

BIOCHEMICAL SOCIETY TRANSACTIONS



London: The Biochemical Society © 1985

Managing Editor D. C. WATTS

Book Reviews Editor B. MORELAND

Contents Volume 13, Part 6, December 1985

SYMPOSIUM: THE BIOSYNTHESIS AND FUNCTION OF MICROBIAL WALL COMPONENTS

Introduction	A. R. ARCHIBALD	979
Structure and serology of the <i>Brucella abortus</i> O-antigen	D. R. BUNDLE & M. B. PERRY	980
Surface composition and adhesion of <i>Candida albicans</i>	L. J. DOUGLAS	982
Alanyl lipoteichoic acid of <i>Staphylococcus aureus</i> : functional and dynamic aspects	W. FISCHER & H. U. KOCH	984
Inter-chain transacylation of D-alanine ester residues of lipoteichoic acid: a unique mechanism of membrane communication	F. C. NEUHAUS	987
Structure and assembly of the cell wall in <i>Bacillus subtilis</i>	A. R. ARCHIBALD	990
Trans-membrane synthesis of cell wall polymers	J. BADDILEY	992
The regulation of synthesis of wall polymers and of wall assembly in <i>Bacillus</i>	I. C. HANCOCK	994

FOURTH MORTON LECTURE

The mechanism of the condensation reactions of cholesterol biosynthesis	H. C. RILLING	997
---	---------------	-----

613th MEETING, CARDIFF

Colloquium: Cellular Proteolysis

Intracellular proteolysis: the elusive intermediates	R. J. BEYNON, E. J. COOKSON & P. E. BUTLER	1005
Autophagy and protein degradation in isolated rat hepatocytes	P. O. SEGLEN, P. B. GORDON, H. TOLLESHAUG & H. HØYVIK	1007
Protein degradation in the lysosome	H. GLAUMANN, J. AHLBERG, A. BERKENSTAM, M. FALK & F. HENELL	1010
Quantitative assessment of the contribution of autophagy to intracellular protein breakdown	E. A. KHAIRALLAH	1012
The proteolytic system involving calpains	T. MURACHI	1015
Localization of cysteine proteinases and an endogenous cysteine proteinase inhibitor in cultured muscle cells	J. W. C. BIRD, L. WOOD, I. SOHAR, E. FEKETE, R. COLELLA, G. YORKE, B. COSENTINO & F. J. ROISEN	1018

