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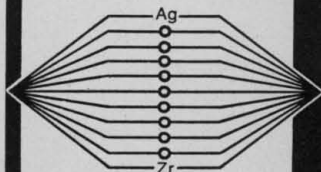
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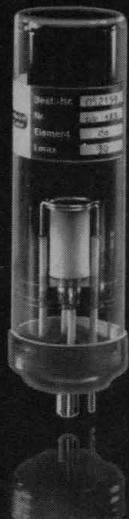


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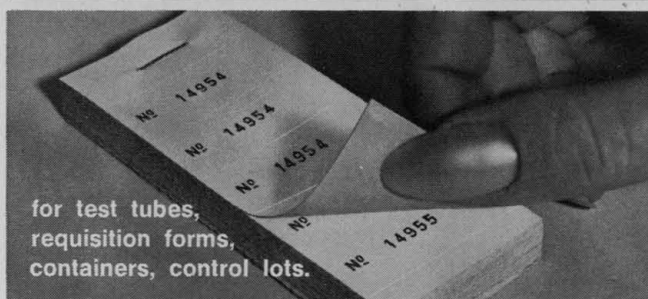
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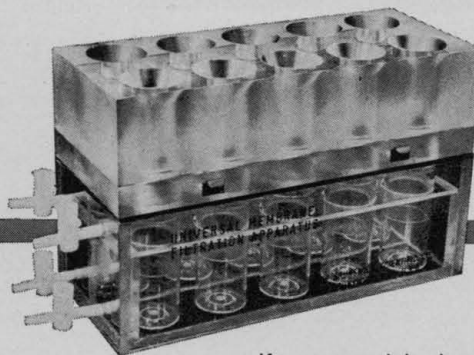
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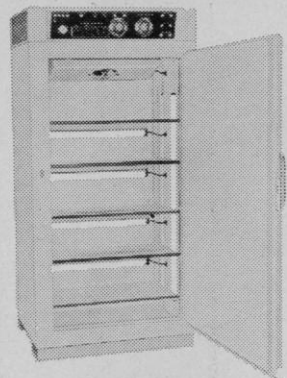
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### POSITIONS WANTED

**Limnologist-Microbial Ecologist, Ph.D.** 1970. Experience in both applied and basic water and waste-water research. Particular interest in nutrient flux, eutrophication, and aquatic microbial processes. Desires teaching-research or challenging industrial position. Box 27, SCIENCE. X

**X-ray Crystallographer, Ph.D.** (physics); 3 years postdoctoral experience. Seeks research position teaching, industry. Box 30, SCIENCE. X

### POSITIONS WANTED

**Biochemist, Ph.D.**, 6 years of research on structure and mechanism of enzymes. Organic synthesis of various reagents for enzyme chemistry. Seeks academic/nonacademic position. Box 24, SCIENCE. X

**Biologist, Ph.D.** Specialties: Microbiology, immunology; current postdoctoral researcher; seeks position with college, university; several publications; professional writing experience; references. Box 25, SCIENCE. X

**Developmental Biologist, Ph.D.**, seeks teaching or teaching/research position. Six years of university experience. Strong interest in teaching: general biology, developmental biology, others. Box 26, SCIENCE. X

**Embryologist, Descriptive and Experimental, Ph.D.**, seeks teaching position with research opportunities in college or university, preferably in central or north-central area. Box 6, SCIENCE. 1/14, 21

**Physiologist, Ph.D.**, M.S. in biology, desires responsible academic position. Experience in biology and health sciences, both professional and paraprofessional. Background in teaching, research, administration, and curriculum and facilities planning. Available summer 1972. Box 34, SCIENCE. X

**Plant Physiologist, Ph.D.**, 2 years of research; 5 years of teaching experience. Research interest in low- and high-temperature tolerance of plants. Teaching interest primarily in plant physiology, general botany; plant biochemistry. Knowledge of German. Seeks academic or research position. Box 28, SCIENCE. X

**Research Administration** (cancer and other biomedical), Ph.D., appropriate credentials, publications, supported programs, experienced in government liaison. Box 29, SCIENCE. X

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**BIOCHEMIST:** Associate Professor for growing Department of Biochemistry in new Medical School. Competitive salary. The position offers a challenging opportunity to someone possessing a flair for new approaches to the teaching of biochemistry to medical students in an integrated curriculum. A strong ongoing funded research program in the general area of Molecular Biology applied to mammalian systems is also required. Applications must be received prior to 31 March 1972 and should include a curriculum vitae and names of three references. Write to Box 31, SCIENCE.

