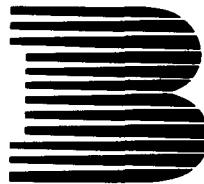


# BIOCHEMICAL SOCIETY TRANSACTIONS



London: The Biochemical Society © 1986

Managing Editor D. C. WATTS

Book Reviews Editor B. MORELAND

---

## Contents Volume 14, Part 2, April 1986

---

### TWENTY-SECOND COLWORTH MEDAL LECTURE

- Insulin, glucagon and the receptor-mediated control of cyclic AMP concentrations in liver M. D. HOUSLAY 183

### 614th MEETING, OXFORD

#### Colloquium: Proteins Acting on DNA

Intermediates in transcription initiation and propagation	D. C. STRANEY & D. M. CROTHERS	195
Mechanism of activation of transcription by the complex formed between cyclic AMP and its receptor in <i>Escherichia coli</i>	H. BUC	196
DNA structure and promoter function	A. A. TRAVERS	199
Oligodeoxynucleotides covalently linked to intercalating agents: a new family of gene regulatory substances	C. HÉLÈNE, T. MONTENAY-GARESTIER, T. SAISON-BEHMOARAS, J. J. TOULMÉ, M. BOIDOT-FORGET, C. CAZENAVE, U. ASSELINE, G. LANCELOT, J. C. MAURIZOT, F. TOULMÉ & N. T. THUONG	202
Z-DNA and Z-DNA-binding proteins (Abstract only)	A. RICH	202
Binding sites of restriction endonucleases	A. D. B. MALCOLM	202
Action of restriction endonucleases on phosphorothioate DNA	F. ECKSTEIN	204
Functional implications of the Klenow fragment structure	T. A. STEITZ, P. S. FREEMONT, D. L. OLLIS, C. M. JOYCE & J. M. GRINDLEY	205
Base-pair mismatches in DNA fragments	O. KENNARD	207
DNA supercoiling and DNA structure	D. M. J. LILLEY	211
Studies on the mechanism and regulation of DNA gyrase (Abstract only)	R. MENZEL & M. GELLERT	214
Structural and catalytic properties of specific complexes between Tn3 resolvase and the recombination site <i>res</i>	M. R. BOOCOCK, J. L. BROWN & D. J. SHERRATT	214
DNA sequence specificity of Tn21 resolvase	S. E. HALFORD	216
RecA-DNA helical complexes in genetic recombination	A. STASIAK & E. H. EGELMAN	218

