

# JOHN WILEY & SONS LTD



LONDON · NEW YORK · SYDNEY · TORONTO

## CYCLIC 3',5'-NUCLEOTIDES: Mechanisms of Action

edited by H. Cramer, *Neurologische Universitätsklinik mit Abteilung für Neurophysiologie, Freiburg, Federal Republic of Germany*; and J. Schultz, *Pharmazeutisches Institut der Universität Tübingen, Federal Republic of Germany*.

The intention of this book is to survey some of the important areas of cyclic nucleotide research and the impact of cyclic nucleotides on normal and pathophysiological regulation in a number of organs and states.

0471 99456 1 568 pages July 1977 approx. £17.50/\$34.50

## METHODS OF BIOCHEMICAL ANALYSIS Vol. 24

edited by D. Glick, *Stanford Research Institute*.

This volume emphasizes methodology and instrumentation of biochemical analysis. The chapters present a discussion of the background and previous work, evaluate the various approaches, and present procedural details of the method or methods recommended by the author. The authors are scientists who have either originated the methods they discuss or have had extensive experience with them. (Series: Methods of Biochemical Analysis.)

0471 02764 2 approx. 496 pages In Press approx. £19.50/\$33.00

## CHROMENES, CHROMANONES, AND CHROMONES

edited by G. P. Ellis, *University of Wales Institute of Science and Technology, Cardiff, U.K.*

This discusses the chemistry of the compounds listed in the title and surveys biological and phytochemical work associated with these compounds. The application of modern physical techniques, such as spectroscopy and chromatography is emphasized, and a tabulation of known chromenes, chromanones, and chromones, together with the melting or boiling point and references is featured. (Series: Chemistry of Heterocyclic Compounds Vol. 31)

0471 38212 4 approx. 1,328 pages In Press approx. £60.00/\$101.60

## HAEMOSTASIS: Biochemistry, Physiology and Pathology

edited by D. Ogston and B. Bennett, *Department of Medicine, University of Aberdeen*.

This volume is intended as a comprehensive and up-to-date account of the biochemistry, physiology and pathology of the haemostatic mechanism and its individual components. The book should appeal to medical post-graduates and biochemists working in this field and, as a reference volume, for pathologists, technicians and others less closely concerned with haemostasis.

0471 99459 6 approx. 512 pages In Press approx. £18.00/\$36.00

## INTRODUCTION TO SOIL MICROBIOLOGY 2nd Ed.

by M. Alexander, *Cornell University*.

This characterizes soil microflora from descriptive and functional viewpoints, considering the biological processes that take place in the soil and their importance to soil fertility, plant growth, and environmental quality. Deals with the biochemical basis for soil processes, including microbial ecology, the carbon and nitrogen cycles, mineral transformations, and ecological interrelationships.

0471 02179 2 480 pages July 1977 £13.50/\$23.00

## BIOCHEMICAL EFFECTS OF ENVIRONMENTAL POLLUTANTS

edited by S. D. Lee, *Health Effects Research Laboratory, Environmental Protection Agency, and Department of Environmental Health, University of Cincinnati, College of Medicine*.

This book gives a basic understanding of the mechanisms through which environmental pollutants affect plant and animal life. It emphasizes methods of detecting the first signs of biochemical pollutant effects, because these first signs give early warnings of potential danger to the human population. The book emanates from a 1976 EPA Symposium, sponsored by the Health Effects Research Laboratory of the Environmental Research Center, US EPA.

0250 40143 6 approx. 455 pages In Press approx. £18.75/\$30.80

Published by Ann Arbor Science Inc., and distributed by John Wiley & Sons Ltd.

## ANATOMICAL NEUROENDOCRINOLOGY

edited by W. E. Stumpf and L. D. Grant, *Chapel Hill, N.C.*

Based on the International Conference on Neurobiology of CNS-Hormone Interactions, Chapel Hill, N.C., 1974.

Anatomical Neuroendocrinology provides maps and atlases of hypothalamic and extrahypothalamic sites of hormone uptake with relationship to pituitary feedback-regulation, modulation of behavior, electrical activity and actions of neurotransmitters and polypeptide messengers. Data are provided on neurotransmitter-hormone interrelationships and chapters are included on clinical implications of neuroendocrine research. This book marks the beginning of a concept: the brain as a gland, which contrasts with and supplements both past and contemporary views of the brain as an organ of electrical conduction.

3 8055 2154 5 480 pages October 1976 £33.75/\$57.80

Published by S. Karger A. G. of Basel, and obtainable from John Wiley & Sons Ltd.