#### BIOPHYSICIST, Ph.D.

To teach physics courses for students of the life sciences; to develop biophysics courses and biophysical research on the master's level. Should be oriented toward experimental work in bioelectronics, sensations, and related areas. Radiation physics is already represented. A background in biophysics is essential. Position open: August 1972. Send résumé to **Dr. Frank Six, Chairman, Department of Physics and Astronomy, Western Kentucky University, Bowling Green, Kentucky 42101.**

#### COMPARATIVE PHYSIOLOGIST

Teaching and research, Ph.D., preferably with experience in directing graduate student research. Teaching includes required upper division course for majors. Salary and rank commensurate with experience. Send résumé and references within 30 days to: **Wesley J. Peterson, Chairman; Department of Zoology and Microbiology, Ohio University, Athens, Ohio 45701.**

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**BIOCHEMIST**

Ph.D. Research in enzymology protein chemistry; mechanisms of enzyme inactivation. Permanent appointment, excellent benefit program. Salary \$10,000 to \$12,000 open. Contact Miss M. Kerans, Personnel Department, New York University Medical Center, 587 First Avenue, New York, N.Y. 10016.

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**M.D. OR PH.D. CANCER BIOLOGIST** with knowledge of latest cell kinetic techniques needed to join cancer immunological research group. Salary negotiable depending upon qualifications. Reply with curriculum vitae to: S. Lasher, Ph.D., Allegheny General Hospital, 320 East North Avenue, Pittsburgh, Pa. 15212.

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Ph.D. in Nutritional Bio-Chemistry or related sciences, with research and writing experience, to expand and implement the outside nutritional liaison and educational activities of the Mead Johnson Research Center. Report directly to the Vice-President, Nutritional Science Resources.

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Further information will be sent upon request. Send complete résumé, including names of referees, to I. M. Newell, Head, Division of Biological Control, University of California, Riverside, California 92502.

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**GEOLOGICAL SCIENCES**  
**PSYCHOLOGY**

Applications are invited for the HEADSHIPS of the above departments. Further details may be obtained from Dr. R. L. Watts, Dean of Arts and Science, Queen's University, Kingston, Ontario, Canada, to whom applications, with names and addresses of two referees and a curriculum vitae should be sent as soon as possible.

14 JANUARY 1972

**POSITIONS OPEN**

**Assistant Director.** Ph.D. in Nutrition/Biochemistry with experience in oral and written communication of Nutrition/Health-related information at varied levels of technicality required. Opportunity to develop, administer, and interpret an extramural research program for Midwestern Nutrition Education/Research organization as well as develop working relations with government, industry and academic scientists/educators. Salary open.

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**ASSISTANT PROFESSOR OF BIOCHEMISTRY**

Opening in Biological Sciences Department at metropolitan New Jersey (New York area) university. Undergraduate and graduate teaching and research expected. Research interest in intermediary metabolism (lipids, carbohydrates, amino acids, energy metabolism, microbial metabolism, and so forth). Submit curriculum vitae and names of references to Box 36, SCIENCE.

**Ph.D. ZOOLOGIST**

Individual with teaching experience to assume responsibility for large, environmentally oriented introductory zoology course. Appointment as Assistant Professor. Research expected. Send résumé to Dr. Daniel C. Wilhoff, Chairman, Department of Zoology and Physiology, Rutgers-The State University of New Jersey, Newark, New Jersey 07102.

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**GRIFFITH UNIVERSITY**

Queensland, Australia

**FOUNDATION PROFESSORS**

and

**CHAIRMEN OF SCHOOLS**

Griffith University, Brisbane's second university, is being established in the southern suburbs of the City of Brisbane. Building will commence early in 1973, and the first students will be taken in March 1975.

The Council is planning a "school" system of organisation for Griffith University; there will be no departments or faculties. The first four schools will be—School of Australian Environmental Studies, School of Humanities, School of Modern Asian Studies, and School of Science.

Each School will provide courses of an interdisciplinary nature as well as groups of the traditional subjects. It is envisaged that teaching, particularly in the interdisciplinary courses, will be undertaken by teams representative of various disciplines within the School.

A broad specification of the fields of study which will be developed in the first phases of the University is set out in documents on academic planning which are available from the undersigned.

Up to eight Foundation Professors will be appointed. They will be expected to play a major role in the formulation of academic policy for the University and in the development of their Schools.