The structure of the nucleosome core particle (Abstract only)	T. J. RICHMOND, J. T. FINCH & A. KLUG	221
Repetitive Zn <sup>2+</sup> -binding domains in the protein transcription factor IIIA from <i>Xenopus</i> oocytes (Abstract only)	A. KLUG, J. MILLER & A. D. McLACHLAN	221
A triple complex between transcription factor IIIA, a <i>Xenopus</i> gene for 5S RNA and the histone octamer	D. RHODES	221
<b>Colloquium: Brown Adipose Tissue</b>		
Mechanisms of thermogenesis in brown adipose tissue	D. NICHOLLS, S. CUNNINGHAM & H. WIESINGER	223
Fuel supply to brown adipose tissue	D. H. WILLIAMSON	225
Lipogenesis in brown adipose tissue and its regulation	J. G. McCORMACK, J. M. GIBBINS & R. M. DENTON	227
Sympathetic and hormonal regulation of brown adipose tissue thermogenesis	J. R. S. ARCH, B. J. BROOKS, P. L. THURLBY & S. WILSON	230
Brown adipose tissue thermogenesis in neonatal and cold-adapted animals	B. CANNON & J. NEDERGAARD	233
Brown adipose tissue thermogenesis in obese animals	P. TRAYHURN & S. W. MERCER	236
Brown adipose tissue and the response to overfeeding	M. J. STOCK & N. J. ROTHWELL	239
<b>Colloquium: Molecular Mechanisms of Membrane Fusion</b>		
Molecular mechanisms of membrane fusion	M. J. GEISOW & D. FISHER	241
Lipid polymorphism and membrane fusion	P. R. CULLIS, B. DE KRUIJFF, A. J. VERKLEIJ & M. J. HOPE	242
Cell fusion and measurement of membrane properties using electric fields and other forces	W. M. ARNOLD & U. ZIMMERMANN	246
Salient features of artificially induced cell fusion	J. A. LUCY	250
Structural changes in influenza virus haemagglutinin at the pH of membrane fusion	J. J. SKEHEL, R. S. DANIELS, A. J. HAY, R. RUIGROK, S. A. WHARTON, N. G. WRIGLEY, W. WEISS & D. C. WILEY	252
Stimulated inositol phospholipid breakdown and myoblast fusion	M. J. O. WAKELAM	253
Phagosome-lysosome fusion	J. E. GABAY, M. A. HORWITZ & Z. A. COHN	256
<b>COMMUNICATIONS</b>		
<b>615th MEETING, BELFAST QUEEN'S UNIVERSITY, DISTINGUISHED SCHOLAR'S LECTURE</b>		
Analogues of folate antagonists as affinity and fluorescent probes of dihydrofolate reductase structure and function	J. H. FREISHEIM, E. M. PRICE, A. A. KUMAR, S. S. SUSTEN, P. L. SMITH & T. J. DELCAMP	371
<b>ACTION CANCER GUEST LECTURE</b>		
Prodrugs in cancer chemotherapy	D. E. V. WILMAN	375
<b>Colloquium: Prodrugs</b>		
Peptide derivatives as prodrugs	W. A. THOMAS	383
Lipooidal anti-inflammatory prodrugs as local targeting agents	A. J. BILSKI, J. R. EVANS, M. P. HARRISON, G. JONES, T. R. MARTEN, G. T. MILBURN, D. S. THOMSON & D. F. WHITE	388
Synthetic polymers as carriers for chemotherapeutic agents	J. B. LLOYD, R. DUNCAN & J. KOPEČEK	391
Targeting of anti-cancer therapeutic agents by monoclonal antibodies	M. J. EMBLETON	393
<b>Colloquium: Suicide Substrates</b>		
Mechanism-based proteinase inhibitors: a critical review	B. WALKER	397
Strategies for the inhibition of neuropeptide-metabolizing enzymes	A. J. TURNER	399
Studies of enzyme inhibition by compounds containing small rings	C. J. SUCKLING	402
A new perspective on pyridoxal chemistry and its relevance to enzyme inhibition	P. ARMSTRONG, D. T. ELMORE, R. GRIGG & C. H. WILLIAMS	404

**CONTENTS**

iii

Anti-convulsant effects of manipulation of brain 4-aminobutyrate concentrations by selective enzyme inhibition	R. A. JOHN & L. J. FOWLER	408
The rational design of suicide substrates of amine oxidases	M. G. PALFREYMAN, I. A. McDONALD, P. BEY, C. DANZIN, M. ZREIKA, G. A. LYLES & J. R. FOZARD	410
<b>Colloquium: What to Leave Out: Curriculum Development in Biochemistry</b>		
Biochemistry curriculum content questionnaire: a preliminary analysis	C. F.A. BRYCE	415
Cretinism: a culinary cure for the curriculum	M. H. R. LEWIS	417
What to leave out: biochemistry in an American medical school	M. SAFFRAN	425
Redesigning the biochemistry syllabus for medical students: experiences in Leeds	A. J. TURNER	427
Biochemical education: the challenge of change	A. STEWART	429
<b>COMMUNICATIONS</b>		
<b>Symposium: DNA Topoisomerase Inhibitors as Anti-Microbial Agents</b>		
DNA supercoiling	D. M. J. LILLEY	489
DNA breakage by <i>Escherichia coli</i> DNA gyrase <i>in vitro</i> and <i>in vivo</i>	L. M. FISHER, H. A. BAROT, M. E. CULLEN & C. S. J. HULTON	493
Inhibitors of trypanosome topoisomerases	G. RIOU, S. DOUC-RASY & A. KAYSER	496
Gyrase inhibitors and intracellular DNA supercoiling	R. J. FRANÇO & K. DRlica	499
Pre-clinical microbiology and pharmacology of norfloxacin	H. H. GADEBUSCH	501
The action of quinolone carboxylic acids on <i>Chlamydia trachomatis</i> <i>in vitro</i>	S. J. RICHMOND, C. HEPPLESTON & J. BAILEY	503
The clinical use of quinolones	S. W. B. NEWSOM	504
<b>BOOK REVIEWS</b>		

