pierce Foundation Laboratory, New Haven, CT.

10 How one insect smells in millivolt units. **D. M. Norris**, University of Wisconsin, Madison, WI.

11 The use of sinus x-rays in finding a cause for olfactory dysfunction. **R. B. Goodspeed**, **G. Leonard** and **F. A. Catalanotto**, University of Connecticut Schools of Medicine and Dental Medicine, Storrs, CT; Connecticut Chemosensory Clinical Research Center, Farmington, CT.

12 Effects of tastants on oral irritation produced by capsaicin and piperine. **D. A. Stevens**, Clark University, Worcester, MA, and **H. T. Lawless**, S. C. Johnson & Co., Inc., Racine, WI.

13 Human psychophysics and 2-DG reveal how and where suppression with odor mixtures occurs. **D. G. Laing**, **G. A. Bell** and **H. Panhuber**, CSIRO Division of Food Research, North Ryde NSW, Australia.

14 Information processing in taste: Quality and intensity. **J. T. Kuznicki**, Procter & Gamble Co., Cincinnati, OH.

15 The effect of bilateral sectioning of the chorda tympani and the greater superficial petrosal nerves on feeding behavior and the sweet taste in rats. **R. Krimm**, **M. S. Nejad**, **J. C. Smith** and **L. M. Beidler**, The Florida State University, Tallahassee, FL.

16 Vomeronasally mediated earthworm chemoattractant for snakes is an invertebrate collagen-like substance. **D. M. Kirschenbaum** and **M. Halpern**, Downstate Medical Center, Brooklyn, NY.

17 Use-dependence of ziziphins actions on taste receptor cells. **E. S. Peters, Jr.** and **L. M. Kennedy**, Clark University, Worcester, MA.

18 Differences in the temporal characteristics of simple and complex taste reaction times. **S. T. Kelling**, Department of Psychology, and **B. P. Halpern**, Department of Psychology and Section of Neurobiology and Behavior, Cornell University, Ithaca, NY.

19 Gustatory centers exist in the telencephalon and diencephalon of catfish: Support for homology with mammalian forebrain. **J. S. Kanwal**, Department of Zoology and Physiology, Louisiana State University, **T. E. Finger**, Department of Anatomy, University of Colorado Health Sciences Center, Denver, CO, **J. Caprio**, Department of Zoology and Physiology, Louisiana State University, Baton Rouge, LA.

20 Effects of chemical cues, social factors and nutrition on reproductive development in California voles. **R. E. Johnston** and **E. Rissman**, Cornell University, Ithaca, NY.

21 Eyestalk lesions induce spontaneous courtship displays in the blue crab, *Callinectes sapidus:* Possible hormonal modulation of pheromone-mediated behavior. **R. A. Gleeson**, C. V. Whitney Laboratory, University of Florida, Gainesville, FL, and Monell Chemical Senses Center, Philadelphia, PA.

22 Tasty shells: Mechanisms of shell-surface calcium detection by hermit crabs. **K. A. Mesce**, Department of Zoology, University of Washington, Seattle, WA.

23 Food and eating problems in patients with chemosensory deficits. **A. M. Ferris**, **J. Schlitzer** and **F. A. Catalanotto**, University of Connecticut, and University of Connecticut School of Dental Medicine, Storrs, CT; Connecticut Chemosensory Clinical Research Center, Farmington, CT.

24 Gustatory neurons and stimuli can be arranged along a single dimension. **J. M. Gill II**, Department of Psychology, Duke University, Durham, NC.

25 Two clinically relevant compounds mediate secretion from olfactory glands in the salamander. **M. L. Getchell**, **B. Zielinski** and **T. V. Getchell**, Department of Anatomy and Cell Biology, Wayne State University School of Medicine, Detroit, MI.

26 Screening questionnaire for patients with chemosensory dysfunction. **J. F. Gent**, **R. B. Goodspeed**, **F. A. Catalanotto**, University of Connecticut Health Center, Farmington, CT, and **R. T. Zagraniski**, New Jersey State Department of Health.

27 Bulbar activity pattern generators in the EEG during odor discrimination by rabbits. **W. J. Freeman**, Physiology-Anatomy, University of California, Berkeley, CA.

28 Information integration in sucrose/sodium chloride mixtures: Global differences for intensity and hedonic judgments. **R. A. Frank**, **D. Burke** and **J. Estep**, University of Cincinnati, Cincinnati, OH.