Four of the Foundation Professors will be appointed Chairmen of Schools for an initial period of approximately five years. It is hoped that appointments, to take effect from March 1973, will be made in 1972 to enable Chairmen to have a continuing interest in the development of the University. Each will have a general responsibility for the affairs of a School.

The University invites applications from persons of academic standing who are interested in developing the special emphasis of Griffith University.

Salary for Professors is \$Aust. 15,264 per annum.

Closing date for applications is 31 March 1972.

The Acting Registrar,  
Griffith University,  
100 George Street,  
Brisbane, Queensland,  
Australia

# ANALYTICAL CHEMIST

To conduct research program in development of analytical methods for determination of drugs or their metabolites in biological materials; application of these methods in support of clinical bioavailability studies. Must have Ph.D. in analytical chemistry or closely related field; familiarity with modern tools of separation and physical-chemical analysis is essential; knowledge of radiochemical and radioimmunological assay techniques desirable as is previous experience in pharmaceutical or biochemical analysis.

Send complete resume in confidence including salary requirements to M. F. Murray, Professional Employment Coordinator

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**RESEARCH ASSOCIATE** position available immediately for studies involving the effects of function. Applicant should have experience in chronic tobacco smoke exposure on pulmonary assessing pressure-flow-volume relationships. Salary \$10,000. Send vitae to:

**Dr. Louis Diamond**  
College of Pharmacy  
Albert B. Chandler Medical Center  
University of Kentucky  
Lexington, Kentucky 40506

## UNIVERSITY OF QUEENSLAND AUSTRALIA RESEARCH FELLOW—PHYSICIST

Ph.D. in physics or equivalent research experience required. The appointee will join a team which is working in the Department of Mining and Metallurgical Engineering on the automatic control of mineral flotation processes and is based at the Julius Kruttschnitt Mineral Research Centre at the University Experimental Mine.

**Duties:** To determine techniques which may be suitable to sense selected characteristics of mineral pulps and froths; and to carry out development work on the most promising techniques. Previous experience in instrument design is not essential but would be helpful.

**Salary:** Minimum rate is \$Aust6697 per annum.

**Other Benefits:** Superannuation similar to F.S.S.U., possibility of financial assistance towards the cost of an economy class air fare for appointee only to Brisbane.

Additional information and application forms will be supplied upon request to the **Staff Officer, University of Queensland, St. Lucia, Queensland, Australia, 4067**, with whom applications close on 31 January 1972.

## RESEARCH MICROBIOLOGIST

Ph.D. biochemistry and immunology of bacterial infections. Available February 1972. State university, Midwest. Send résumé, salary requirements and names of references.

Box 32 SCIENCE

## UNIVERSITY OF QUEENSLAND AUSTRALIA READERS/SENIOR LECTURERS (2) IN ANATOMY

The department teaches Anatomy to students in the Faculties of Medicine, Dentistry and Science, and to students of Physical Education. The department is expanding its research activities and facilities and applicants may be drawn from any of the broad range of disciplines, which may comprise Anatomy or Human Biology, for example, Histology, Embryology, Cellular Ultrastructure, Neuroanatomy, Physical Anthropology—and must have carried out research in their field.

**Salary:** Reader \$Aust11,982 to \$Aust12,593 per annum. Senior Lecturer \$Aust9540 to \$Aust11,130 per annum.

**Other Benefits:** Superannuation similar to F.S.S.U., housing assistance, study leave, and travel grants.

Additional information and application forms obtainable from the **Staff Officer, University of Queensland, St. Lucia, Queensland, Australia, 4067** with whom applications close on 4 February 1972.

## FELLOWSHIP

### MEMORIAL UNIVERSITY OF NEWFOUNDLAND Department of Biology

Applications are invited for Postdoctoral Fellowship work in the Centre for Environmental Biology, Memorial University of Newfoundland, in the fields of (a) invertebrate pathology, as it relates to fungal, protozoal, and mermithid nematode parasites of mosquitoes and/or blackflies; (b) possible effects upon non-target organisms of such pathogens when deliberately used as "microbial pesticides"; and (c) the ecology of mosquitoes and/or blackflies, as related to future applications of biological control in integrated control methodologies.