High- M_r cysteine proteinases from rat skeletal-muscle	B. DAHLMANN	1021
The physiological regulation of proteolysis in muscle	D. J. MILLWARD	1023
Colloquium: Structure and Activity of Aspartic Proteinases		
Aspartic proteinases and their inhibitors	J. KAY	1027
Human renin inhibitors	B. J. LECKIE, M. SZELKE, B. ATRASH, S. R. BEATTIE, A. HALLETT, D. M. JONES, G. D. MCINTYRE, J. SUERIAS & D. J. WEBB	1029
Denaturation studies of aspartic proteinases	R. H. PAIN, T. LAH & V. TURK	1032
Solubilization and activation of recombinant calf pro- chymosin from <i>Escherichia coli</i>	F. A. O. MARSTON, S. ANGAL, S. WHITE & P. A. LOWE	1035
Energy calculations on aspartic proteinases: human renin, endothiapepsin and its complex with an angiotensinogen fragment analogue, H-142	A. M. HEMMINGS, S. I. FOUNDLING, B. L. SIBANDA, S. P. WOOD, L. H. PEARL & T. BLUNDELL	1036
Design, synthesis and analysis of new synthetic substrates for the aspartic proteinases	B. M. DUNN & J. KAY	1041
Penicillopepsin, the aspartic proteinase from <i>Penicillium janthinellum</i> : substrate-binding effects and intermediates in transeptidation reactions	M. BLUM, A. CUNNINGHAM, M. BENDINER & T. HOFMANN	1044
Pepsin-catalysed addition of water to a ketomethylene peptide isostere: observation of the tetrahedral species by ^{13}C -nuclear-magnetic-resonance spectroscopy	M. W. HOLLADAY, F. G. SALITURO, P. G. SCHMIDT & D. H. RICH	1046
Colloquium: Recent Applications of High-Performance Liquid Chromatography to Biochemistry		
Part 1: Recent Advances in High-Performance Liquid Column Technology		
Recent advances in column support materials	J.-C. JANSON	1049
Recent advances in microbore high-performance liquid chromatography practice	P. GAREIL	1052
Recent advances in high-performance liquid affinity chro- matography columns	P. D. C. DEAN & J. N. B. WALKER	1055
Part 2: Recent Advances in High-Performance Liquid Chromatographic Analysis of Small Molecules		
Application of high-performance liquid chromatography with electrochemical detection to the study of neuro- transmitters <i>in vivo</i>	C. ROUTLEDGE & C. A. MARSDEN	1058
The application of high-performance liquid chromatography to the purification of oligosaccharides containing neutral and acetamido sugars	E. F. HOUNSELL, N. J. JONES & M. S. STOLL	1061
Some recent high-performance liquid chromatography assays of steroid hormones and their conjugates	P. LUKHA & P. F. DIXON	1064
