WANTED
—an Automatic Enzyme System that prepares samples precisely, makes kinetic measurements, requires no tedious pipetting, has wavelengths other than just 340 nm, provides a choice of operating temperature . . . . . . ! This description fits the PYE UNICAM AC1800 Automatic Enzyme System exactly. It includes one of the most wanted UV Spectrophotometers—the SP1800. This system will cost you far less to secure than some dedicated instruments with lower performance.

REWARD
from using the AC1800 system can be very worthwhile—just request more information now on our Automatic Enzyme Analyser

Pye Unicam Ltd.
York Street, Cambridge CB1 2PX, England
Telephone (0223) 58866. Telex: 81215

PYE UNICAM ☠ ☠
A Simple, Automatic Way of Measuring Gas Evolution or Absorption

A new apparatus recently developed at the Natural Rubber Producer’s Research Association (NRPRA), provides automatic measurement of the absolute volume of gas absorbed or evolved, together with time of absorption or evolution: the sample material being maintained in a controlled environment.

Suitable for studies on:
(a) Respiration of tissues.
(b) Metabolic processes.
(c) Photosynthesis.
(d) Nitrogen fixation experiments.

The Apparatus Offers the Following Advantages:
1. No need for calibration as the volume of gas introduced depends solely on the diameter of the precision turned screw-rod.
2. Good sensitivity: Smallest volume measurable is approximately 0.005 mls and in some cases is down to 0.001 mls.
3. Stability is extremely high depending ultimately on thermal control, since the system is essentially hydromechanical.
4. The apparatus is simple to operate and the incorporation of "fail-safe" devices allows the apparatus to be left unattended after the initial setting-up procedure.
5. Up to nine apparatus can be handled by one operator for long periods, and the tedious of calculations is removed by feeding data into a small computer which prints the results in page form for filing.

Cumulative Index for Volumes 91–115 of The Biochemical Journal

Available from
The Biochemical Society, Publications Department, 7 Warwick Court, LONDON WC1R 5DP

Members: £3.25—U.S. $9
Non-Members: £5.25—U.S. $13
The Journal of General Microbiology

Volume 72, Part 3. October 1972

DEVELOPMENT AND STRUCTURE
R. K. Gibson and J. F. Peberdy. Fine Structure of Protoplasts of Aspergillus nidulans

PHYSIOLOGY AND GROWTH
S. J. Kerr. Inhibition of Flagellum Morphogenesis in the True Slime Mould, Didymium nigripes
S. J. Kerr. Flagellum Growth and Regeneration in the True Slime Mould, Didymium nigripes
I. Chet, N. Retig and Y. Henis. Changes in Total Soluble Proteins and in Some Enzymes during Morphogenesis of Sclerotium rolfsii
H. D. Donoghue. Properties and Comparative Starch-gel Electrophoresis of Megacins from Several Bacillus megaterium Strains
I. Barash. Accumulation of Urea and Allantoin during Purine Utilization by Germinating Spores of Geotrichum candidum
B. I. Rowley and S. J. Pirt. Melanin Production by Aspergillus nidulans in Batch and Chemostat Cultures

BIOCHEMISTRY
C. Wagner and J. R. Quayle. Carbon Assimilation Pathways during Growth of Pseudomonas and on Methylamine and Pseudomonas sp on Methylamine and Trimethylsulphonium Salts
J. E. Benbough, P. Hambleton, K. L. Martin and R. E. Strange. Effect of Aerosolization on the Transport of α-Methyl Glucoside and Galactosides into Escherichia coli

GENETICS AND MOLECULAR BIOLOGY
L. A. Casselton and A. Condit. A Mitochondrial Mutant of Coprinus lagopus
J. N. Cortzee, N. Datta and R. W. Hedges. R Factors from Proteus rettgeri

MEDICAL MICROBIOLOGY
K. A. Forsshaw. Electrophoretic Patterns of Strains of Mycoplasma pulmonis
K. A. Forsshaw and R. J. Fallon. Serological Heterogeneity of Mycoplasma pulmonis

TAXONOMY
D. Jones, M. J. Sackin and P. H. A. Sneath. A Numerical Taxonomic Study of Streptococci of Serological Group D
L. O. White. The Taxonomy of the Crown-gall Organism, Agrobacterium tumefaciens, and Its Relationship to Rhizobia and Other Agrobacteria

SHORT COMMUNICATIONS
D. H. Calhoun, M. Carson and R. A. Jensen. The Branch Point Metabolite for Pyrocyanine Biosynthesis in Pseudomonas aeruginosa
M. Hinton. Failure of Erythritol to Stimulate the Growth of Salmonella dublin in vitro

Price £4.00 net ($12.00 in U.S.A.). Annual subscription £32.00 net ($106.00 in U.S.A.)