**Salary:** \$6400 for both single and married fellows, and \$7600 for a married fellow with a child or children.

Applications, with résumé, should be addressed to:

**Dr. Marshall Laird**  
Professor and Head of Biology, and  
Director, Centre for Environmental Biology  
Memorial University of Newfoundland  
St. John's, Newfoundland, Canada

## POSTDOCTORAL FELLOWSHIPS IN NEUROCHEMISTRY

Candidates holding a Ph.D. or M.D. degree will be considered for fellowships, one in protein isolation and one in lipid metabolism. For more details, write to **Theo Gerritsen, D.Sc., Acting Director, Joseph P. Kennedy, Jr. Laboratories, University of Wisconsin Medical Center, Madison, Wisconsin 53706**.

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**GRADUATE TRAINING IN BIOCHEMISTRY** Leading to Ph.D. degree available at a distinguished cancer research institute. Full tuition and fellowships available to qualified U.S. citizens. Apply early for September 1972 admissions. Write **Dr. Herbert Weinfeld, Roswell Park Graduate Division of State University of New York at Buffalo, 666 Elm Street, Buffalo, New York 14203**.

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Available at the University of Kentucky to qualified U.S. citizens. First-year stipends are \$2400 plus tuition, plus a \$500 allowance for each dependent. Department is well equipped and faculty has varied research interests. Address inquiries to **Dr. George W. Schwert, Chairman, Department of Biochemistry, Medical Center, University of Kentucky, Lexington, Kentucky 40506**.

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For details, write to: **Dr. Richard L. Miller, Department of Biology, Temple University, Philadelphia, Pennsylvania 19122**.

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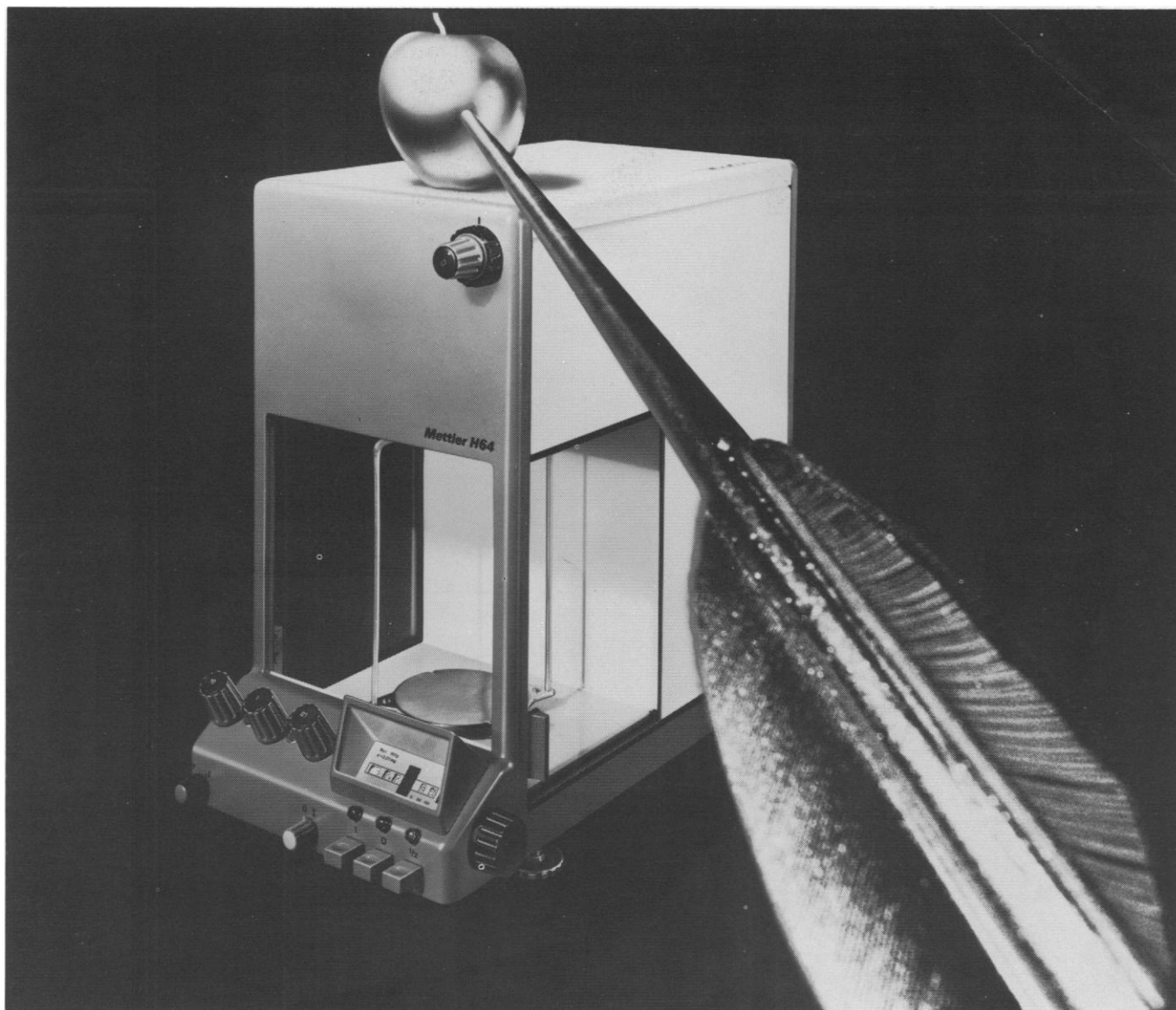
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DEAE-Sephadex A-50	Weakly basic anion exchanger Functional groups: diethylaminoethyl	Cl <sup>-</sup>	3.0 x 0.4	0.5-0.6
QAE-Sephadex A-25	Strongly basic anion exchanger Functional groups: diethyl(2-hydroxyethyl)ammonium	Cl <sup>-</sup>	4.5 x 0.5	0.4-0.5
QAE-Sephadex A-50	Strongly basic anion exchanger Functional groups: diethyl(2-hydroxyethyl)ammonium	Cl <sup>-</sup>	4.5 x 0.5	0.4-0.5
CM-Sephadex C-25	Weakly acidic cation exchanger Functional groups: carboxymethyl	Na <sup>+</sup>	4.5 x 0.5	0.4-0.5
CM-Sephadex C-50	Weakly acidic cation exchanger Functional groups: carboxymethyl	Na <sup>+</sup>	4.5 x 0.5	0.4-0.5
SP-Sephadex C-25	Strongly acidic cation exchanger Functional groups: sulfopropyl	Na <sup>+</sup>	2.3 x 0.3	7.0-8.0
SP-Sephadex C-50	Strongly acidic cation exchanger Functional groups: sulfopropyl	Na <sup>+</sup>	2.3 x 0.3	7.0-8.0

