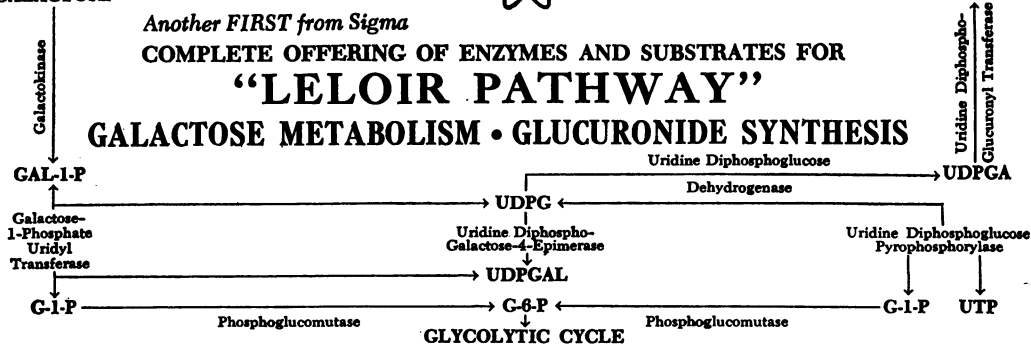




GALACTOSE

GLUCURONIDES



For the first time, all enzymes and substrates for the "Leloir Pathway", Galactose Metabolism and Glucuronide Synthesis are available. Many of the following preparations are offered here for the first time anywhere. Prices are tentative. Many have already been substantially reduced. Others will be reduced as demand warrants. Since most enzymes are about 30% more active at 30°C than at 25°C, reactions performed at higher temperatures may result in saving time and material.

**GALACTOKINASE**

**GO130** From Yeast. Present lot contains 75% Buffer Salts. Approx. 30-50 units/mg Protein  
 Unit Definition: One unit will convert one  $\mu$ Mole of Galactose to Gal-1-P per min. at pH 7.0 at 25°C.  
 Approx. 1% Hexokinase impurity

2 units	\$ 5.50	20 units	\$25.00
5 units	10.00	100 units	75.00

**GALACTOSE-1-PHOSPHATE URIDYL TRANSFERASE**

**G8128** From Yeast. Present lot contains approx. 85% Buffer Salts. Approx. 2 units/mg Protein  
 Unit Definition: One unit will form one  $\mu$ Mole of G-1-P from UDPG and Gal-1-P per min. at pH 8.7 at 25°C.  
 Approx. 5% UDPG Pyrophosphorylase impurity

2 units	\$5.00	50 units	\$75.00
---------	--------	----------	---------

**PHOSPHOGLUCOMUTASE**

**P7502** From Rabbit Muscle. Crystalline. Ammonium Sulfate Suspension. 80-130 units/mg Protein.  
 Unit Definition: One unit will convert one  $\mu$ Mole G-1-P to G-6-P per min. at 7.4 at 30°C.

200 units	\$ 7.90	1000 units	\$28.00
500 units	18.00	2500 units	56.00

**URIDINE-5'-DIPHOSPHOGALACTOSE-4-EPIMERASE**

**U3251** From Yeast. Present lot contains approx. 40% Buffer Salts. 10-15 units/mg Protein  
 Unit Definition: One unit will convert one  $\mu$ Mole UDPGal to UDPG per min. at 25°C, pH 8.8.  
 Approx. 0.5% Galactokinase impurity

5 units	\$5.00	20 units	\$12.00
100 units	\$50.00		

**URIDINE-5'-DIPHOSPHOGLUCOSE DEHYDROGENASE**

**U5500** Powder. Buffered preparation. From Bovine liver. Approx. 500 units/mg Protein  
 Unit Definition: One unit will oxidize  $4.0 \times 10^{-6}$   $\mu$ Moles of UDPG/min. at pH 8.7 at 25°C.