CAMBRIDGE UNIVERSITY PRESS
Bentley House, 200 Euston Road, London NW1 2DB
American Branch: 32 East 57th Street, New York, NY 10022
Control mechanisms of cell metabolism
HERBBTAGUNG DER GESELLSCHAFT FÜR BIOLOGISCHE CHEMIE

The effect of ultrasonication on the chemical and physical properties of aqueous egg yolk lecithin dispersions
HAUSER and L. IRONS

Purification and some properties of a kininogenase from human plasma activated by surface contact
U. WENDEL, W. VOOT and G. SEIDEL

Fluorimetric determination of lysine
M. ROTH and L. JEANNERET

3-Dehydroecdysone, a metabolite of ecdysone in Calliphora erythrocephala Meigen
P. KARLSON, H. BUGANY, H. DÖPP and G.-A. HOYER

Isolation and characterization of a caste specific protein from honeybees
H. REMBOLD and H. GRAF

Amine catalysed splitting of phenylalanine specific tRNA after elimination of single bases
W. WINTERMEYER, R. THIEBS and H. G. ZACHAU

Isolation of a trypsin-like enzyme (acrosin) from boar spermatozoa
E. FINK, H. SCHIESSLER, M. ARNHOHL and H. FRITZ

Properties of the trypsin-like enzyme (acrosin) from boar spermatozoa
H. SCHIESSLER, H. FRITZ, M. ARNHOHL, E. FINK and H. TSCHIESCHE

Characterization of porcine and human serum kallikreins by inhibition studies with protein proteinase inhibitors
G. WUNDERER, K. KUMMER and H. FRITZ

SHORT COMMUNICATIONS
Behaviour of the chymotrypsin-like proteinase from human sperm plasma towards protein proteinase inhibitors
H. FRITZ, M. ARNHOHL, B. FÖRO-BREY, L. J. D. ZANEVELD and G. F. B. SCHUMACHER

Multiple steroid hormone receptors in calf uterus. Binding specificities and distribution
R. K. WAGNER, L. GÖRLICH and P. W. JUNGBLUT

The uropygial gland fat from the cuckoo (Cuculus canorus)
J. JACOB and J. POLTZ
Cyclic A-3':5'-MP assays

are now within easy reach of everyone

By using the Boehringer Mannheim Test Combination for the determination of Cyclic A-3':5'-MP in the range of 1–20 p mole.

All reagents and materials required for 40 tests conveniently at hand in the Test Combination form saves you valuable experimental time spent preparing and checking reagents.

Buffers, standards and binding protein all quality controlled to ensure correct reagent concentrations you will have confidence in the results you obtain.

PRINCIPLE — The Gilman Test

The assay is based on the radio isotope dilution principle and involves the binding of A-3':5'-MP by a protein kinase. Upon addition of a known quantity of (tritium) labelled cAMP to the sample the 'cold' cAMP of the sample competes with the added 'hot' cAMP for binding to the protein. The more cAMP present in the sample, the smaller is the amount of labelled cAMP bound to the protein. The protein is retained on a special type filter (included in the test pack) and the radioactivity is measured in a liquid scintillation counter. The accurate cAMP content is obtained from a linear standard curve.


For further details contact:
The Boehringer Corporation (London) Ltd.,
Bilton House, Uxbridge Road, Ealing, London W5 2TZ.
Tel: 01-579 6944 (5 lines)
CLINICAL SCIENCE

EDITORIAL BOARD

For the Biochemical Society

R. Hoffenberg, Chairman

For the Medical Research Society

J. S. Robson, Deputy Chairman

VOLUME 44, NO. 2

February 1973

CONTENTS

Lysine infusion in cystinuria: theoretical renal thresholds for lysine. By Frances T. Lester and D. C. Cusworth

Cardio-pulmonary responses and gas exchange during exercise in adults with homozygous sickle-cell disease (sickle-cell anaemia). By G. J. Miller, G. R. Serjeant, S. Sivapragasam and M. C. Petch