Some applications of high-performance liquid chroma- tography in the field of nucleotides, nucleosides and bases	D. PERRETT	1067
Part 3: Recent Advances in the High-Performance Liquid Chromatographic Analysis of Middle Molecules and Large Molecules		
Uses of high-performance liquid chromatographic methods in micro sequencing	J. B. C. FINDLAY	1071
Recent advances in automated sample preparation of biological materials for high-performance liquid chroma- tographic analysis	J. MILLS	1073
Colloquium: Lung Surfactant		
Pulmonary surfactant: its isolation, characterization and function	J. L. HARWOOD & R. J. RICHARDS	1079
Physicochemical properties of surfactant lipids	K. M. W. KEOUGH	1081
Surfactant changes in experimentally induced disease	R. J. RICHARDS & R. LEWIS	1084
Isolated alveolar type II cells: a model for studies on the formation of surfactant dipalmitoylphosphatidylcholine	L. M. G. VAN GOLDE, J. N. DEN BREEJEN & J. J. BATENBURG	1087
The role of β -adrenergic agents in the control of surfactant secretion	D. V. WALTERS	1089

CONTENTS

iii

Respiratory distress syndrome and its treatment with surfactant	C. J. MORLEY	1091
Chemical characterization of lung surfactant apoproteins: amino acid composition, <i>N</i> -terminal sequence and enzymic digestion	S. HAWGOOD, H. EFRATI, J. SCHILLING & B. J. BENSON	1092
Colloquium: Newer Aspects of the Biochemistry of Receptors		
Isolation of the γ -aminobutyric acid/benzodiazepine receptor	F. A. STEPHENSON	1097
Isolation and characterization of D ₂ -dopamine receptors	P. G. STRANGE, W. M. ABBOTT, R. JUSZCZAK & S. WORRALL	1099
Purification of the muscarinic acetylcholine receptor from rat forebrain	C. P. BERRIE, N. J. M. BIRDSALL, H. K. DADI, E. C. HULME, R. J. MORRIS, J. M. STOCKTON & M. WHEATLEY	1101
Isolation and molecular characterization of S ₂ -serotonin and D ₂ -dopamine receptors: solubilization and photo-affinity probes	W. WOUTERS & P. M. LADURON	1103
Monoclonal antibodies as tools for the study of membrane receptors	A. D. STROSBURG	1106
Receptor-dependent generation of intracellular signals from inositol phospholipids in parotid gland and brain	C. P. DOWNES	1107
Functional control of the δ -opiate receptor by the inhibitory guanine nucleotide-binding protein	G. MILLIGAN, W. F. SIMONDS, R. A. STREATY, B. TOCQUE & W. A. KLEE	1110
COMMUNICATIONS		1115
COMPUTER SOFTWARE REVIEWS		1253
BOOK REVIEWS		1257
INDEXES		
Author Index		1263
Keyword Index		1285