10,000 units	\$9.90	20,000 units	\$16.50
		50,000 units	\$33.00

**URIDINE-5'-DIPHOSPHOGLUCOSE PYROPHOSPHORYLASE**

**U1501** From Yeast. Ammonium Sulfate Suspension. Approx. 45 units/mg Protein  
 Unit Definition: One unit will cause the formation of 1.0  $\mu$ Mole of G-1-P from UDPG and Inorganic Pyrophosphate per min. at pH 7.8 at 25°C.  
 Impurities include Alcohol Dehydrogenase and G6PD

25 units	\$ 6.50	500 units	\$ 60.00
100 units	18.00	1000 units	100.00

**URIDINE-5'-DIPHOSPHOGLUCURONYL TRANSFERASE**

**U3826** From Rabbit liver. Crude microsomal preparation. Present lot contains approx. 10% Buffer Salts. Approx. .0015 units/mg Protein  
 Unit Definition: One unit will transfer 1.0  $\mu$ Mole of Glucuronic Acid from UDPGA to Phenolphthalein per min. at pH 8.0 at 37°C.  
 Present lots contain Glucuronidase impurity approx. 0.001  $\mu$ Molar units per mg at pH 4.5; approx. 0.00005  $\mu$ Molar units/mg at pH 8.0.

5 units	\$6.50	25 units	\$30.00
---------	--------	----------	---------

**$\alpha$ -D-GALACTOSE-1-PHOSPHATE**

**G0380** Dipotassium Salt. Enzymatically prepared. Purity: 98-100%. Substantially free of G-1-P.

10 mg	\$ 4.80	250 mg	\$ 54.00
50 mg	16.20	500 mg	90.00
100 mg	27.00	1 g	150.00

Also available—See our Catalog or inquire:

- D(+)-GALACTOSE
- $\alpha$ -D-GALACTOSE-1-PHOSPHATE (synthetic)
- $\alpha$ -D-GLUCOSE-1-PHOSPHATE
- D-GLUCOSE-6-PHOSPHATE
- SEVERAL GLUCURONIDES
- URIDINE-5'-DIPHOSPHOGALACTOSE
- URIDINE-5'-DIPHOSPHOGLUCOSE
- URIDINE-5'-DIPHOSPHOGLUCURONIC ACID
- URIDINE-5'-TRIPHOSPHATE

**ORDER DIRECT - TELEPHONE COLLECT from ANYWHERE in the WORLD**  
 Day, Station to Station, 314-771-5750 — Night, Person to Person, Dan Broida, 314-993-6418  
 TWX (Teletype) Day or Night: COLLECT 910-761-0593  
 TELEGRAM: SIGMACHEM, St. Louis, Missouri

The Research Laboratories of  
**SIGMA** CHEMICAL COMPANY

MAILING ADDRESS: P. O. BOX 14508, ST. LOUIS, MO., 63178, U.S.A.

MANUFACTURERS OF THE FINEST BIOCHEMICALS AVAILABLE

Distributed through:  
 SIGMA LONDON Chem. Co. Ltd. • 12, Lattice St., London, S.W.4., England • Telephone: 01-736-5823 (Reverse Charges)  
 SIGMA ISRAEL Chem. Co. Ltd. • 28 Kat-Gimel St., Givataim, Israel • Telephone: 03 768654 (Reverse Charges)

EXPERTISE FROM AROUND THE WORLD!

# Miles-Seravac

PRESENT THE RANGE OF



RESEARCH PRODUCTS

SYNTHETIC POLYNUCLEOTIDES  
BOVINE ALBUMIN & OTHER BLOOD PROTEINS  
IMMUNOCHEMICALS  
NATURAL PRODUCTS  
TISSUE CULTURE PRODUCTS  
ISOTOPIC PRODUCTS  
REAGENTS FOR PROTEIN CHEMISTRY  
COMPANION BIOCHEMICALS

