

OXFORD
UNIVERSITY
PRESS

ISSN 0379 864X Coden CHSED8

A large, stylized, light blue 'C' shape that curves around the word 'chemical'.

chemical
SENSES

Volume 22

Number 1

February 1997

ECRD 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*

J.E.R. Frijters, *Geleen, The Netherlands*

Th. Hummel, *Erlangen, Germany*

B. Jafek, *Denver, CO, USA*

K.E. Kaissling, *Seewiesen, Germany*

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*

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*

Production editor

Sue Bell, *Oxford University Press*

ECRO AChemS JASTS

OXFORD UNIVERSITY PRESS

Published bimonthly by Oxford University Press, Oxford, UK, in association with the European Chemoreception Research Organization, the Association for Chemoreception Sciences and the Japanese Association for the Study of Taste and Smell

Olfactory Quality: From Descriptor Profiles to Similarities P. Callegari, J. Rouault and P. Laffort	1
Central Processing of Odor Concentration is a Temporal Phenomenon as Revealed by Chemosensory Event-Related Potentials (CSERP) B.M. Pause, B. Sojka and R. Ferstl	9
Genetic Sensitivity to 6-n-Propylthiouracil (PROP) and Hedonic Responses to Bitter and Sweet Tastes A. Drewnowski, S.A. Henderson and A.B. Shore	27
'Sniffin' Sticks': Olfactory Performance Assessed by the Combined Testing of Odor Identification, Odor Discrimination and Olfactory Threshold T. Hummel, B. Sekinger, S.R. Wolf, E. Pauli and G. Kobal	39
Tastes, Structure and Solution Properties of D-Glucono-1,5-lactone S.A. Parke, G.G. Birch, D.B. MacDougall and D.A. Stevens	53
Application of Statistical Thermodynamics to the Olfaction Mechanism A. Ben Lamine and Y. Bouazra	67
Olfactory Evoked Potential Produced by Electrical Stimulation of the Human Olfactory Mucosa T. Ishimaru, T. Shimada, M. Sakumoto, T. Miwa, Y. Kimura and M. Furukawa	77
Intracellular Calcium Increase in Gerbil Taste Cell by Amino Acid Sweeteners Y. Uchida and T. Sato	83
Inositol-1,4,5-trisphosphate Induces Responses in Receptor Neurons in Rat Vomeronasal Sensory Slices K. Inamura, M. Kashiwayanagi and K. Kurihara	93
SHORT COMMUNICATION Olfactory Functions in Parkinson's Disease and Alzheimer's Disease J.P. Lehrner, T. Brücke, P. Dal-Bianco, G. Gatterer and I. Kryspin-Exner	105

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 OX2 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 Newark, 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.

The Hydrostatic and Hydrodynamic Volumes of Polyols in Aqueous Solutions and their Sweet Taste
A.L. Chavez and G.G. Birch

Analysis of Medication Off-Odors Using an Electronic Nose
S.S. Schiffman, B.G. Kermani and H.T. Nagle

Different Characteristics of Gustatory Responses between the Greater Superficial Petrosal and Chorda Tympani Nerves in the Rat
S. Harada, T. Yamamoto, K. Yamaguchi and Y. Kasahara

Rapid Classical Conditioning of Odor Response in a Physiological Model for Olfactory Research, *Ambystoma tigrinum*
K.M. Dorries, J. White and J.S. Kauer

SHORT COMMUNICATION: Influence of Stimulus Duration on a Regional Measure of NaCl Taste Sensitivity
R. Bagla, B. Klasky and R.L. Doty

Response of Pigs to Bitter-tasting Compounds
S.L. Nelson and J.D. Sanregret

Amiloride Effects on Taste Quality: Comparison of Single and Multiple Response Category Procedures
C.A. Ossebaard, I.A. Polet and D.V. Smith

Ontogeny of the Solitary Chemosensory Cells in Zebrafish, *Danio rerio*
K. Kotrschal, W.-D. Krautgartner and A. Hansen

Mineralocorticoid (Type I) Receptors in the Olfactory Mucosa of the Mammal: Studies with [³H]Aldosterone and the Anti-Mineralocorticoid Spironolactone
R.C. Kern, J.D. Foster and D.Z. Pitovski

Broad Tuning of Rat Taste Cells for Four Basic Taste Stimuli
T. Sato and L.M. Beidler

Changes in Outward K⁺ Currents in Response to Two Types of Sweeteners in Sweet Taste Transduction of Gerbil Taste Cells
Y. Uchida and T. Sato

Effect of Nasal Dilators on Perceived Odor Intensity
D.E. Hornung, C. Chin, D.B. Kurtz and P.F. Kent

ABSTRACTS: Twelfth Congress of European Chemoreception Research Organisation (ECRO XII)

ABSTRACTS: Thirtieth Japanese Symposium on Taste and Smell (JASTS XXX)

The Editors would like to thank those listed below who have given their help over the last year in the review of manuscripts submitted to *Chemical Senses*.

L. Barlow	M. Ikeda	H. Okawa
L. Bartoshuk	T. Imoto	N. Onoda
G.K. Beauchamp		M. Ozaki
J. Behan	K.-E. Kaissling	
G. Birch	M. Kashiwayanagi	M. Pelchat
J.G. Brand	M. Kendal-Reed	K. Persaud
H. Breer	J.C. Kinnamon	M.-O. Portman
L. Buck	M. Kirk-Smith	J. Prah
	G. Kobel	G.D. Prestwich
W.E.S. Carr	E. Kosar	G. Preti
T. Christensen	D. Kurtz	
		R. Reed
P. Dalton	P. Laffort	P. Rouge
G. Delay	D. Laing	
V. Dionne	D. Lancet	M. Schleidt
R. Doty	H. Lawless	C. Sell
K. Døving	M. Linschoten	W.L. Silver
D. Drescher	T. Lorig	M. Singer
	B. Lyman	B. Slotnick
H. Ehrlichman		D.V. Smith
H. Eisthen	F. Margolis	P. Sorensen
	R.F. Margolskee	W. Spillane
A.I. Farbman	L. Marks	E. Städler
S. Firestein	T. Marui	G. Stange
M. Frank	R. Mason	R.A. Steinbrecht
S. Frankman	M. Mathlouthi	K. Sugimoto
	I. Matsuoka	
D. Gower	B.Ph.M. Menco	M. Tonoike
B.G. Green	M. Meredith	K. Tonosaki
	I.J. Miller	K. Toyoshima
A. Hansen	D. Moran	J. Travers
C. Hawkes	C. Murphy	
Y. Hayashi		J. Walker
G. Hellekant	T. Nagai	L. Wetstein
A. Hendriks	T. Nakamura	T. White
R. Hertz	Y. Ninomiya	C. Wysocki
R. Herz	A. Noble	
G. Horner		T. Yamamoto
D. Hornung	R. O'Connell	K. Yoshii
	Y. Okada	S. Youngentob