Changes in glomerular filtration rate during long-term treatment with propranolol in patients with arterial hypertension. By H. Ibsen and P. Sederberg-Olsen


The effects of 30% oxygen on the respiratory response to treadmill exercise in chronic respiratory failure. By A. J. King, N. J. Cooke, A. G. Leitch and D. C. Flenley

The development of a radioimmunoassay for the measurement of urinary Tamm-Horsfall glycoprotein in the presence of sodium dodecyl sulphate. By Anne M. S. Grant and A. Neuberger

SHORT COMMUNICATION

The point of onset of 'airway closure' measured with argon and nitrogen: a comparison of results obtained by two methods. By M. J. B. Farebrother, R. Paredes Martinez, R. Soejima and G. J. R. McHardy

MEDICAL RESEARCH SOCIETY (ANNUAL GENERAL MEETING ON 8 DECEMBER 1972)

Symposium: Pituitary—Hypothalamic Control

Communications

Subscription: £2.00 ($7.50) per part; £20.00 ($70.00) per year.
Orders may be placed with your bookseller, or sent direct to the publishers.

BLACKWELL SCIENTIFIC PUBLICATIONS LTD

5 ALFRED STREET, OXFORD, OX1 4HB, ENGLAND
Koshland's Reagents

Koshland's Reagent I is selective for tryptophan residues in protein at neutral and acidic pH values with much less reactivity for cysteine.1, 2, 3 The chromophore permits the quantitative determination of tryptophan residues.4 Koshland's Reagent II introduces a chromophore into proteins that is sensitive to variation "in pH.3, 5 Water-soluble analogs have extended the usefulness of Koshland's Reagents I and II so that derivatives of proteins can be prepared under mild conditions in aqueous media.6 Koshland's Reagent III has been used to introduce the "reporter group":2-acetamido-4-nitrophenol, into the active sites of enzymes.7, 8, 9


16,290-6 2-Hydroxy-5-nitrobenzyl bromide
[Koshland's Reagent I] 5g 3.75

85,774-2 Dimethyl(2-hydroxy-5-nitrobenzyl)sulfonium bromide
[WATER-SOLUBLE ANALOG OF KOSHLAND'S REAGENT I] 1g 4.00

16,348-1 2-Methoxy-5-nitrobenzyl bromide
[Koshland's Reagent II] 5g 6.50

85,775-0 Dimethyl(2-methoxy-5-nitrobenzyl)sulfonium bromide
[WATER-SOLUBLE ANALOG OF KOSHLAND'S REAGENT II] 5g 27.00

17,880-2 2-Bromo-2'-hydroxy-5'-nitroacetonilide
[Koshland's Reagent III] 1g 8.75


3-Deazanucleoside Intermediate

2,4-Dihydroxypyridine is a useful starting material for the synthesis of various 3-deazapyrimidine nucleosides and their derivatives, a new class of nucleic acid analogs active as antimicrobial and antitumor agents.1, 2 Treatment of 2,4-dihydroxypyridine with hexamethylidisilazane affords 2,4-bis(trimethylsilyloxy)pyridine which is subsequently condensed with the appropriate glycosyl halide to give 3-deazapyrimidine nucleosides.


17,697-4 2,4-Dihydroxypyridine 5g 18.00

85,788-3 3-Dezauridine 250mg 20.00
1g 70.00

Serum Copper Analysis

A sensitive, simple and rapid spectrophotometric method for the determination of serum copper in submicrogram quantities has recently been reported.1 The reagent, dicyclopentamethylenethiurum disulfide, forms a stable yellow copper-ligand complex which has a large molar absorptivity (ε = 37,500) at 420 nm in 5.83 M acetic acid. This reagent offers increased sensitivity over conventional techniques as well as excellent selectivity as shown in biological specimens.


85,778-5 Dicyclopentamethylenethiurum disulfide 10g-$5.00

Write for the new Aldrich Handbook of Organic Chemicals listing over 18,000 chemicals

IN THE U.S.A.
Aldrich Chemical
Company, Inc.
940 WEST ST. PAUL AVENUE
MILWAUKEE, WISCONSIN 53233

IN GREAT BRITAIN
Ralph M. Emanuel Ltd.
264 Water Road
Wembley, Middlesex
HA0 1PY
Tel: 01-998 4414

Printed in Great Britain by
William Clowes & Sons Limited, London, Colchester and Beccles