

BIOCHEMICAL SOCIETY TRANSACTIONS

London: The Biochemical Society © 1988

Managing Editor D. C. WATTS

Book Reviews Editor B. MORELAND

Contents Volume 16, Part 5, October 1988

FIFTH MORTON LECTURE

Phosphoinositides and metabolic control: how many messengers?	J. N. HAWTHORNE	657
---	-----------------	-----

625th MEETING, LONDON

Colloquium: Biochemical Aspects of Skin

Collagen gene structure	R. DALGLEISH	661
The collagens of skin: structure and assembly	M. E. GRANT & S. AYAD	663
Proliferation and terminal differentiation of human epidermal keratinocytes in culture	F. M. WATT	666
Retinoids and the epidermis	E. J. WOOD, M. J. RAXWORTHY & D. B. HOLLAND	668
Structure and activity of epidermal-growth-factor-like peptides: induction of basal cell proliferation by a poxvirus gene product?	C. D. PORTER, N. W. BLAKE & L. C. ARCHARD	671
Production and characterization of monoclonal antibodies to the c-erbB-2 proto-oncogene protein using a synthetic peptide immunogen	N. L. TUZI, D. J. VENTER, J. A. REIDLINGER, C. J. DEAN & W. J. GULLICK	675
Epidermal cytokines	S. M. BREATHNACH	677
Eicosanoids and skin	G. DE NUCCI	680

624th MEETING, DUBLIN

Colloquium: Molecular Biology of Hormone Action

Structure-function relationships of the chicken progesterone receptor	O. M. CONNEELY, A. D. W. DOBSON, M. A. CARSON, B. L. MAXWELL, M.-J. TSAI, W. T. SCHRAIDER & B. W. O'MALLEY	683
Interaction of the glucocorticoid receptor with the $M_r \approx 90\ 000$ heat shock protein	M. DENIS, A.-C. WikSTRÖM, S. CUTHILL, H. JÖRNVALL & J.-Å. GUSTAFSSON	688
Oncogenes interfere with the mechanism of glucocorticoid hormone action (title only)	B. GRONER	690
Congenital adrenal hyperplasia	M. NEW	691
Control of growth hormone gene expression (title only)	J. D. BAXTER	694
Regulatory regions of androgen-responsive genes	P. DAVIES & N. K. RUSHMORE	695
Hormonal and tissue-specific control of rat prolactin and rat growth hormone gene expression	F. MARTIN, M. TREACY, W. SCHUSTER, C. LYNCH, S. LARKIN, S. TAIT & J. WHELAN	699

624th MEETING, DUBLIN

Colloquium: Biogenesis of Organelles and Membrane Proteins

Biogenesis of mitochondrial proteins	R. A. STUART, D. W. NICHOLSON, M. A. HARMAY & W. NEUPERT	701
Processing and assembly of chloroplast proteins	R. J. ELLIS, C. ROBINSON, S. M. VAN DER VIES & P. M. KIRWIN	703
The chloroplast genome and the biogenesis of the chloroplast thylakoid membrane	J. C. GRAY, P. P. J. DUNN, C. J. ECCLES, R. M. GREEN, S. M. HIRD, A.-S. HÖGLUND, A. N. WEBBER, D. L. WILLEY & T. A. DYER	704

Formation of protein bodies and glyoxysomes	706
Import of proteins into the endoplasmic reticulum	708
Mitochondrial protein targeting signals	709
Photoregulation of transcription of chloroplast genes	711
626th MEETING, SHEFFIELD	
COMMUNICATIONS	713
BOOK REVIEWS	905