## COMMUNICATIONS

### **614th MEETING, OXFORD**

Cytosine: cytosine formed in duplex DNA by the ligation of <i>NCII</i> - or <i>CauII</i> -cleaved DNA	S. P. BENNETT & S. E. HALFORD	<b>259</b>
Fluorescent labelling of <i>EcoRI</i> and <i>EcoRV</i>	P. A. LUKE & S. E. HALFORD	<b>259</b>
Altered specificity of the <i>EcoRV</i> restriction endonuclease	S. E. HALFORD, B. M. LOVELADY & S. McCALLUM	<b>260</b>
Restriction-modification genes from bacterial genera which produce <i>PstI</i> isoschizomers	R. MULLINGS & N. L. BROWN	<b>261</b>
Cloning and overexpression of the <i>Escherichia coli</i> <i>aroC</i> gene encoding the enzyme chorismate synthase	G. MILLAR, I. A. ANTON, D. M. MOUSDALE, P. J. WHITE & J. R. COGGINS	<b>262</b>
Evidence for a mixed operon encoding enzymes from two different biosynthetic pathways	K. DUNCAN, A. LEWENDON & J. R. COGGINS	<b>263</b>
Cleavage of synthetic oligonucleotides by <i>EcoRI</i>	N. URWIN, A. ROSENTHAL & A. D. B. MALCOLM	<b>264</b>
Interaction of the <i>Escherichia coli</i> <i>RecBC</i> Enzyme with Chi sequences	I. D. HICKSON, P. W. FINCH & P. T. EMMERSON	<b>265</b>
Evidence for the repair of the promutagenic lesion <i>O<sup>6</sup></i> -methylguanine for mitochondrial DNA	K. A. MYERS, R. SAFFHILL & P. J. O'CONNOR	<b>266</b>
The interaction of ADP-ribosyltransferase with DNA strand breaks: kinetic effects	J. JONES & C. J. SKIDMORE	<b>267</b>
The type II restriction enzymes <i>HgiAI</i> and <i>TaqI</i> : purification and properties	J. A. LITTLECHILD	<b>268</b>
Analysis of <i>Xenopus</i> ribosomal RNA synthesized by transcription <i>in vitro</i>	Y. AKHTAR & B. E. MADEN	<b>269</b>
Molecular cloning of a <i>recA</i> -like gene of <i>Methylophilus methylotrophus</i>	P. W. FINCH & P. T. EMMERSON	<b>270</b>
Nuclear protein kinase activity in differentiating skeletal muscle	D. DIGIT & C. BROWNSON	<b>271</b>
Superhelicity and expression <i>in vitro</i> of the <i>Escherichia coli</i> lactose promoters: unwinding experiments and abortive initiation assays	M. AMOUYAL & H. BUC	<b>272</b>
Enhancer-dependent expression and processing of transcripts from a cloned trout protamine gene transferred into Hela cells	N. O. DILLON, V. M. SPENCER & P. H. W. BUTTERWORTH	<b>273</b>
The spatial relationship between the 'TATA-box' and the site of initiation of transcription	B. J. KOVACS & P. H. W. BUTTERWORTH	<b>274</b>
Brown fat lipogenesis after partial hepatectomy in the rat	P. S. SCHOFIELD & M. C. SUGDEN	<b>276</b>
Use of cloned cDNA sequences to measure changes in the level of brown fat uncoupling protein mRNA	D. RICQUIER, F. BOUILLAUD, G. MORY & R. FALCOU	<b>277</b>
Glycogen metabolism in rat interscapular brown adipose tissue	J. M. GIBBINS & R. M. DENTON	<b>278</b>
Fatty acids of brown adipose tissue from obese and lean mice: effect of transplantation	J. L. ROBERTS, M. ASHWELL & M. ENSER	<b>279</b>
The role of ketone bodies in the conversion of fatty acids to cholesterol in liver	C. R. PULLINGER & G. F. GIBBONS	<b>280</b>
Flux control of fatty acid oxidation in brown adipose tissue mitochondria	K. BERG, J. K. LØSETH & H. J. GRAV	<b>281</b>
Increased response to noradrenaline of isolated brown adipocytes from guinea pigs during cold-adaptation	J. RAFAEL, W. FESSER & D. G. NICHOLLS	<b>282</b>
Decrease in mitochondrial GDP binding without parallel changes in uncoupling protein in brown adipose tissue of the guinea pig	M. ASHWELL, G. JENNINGS, D. M. STIRLING & P. TRAYHURN	
Rates of lipogenesis in isolated brown adipocytes from newborn rats	C. RONCERO, M. PEÑAS, M. J. DOMINGUEZ, M. FERNÁNDEZ & M. BENITO	<b>284</b>
2-[5-(4-Chlorophenyl)pentyl]oxirane-2-carboxylate and lipid metabolism	M. P. ROGERS	<b>285</b>
Impaired glucose disposal in acute renal failure in the rat	D. J. COX, D. S. GREENHOW & T. N. PALMER	<b>285</b>
Fatty acid composition of phospholipids from interscapular brown adipose tissue of obese and lean Zucker rats	K. W. J. WAHLE, T. E. C. WEEKES & J. M. FLETCHER	<b>287</b>
Brown adipose tissue uncoupling protein in infants and children	M. E. J. LEAN, W. P. T. JAMES, G. JENNINGS & P. TRAYHURN	<b>288</b>