COMMUNICATIONS

A reassessment of the assay for the asialoglycoprotein receptor	D. GRANT & N. KADERBHAI	1115
An endogenous β -galactoside-specific lectin is both intra- and extra-cellular during erythropoiesis	F. L. HARRISON & J. W. CATT	1116
Macromolecular glycoconjugates of rat rhabdomyosarcoma cell lines with different metastatic potentials	E. MOCZAR, M. BECKER, F. REDINI & M.-F. POUPON	1117
Degradation of the extracellular matrix by bovine epithelial lens cells	E. MOCZAR, J. TASSIN & Y. COURTOIS	1118
Sialyl compounds as acceptor substrates for the human α -3- and α -3/4-L-fucosyltransferases	P. H. JOHNSON & W. M. WATKINS	1119
O-linked oligosaccharide units of human gastric mucus glycoproteins	M. J. HAWKINS, J. R. CLAMP & P. J. WINTERBURN	1120
Synthesis of mucus glycoproteins by human gastric mucosa in culture	G. M. ROBERTS, H. L. YOUNG, G. T. WILLIAMS & P. J. WINTERBURN	1121
The interaction of glycoconjugates with immobilized 5-hydroxytryptamine	P. J. WINTERBURN, A. P. CORFIELD, J. R. CLAMP & C. H. BOLTON	1123
Studies on the chemical modification of rabbit liver lectin and its effect on the binding activity	N. N. DESAI, A. K. ALLEN & A. NEUBERGER	1124
Effects of aminoglutethimide and tolbutamide on the metabolism of radiolabelled C ₁₉ steroids by piglet testis microsomes	C. LYNE & D. B. GOWER	1124
Acceptor substrate specificities of human α -2-L-fucosyltransferases from different tissues	A. BETTERIDGE & W. M. WATKINS	1126
Inhibition of human α - and β -D-glucosidases and α - and β -D-mannosidases by 2,5-dihydroxymethyl-3,4-dihydroxypyrrolidine	I. CENCI DI BELLO, P. DORLING, S. EVANS, L. FELLOWS & B. WINCHESTER	1127
The immunological, genetic and biosynthetic relationships of the Cad and Sd ^a blood group antigens	F. A. DUFFY & R. D. MARSHALL	1128
Lutropin-induced desensitization of adenylate cyclase, internalization and recycling of lutropin receptors in testis Leydig cells	A. D. HABBERFIELD, C. J. DIX & B. A. COOKE	1129
Effects of bilayer fluidity on the binding of insulin to its receptor in rat adipocytes, plasma membranes and liposomes	M. N. JONES, J. E. MORE & D. J. RILEY	1130
Behaviour of human mammary epithelial cells in primary culture	M. K. PATEL & R. E. LEAKE	1132
Multifunctional cyclic nucleotide phosphodiesterase activity in lettuce cotyledons	D. CHIATANTE, R. P. NEWTON & E. G. BROWN	1133
3',5'-Cyclic UMP, -cyclic IMP, -cyclic TMP and related enzymes in mammalian tissues	R. P. NEWTON, S. G. SALIH, N. A. HAKEEM, E. E. KINGSTON & J. H. BEYNON	1134
Insulin binding and action in a human liver cell line	M. SOOS & K. SIDDLER	1135
Enzyme cytochemistry of isolated rat adrenal cells and their response to adrenocorticotrophic hormone	C. M. AYLING & J. M. ZANELLI	1136
Association of latent NADH pyrophosphatase with rat liver Golgi complex	R. J. PEASE, G. D. SMITH, D. HEYWOOD-WADDINGTON & T. J. PETERS	1137
Transferrin endocytosis and iron uptake by the perfused rat liver	G. D. SMITH, E. H. MORGAN & T. J. PETERS	1138
Pholasin: a new bioluminescent indicator for cell activation	P. A. ROBERTS, J. KNIGHT & A. K. CAMPBELL	1139
Main forms of immunoreactive cardionatrin in atrial extracts and in atrial-specific granules	T. G. FLYNN, A. J. DE BOLD, M. L. DE BOLD, P. L. DAVIES & B. P. KENNEDY	1141
Partial primary structure and substrate specificity of proteinase A from <i>Saccharomyces cerevisiae</i>	T. DREYER, IB. SVENDSEN & M. OTTESEN	1142
Hydrolysis of a series of synthetic chromophoric substrates by aspartic proteinases	M. J. VALLER, J. KAY & B. M. DUNN	1144
Synthetic inhibitors of naturally occurring and recombinant chymosins	R. J. HOLDSWORTH, T. S. BAKER, M. J. POWELL, R. C. TITMAS, C. E. ROLPH, M. J. VALLER & J. KAY	1145
Fluorescence studies on the conformation of authentic and recombinant prochymosin	R. SUGRUE, P. A. LOWE, F. A. O. MARSTON & R. B. FREEDMAN	1146
pH dependence of the autoactivation of trypsinogen in the presence of bile acids	B. H. MORELAND & K. K. SANYAL	1147