COMMUNICATIONS

Phosphonate analogues of bis(5'-adenosyl)tetraphosphate	G. E. TAYLOR, G. M. BLACKBURN, M. PRESCOTT & A. G. McLENNAN	713
Nuclear-magnetic-resonance studies on blood plasma and plasma proteins: the recognition system for anions	J. D. BELL, J. C. C. BROWN, G. KUBAL & P. J. SADLER	714
Coenzyme-A-binding site of chloramphenicol acetyl-transferase	P. J. DAY, A. LEWENDON & W. V. SHAW	715
Specificity of cation binding by a dye and a lipopolysaccharide	E. ROWATT & R. J. P. WILLIAMS	716
Identification of C-terminal epitopes on creatine kinase using monoclonal antibodies	G. E. MORRIS, S. M. MACKENZIE & N. T. MAN	717
Expression of the mature form of yeast citrate synthase in <i>Escherichia coli</i>	D. O'CONNOR & D. WILTON	718
Dansylaminodecyl agarose — a novel affinity column for rat liver fatty acid binding protein	M. SHERIDAN & D. WILTON	719
Polyclonal antibodies to the modulator protein of the ATP,Mg ²⁺ -dependent protein phosphatase	C. V. ABEEL, J. R. VANDENHEEDE & W. MERLEVEDE	720
Analysis of stress-related proteins involved in the immune response to mycobacterial infection	A. MEHLERT, J. LAMB & D. YOUNG	721
Multimolecular organization of the bacterial enzyme pullulanase	B. M. CHARALAMBOUS & M. J. MCPHERSON	722
Functional analysis of the starch debranching enzyme pullulanase	M. J. MCPHERSON & B. M. CHARALAMBOUS	723
Probing the 3-phosphoglycerate-binding site of yeast phosphoglycerate kinase using site-specific mutants and ¹ H nuclear magnetic resonance spectroscopy	W. J. FAIRBROTHER, L. HALL, J. A. LITTLECHILD, P. A. WALKER, H. C. WATSON & R. J. P. WILLIAMS	724
Immunoglobulin G subclass specificity of human Fc receptor II determined using human chimeric anti-5-iodio-4-hydroxy-3-nitrophenacetyl monoclonal antibodies	M. R. WALKER, J. M. WOOF, D. R. BURTON, M. BRÜGGEMANN & R. JEFFERIS	725
Comparison of the ability of monoclonal and polyclonal anti-D antibodies to promote the binding of erythrocytes to lymphocytes, granulocytes and monocytes	A. H. MERRY, E. BROJER, B. ZUPANSKA, A. G. HADLEY, B. M. KUMPEL & N. C. HUGHES-JONES	727
Isoelectric focusing spectrotypes of anti-thyroglobulin auto-antibodies in autoimmune thyroiditis: an AUG rat model	D. I. STOTT, R. HASSMAN, L. NEILSON & A. M. MCGREGOR	728
Isoelectric focusing spectrotypes of anti-thyroglobulin auto-antibodies in autoimmune thyroiditis: a PVG rat model	D. I. STOTT, R. HASSMAN, L. NEILSON & A. M. MCGREGOR	729
Impairment of erythrocyte-antibody rosette formation by human lipocortin 1 on human leucocytes	N. J. GOULDING & P. M. GUYRE	730
Characterization of the IgA receptor from human neutrophils	M. A. KERR, M. ALBRECHTSEN & G. R. YEAMAN	731
Autoimmune neutropenia and the neutrophil FcR	P. A. VEYS, M. MACEY & A. C. NEWLAND	732
The relationship between IgG subclass and Gm allotype of monoclonal anti-Rh(D) antibodies and their functional activity	B. M. KUMPEL, K. A. LEADER & B. A. BRADLEY	733
Characteristics and interrelation of two types of immunoglobulin G Fc receptors on human monocytes	J. G. J. VAN DE WINKEL, H. L. P. VAN DUIJNHOVEN, R. VAN OMEN & W. J. M. TAX	734
Studies on the isolation of human C1q-receptor	R. MALHOTRA, K. B. M. REID & R. B. SIM	735
Two independent methods using radioactive and stable isotopically labelled substrates for the measurement of ketone body turnover in the same experimental animal	U. M. KOZLOWSKI, A. AYNNSLEY-GREEN, P. A. FLECKNELL & K. BARTLETT	736
Gas chromatography-electron capture mass spectrometry of steroids of human origin	D. WATSON, S. MURRAY, G. W. TAYLOR, D. B. GOWER, B. RUPARELIA, G. P. VINSON & E. ANDERSON	737
Use of capillary gas chromatography-mass spectrometry in the elucidation of odorous 16-androstene metabolism in human axillary bacteria	P. J. RENNIE, K. T. HOLLAND, A. I. MALLETT, W. J. WATKINS & D. B. GOWER	738
Fast atom bombardment mass spectrometry of some <i>N</i> -nitroso peptides	R. WAIT, S. A. LEACH, M. J. HILL & M. H. THOMPSON	740
Identification of bile acids in breast cyst fluid	P. R. BAKER, A. D. REID, Y. SLOW, J. D. BATY & R. G. WILLIS	741
The use of gas chromatography-mass spectrometry to study transacetylation by human whole blood <i>in vitro</i>	R. M. LINDSAY, J. D. BATY, W. R. FOX & R. G. WILLIS	742
Use of gas chromatography-mass spectrometry to study deacetylation-reacetylation of arylamides by whole blood <i>in vitro</i>	R. M. LINDSAY, J. D. BATY, W. R. FOX & R. G. WILLIS	743
Mass spectrometric identification of dicarboxylic acid glucuronide esters in patients with dicarboxylic aciduria	B. M. TRACEY, K. N. CHENG & R. A. CHALMERS	744
Fast atom bombardment-mass spectroscopy in the structural analysis of acidic peptides derived from bovine caseins	D. W. WEST	745
Use of glycopyrrrolate, atropine, in mixtures with neostigmine, to reverse neuromuscular blockade produced by atracurium in man	F. A. WALI & A. H. SUER	746