*and of course!*

**ENZYMES & INSOLUBILIZED BIOCHEMICALS**

*from*

Miles-Seravac *and*  
Miles-Yeda

*Send for literature*

**IN THE U.K.**  
Miles-Seravac (Pty.) Ltd.,  
Holyport,  
Berkshire  
England.

Telephone: Maidenhead 21343  
Telex: 84672

**IN SWITZERLAND**  
Miles-Seravac,  
5 Chemin de Messidor,  
CH-1006, Lausanne,  
Switzerland.

Telephone: Lausanne 232201  
Telex: 24426

**IN THE U.S.A.**  
Research Miles Products,  
Research Division,  
Miles Laboratories Inc.,  
P.O. Box 272

Kankakee, Illinois 60901  
Telephone: 815/939-4417  
TWX: 910-632-1474

Miles-Seravac(Pty.) Limited

(A SUBSIDIARY OF MILES LABORATORIES INC.)

# CLINICAL SCIENCE

EDITORIAL BOARD

## *For the Biochemical Society*

R. HOFFENBERG, *Chairman*

C. N. HALES, R. G. HUNTSMAN, G. H. LATHE, J. LIDDELL,  
I. MACINTYRE, K. L. MANCHESTER, J. A. OWEN, R. W. E. WATTS

## *For the Medical Research Society*

J. S. ROBSON, *Deputy Chairman*

R. D. COHEN, W. I. CRANSTON, G. CUMMING, D. M. MATTHEWS,  
A. POLAK, J. I. S. ROBERTSON, B. ROBINSON, S. J. G. SEMPLE

VOLUME 41, No. 4

OCTOBER 1971

### CONTENTS

Plasma renin in idiopathic orthostatic hypotension: differential response in subjects with probable afferent and efferent autonomic failure. By D. R. LOVE, J. J. BROWN, R. H. CHINN, R. H. JOHNSON, A. F. LEVER, D. M. PARK and J. I. S. ROBERTSON

Quantitative changes in plasma amino acids induced by oral contraceptives. By I. L. CRAFT and T. J. PETERS

The validity of measurement of mean whole body intracellular hydrogen ion activity using 5,5-dimethyl-2,4-oxazolinedione. By D. L. MAKOFF, M. J. REID, Y. BAR KHAYIM and F. KUYT

Renin and aldosterone in essential hypertension. By T. A. KOTCHEN, P. J. MULROW, L. B. MORROW, P. M. SHUTKIN and N. MARIEB

Magnesium depletion in the rhesus monkey: induction of magnesium-dependent hypocalcaemia. By M. J. DUNN

Iron metabolism in patients with chronic renal failure on regular dialysis treatment. By D. H. LAWSON, K. BODDY, P. C. KING, A. L. LINTON and G. WILL

Substrate utilization in paretic human forearm muscle during electrically induced exercise. By L. HAGENFELDT, S. LANDIN and J. WAHREN

Erythrocyte protoporphyrin and iron uptake in erythropoietic protoporphyria. By K. G. A. CLARK and D. C. NICHOLSON

*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

# Hoppe-Seyler's Zeitschrift für Physiologische Chemie

Editors in Chief

A. BUTENANDT · F. LYNEN · G. WEITZEL

Subscription Rates

For one volume (12 parts) DM 420,—

Vol. 352 No. 8

Contents

August 1971

Minimum number of proteases occurring in culture media of *Aspergillus oryzae* (Engl.)

G. BRETSCHNEIDER and A. NORDWIG

Syntheses of scotophobin analogs. Peptides transferring acquired information (Germ.)

W. PARR and G. HOLZER

Carbon tetrachloride interaction with reduced microsomal cytochrome P-450 and haem (Germ.)

O. REINER and H. UEHLEKE

Actomyosin from gravid and non-gravid myometrium (Germ.)

H. CHRISTOMANOU

A simple chemical method for labelling phosphatidylcholine and sphingomyelin in the choline moiety (Engl.)

W. STOFFEL, D. LEKIM and T. S. TSCHUNG

Metabolism of sphinganine bases, XVI: Studies on the stereospecificity of the introduction of the hydroxy group of 4D-hydroxy spinganine (Phyto-sphingosine) (Engl.)

W. STOFFEL and E. BINCZEK

Studies on the substrate specificity of acylneuraminidase pyruvate-lyase (Engl.)