29 Behavioral correlates of gustatory neurophysiology in the developing rat. **B. K. Formaker** and **D. L. Hill**, Department of Psychology, University of Toledo, Toledo, OH.

30 Tyrosine hydroxylase-like immunoreactivity in the olfactory bulb and tracts of the goldfish. **T. E. Finger** and **J. C. Yonchek**, Rocky Mountain Taste and Smell Center, University of Colorado Health Science Center, Denver, CO.

31 Topographic organization of peripheral input to the hamster main olfactory bulb. **A. N. Clancy**, **T. A. Schoenfeld** and **F. Macrides**, Worcester Foundation for Experimental Biology, Shrewsbury, MA.

32 Behavioral responses of shrimp to components of food odors indicate synergistic mixture interactions. **W. E. S. Carr** and **C. D. Derby**, C. V. Whitney Laboratory, University of Florida, St. Augustine, FL.

33 Bilaterality of olfactory deficits. **W. S. Cain**, J. B. Pierce Foundation, New Haven, CT, and **J. F. Gent**, University of Connecticut Health Center, Farmington, CT.

34 Reaction times for discrimination of salty and sweet in PTC tasters and non-tasters. **D. Burke**, **R. Frank**, University of Cincinnati, Cincinnati, OH, and **J. Kuznicki**, Procter & Gamble Co., Cincinnati, OH.

35 Unilateral odor deprivation: Time course of changes in laminar volume. **P. C. Brunjes**, Department of Psychology, University of Virginia, Charlottesville, VA.

36 A computer-controlled automated system for gustatory psychophysics. **G. Brosvic**, **B. Slotnick** and **S. Tandeciarz**, The American University, Washington, DC.

37 Amount and type of fatty acids in lipids from taste and non-taste epithelium of steer tongues. **J. G. Brand**, **J. L. Rabinowitz**, **T. Huque** and **D. Baker**, Monell Chemical Senses Center and Philadelphia VA Medical Center, University of Pennsylvania, Philadelphia, PA.

38 Neural control of Von Ebner's glands in the rat. **R. M. Bradley**, University of Michigan, Ann Arbor, MI.

39 Single unit recordings from the petrosal ganglion of the rat glossopharyngeal nerve. **J. C. Boudreau**, **L. T. Do**, **L. Sivakumar** and **J. Oravec**, Sensory Sciences Center, University of Texas, Houston, TX.

40 Dynamic properties and self-adaptation of NH_4 cells in lobster taste organs. **P. F. Borroni** and **J. Atema**, Boston University Marine Program, Marine Biological Laboratory, Woods Hole, MA.

SUNDAY MORNING, APRIL 28

8:00 - 8:30 am — Coffee and Donuts

8:30 - 10:00 am — **Symposium: Genetics and Chemosensation**
Room: Hernando De Soto, South
Chair: J. Van Houten

1 Genetic analysis of chemoreception in *Drosophila*. L. Tompkins, Department of Biology, Temple University, Philadelphia, PA.

2 Genetics of chemoreception in the nematode *Caenorhabditis elegans*. D. B. Dusenbery, School of Biology, Georgia Institute of Technology, Atlanta, GA.

3 A genetic approach to mammalian taste. G. Whitney, Psychology Department, The Florida State University, Tallahassee, FL.

4 Genotypic variation in mammalian odor perception: Phenotypes that may provide insight into olfactory transduction. C. J. Wysocki, Monell Chemical Senses Center, Philadelphia, PA.

10:00 - 10:30 am — Coffee Break

10:30 am - 12:00 noon — **Symposium: Current Advances in Neurochemistry of the Mammalian Olfactory System**
Room: Hernando De Soto, South
Chair: F. Margolis

1 Monoclonal antibodies as probes of the structure and biochemistry of the olfactory epithelium. J. I. Morgan and J. L. Hempstead, Roche Institute of Molecular Biology, Roche Research Center, Nutley, NJ.

2 Olfactory receptor neurons as a route for chemical access to the central nervous system. H. Baker, Cornell University Medical College, New York, NY.

3 Substance P and its precursor forms in hamster olfactory bulb. R. M. Kream, Tufts University School of Medicine, Boston, MA, T. A. Schoenfeld, A. N. Clancy and F. Macrides, Worcester Foundation for Experimental Biology, Shrewsbury, MA.

4 Molecular biology of the olfactory system. F. L. Margolis, K. Rogers, M. Grillo, Y. S. Goodall, M. Poonian and U. Gubler, RIMB and Department of Molecular Genetics, Roche Research Center, Nutley, NJ.

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