Comparative neuromuscular blocking effects due to prolonged intermittent nerve stimulation and to <i>d</i> -tubocurarine in the rat diaphragm preparation	F. A. WALI	747
Structural and idiotypic relationships between monoclonal antibodies specific for IgG1Fc epitopes	I. HARMER & R. JEFFERIS	747
Application of preparative isoelectric focusing for the isolation of homogeneous α -gliadins	S. T. BROOKES, G. V. GARNER, D. B. GORDON, M. N. MARSH & D. J. PEARSON	748
Age-related changes in heart collagen metabolism	P. K. MAYS, R. J. MCANULTY & G. J. LAURENT	749
Detection of fructose-1,6-diphosphate aldolase after starch gel electrophoresis: theoretical and practical considerations	P. C. NICHOLAS	750
Effects of buffer concentrations, pH, triose phosphate isomerase and glycerol-3-phosphate dehydrogenase on the measurement of the activity of aldolase and glyceraldehyde-3-phosphate dehydrogenase	P. C. NICHOLAS	752
Determination of fructose-1,6-diphosphate aldolase activity with glyceraldehyde-3-phosphate dehydrogenase and deformazan formation	P. C. NICHOLAS	753
How does resolvase sense the orientation of <i>res</i> sites that are distantly spaced?	C. N. PARKER & S. E. HALFORD	754
A proposal for the DNA-binding specificity of the FNR protein of <i>Escherichia coli</i>	S. SPIRO, M. H. TODD, P. J. ARTYMIUK & J. R. GUEST	755
Biological activity of (N^6 - N')-bridged diadenosines	D. C. AGATHOCLEOUS, R. COSSTICK, I. J. GALPIN, A. G. MCLENNAN, P. C. B. PAGE & M. PRESCOTT H. M. I. YESUFU, Y. M. KUO & R. L. P. ADAMS C. D. THOMAS, D. F. BALSON & W. V. SHAW	756 757 758
Nuclear DNA methylase from <i>Pisum sativum</i>	N. A. R. URWIN & D. S. T. NICHOLL	759
Identification of the tyrosine residue involved in bond formation between replication origin and initiator protein of plasmid pC221	S. E. CASTELL & S. E. HALFORD	760
Analysis and cloning of <i>Chlorella fusca</i> DNA: the effects of methylation and repetitive sequences	T. D. HOWARD, J. BARBER, L. Y. LIAN & G. TEBB	761
The role of DNA supercoiling in site-specific recombination by Tn21 resolvase	J. H. WALKER	762
Inhibition of elongation factor Tu by the antibiotic kirromycin	G. E. BLAIR	763
Inexpensive equipment for polyacrylamide-slab-gel electrophoresis and flat-bed electroblotting	A. G. BOOTH, J. H. PARISH & K. R. SMITH	764
Analysis of recombinant plasmids containing cloned viral genes by agarose gel electrophoresis and restriction endonuclease digestion	P. G. G. MILLER	764
Use of computers for tutorial and simulation in teaching molecular biology	D. S. T. NICHOLL	765
Courseware for teaching computer-based sequence analysis to undergraduate molecular biologists	D. S. T. NICHOLL	766
Models and simulations in molecular biology	A. C. FAIRCLOUGH, B. DAVIS, D. JOHNSON, P. LOXLEY, J. MILLS & A. E. BOLTON	767
Mapping and sequencing the human genome: a model for the future	T. C. WILLIAMS & S. M. JARVIS	768
<i>Beneckeia natriegens</i> as an ideal organism for teaching basic microbial physiology in schools	Z. WU & A. H. MADDY	769
Further characterization of Na ⁺ -dependent uridine transport in rabbit renal cortex	K. OHLENDIECK & N. M. RYAN	770
Identification of antigens by high-performance liquid chromatography	A. M. MATA, J. COLYER, R. E. A. TUNWELL, A. G. LEE & J. M. EAST	771
Immunocytochemical localization of acetylcholinesterase in human skeletal muscle	M. C. SUGDEN, M. J. HOLNESS, D.-Y. JIN, P. A. MACLENNAN & A. W. GOODE	772
Effect of monoclonal antibodies raised against Ca ²⁺ ,Mg ²⁺ -ATPase from rabbit skeletal muscle sarcoplasmic reticulum on ATPase activity and its correlation with epitope location	M. J. HOLNESS & M. C. SUGDEN	773
Cardiac pyruvate dehydrogenase complex activity after aortic constriction	S. G. SALIH, J. A. KHAN & R. P. NEWTON	774
Is there a role for pyruvate dehydrogenase-phosphatase in the re-activation of hepatic pyruvate dehydrogenase complex after re-feeding	J. A. HODGSON, M. R. TORRANCE, J. NEAGLE & J. G. LINDSAY	775
Cytidine 3',5'-cyclic monophosphate phosphodiesterase: immunoreactivity and differential sensitivity to endogenous effectors		
Lipoyl groups in mammalian pyruvate dehydrogenase complex: time-dependent desensitization towards <i>N</i> -ethylmaleimide		