R. SCHAUER, M. WEMBER, F. WIRTZ-PEITZ and C. FERREIRA DO AMARAL

Circular dichroism and conformation of L-asparaginase (Germ.)

H. ROSENKRANZ and W. SCHOLTAN

Purification of a 4-methoxybenzoate O-demethylase from *Pseudomonas putida* (Engl.)

F.-H. BERNHARDT, H. H. RUF, HJ. STAUDINGER and V. ULLRICH

## SHORT COMMUNICATIONS

Free-flow electrophoretic separation of lymphocytes. Separation of graft versus host reactive lymphocytes of rat spleens (Engl.)

K. ZEILLER, K. HANNIG and G. PASCHER

Bovine fibrinogen of relatively high solubility. Characterization of fraction I-9 (Engl.)

T. WUPPERMANN and H. HORMANN

The behaviour of glycolipids in autolysing brain white matter (Germ.)

C. LEUBE and F. LINDLAR

Isolation and characterization of peroxisomes from potato tubers (Engl.)

H. RUIS

Lactate, lactate dehydrogenase and procollagen proline hydroxylase in rat skin autograft (Engl.)

S. LINDY, F. B. PEDERSEN, H. TURTO and J. UITTO

Purification and characterization of two forms of human N-acetyl- $\beta$ -D-hexosaminidase (Germ.)

K. SANDHOFF and W. WASSLE

Isolation and crystallization of the variable part of a BENCE-JONES protein (Germ.)

H. J. SCHRAMM

Molecular weight of yeast pyruvate kinase (Engl.)

H. BISCHOFBERGER, B. HESS and P. ROSCHLAU

Isolation and characterisation of aldolases A, B and C from human tissues (Germ.)

A. L. DIKOW, D. JECKEL and G. PFLEIDERER

9- $\alpha$ -D-Ribofuranosyladenine ( $\alpha$ -adenosine), the nucleoside of the corrinoid factor  $C_x$  from *Propionibacterium shermanii* (Germ.)

F. DINGLINGER and P. RENZ

Free-flow electrophoretic separation of lymphocytes: Evidence for specific organ distributions of lymphoid cells (Engl.)

K. ZEILLER and K. HANNIG

The isolation and characterization of a new serum factor which causes rhythmic uterine contractions, IV: Isolation from human plasma (Engl.)

M. PETERLIK

$\alpha$ -Chymotrypsin: Selective hydrolysis of tyrolyl-tRNA<sup>Tyr</sup> and phenylalanyl-tRNA<sup>Phe</sup> (Engl.)

H. J. CROSS and H. ALBERTY

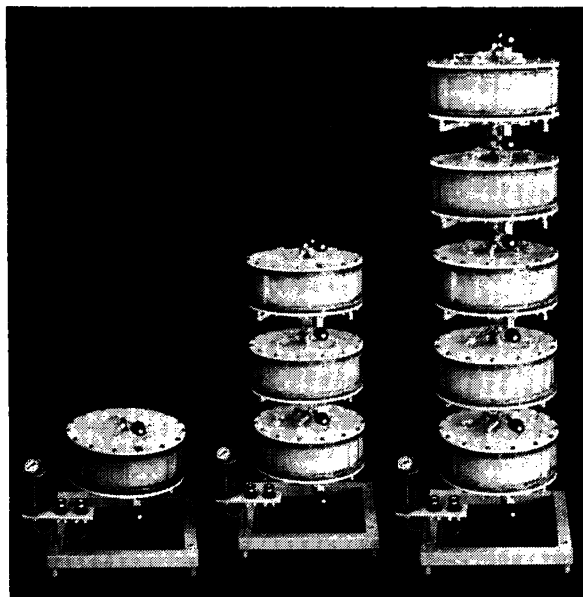
Modification of the single arginine residue in insulin with phenylglyoxal (Engl.)

H. F. BÜNZLI and H.-R. BOSSHARD



Walter de Gruyter · Berlin · New York

# 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<sup>®</sup> AND SEPHAROSE<sup>®</sup>.** 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 = 16 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.

