

Now use Pyrex once-throw away and save!

Corning disposable micro-sampling pipettes are made from Pyrex brand borosilicate glass. They have greater strength and reproducibility. The accuracy of the graduated 5 Lambda (λ) is $\pm 1\%$. The others have an accuracy of $\pm 0.5\%$. All are individually colour coded

for ease of identification.

Range: 5 λ (graduated in 1 λ 's), 5, 10, 20, 25, 50, 100 λ , and 44.7 λ sodium heparinised.

Look for CORNING* disposables – a name you can rely on in disposable glassware products. Write direct for details or ask your local distributor.

Jobling Laboratory Division,
Stone, Staffordshire. ST15 0BG.
Telephone: 0785-83 2121
Telex: 36226.
Cables: Jobling Stone.

Moloney Bros., Limited,
Beaumont Avenue,
Churchtown, Dublin 14.
Telephone: 983807. Telex: 5275.

* A trademark of Corning Glass Works U.S.A.

 **CORNING
DISPOSABLES**

cut costs and contamination

3 different columns in one!

It's the new Whatman Multi-system - 3 different columns in one. How's it done? By using Whatman's unique interchangeable sealing pistons in one very durable glass column. Polypropylene pistons are fitted standard for ion exchange celluloses and most organic solvents, polyamide mesh is available for gel filtration and PTFE for difficult organic and acid solvents. So you don't have to buy lots of separate columns - just select the appropriate sealing piston. And as end units are identical, chromatography can be ascending or descending. Multi-system is made to the high standards of precision you'd expect from Whatman and incorporates their sample input/delivery system to ensure homogenous loading. Multi-system is designed for easy use, versatility and durability. It offers high accuracy in a full range of column chromatography systems without triplication - all at a reasonable cost.

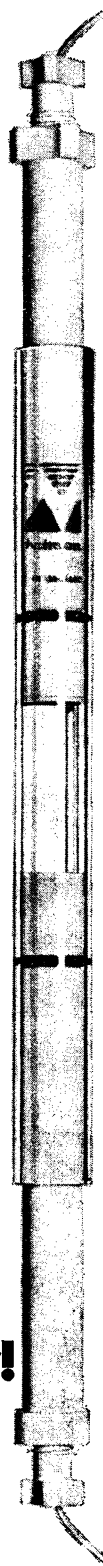
New Whatman Multi-system - the cleverest column in chromatography!

For full details, contact -



Whatman®

WHATMAN BIOCHEMICALS LIMITED,
Springfield Mill, Maidstone, Kent, England.
Telephone: Maidstone 61688/9 Telex: 96113