Brown adipose tissue uncoupling protein in adult humans	M. E. J. LEAN, W. P. T. JAMES, G. JENNINGS & P. TRAYHURN	289
Electron microscope immunocytochemical localization of uncoupling protein in rat brown adipose tissue	T. P. KING & M. E. J. LEAN	289
The effect of palmitoyl-CoA on GDP binding to brown adipose tissue mitochondria from lean and obese Zucker rats	P. HAGGARTY & S. PERCIVAL	290
Spatially periodic membrane-membrane contact through surface wave growth	L. A. HEWISON, W. T. COAKLEY & D. TILLEY	292
A cell-free assay for delivery of a viral glycoprotein to the plasma membrane	P. G. WOODMAN & J. M. EDWARDSON	293
Arginine modulates neutral amino acid transport in horse erythrocytes	D. A. FINCHAM, J. D. YOUNG & D. K. MASON	294
Variable 3-O-methyl-D-glucose transport in fish erythrocytes	C.-M. TSE & J. D. YOUNG	295
The rapid isolation, using a vertical rotor, of rat liver endocytic vesicles involved in transfer of polymeric IgA from blood to bile	W. J. BRANCH, B. M. MULLOCK & J. P. LUZIO	296
Electrically induced cell fusion in the production of monoclonal antibodies	S. M. BROWN, Q. F. AHKONG, A. D. SAGE & J. A. LUCY	297
Transfer of the reconstituted epidermal growth factor receptor to receptor-negative cells by liposome fusion	G. N. PANAYOTOU, A. I. MAGEE, M. GREGORIOU, A. R. REES & M. J. GEISOW	298
Pyruvate transport across mucosa of rat small intestine <i>in vitro</i>	J. E. LAWRENCE & D. F. EVERED	299
Pyruvate transport across mucosa of the human mouth <i>in vivo</i>	D. F. EVERED & J. E. LAWRENCE	300
Non-fusogenic interaction of lectin-coated liposomes with erythrocytes	M. Y. SALAME & H. M. PATEL	301
The translocation of phospholipids and wax esters from the cytoplasmic to outer membrane of the cell envelope in <i>Micrococcus cryophilus</i>	G. M. LLOYD & N. J. RUSSELL	302
Monoclonal antibody studies of creatine kinase: cross-reaction between chicken and human enzymes	G. E. MORRIS & L. C. FROST	304
3-Hydroxy-7,8-dihydro-7,8-dihydroxybenzo[ <i>a</i> ]pyrene: a biliary metabolite of 3-hydroxybenzo[ <i>a</i> ]pyrene in the rat	O. RIBEIRO, C. A. KIRKBY, P. C. HIROM & P. MILLBURN	305
Inhibition of placental $\gamma$ -glutamyltransferase results in a decreased placental transfer of alanine	J. VIÑA, R. HERNANDEZ, I. R. PUERTES & M. PALACIN	306
The handling of proinsulin and [ $N^{\alpha}$ -Gly <sup>A1</sup> , $N^{\epsilon}$ -Lys <sup>B29</sup> -dodecanediol]insulin by the isolated perfused rat kidney	N. V. CLARK, R. M. JONES, J. H. THOMAS & D. BRANDENBURG	307
Fuel homoeostasis after partial hepatectomy in the rat: effects of inhibition of fat oxidation by 2-tetradecylglycidate	T. J. FRENCH, A. W. GOODE, P. S. SCHOFIELD & M. C. SUGDEN	308
The effects of two inhalational anaesthetic agents on carbohydrate metabolism in the isolated, perfused, rabbit lung	S. M. SAPSED-BYRNE, J. L. PATERSON & G. M. HALL	309
Insulin antagonizes the glucagon-mediated stimulation of phenylalanine hydroxylase activity in isolated liver cells	M. J. FISHER, A. J. DICKSON & C. I. POGSON	310
Are the $\gamma$ -glutamyl-amino acids signals for the amino acid uptake by lactating mammary gland?	J. R. VIÑA, I. R. PUERETES, J. B. MONTORO, A. RODRIGUEZ & J. VIÑA	311
The action of phenylarsine oxide on insulin stimulation of glucose transport in rat adipocytes	A. G. DOUEN & M. N. JONES	313
Use of permeabilized mitochondria in the study of insulin-induced pyruvate dehydrogenase activation	A. P. THOMAS & R. M. DENTON	314
Involvement of protein kinase C in intracellular mechanisms regulating gastric acid secretion	N. G. ANDERSON, G. P. SHAW & P. J. HANSON	315
Immunoaffinity purification of insulin receptor by use of monoclonal antibodies	R. M. O'BRIEN, M. A. SOOS & K. SIDDELL	316
Insulin-inhibitory and insulin-like effects of monoclonal antibodies for the human insulin receptor	M. SOOS, R. TAYLOR & K. SIDDELL	317
Molecular cloning and bacterial expression of a peptide with immunological similarity to the insulin receptor	K. SIDDELL, D. PAUZA, J. BELLATIN, E. S. LENNOX & K. K. STANLEY	318