**Full details of these exciting new developments are available from Pharmacia (Great Britain) Ltd., or from our Sales Representative in your country.**

---

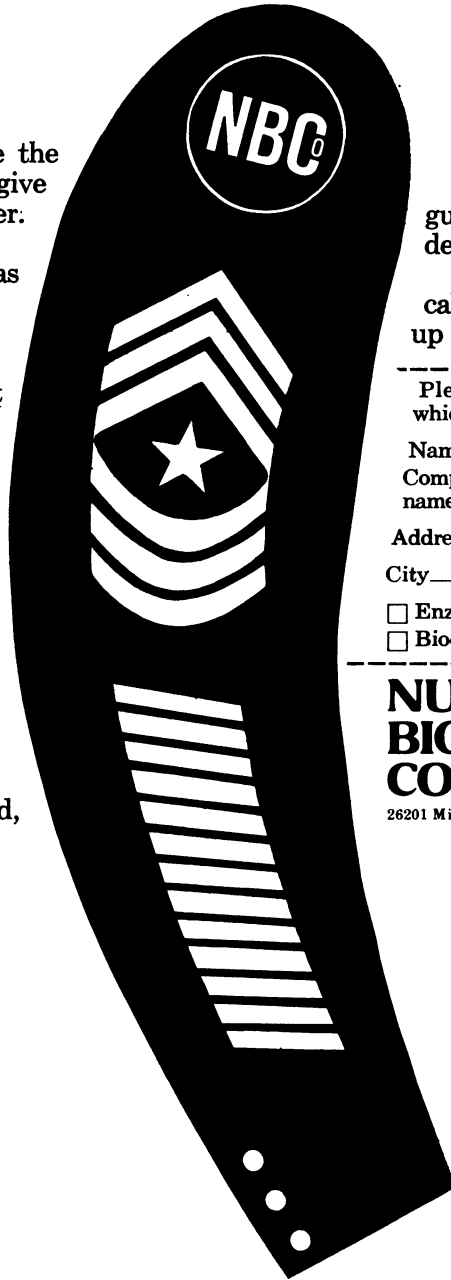
Pharmacia (Great Britain) Ltd  
Paramount House  
75 Uxbridge Road  
Ealing London W5

 **Pharmacia**  
**Fine Chemicals**

We don't try to hide the special brand of service we give every customer. Every order. Every time.

Putting service first has kept us first in our field. So has our stock of more than 4000 biochemical items . . . the finest, purest, and most complete line you'll find anywhere. Our prices are truly competitive, too, because we do business with customers the world over.

Speedy delivery is another of our strong points. Within just one hour of receiving your order, we've filled it, checked it five separate times for accuracy, and sent it on its way. At your request, we'll send exactly what you need,



anywhere in the United States, in just 24 short hours. And we'll guarantee anywhere-in-the-world delivery in only 80 hours.

For all your biochemical needs, call NBCo. We've got great things up our sleeve.

Please send the NBCo. information which I have checked below to:

Name \_\_\_\_\_

Company name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Enzyme Manual  Diets Manual