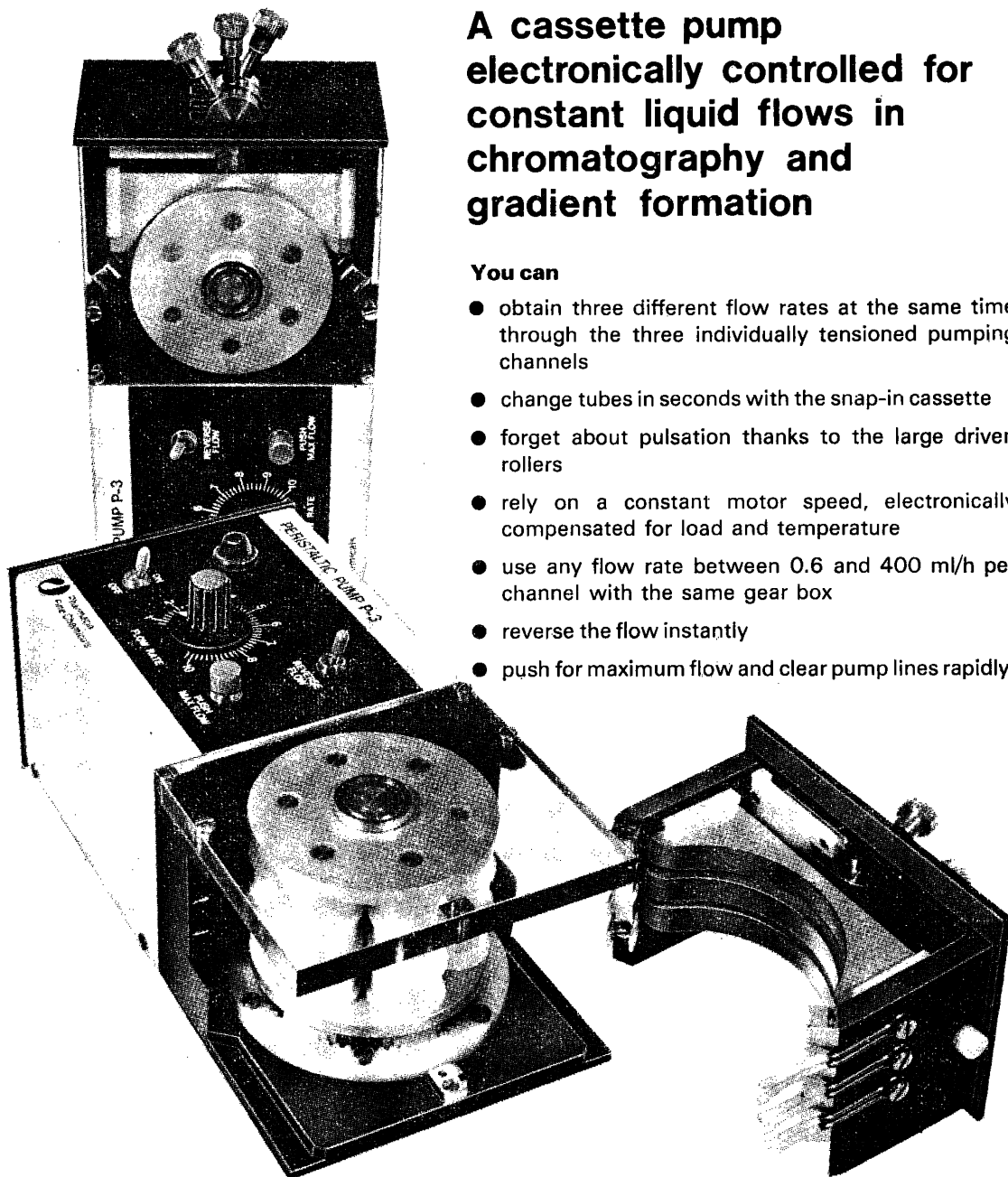


Pharmacia Peristaltic Pump P-3

A cassette pump
electronically controlled for
constant liquid flows in
chromatography and
gradient formation

You can

- obtain three different flow rates at the same time through the three individually tensioned pumping channels
- change tubes in seconds with the snap-in cassette
- forget about pulsation thanks to the large driven rollers
- rely on a constant motor speed, electronically compensated for load and temperature
- use any flow rate between 0.6 and 400 ml/h per channel with the same gear box
- reverse the flow instantly
- push for maximum flow and clear pump lines rapidly



Pharmacia (Great Britain) Ltd.
Paramount House
75 Uxbridge Road
EALING LONDON W5 5SS

 Pharmacia
Fine Chemicals

NEW 4 WAYS TO IMPROVE A GREAT SAMPLER

(WITH SAFETY IN MIND)

1 The design of the 'Model Q' is based on that of the established Oxford Sampler but features both forward and reverse modes of operation.

This gives the same degree of precision ($\pm 1\%$) with viscous and aqueous liquids.

2 Incorporation of a calibration stop halts the plunger action automatically to ensure precisely measured samples and even further elimination of human error.

3 A simple twist of the new release mechanism ejects the tip for disposal so you've no fear of personal contamination.

4 Available now for the 'Model Q' and other Oxford Samplers are individually wrapped sterile tips.



THE 'MODEL Q' SAMPLER



For further details please contact

The Boehringer Corporation (London) Ltd.,

Bilton House, Uxbridge Road, London W5 2TZ Telephone: 01-579 6944 (7 lines) Telex: 934289

If in the Republic of Ireland contact our Dublin Office at 5 Lower Hatch Street, Dublin, Tel: Dublin 760512

CLINICAL SCIENCE AND MOLECULAR MEDICINE

Formerly *Clinical Science*

EDITORIAL BOARD

For the Biochemical Society

J. A. OWEN, *Deputy Chairman*

B. H. BILLING, A. M. BRECKENRIDGE, C. N. HALES, T. D. R. HOCKADAY,
R. G. HUNTSMAN, G. H. LATHE, J. LIDDELL, I. MACINTYRE,
K. L. MANCHESTER, R. W. E. WATTS

For the Medical Research Society

R. D. COHEN, *Chairman*

G. CUMMING, D. C. FLENLEY, N. F. JONES, D. M. MATTHEWS,
M. E. M. NOBLE, D. K. PETERS, A. POLAK, J. I. S. ROBERTSON,
B. ROBINSON, J. D. M. SLATER

VOL. 47, No. 3

SEPTEMBER 1974

CONTENTS

A study of factors influencing relief of discomfort in breath-holding in normal subjects. By J. R. A. RIGG, A. S. REBUCK and E. J. M. CAMPBELL

The effect of brain extracts on urinary sodium excretion of the rat and the intracellular sodium concentration of renal tubule fragments. By E. M. CLARKSON, K. G. KOUTSAIMANIS, M. DAVIDMAN, M. DU BOIS, W. P. PENN and H. E. de WARDENER