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### Thin-layer gel filtration with the Pharmacia TLG-apparatus for rapid separations with microquantities.

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- TWO PLATE SIZES**  
Two chromatographic plates 20x20 cm, with one or different gel types, or one 20x40 cm can be run.
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TLG-chamber design allows sample application without disruption of chamber equilibrium.
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Separation of cationic metabolites by partition chromatography in 1,2-dichloroethane. (Matsuda, S., Shimizu, M., and H. Ohno, J. Chromatogr. 42, 197, 1968.)

**Gel filtration**

Gel filtration of hydroxybenzoic and fatty acids in chloroform. (Matsuda, S., Shimizu, M., and H. Ohno, J. Chromatogr. 42, 197, 1968.)

**Adsorption chromatography**

Separation of estrogens by adsorption chromatography in diethyl ether. (Matsuda, S., Shimizu, M., and H. Ohno, J. Chromatogr. 42, 197, 1968.)

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in organic solvents and aqueous solutions

Sephadex LH-20 is a lipophilic derivative prepared from Sephadex G-25 by hydroxypropylation. It is supplied in bead form (dry particle size 25-100 µ) as a dry, free-running powder which swells in water and polar organic solvents. The degree of swelling decreases with decreasing solvent polarity. Although introduced as a medium for gel filtration in organic solvents, Sephadex LH-20 has rapidly become established as a medium for other types of chromatography which depend on partition and adsorption effects.

Sephadex LH-20 is used in polymer fractionation, lipid and steroid separations, aliphatic and aromatic hydrocarbon separation as well as in a host of diverse applications. Special solvent-resistant columns are available.

### New SEPHADEX University Kit

TEACH AND DEMONSTRATE GEL FILTRATION CHROMATOGRAPHY CONVENIENTLY ECONOMICALLY

- Kit contains:**
- 1 A standard Laboratory Column, KH-20
  - 5 Six sample vials—each containing 5 microliters of three different molecular weight colored materials
  - 5 Sephadex G-25 gel each of G-25 and G-100
  - 1 Instruction manual containing 8 45-minute lecture outlines and 4 suggested experiments
- Universities & Colleges**  
Can be immediately incorporated into your next laboratory course teaching separational techniques.
- Research Institutions**  
Ideal for use in the laboratory to acquaint researchers and technicians with gel filtration.
- Industry**  
Eliminates time-consuming errors for researchers who deal with wet gel filtration.