Biochemicals Catalog

## **NUTRITIONAL BIOCHEMICALS CORPORATION**

26201 Miles Rd., Cleveland, Ohio 44128 Phone 216 662-0212

# **We're proud of our service record.**

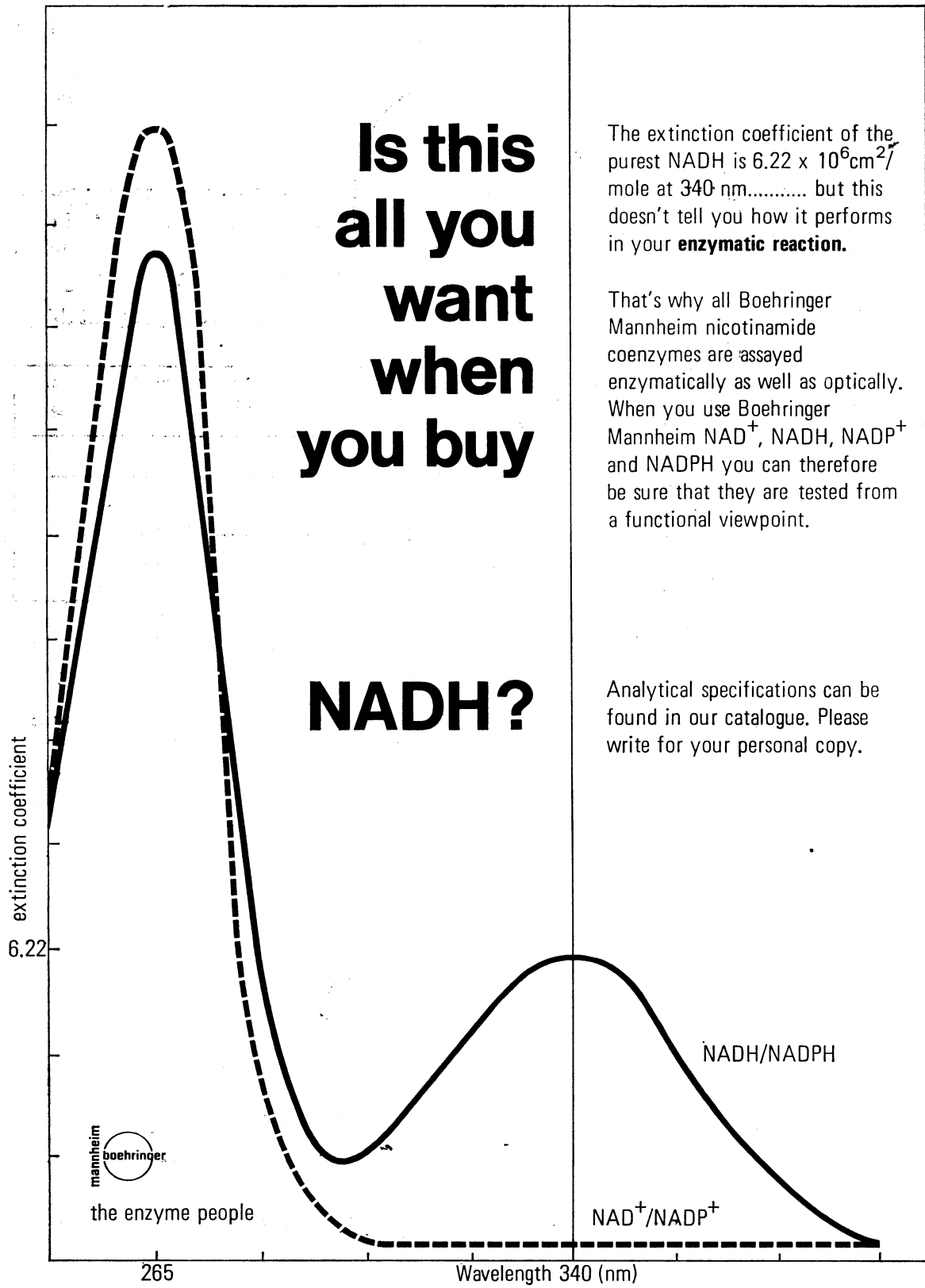
**Is this  
all you  
want  
when  
you buy**

**NADH?**

The extinction coefficient of the purest NADH is  $6.22 \times 10^6 \text{ cm}^2/\text{mole}$  at 340 nm..... but this doesn't tell you how it performs in your **enzymatic reaction**.

That's why all Boehringer Mannheim nicotinamide coenzymes are assayed enzymatically as well as optically. When you use Boehringer Mannheim  $\text{NAD}^+$ , NADH,  $\text{NADP}^+$  and NADPH you can therefore be sure that they are tested from a functional viewpoint.

Analytical specifications can be found in our catalogue. Please write for your personal copy.



The Boehringer Corporation (London) Ltd., Bilton House, Uxbridge Road, London W5 2TZ