The kinetics of the insulin, catecholamine and adenosine interaction in the regulation of adipocyte glucose transport	J. I. DAVIES, P. LONNROTH & U. SMITH	319
Purification and properties of <i>Escherichia coli</i> isocitrate lyase	C. MACKINTOSH & H. G. NIMMO	320
Activation of rat heart 6-phosphofructo-2-kinase by insulin	M. H. RIDER, D. FORET & L. HUE	321
A simple method for the isolation of islets of Langerhans from rat pancreas	A. C. LANE, G. W. JOHN & M. E. HAVLER	322
Polycation-stimulated protein phosphatases from rabbit skeletal muscle	E. WAELKENS, J. GORIS & W. MERLEVEDE	323
Computer modelling of insulin uptake by the perfused rat liver	G. D. SMITH, B. J. HAMMOND, J. R. CHRISTENSEN & T. J. PETERS	324
Dephosphorylation of branched-chain 2-oxo-acid dehydrogenase complex by a mitochondrial protein phosphatase	A. P. BRADFORD, S. M. A. JONES, K. G. COOK & S. J. YEAMAN	325
The role of insulin in lymphocyte activation	G. E. GALATOWICZ, C. R. BENZIE, J. E. KAY & M. SOOS	326
Purification of hormone-sensitive lipase from bovine adipose tissue	S. R. CORDLE, R. J. COLBRAN & S. J. YEAMAN	327
The effect of adenosine deaminase on insulin sensitivity in the extensor digitorum longus muscle of the rat	F. J. LOZEMAN, B. LEIGHTON, R. A. J. CHALLISS, S. A. OWEN & E. A. NEWSHOLME	328
Single half-turnover of the glucose carrier of the human erythrocyte	A. G. LOWE & A. R. WALMSLEY	329
Synergistic effects of growth hormone and prolactin on lactation, using a specific antiserum to rat growth hormone and bromocryptine	R. J. MADON, D. M. ENSOR, C. H. KNIGHT & D. J. FLINT	330
Applications of cellulose acetate and gel electrophoresis in the study of dermatan sulphate proteoglycans	H. PEARSON, R. K. CHOPRA, S. LEHOCKY & E. H. MOASE	331
Silk fibroin light chain polypeptides	Z.-T. SONG & P. T. SPEAKMAN	332
Relative molecular masses of reduced wool keratin polypeptides	J. C. HORN & P. T. SPEAKMAN	333
Polybuffer improves two-dimensional electrophoresis with poor quality ampholytes	A. E. HUGHES & C. A. GRAHAM	335
An immunoblotting apparatus with uniform electric field	D. I. STOTT, J. MCLEARIE & H. S. MARSDEN	336
Characterization of purified rat thyroglobulin and thyroglobulin secreted by FRTL-5 cells	C. A. HANHAM, D. B. RAMSDEN, E. G. BLACK & M. C. SHEPPARD	337
Assessment of a multi-wire camera for quantitative autoradiography	S. J. LOCKETT, D. B. RAMSDEN, C. A. HANHAM, S. MAUDSLEY & J. BRADWELL	338
An automated syringe system for measurements at short reaction times	A. G. LOWE & A. R. WALMSLEY	338
Properties of 4-ene-5 $\alpha$ -reductase in porcine testicular microsomes	W. J. WATKINS, C. E. P. GOLDRING & D. B. GOWER	339
Oestrogen-induced ribonuclease in the immature rat uterus	N. A. BROCKDORFF & J. T. KNOWLER	340
Oncogene expression in the immature rat uterus	M. T. TRAVERS & J. T. KNOWLER	341
The effect of vitamin D deficiency on yolk formation in the hen	C. J. JOYNER, M. J. PEDDIE & T. G. TAYLOR	341
Polypeptide synthesis by human polymorphonuclear leucocytes in response to dexamethasone	L. E. BLOWERS, M. I. V. JAYSON & M. K. JASANI	342
Glucocorticoid-mediated enzyme induction and hyperinsulinaemia in the Zucker rat	J. M. FLETCHER & L. ROBERTSON	343
Effects of tolbutamide, aminoglutethimide, SU 10 603 and SU 9055 on steroid metabolism in rat adrenal	C. LYNE & D. B. GOWER	344
The determination of plasma thyroxine half-life in Japanese quail	E. J. COOKSON & J. GLOVER	345
Dantrolene sodium and verapamil increase pancuronium-induced neuromuscular blockade in the chick skeletal muscle	F. A. WALI	347
Antibodies as probes of the benzodiazepine receptor	F. A. STEPHENSON, S. O. CASALOTTI, C. MAMALAKI & E. A. BARNARD	347
The hydrolysis of neurokinins A and B by cell-surface peptidases	N. M. HOOPER & A. J. TURNER	348

