ISSN 0379 864X Coden CHSED8

OXFORD UNIVERSITY PRESS

# hemical SENSES

Volume 22

Number 3

June 1997

EBRU AChemS JASTS



### **Executive editors**

T.E. Finger, Department of Cellular and Structural Biology, University of Colorado Medical School, 4200 E. Ninth Avenue, B-111, Denver, CO, USA

K. Kurihara, Faculty of Pharmaceutical Sciences, Hokkaido University, Kita 12, Nishi 6, Kita-ku, Sapporo 060, Japan

M.M. Mozell, Department of Physiology, SUNY Health Science Center, Syracuse, NY, USA

R.A. Steinbrecht, Max-Planck-Institut für Verhaltensphysiologie, 82305 Seewiesen, Germany

S. Van Toller, Department of Psychology, University of Warwick, Coventry, UK

# **Editorial board**

H. Altner, Regensburg, Germany
G. Beauchamp, Philadelphia, PA, USA
G.G. Birch, Reading, UK
R. Bradley, Ann Arbor, MI, USA
R.J. Contreras, Tallahassee, FL, USA
K.B. Døving, Oslo, Norway
A.I. Farbman, Evanston, IL, USA

J.E.R. Frijters, Geleen, The Netherlands
Th. Hummel, Erlangen, Germany
B. Jafek, Denver, CO, USA
K.E. Kaissling, Seewiesen, Germany
I.S. Kauer, Boston, MA, USA

J.S. Kauer, Boston, MA, USA M. Kendal-Reed, NC, USA

G. Kobal, Erlangen, Germany

J.H.A. Kroeze, Utrecht, The Netherlands

H. Lawless, Ithaca, NY, USA

L.E. Marks, New Haven, CT, USA

C. Masson, Bures-sur-Yvette, France

H. Mustaparta, Dragvoll, Norway

R. O'Connell, Shrewsbury, MA, USA

H. Ogawa, Kumamoto, Japan

S. Saito, Ibaraki, Japan

T. Sato, Nagasaki, Japan

J.W. Scott, Atlanta, GA, USA

T. Shibuya, Ibaraki, Japan

J. Van Houten, Burlington, VT, USA

T. Yamamoto, Osaka, Japan

## **Production editor**

Sue Bell, Oxford University Press



### **OXFORD UNIVERSITY PRESS**

# Contents

# $\mathcal{C}_{\odot}$ volume 22 number 3 1997

Odor Hedonics: Connection With Emotional Response Estimated by Autonomic Parameters O. Alaoui-Ismaïli, E. Vernet-Maury, A. Dittmar, G. Delhomme and J. Chanel	237
Capsaicin Modifies Responses of Rat Chorda Tympani Nerve Fibers to NaCl K. Osada, M. Komai, B.P. Bryant, H. Suzuki, A. Goto, K. Tsunoda, S. Kimura and Y. Furukawa	249
Perceived Irritation during Ingestion of Capsaicin or Piperine: Comparison of Trigeminal and Non-trigeminal Areas H. Rentmeister-Bryant and B.G. Green	257
Amiloride Effects on Taste Quality: Comparison of Single and Multiple Response Category Procedures C.A. Ossebaard, I.A. Polet and D.V. Smith	267
Rapid Classical Conditioning of Odor Response in a Physiological Model for Olfactory Research, the Tiger Salamander K.M. Dorries, J. White and J.S. Kauer	277
Broad Tuning of Rat Taste Cells for Four Basic Taste Stimuli T. Sato and L.M. Beidler	287
REVIEW ARTICLE Ultrastructural Aspects of Olfactory Signaling B.Ph.M. Menco	295
SHORT COMMUNICATIONS Glucocorticoid (Type II) Receptors in the Olfactory Mucosa of the Guinea-Pig: RU28362 R.C. Kern, J.D. Foster and D.Z. Pitovski	313
Olfactory Receptor Database (ORDB): A Resource for Sharing and Analyzing Published and Unpublished Data M.D. Healy, J.E. Smith, M.S. Singer, P.M. Nadkarni, E. Skoufos, P.L. Miller and G.M. Shepherd	321
BOOK REVIEW	327
ABSTRACTS Thirtieth Japanese Symposium on Taste and Smell (JASTS XXX)	331

# **Subscriptions**

A subscription to Chemical Senses comprises six issues, with an Annual Author and Subject Index. Subscriptions are entered on a calendar year basis only. Prices include postage by surface mail or, for subscribers in the USA and Canada by air freight, or in India, Japan, Australia and New Zealand by Air Speeded Post. Airmail rates are available on request.

### Annual subscription rate (Volume 22, 1997):

Institutional rate: UK and Europe, £200; Rest of World, \$325. Personal rate\*: UK and Europe, £100; Rest of World, \$163. Back volume prices and subscription rates for members of AChemS, ECRO and JASTS are also available on request.