Biosynthesis of precursor forms of the pyruvate dehydrogenase complex and mitochondrial phosphate transporter in <i>Saccharomyces cerevisiae</i>	J. A. HODGSON, G. JAMES, N. BATAYNEH & J. G. LINDSAY	776
Enzymic activities in rat lactating mammary gland after pre-gestational sialoadenectomy	S. LAVANDERO, J. PUENTE & M. SAPAG-HAGAR	778
Benzo[a]pyrene metabolism and aspects of oxygen radical generation in the common mussel (<i>Mytilus edulis L.</i>)	D. R. LIVINGSTONE, P. G. MARTINEZ, J. J. STEGEMAN & G. W. WINSTON	779
Partial purification of a tyrosyl protein kinase from rat liver cytosol by affinity chromatography on poly(Glu:Tyr)-linked Sepharose 4B	D. MANGNALL, J. BERESFORD & A. PRESCOTT	780
Functional compartmentation of cellular orthophosphate in human erythrocytes revealed by ^{32}P labelling	G. J. KEMP, D. KHODJA, A. BEVINGTON & R. G. G. RUSSELL	781
Effects of parenterally administered glucose and amino acid solutions for 6 h on cardiac muscle protein synthesis in fasted rats	V. R. PREEDY & P. J. GARLICK	782
Response of cardiac muscle protein synthesis to chronic ethanol exposure	V. R. PREEDY, P. A. EDWARDS, P. J. GIBBS & T. PETERS	783
Processing of thyrotropin-releasing-hormone-related peptides in rabbit hypothalamus and prostate	S. M. COCKLE & D. G. SMYTH	784
Metabolic changes accompanying phosphate depletion	T. NAKAGAWA & P. J. BUTTERWORTH	785
Action of lysosomotropic agents on mammalian skeletal muscle	N. SHAMSADEEN & C. J. DUNCAN	786
A comparison of the acetylation of sulphamethazine <i>in vitro</i> by whole blood and washed red blood cells from healthy and diabetic human subjects	R. M. LINDSAY & J. D. BATY	786
Betaine metabolism in the human neonate	S. E. C. DAVIES, R. A. CHALMERS, D. A. WOOLF & R. A. ILES	788
Oestradiol-binding protein in <i>Candida albicans</i>	Y. H. S. OTHMAN, D. J. ADAMS, C. A. HITCHCOCK & R. E. OKEY	789
Lipase and esterase activity during microcycle growth of <i>Aspergillus niger</i>	G. M. HUGHES, B. DAVIS & I. M. SPENCER	790
Utilization of carbon substrates during microcycle growth of <i>Aspergillus niger</i>	G. M. HUGHES, B. DAVIS & I. M. SPENCER	791
An immunosuppressive factor from equine placental tissue	R. G. LEA & A. E. BOLTON	793
Effect of decidual placental protein 14 on interleukin-2-lymphocyte interactions	A. G. POCKLEY & A. E. BOLTON	794
Metabolic roles of succinate thiokinase	T. M. JENKINS & P. D. J. WEITZMAN	795
Reverse-phase high-performance liquid chromatographic analysis of short-, medium- and long-chain acylcarnitines in urine and plasma	A. K. M. J. BHUIYAN & K. BARTLETT	796
Ketone body turnover in rats during acute treatment with 2[6(4-chlorophenoxy)hexyl]oxirane-2-carboxylate (etomoxir)	U. M. KOZLOWSKI, A. AYNLEY-GREEN, P. A. FLECKNELL & K. BARTLETT	797
Processing of tissue proline-rich proteins after secretion from mouse parotid glands	N. DIVECHA, D. PEAT, H. MANSOURI, G. COPE & C. J. McDONALD	798
Molecular analysis of acute intermittent porphyria	D. H. LLEWELLYN, A. UROUHART, G. SCOBIE, G. H. ELDER, N. A. KALSHEKER & P. R. HARRISON	799
Mixed function oxidation in human HEP G2 hepatoma cells	H. DOOSTDAR, W. T. MELVIN, M. D. BURKE & M. H. GRANT	801
Changes in rat hepatic UDP-glucuronosyltransferase activity after induction of hyper- or hypothyroidism are substrate dependent	J. PENNINGTON, A. K. SCOTT, I. W. REID & G. M. HAWKSWORTH	802
Further studies on the mechanism by which extracellular sodium depletion causes 5-hydroxytryptamine release from synaptosomes	K. J. COLLARD	803
Selective desensitization of protein-kinase-C-mediated platelet granule secretion with prolonged incubation of protein kinase C activators despite sustained 45 kDa phosphorylation	S. KRISHNAMURTHI, Y. PATEL, S. JOSEPH & V. V. KAKKAR	804
Differentiation between intra- and extra-cellular components of renal ^{87}Rb nuclear-magnetic-resonance spectra by line-shape analysis	J. L. ALLIS, Z. H. ENDRE & G. K. RADDAA	806
Role of intracellular pH as a signal of the stimulation of pancreatic islets	L. BEST, E. A. BONE, J. E. MEATS & S. TOMLINSON	807
Novel pathways inhibiting histamine stimulation of the cyclic AMP content of rat isolated parietal cells	J. F. HATT & P. J. HANSON	808
Nutrient stimuli enhance the turnover of GTP in rat pancreatic islet cells	E. A. BONE, L. BEST & S. TOMLINSON	809
Tissue-specific gene expression during reprogramming of reproductive tract epithelium	S. J. HIGGINS, P. YOUNG & G. R. CUNHA	810