## CONTENTS

vii

Human brain 2'-nucleotidase: partial purification and properties	U. VOGEL & R. J. THOMPSON	349
Monoclonal antibodies to the neuroendocrine protein PGP 9.5	I. N. M. DAY & R. J. THOMPSON	350
Phosphorylation <i>in vivo</i> of the larger subunit of 2',3'-cyclic nucleotide-3'-phosphohydrolase in rabbit central nervous system myelin	R. J. THOMPSON, J. M. BRADBURY & P. J. RICHARDSON	351
A DNA-sequencing approach to the structure of a key brain membrane endopeptidase	I. S. FULCHER, J. R. GRIFFIN, G. T. BOTTOMLEY, S. J. HIGGINS, B. D. HAMES, A. J. TURNER & A. J. KENNY	352
Immunocytochemical localization of endopeptidase-24.11 in the pig brain	R. MATSAS, A. J. KENNY & A. J. TURNER	354
Spectrin-like protein (fodrin) in neurosecretosomes from bovine pituitary	J. E. HESKETH & J. J. NORDMANN	355
Spectrin-like protein (fodrin) in nerve cells in culture	J. E. HESKETH, A. J. HARMAR, A. ARMSTRONG & G. W. ARBUTHNOTT	356
Polyphosphoinositide labelling in Chinese hamster ovary (CHO-K <sub>1</sub> ) cells: stimulation by serum and reduction by calcium ionophore A23187	N. A. SHARIF & J. N. HAWTHORNE	357
Developmental changes in the polypeptide profiles of different cochlear regions in rodents	J. DAU, L. H. BANNISTER, D. B. GOWER, R. W. EVANS & E. E. DOUEK	358
Synaptic nerve-endings (synaptosomes) with cholinergic properties from a simple nervous system	A. K. DWIVEDY	359
Synaptosomal respiration and the ability to utilize non-glycolytic substrates	R. A. KAUPPINEN & D. G. NICHOLLS	361
MAP1(x), a rat brain-specific microtubule-associated protein, is present in developing but not mature axons	R. CALVERT, P. WOODHAMS & B. H. ANDERTON	362
Role of intracellular Ca <sup>2+</sup> stores in neurotransmitter release from isolated neuronal growth cones	R. O. LOCKERBIE & P. R. GORDON-WEEKS	363
<i>myo</i> -Inositol metabolism and (Na <sup>+</sup> + K <sup>+</sup> )-ATPase activity in relation to peripheral nerve function in rats with streptozotocin-induced diabetes	C. M. F. SIMPSON & J. N. HAWTHORNE	364
Some effects of trishydroxymethylaminomethane ('Tris') on the activity of urease	J. BENNETT	365
Structure of the CD4 (W3/25) T-helper lymphocyte glycoprotein	W. A. JEFFERIES, A. N. BARCLAY, J. GAGNON & A. F. WILLIAMS	366
An immunologically active fragment of Tamm-Horsfall glycoprotein, derived by trypsinization	G. M. PHIMISTER, M. R. CAIRD & R. D. MARSHALL	367
Iron-mediated free-radical effects on erythrocytes: the role of desferrioxamine	C. RICE-EVANS, E. BAYSAL, D. FLYNN & G. KONTOGHORGES	368
The binding of bile acids by <i>in vitro</i> enzymically digested vegetable fibre	A. NIXON, A. N. MASON & R. F. BILTON	369
Protein composition of cytoskeletons from isolated growth cones	R. D. A. LANG & P. R. GORDON-WEEKS	370
<b>615th MEETING, BELFAST</b>		
Release of 5-fluorouracil from fluorouracil second nucleosides by tissue extracts	J. O. JONES & F. G. WINDER	433
Investigation of <i>Pseudomonas</i> -specific antibody responses in infected patients	M. SEXTON & D. J. REEN	434
Analysis of <i>Candida albicans</i> antigens by sodium dodecyl sulphate/polyacrylamide-gel electrophoresis and immunoblotting	C. CAPLIN & D. J. REEN	435
Electrophoretic analysis of changes in beef myofibrillar proteins during the early post-mortem period	D. J. TROY, V. P. TARRANT & M. G. HARRINGTON	436
Stretch-induced growth of the rat uterus	A. J. MORTON & D. F. GOLDSPINK	438
A search for the target site of epidermolytic toxin	T. P. SMITH & C. J. BAILEY	439
Properties of the complexes formed between 8-halogenated flavins and apo-electron-transferring flavoprotein from <i>Megasphaera elsdenii</i>	E. M. Ó NUALLÁIN & S. G. MAYHEW	440
Changes in the relative proportions of the microheterogenous forms of human plasma orosomucoid ( $\alpha_1$ -acid glycoprotein) after surgical trauma	G. J. P. MURPHY, P. PURI & F. HALLINAN	441