Assay using brain homogenate for measuring the antioxidant activity of biological fluids. By J. STOCKS, J. M. C. GUTTERIDGE, ROSEMARY J. SHARP and T. L. DORMANDY

The inhibition of lipid autoxidation by human serum and its relation to serum proteins and α -tocopherol. By J. STOCKS, J. M. C. GUTTERIDGE, ROSEMARY J. SHARP and T. L. DORMANDY

The control of aldosterone secretion in nephrectomized man. By T. J. GOODWIN, V. H. T. JAMES and W. S. PEART

Effects of a sustained muscular contraction on human intraocular pressure. By D. F. MARCUS, H. F. EDELHAUSER, M. G. MAKSUD and R. L. WILEY

Plasma free fatty acid and triglyceride transport kinetics in man. By A. H. KISSEBAH, P. W. ADAMS and V. WYNN

Assessment of plasma glutamyl transpeptidase activity and urinary D-glucaric acid excretion as indices of enzyme induction. By D. C. DAVIDSON, W. B. MCINTOSH and J. A. FORD

SHORT COMMUNICATION

The ventilatory response to carbon dioxide in patients who have recovered from cardiogenic pulmonary oedema. By M. SPIERER

MEDICAL RESEARCH SOCIETY (Meeting on 12 July 1974)

Demonstrations
Symposium: Biological Effects of Asbestos
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

Cytochalasin A, B and E: Versatile New Tools for Cytological Research, Exclusively from Aldrich.

Cytochalasin (Greek **CYTOS**, cell; **CHALASIS**, relaxation)

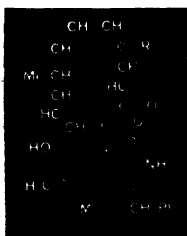
Since their discovery in 1964 in the laboratories of the Pharmaceuticals Division of Imperial Chemical Industries Limited, the CYTOCHALASINS (Greek *cytos*, cell; *chalis*, relaxation) have become increasingly important as research probes in cytology. These CYTOCHALASINS, a group of structurally related fungal metabolites (CYTOCHALASINS A and B from *Helminthosporium dematioides*, CYTOCHALASIN E from *Rosellinia necatrix*), share a number of unusual, interesting and characteristic biological effects, though varying greatly in potency in certain aspects. To date, CYTOCHALASIN B has been used in the vast majority of reported experiments.

Major biological effects observed with the CYTOCHALASINS include:

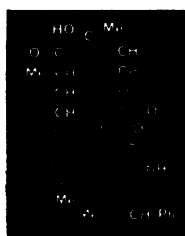
- 1. Inhibition of the division of cytoplasm.** Total inhibition of cytoplasmic cleavage is obtained without interference with division of the nucleus resulting in binucleate cells. If cultured cells are allowed to remain in the active medium, nuclear division continues and large multinucleate cells are observed.
- 2. Reversible inhibition of cell movement.** When moving L cells on a glass surface are treated with CYTOCHALASIN B,

peripheral and internal cell movements disappear, but are readily restored by washing the cells with normal medium. This effect is best observed by time-lapse cinematographic studies.

- 3. Induction of nuclear extrusion.** In this very interesting phenomenon, it is remarkable that a cell can be induced to entirely eject its nucleus within minutes of treatment with a chemical compound. Most noteworthy is the fact that CYTOCHALASIN E rarely produces nuclear extrusion. However, it is unique in producing a "halo" around the nucleus.



CYTOCHALASIN A
R=O
CYTOCHALASIN B
R=H, OH



CYTOCHALASIN E

The CYTOCHALASINS also exert inhibitory effects on the following biological processes: phagocytosis; platelet aggregation and clot retraction; glucose transport; thyroid secretion and release of growth hormone.

Continued research on these interesting compounds will undoubtedly uncover new effects and help elucidate their hitherto unknown mechanism of action. Space does not allow us to cite well over one hundred references from the literature, but a data sheet and comprehensive bibliography are available upon request. The CYTOCHALASINS are made in England by Imperial Chemical Industries Limited and distributed by the Aldrich Chemical Company.

85,779-3	CYTOCHALASIN A	10 mg. \$60.00
85,777-7	CYTOCHALASIN B	10 mg. \$36.00 50 mg. \$150.00
85,783-1	CYTOCHALASIN E	10 mg. \$60.00

Aldrich Chemical Company, Inc.

Craftsmen in Chemistry



Home Office:
Aldrich Chemical Co., Inc.
940 W. St. Paul Ave.
Milwaukee, Wisconsin 53233

In Great Britain:
Ralph N. Emanuel Ltd.
264 Water Rd., Wembley Middx.,
HAO 1PY, England

In Continental Europe:
Aldrich-Europe
B-2340 Beerse,
Belgium

In Germany:
Ega-Chemie KG
7924 Steinheim am Albuch
Germany