\*Personal rates apply only when copies are sent to a private address and payment is made by personal cheque or credit card.

Orders. Orders and payments from, or on behalf of, subscribers in the various geographical areas shown below should be sent to the office indicated.

The Americas: Oxford University Press, 2001 Evans Road, Cary, NC 27513, USA.

Japan: available from the following agents:

Kinokuniya Company Ltd. Journal Department, PO Box 55, Chitose, Tokyo 156, Japan.

Maruzen Company Ltd. Journal Division, PO Box 5050, Tokyo International 100-31, Japan.

Usaco Corporation. 13-12 Shimbashi 1-chome, Minato-ku, Tokyo 105, Japan.

Rest of the World: Oxford University Press, Great Clarendon Street, Oxford 0X2 6DP, UK.

Tel: (01865) 267907; telex: 837730 OXPRESG; fax: (01865) 267485.

Advertising. To advertise in *Chemical Senses* contact Oxford University Press (US office) in the Americas or (UK office) in the Rest of the World (see addresses above).

Inquiries for all volumes except the current one and the two previous to it are available from Wim Verbeek, Swets & Zeitlinger, Backsets Department, PO Box 830, 2160 SZ Lisse, Holland and in 16 mm microfilm, 35 mm microfilm and 105 microfiche from University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106-1346. Copies of articles published are also available from UMI.

© Oxford University Press 1997. All rights reserved; no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without either the prior written permission of the publishers or a licence permitting restricted copying issued in the UK by the Copyright Licensing Agency Ltd, 90 Tottenham Court Road, London W1P 9HE, or in the USA by the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

Chemical Senses (ISSN 0379-864X) is published bimonthly in February, April, June, August, October and December, by Oxford University Press, Oxford, UK. Annual subscription price is US\$325.00. Chemical Senses is distributed by M.A.I.L. America, 2323 Randolph Avenue, Avenel, New Jersey 07001, USA. Periodical postage paid at Rahway, New Jersey, USA and additional entry points.

US POSTMASTER: send address changes to *Chemical Senses*, c/o M.A.I.L. America, 2323 Randolph Avenue, Avenel, New Jersey 07001, USA.

Typeset by Forewords, Oxford, UK and printed by Information Press Ltd, Oxford, UK on Permanent Paper.

### Trigeminal Perception of Odorant Quality in Congenitally Anosmic Subjects

M. Laska, H. Distal and R. Hudson

### Three Odorant-binding Proteins from Rabbit Nasal Mucosa

M. Garibotti, A. Navarrini, A.M. Pisanelli and P. Pelosi

# Effect of Conditioning on Discrimination of Oilseed Rape Volatiles by the Honeybee: Use of a Combined Gas Chromatography-Proboscis Extension Behavioural Assay

M. Le Métayer, F. Marion-Poll, J.C. Sandoz, M.H. Pham-Delègue, M.M. Blight, L.J. Wadhams, C. Masson and C.M. Woodcock

# Effects of Trifluoromethyl Ketones and Related Compounds on the EAG and Behavioural Responses to Pheromones in Male Moths

M. Renou, P. Lucas, E. Malo, C. Quero and A. Guerrero

### Heterogeneity of Odorant-binding Proteins in the Antennae of Bombyx Mori

R. Maida, T. Proebstl and M. Laue

# SHORT COMMUNICATION: Bimodal (Taste/tactile) Fibers Innervate the Maxillary Barbel in the Channel Catfish

K. Ogawa, T. Marui and J. Caprio

### Visual and Chemical Release of Feeding Behavior in Adult Rainbow Trout

T. Valentincic and J. Caprio

### Biogenic Amines in the Vomeronasal Organ

C. Zancanaro, C.M. Caretta, A. Bolner, A. Sbarbati, G.P. Nordera and F. Osculati

# Convergence of Oropharyngolaryngeal, Baroreceptor and Chemoreceptor Afferents onto Insular Cortex Neurons in Rats T. Hanamori, T. Kunitake, K. Kato and H. Kannan

# Sensitivity of Rat Cortical Neurons in Distinguishing Taste Qualities by Individual and Correlative Activities T. Yokota, K. Eguchi and T. Satoh

# Olfactory Discrimination Ability for Aliphatic Esters in Squirrel Monkeys and Humans

M. Laska and D. Freyer

# Purification, Identification, Concentration and Bioactivity of (Z)-7-Dodecen-1-yl Acetate: Sex Pheromone of the Female Asian Elephant, *Elephas maximus*

L.E.L. Rasmussen, T.D. Lee, A. Zhang, W.L. Roelofs and G.D. Daves, Jr

# Oral Irritant Effects of Nicotine: Psychophysical Evidence for Decreased Sensation following Repeated Application and Lack of Cross-desensitization to Capsaicin

J.-M. Dessirier, M. O'Mahony and E. Carstens