The plasma membrane of murine spermatozoa: surface-labelling using isethionyl-[1- <sup>14</sup> C]acetimidate	G. J. P. MURPHY & J. CARROLL	442
A study <i>in vivo</i> of mammary differentiation and involution during a normal lactation cycle in the mouse	L. J. SHIPMAN, A. H. DOCHERTY, C. H. KNIGHT & C. J. WILDE	443
The extraction of muscle proteins	N. P. PATESTOS & M. G. HARRINGTON	444
A volatile solvent for high-performance gel-permeation chromatography of polypeptides	G. B. IRVINE & C. SHAW	445
The effects of Mg <sup>2+</sup> or EDTA on the subcellular distribution of unoccupied oestrogen receptor in ZR-75-1 and MCF-7 cells	J. NELSON, R. CLARKE, G. R. DICKSON, H. W. VAN DEN BERG & R. F. MURPHY	447
Persistence studies on synthetic anabolic agents in the bovine animal	M. O'KEEFFE	447
The influence of vincristine on the oestrogen-binding capacity of two human breast cancer cell lines <i>in vitro</i>	R. CLARKE, J. MORWOOD, J. NELSON, H. W. VAN DEN BERG & R. F. MURPHY	449
The metabolism of vincristine <i>in vitro</i>	D. G. KENNEDY, P. ARMSTRONG, A. KARIM, H. W. VAN DEN BERG & R. F. MURPHY	450
Identification of cell types in human muscle cultures using two-dimensional polyacrylamide-gel electrophoresis and immunofluorescence with monoclonal antibodies	C. A. GRAHAM, A. E. HUGHES & N. C. NEVIN	451
Mechanism-based inactivation of GABA-transferase from a nematode parasite	S. D. M. WATTS & A. M. ATKINS	452
The induction of an arginine-metabolizing enzyme in <i>Methanobrevibacter smithii</i> PS	N. L. BLUMSON, A. HEALY & F. HOGAN	453
Cd <sup>2+</sup> may cause changes in transmitter function by inhibiting monoamine oxidase activity	A. MARKHAM, R. M. MORGAN, P. C. ROWLANDS & I. CAMERON	454
Cauliflower curds of different cultivars show distinct isoenzyme differences in acid phosphatases and aspartate aminotransferase	B. W. ALLEN, P. W. GOODENOUGH, J. S. C. LEE & P. P. RUTHERFORD	455
A particulate luliberin-degrading activity of guinea-pig brain	B. O'CONNOR & G. O'CUINN	456
A kinetic study of the behaviour of plasminogen activators towards synthetic substrates	J. WHITE & D. T. ELMORE	457
Purification of La antigen with poly (U)-Sepharose	H. E. FRAZER & G. B. WISDOM	458
Kinetics of inhibition of guinea-pig intestinal aminopeptidases	J. G. MORGAN & J. DONLON	458
Characterization of a cathepsin B-like enzyme from breast cancer	J. SIMON & M. J. DUFFY	460
Modulation of 5-hydroxytryptamine release by opiates	J. M. SHAMOON & I. AB I DAVIES	460
Results of a questionnaire on the acceptance of a general biochemistry course by first-year life-science students	E. J. WOOD	462
A personalized timetable facility for teaching schedules	N. V. McFERAN & G. B. IRVINE	462
Turnover: a wet, damp or dry biochemical study for science and medical students	M. H. R. LEWIS	463
The milieu intérieur: a dry test of students' understanding	M. H. R. LEWIS	465
A program for the analysis of students' enzyme kinetics results with diagnosis of experimental inadequacies	D. A. FELL	466
Teaching biochemistry and medical biochemistry to medical students	P. F. DUGGAN & C. A. ROSS	467
Does a pentose phosphate pathway operate in <i>Trypanosoma brucei</i> ?	P. HUNT, R. EISENTHAL & J. PRYKE	467
The N-terminal labelling of the amino acids of human aortic elastin	G. W. MOORE, R. J. ELLIOTT, J. C. ROBINSON & J. D. BIGGART	469
Separation of specific antigens from the fluid of the mouse epididymis	U. HEARTY & J. CARROLL	470
The production and characterization of monoclonal antibodies to Landschutz ascites tumour cells	K. CARROLL & R. O'KENNEDY	471
Molecular cloning and base sequencing of bovine enterovirus	J. A. P. EARLE, R. A. SKUCE, E. M. HOEY & S. J. MARTIN	472
Enzyme-immunoassay of urinary albumin and $\beta_2$ -micro-globulin	P. W. AUDL & G. B. WISDOM	473
A comparison of three methods for the preparation of enzyme-antibody conjugates	M. I. HALLIDAY & G. B. WISDOM	473