## Announcing the First Two Volumes of a New Series: Comparative Animal Nutrition

Series Editor: M. Rechcigl Jr., *Washington, D.C.*

### Vol. 1: Carbohydrates, Lipids and Accessory Growth Factors

This volume focuses on carbohydrates, lipids and vitamins and other accessory growth factors together with antibiotics and hormones. Information is provided on the nomenclature of nutrients and their occurrence.

3 8055 2268 1 224 pages December 1976 £24.55/\$45.60

### Vol. 2: Nutrient Elements and Toxicants

The second volume of this series offers critical and provocative reviews related to the chemical needs of animals and covering both major and trace elements as well as the effects of toxicants.

3 8055 2351 3 220 pages March 1977 £25.00/£42.50.

Published by S. Karger A.G. of Basel, and obtainable from John Wiley & Sons Ltd.

---

# JOHN WILEY & SONS LTD

Baffins Lane · Chichester · Sussex PO19 1UD · ENGLAND

**UNIVERSITY OF THE WITWATERSRAND,  
JOHANNESBURG AND SOUTH AFRICAN INSTITUTE  
FOR MEDICAL RESEARCH**

**Chair of  
Chemical Pathology**

Applications are invited for appointment to the above post on the joint staff of the University and the Institute in the School of Pathology.

The salary attached to the post is R 15 600 per annum plus a 10% pensionable allowance (£1 = R1.50 approx.). In addition, generous remuneration for approved overtime duties is given.

*Intending applicants in the United Kingdom may obtain the information sheet relating to this post from the London Representative, University of the Witwatersrand, 278 High Holborn, London WC1. The information sheet may also be obtained from The Registrar, University of the Witwatersrand, Jan Smuts Avenue, Johannesburg, South Africa, 2001 with whom applications should be lodged by 31st August 1977.*

# NEW FROM MILES RESEARCH PRODUCTS

## LECTINS

As a major producer of lectins, FITC-conjugated lectins and immobilized lectins, we are pleased to announce the development of four new lectins from lentil seed and castor bean. These are available in both the free and immobilized forms as well as the FITC derivatives.

	LECTINS Code No.	FITC-LECTINS Code No.	AGAROSE- IMMOBILIZED LECTINS Code No.
Lens Culinaris Hemagglutinin A	79-130	79-104	79-133
Lens Culinaris Hemagglutinin B	79-135	79-105	79-138
Ricinus Communis Agglutinin—60	79-140	79-106	79-143
Ricinus Communis Agglutinin—120	79-145	79-107	79-148

**ALSO AVAILABLE:** In free and agarose-immobilized forms and as FITC-derivatives:

Concanavalin A and Con A Salts  
 Fucose Binding Protein (from lotus seed)  
 Soybean Agglutinin  
 Wheat Germ Agglutinin  
 Ferritin-Concanavalin A (for Electron microscopy)

AVAILABLE SOON: **Phytohemagglutinin**

More detailed description of these products can be found in our new Biochemicals Catalog. If you don't have one, write the office nearest you for your free copy.



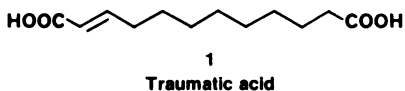
Research Products  
 Miles Laboratories, Inc.  
 Elkhart, Indiana 46514  
 Phone: 219-264-8804

Miles Laboratories, Ltd.  
 Post Office Box 37, Stoke Poges  
 Slough, England SL 2 4 LY  
 Phone: Farnham Common 2151

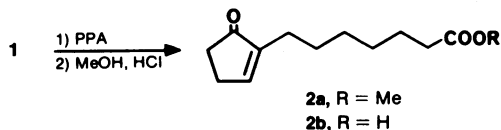


# Traumatic Acid

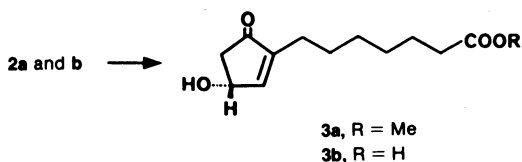
Traumatic acid (*trans*-2-dodecenedioic acid, 1), first isolated from green bean pods (*Phaseolus vulgaris*) by English *et al.* in 1939,<sup>1</sup> was shown to be capable of promoting renewed growth activity in mature, uninjured cells and tissues. Therefore, it was classed as a plant "wound hormone." Later that year, the same authors reported the structure determination and total synthesis of traumatic acid.<sup>2</sup>



An important synthetic application of traumatic acid is its conversion to keto ester 2a, a useful prostaglandin intermediate for a variety of 11-deoxyprostanoids such as PGB<sub>1</sub>, 11-deoxy-PGE<sub>1</sub>, 11,15-bis-deoxy-PGE<sub>1</sub> (also -PGE<sub>2</sub> and -PGF<sub>1</sub>), 11-deoxy-13,14-dihydro-PGE<sub>1</sub>, 11-deoxy-13,14-dihydro-PGF<sub>1α</sub> (also -PGF<sub>1β</sub>) and 11-deoxy-PGF<sub>1β</sub>.<sup>3-6</sup> The transformation of traumatic acid to the keto ester 2a is achieved by treatment with polyphosphoric acid, followed by esterification with methanolic HCl.<sup>7</sup>