The pathway of alginate biosynthesis in <i>Pseudomonas aeruginosa</i>	J. WINGENDER, V. SHERBROCK-COX, P. GACESA & N. J. RUSSELL	1148
Proteoglycan sulphate from extracellular matrix synthesized by endothelial cells exposed to growth factors	M. MOCZAR	1149
Activator protein for sulphatide and G _{M1} -ganglioside hydrolases	M. N. BANKS, C. L. GUTTERIDGE & C. H. WYNN	1150
Kinetic data analysis of glucose 6-phosphate dependency of glycogen synthase	S. MUDGE, M. A. WHITTLE & P. A. GABBOTT	1151
Purification of epoxide hydrolase from mouse liver and properties of its antibody produced from rabbits	D. E. CHALMERS, J. E. MORGAN, P. Y. ELWOOD & S. BROWN	1153
Adaptive changes in the properties of phosphoenolpyruvate carboxylase in water-stressed plants	A. C. GROENHOF, P. P. DANIEL & J. A. BRYANT	1154
Analysis of the dual reactions catalysed by glutamate decarboxylase	P. L. GRANT, J. M. BASFORD & R. A. JOHN	1155
Receptor-mediated endocytosis in the isolated perfused rat liver: inhibition by dansylcadaverine	A. AL-QUESY, C. G. CURTIS & G. M. POWELL	1156
Mercurial activation of human cathepsin L	R. W. MASON	1157
The effects of endotoxaemia on protein metabolism in skeletal muscle and liver of the fed rat	M. M. JEPSON, J. M. PELL, P. C. BATES & D. J. MILLWARD	1158
The role of proteolysis in ribosome breakdown by <i>Tetrahymena</i> during starvation	H. G. KLEMPERER & D. J. PILLEY	1159
A new aminopeptidase from skeletal muscle	S. GIBSON, D. HOMES & R. J. T. PENNINGTON	1160
Proline endopeptidase in human muscle	D. J. DALY, P. MASKREY, D. MANTLE & R. J. T. PENNINGTON	1161
Neutral proteinases involved in muscle protein breakdown	R. HEATH, R. W. LEWIS, J. KAY, G. R. NEWMAN, B. JASANI, N. YOSHIMURA, T. MURACHI, L. KUEHN & B. DAHLMANN	1162
Proteolysis of globin and globin-related peptides in homogenates of cultured human fibroblasts: effects of cell senescence	S. A. WHARTON & A. R. HIPKISS	1163
Effects of bestatin on proteolysis in reticulocyte extracts	V. C. WORTHINGTON, S. A. WHARTON & A. R. HIPKISS	1164
The induction of heat-shock proteins in <i>Escherichia coli</i> by canavanine, puromycin and gentomycin	A. J. CARR, R. F. ROSENBERGER & A. R. HIPKISS	1165
The isolated mouse diaphragm as a test system for new inhibitors of muscle protein breakdown	M. T. MULLIGAN & R. J. BEYNON	1167
Pyridoxal phosphate as a specific label for fragments of glycogen phosphorylase	E. J. COOKSON & R. J. BEYNON	1168
Separation of cathepsins B, L, N and S from rabbit spleen	R. A. MACIEWICZ & D. J. ETHERINGTON	1169
Intracellular segregation and degradation of bovine serum albumin and lactate dehydrogenase microinjected into 3T3-L1 cells	F. J. DOHERTY & R. J. MAYER	1170
Adaptive regulation of β -adrenergic receptors in perinatal rat liver	C. A. EVANS, J. R. HARE & K. SNELL	1172
The role of microfilaments in polymorphonuclear leucocyte oxidase activation	E. COOKE, F. AL-MOHANNA & M. B. HALLETT	1173
Actions of prostaglandins on mucin secretion from rat submandibular acinar cells	N. A. BRADBURY & M. A. MCPHERSON	1174
Activation of the muscarinic receptor in bovine adrenal medullary chromaffin cells causes a rise in intracellular Ca ²⁺ without stimulating secretion	T. R. CHEEK & R. D. BURGOYNE	1175
Phosphatidylinositol turnover in guinea-pig cortex	K. GOODWIN, C. M. BROWN, A. C. DYE, A. T. KILPATRICK & R. L. WHITING	1176
Synergistic stimulation of the platelet release reaction by 'weak' agonist plus thromboxane mimetic: mechanism of 'weak' agonist-induced release reaction	S. KRISHNAMURTHI, S. K. JOSEPH & V. V. KAKKAR	1177
Regulation of thrombin-induced arachidonic acid metabolism by extracellular Ca ²⁺	S. KRISHNAMURTHI, S. K. JOSEPH & V. V. KAKKAR	1178
The effect of the polyamine spermine on thrombin-induced human platelet activation	S. K. JOSEPH, S. KRISHNAMURTHI & V. V. KAKKAR	1180
Lipoxygenase products from human neutrophils stimulated by ionophore A23187	C. HALLAM, P. E. HEMSLEY, P. D. MITCHELL & D. WILKINSON	1181
A role for protein kinase C in cyclic AMP metabolism	L. A. QUILLIAM, P. R. M. DOBSON & B. L. BROWN	1182
Na ⁺ /K ⁺ pump stimulation by Ca ²⁺ -mobilizing hormones in isolated rat hepatocytes	T. CAPIOD, B. BERTHON & M. CLARET	1183