A comparison of detergents for the solubilization of membrane-associated proteins	B. BRANKIN & G. B. WISDOM	474
Characterization of monoclonal antibodies against apolipoprotein B	D. BREEN, R. O'KENNEDY & F. HALLINAN	475
Isolation of chromosome 21-specific sequences responsible for the phenotypic expression of Down's syndrome	L. A. J. STEFANI, A. M. MILLINGTON-WARD, P. PEARSON & N. C. NEVIN	476
A novel method of mapping bovine enterovirus cloned fragments to the viral genome	C. J. DEVLIN, E. M. HOEY & S. J. MARTIN	477
Isolation of replication loci of plasmid origin from <i>Rhizobium trifolii</i>	J. NEILAN, D. HEERY & L. K. DUNICAN	478
Intralysosomal pH: a Donnan equilibrium	I. AB I. DAVIES	479
A comparison of $\text{Ca}^{2+}$ -induced $\text{Ca}^{2+}$ -release systems in rat and human sarcoplasmic reticulum	D. M. MCSWEENEY & J. J. A. HEFFRON	481
Reactivity of anti-HL-60 cell monoclonal antibody with normal and leukaemic bone	R. O'CONNOR & T. G. COTTER	482
Monoclonal antibodies to myeloid differentiation antigens	J. G. BRADLEY, R. O'CONNOR, L. C. MEAGHER & T. G. COTTER	483
Identification of a novel human leukaemic HL-60 sub-line	L. C. MEAGHER, J. G. BRADLEY, R. O'CONNOR & T. G. COTTER	484
Effect of $\gamma$ -irradiation on the adhesion of baby hamster kidney cells (BHK 21)	J. WHISH, H. W. FOWLER & W. J. D. WHISH	485
The response of cultured <i>Trypanosmona brucei</i> to DNA-damaging agents	M. AL-SHARIF, W. J. D. WHISH, F. FARZANEH & R. EISENTHAL	486