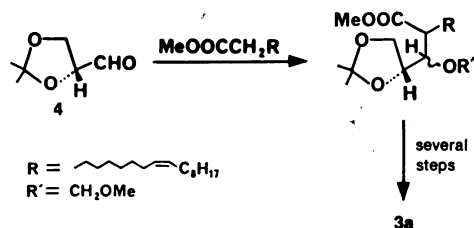


Keto ester 2a, has been converted to the hydroxy-keto ester 3a, which has been successfully transformed into 15-deoxy-PGE<sub>1</sub><sup>8</sup> and PGE<sub>1</sub>.<sup>4,9</sup>



Methods used to perform this transformation include: microbial hydroxylation of 2b (using *Aspergillus niger*), which proceeds with partial asymmetric induction giving 3b;<sup>10</sup> and allylic bromination of 2a, followed by replacement with acetate and hydrolysis, producing *racemic* 3a.<sup>11</sup>

Synthesis of optically active 3a as an intermediate to PGE<sub>1</sub> was recently reported by Stork.<sup>12</sup> Protected *D*-glyceraldehyde 4 was used as the starting material to produce intermediate 3a with the correct absolute configuration. The



stereochemistry of the remainder of the PGE<sub>1</sub> molecule was controlled by the chiral center of the *D*-glyceraldehyde moiety.

Traumatic acid has also been used as a detergent additive to reduce skin irritation,<sup>13</sup> as an antiviral agent,<sup>14</sup> and as a vulnerary (wound-healing) agent.<sup>14</sup> These and other uses for traumatic acid are currently under investigation.

#### References:

- 1) J. English, Jr., J. Bonner, and A.J. Haagen-Smit, *Proc. Nat. Acad. Sci. U.S.A.*, **25**, 323 (1939).
- 2) J. English, Jr., J. Bonner, and A.J. Haagen-Smit, *J. Am. Chem. Soc.*, **61**, 3434 (1939).
- 3) S.B. Thakur, K.S. Jadhav, and S.C. Bhattacharyya, *Indian J. Chem.*, **12**, 893 (1974).
- 4) P.D. Gokhali, V.S. Dalavoy, A.S.C.P. Rao, U.R. Nayak, and S. Dev, *Synthesis*, 718 (1974), and references cited therein.
- 5) J.F. Bagli and T. Bogri, *Tetrahedron Lett.*, 5 (1967).
- 6) J.F. Bagli and T. Bogri, *ibid.*, 1639 (1969).
- 7) A.S.C.P. Rao, U.R. Nayak, and S. Dev, *Synthesis*, 608 (1975).
- 8) C.J. Sih, R.G. Salomon, P. Price, G. Peruzzoti, and R. Sood, *Chem. Commun.*, 240 (1972).
- 9) J.G. Miller, W. Kurz, K.G. Untch, and G. Stork, *J. Am. Chem. Soc.*, **96**, 6774 (1974).
- 10) S. Kurozumi, T. Toru, and S. Ishimoto, *Tetrahedron Lett.*, 4959 (1973).
- 11) F.S. Alvarez, D. Wren, and A. Prince, *J. Am. Chem. Soc.*, **94**, 7823 (1972).
- 12) G. Stork and T. Takahashi, *ibid.*, **99**, 1275 (1977).
- 13) A.J. Pacini, U.S. Patent 3,523,636 (1970); *Chem. Abstr.*, **74**, 4937m (1971).
- 14) A.J. Pacini, U.S. Patent 3,542,826 (1970); *Chem. Abstr.*, **74**, 53062f (1971).

17,724-5 Traumatic acid 1g \$11.85; 5g \$39.55  
G478-0 *D*-Glyceraldehyde 250mg \$13.50; 1g \$35.35

## Aldrich Chemical Company, Inc.

Craftsmen in Chemistry

Corporate Offices:  
Aldrich Chemical Co., Inc.  
940 W. Saint Paul Ave.  
Milwaukee, Wisconsin 53233  
U. S. A.

Great Britain:  
Aldrich Chemical Co., Ltd.  
The Old Brickyard, New Road  
Gillingham, Dorset SP8 4JL  
England

Belgium/  
Continental Europe:  
Aldrich-Europe  
B-2340 Beerse  
Belgium

West Germany/  
Continental Europe:  
EGA-Chemie KG  
7924 Steinheim am Albuch  
West Germany