Hormone-mediated increases in cytosolic free Ca^{2+} in isolated rat liver cells	B. BERTHON, A. BINET, L. COMBETTES & M. CLARET	1184
Selective secretagogue action of Ba^{2+} ions at lactotrophes but not gonadotrophes	R. MITCHELL & R. ANDERSON	1186
Erythropoietin and haemin increase the adenylate cyclase activity of rabbit bone marrow immature erythroblasts by different mechanisms	S. A. BONANOU TZEDAKI, M. S. SETCHENSKA & H. R. V. ARNSTEIN	1186
The characteristics of histamine H_1 -agonist breakdown of inositol phospholipids differ between regions of guinea-pig brain	H. CARSWELL & J. M. YOUNG	1188
Platelet low-density lipoprotein receptors	D. G. HASSALL & K. R. BRUCKDORFER	1189
The fate of gemfibrozil and its metabolites in the rat	C. G. CURTIS, T. M. DANAHER, E. A. HIBBERT, C. L. MORRIS, A. M. SCOTT, B. A. WOOLCOTT & G. M. POWELL	1190
Investigations on the hypolipidaemic action of gemfibrozil	A. MUTNI, G. M. POWELL & C. G. CURTIS	1191
Activities of 5-fluorouracil-metabolizing enzymes in human colorectal tumours and normal colorectal mucosa	P. A. KOKLITIS, J. KELLEHER, R. F. G. J. KING & G. R. GILES	1192
The kinetic characteristics of uridine kinase, phosphoribosyltransferase and uridine phosphorylase in human colorectal mucosa and tumour tissue	P. A. KOKLITIS, J. KELLEHER, R. F. G. J. KING & G. R. GILES	1193
Oxidation of thiols by stimulated human polymorphonuclear leucocytes	D. E. JENNER, M. E. HOLT & A. K. CAMPBELL	1194
The role of oxygen radical production by rat polymorphonuclear leucocytes in 'reperfusion injury'	A. SHANDALL, H. L. YOUNG, G. T. WILLIAMS & M. B. HALLETT	1195
Polymorphonuclear leucocyte degranulation after stimulation by serum-treated and unopsonized bacteria	D. E. JENNER, M. J. HARBER, M. DAVIES & A. W. ASSCHER	1196
Monoclonal antibodies to human polymorphonuclear leucocyte granule antigens	S. C. L. BARROW, M. B. HALLETT & A. K. CAMPBELL	1197
Observations on an enzyme-linked immunosorbent assay for α -foeto-protein	F. E. THOMSON, D. R. PLEDGER & A. BELFIELD	1199
Enzymes of the DNA-replication complex in higher plants	J. A. BRYANT, P. N. FITCHETT, D. R. SIBSON & S. G. HUGHES	1200
DNA ligase activity in pea seedlings	P. P. DANIEL, J. A. BRYANT & D. G. BARKER	1201
Angiokeratoma corporis diffusum: a problem-solving game in human biochemical genetics	M. CARROLL	1202
CTP: cholinephosphate cytidyltransferase in human lung	A. N. HUNT & A. D. POSTLE	1203
Phospholipid synthesis by organotypic cell cultures of fetal human lung	P. A. CAESAR & A. D. POSTLE	1204
Phagocyte-derived reactive oxygen metabolites: stimulation by pathogenic mineral dusts	P. H. EVANS & E. YANO	1205
5-Hydroxytryptamine receptors in rat cerebrum	C. M. BROWN, A. C. DYE, K. GOODWIN, A. T. KILPATRICK & R. L. WHITING	1206
Antagonism of 5-hydroxytryptamine neuronal uptake	A. T. KILPATRICK, A. C. DYE, C. M. BROWN, K. GOODWIN & R. L. WHITING	1207
Kinetics of L-tryptophan uptake into rat forebrain synaptosomes in the presence and absence of extracellular Na^+	L. S. WILKINSON & K. J. COLLARD	1208
Studies on the mechanism by which extracellular Na^+ depletion causes 5-hydroxytryptamine release from synaptosomes	S. M. EVANS, L. S. WILKINSON & K. J. COLLARD	1209
Interaction of an Na^+ -channel toxin, purified from scorpion venom, with microtubule proteins <i>in vitro</i>	A. J. HARGREAVES, E. MONTEJO DE GARCINI & J. AVILA	1210
The γ -aminobutyrate/benzodiazepine receptor from pig cerebral cortex: purification and characterization	E. F. KIRKNESS & A. J. TURNER	1211
Comparison of the effects of neosurugatoxin and α -bungarotoxin on nicotinic acetylcholine receptors in rat brain	C. M. RAPIER, R. HARRISON, G. G. LUNT & S. WONNACOTT	1212
Locust muscarinic receptors: influence of the membrane environment	M. J. DUGGAN & G. G. LUNT	1213
Partial purification of a phosphatidylinositol phosphodiesterase isolated from lymphocytes	H. R. CARTER & A. D. SMITH	1215
Antagonism by strychnine differentiates two subtypes of GABA_A -receptor complex	R. MITCHELL & R. ANDERSON	1216