### New Calibration Kit



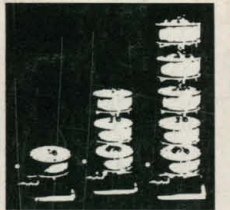
Developed especially for protein molecular weight determinations and contains standard 100mg quantities of four highly purified proteins as well as Blue Dextran 2000. The protein standards are stable for one year when refrigerated and are readily soluble in aqueous buffers. The kit contains a complete instruction manual for the procedure for accurate molecular weight determinations by column and GPC size gel filtration.



- Advantages:**
- Substances of unknown molecular weight need not be pure if standard volumes can be determined accurately.
  - Only very small amounts of substances are required.
  - Get higher accuracy and more accurate weight determinations can be completed.
  - The procedure is highly reproducible, rapid and accurate.
  - Use for teaching or for monitoring of colleges or universities along with Sephadex University kit.
- Contents:**
- 1 KH-20 column, 100 µm, 100 cm
  - 1 Proteinase A, 10 mg
  - 1 Ovalbumin, 10 mg
  - 1 Dextran, 10 mg
  - 1 Blue Dextran 2000, 10 mg

Available in U.S. and Canada only.

## SCALE UP



### GEL FILTRATION WITH THE PHARMACIA SECTIONAL COLUMN KS 370 USE ANY KIND OF GEL

The Pharmacia Sectional Column opens up completely new possibilities for large scale chromatography. It offers a unique combination of high resolution and high output.

**ANALYTICAL QUALITY SEPARATIONS**  
Production scale fractionation of proteins, enzymes, etc. are now possible.

**FOR ALL TYPES OF SEPHADEX® AND SEPHAROSE®**  
Now even the soft gels can be used in 100 litre columns.

**HIGH OUTPUT AND VERSATILITY**  
The capacity of the column is increased simply by adding more sections (section volume=18 litres). Fractions can be removed between any of the sections which can be replaced without disturbing the production sequence.

**HIGH FLOW RATES**  
Obtained on all gel types even with a large number of sections in the column. **STERILIZABLE.** A sterilizable version is available.

## Now—the whole field of agarose gel filtration covered by Sepharose 6B-4B-2B

for the separation of high molecular weight proteins and polysaccharides, nucleic acids and viruses

The beaded form of the agarose gel—Sepharose—ensures high flow rate and excellent resolution.

New Sepharose 6B, a rigid gel with superior flow properties, is especially suitable for separation in and above the upper fractionation range of Sephadex G-200.

	Approx. exclusion limits MW	[polysaccharides]	[proteins]
Sepharose 6B Xr <sup>2</sup>	1 x 10 <sup>6</sup>	4 x 10 <sup>6</sup>	4 x 10 <sup>6</sup>
Sepharose 4B	5 x 10 <sup>5</sup>	20 x 10 <sup>5</sup>	20 x 10 <sup>5</sup>
Sepharose 2B	20 x 10 <sup>4</sup>	40 x 10 <sup>4</sup>	40 x 10 <sup>4</sup>

Please ask for further information

Purification of commercially available thyroglobulin on Sepharose 6B.

## PHARMACIA PRESENTS NEW, LOW-COST, CONTINUOUS-FLOW MONITORS FOR LIQUID CHROMATOGRAPHY

**RI MONITOR**  
Dynamic Range: 10<sup>7</sup> to 10<sup>9</sup>  
• 10<sup>7</sup> RI units (approx.)  
Sensitivity: 0.1-1000 DPM  
Scale: 1-1000  
Price: \$247.00

**UV MONITOR**  
Dynamic Range: 0.0001 to 1.00  
• 0.1-1000 m.u. (approx.)  
Price: 200 m.u. (approx.)  
\$149.00. 200 m.u. (approx.) \$187.00

**featuring:**

- High sensitivity
- Small cell volume
- Solid state electronic design
- Dual flow cells
- Linear response
- Compact in size

Available in U.S. and Canada only.

Other Pharmacia products available are Sephadex gels for column and TLG thin layer gel filtration, Ficoll, Dextran and derivatives.

Laboratory equipment includes columns for use in aqueous and organic solvent system applications, column accessories, preparative columns and industrial gel filtration systems.

Technical services available: workshops, lectures, seminars, consultations and special projects. For more information contact technical representative or write to address below.

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