Modulation of agonist binding to serotonin 5HT ₂ -receptors from rat frontal cortex by guanine nucleotides	M. S. SHEARMAN & P. G. STRANGE	1217
The application of ion-exchange high-performance liquid chromatography to the analysis of bile acid conjugates in pig digesta	K. FADDEN, R. W. OWEN & M. J. HILL	1218
A study of [¹⁴ C]ketoisoleucine degradation by isolated rat liver mitochondria using reverse-phase high-performance liquid chromatography of intact acyl co-enzyme A esters with on-line radiochemical detection	A. G. CAUSEY, L. AGIUS & K. BARTLETT	1220
The mass (or light-scattering) detector in the analysis of lipids separated by high-performance liquid chromatography	W. W. CHRISTIE, M. L. HUNTER & R. C. NOBLE	1221
High-performance liquid chromatographic separation of tricarboxylic acid cycle organic acids	N. S. JESSOP & J. R. SCAIFE	1222
Steroid conjugates: analysis by thermospray liquid chromatography—mass spectrometry	D. WATSON, S. MURRAY & G. W. TAYLOR	1224
Reversed-phase high-performance liquid chromatography of conjugated and unconjugated bilirubin	F. LI, C. K. LIM & T. J. PETERS	1225
Comparative study of several phase systems for the high-performance liquid chromatographic separation of monoiodoinsulins	J. M. RIDEOUT, G. D. SMITH, C. K. LIM & T. J. PETERS	1225
A sensitive high-performance liquid chromatography assay for γ -glutamyl hydrolase	N. D. COOK & T. J. PETERS	1226
Purification of hydroxymethylbilane synthase from human erythrocytes	R. C. BROWN, G. H. ELDER & A. J. URQUHART	1227
The use of high-performance liquid chromatography for the purification of calmodulin from pancreatic acinar cells	A. R. AL-MUTAIRY, R. C. BROWN & R. L. DORMER	1229
Rapid analysis of lipoxygenase products of arachidonic acid by high-performance liquid chromatography	D. WILKINSON, C. HALLAM, P. E. HEMSLEY & P. D. MITCHELL	1230
Separation of hordein proteins from barley by high-performance liquid chromatography	C. J. WINGAD, M. IQBAL, F. J. SMITH & M. GRIFFIN	1232
Use of high-performance liquid chromatography in the purification of human somatomedin-C	K. P. RAY & M. WALLIS	1233
Bile acid-binding proteins of rat liver prepared by affinity chromatography and anion-exchange high-performance liquid chromatography	Y. SIOW & P. R. BAKER	1234
High-performance liquid chromatography with a reversed-phase radial compression column of serum bile acid dansyl hydrazone derivatives	A. D. REID & P. R. BAKER	1235
Optimization of mobile phase composition in the separation of porphyrins by high-performance liquid chromatography	K. K. TOMLINSON, A. H. JACKSON & K. R. N. RAO	1236
High-performance liquid chromatography of menaquinones of intestinal bacteria	M. D. COLLINS & F. FERNANDEZ	1237
The use of short 3 μ high-performance liquid chromatography columns for the rapid analysis of insect hormones	R. E. ISAAC	1238
The electron microscopic cytochemical localization of arylsulphatase C activity in rat liver	V. B. ZEMELMAN, A. C. HANN & F. A. ROSE	1240
The influence of the membrane lipids on the sulphatase activities of rat liver microsomes	M. E. COOPER, R. E. ISAAC & F. A. ROSE	1241
Tocochromanols and terpenoid quinones in cyanobacteria	C. J. MULLINS, R. P. NEWTON & T. J. WALTON	1242
Purification and properties of CTP: cholinephosphate cytidyltransferase from pea (<i>Pisum sativum</i> L.)	M. J. PRICE-JONES & J. L. HARWOOD	1243
Three separate elongation enzymes for very-long-chain fatty acid synthesis in potato	K. A. WALKER & J. L. HARWOOD	1244
The biochemical explanation for 1,1,1-trichloro-2,2-bis(<i>p</i> -chlorophenyl)ethane ('DDT') toxicity in rye (<i>Secale cereale</i>)	S. AKBAR & L. J. ROGERS	1246
Solubilization and reconstitution of the K ⁺ -selective channel of rabbit skeletal-muscle sarcoplasmic reticulum	A. J. WILLIAMS & B. TOMLINS	1247
Investigation of Fe-ATP and other iron complexes in perchloric acid extracts of erythrocytes and normal and iron-loaded rat liver	R. J. SIMPSON, R. J. WARD & T. J. PETERS	1248

Effects of starvation on haemoproteins and enzymes of haem metabolism in rat liver	N. R. DAVIS, P. LOUGHER, C. J. MORGAN & A. A.-B. BADAWY	1249
Faecal steroids and colo-rectal cancer: faecal bile acids of Greenland Eskimos	R. W. OWEN & M. J. HILL	1250
The molecular mass of <i>Vibro cholerae</i> haemolysin measured by radiation inactivation	R. H. HALL, A. C. HALL, J. C. ELLORY, C. W. SUTTON & D. A. BROADBENT	1251