Identification of active cysteine proteinases in cellular systems	D. WILCOX & R. W. MASON	811
Enzyme immunoassay for cathepsins B and L in synovial fluids from patients with arthritis	R. A. MACIEWICZ & D. J. ETHERINGTON	812
p68: a new protein of the lipocortin family	S. E. MOSS, M. R. CROMPTON, H. C. EDWARDS & M. J. CRUMPTON	813
Inhibition of arachidonate lipoxygenase by ketotifen	S. A. SAEED, R. NASREEN, S. AMIRALI & A. SURIA	814
Differential effects of anticholinergic drugs on platelet aggregation induced by platelet-activating factor and other agents	S. A. SAEED & A. H. GILANI	815
Inhibition of phospholipase A ₂ by some long chain alkyl-amines	P.D. DAVIS, J. S. NIXON, S. E. WILKINSON & M. G. N. RUSSELL	816
Analysis by high performance liquid chromatography of two hydroxypyridinium cross-links of collagen in urine as indices of disease activity in rheumatoid arthritis	D. BLACK, S. P. ROBINS, A. DUNCAN & M. MARABANI	817
Activation of protein kinase C in the development of experimental hyperalgesia	F. CAREY, A. M. DAS, D. HAWORTH & J. R. M. HERON	818
Effects of inflammatory stress on metallothionein-I concentrations in blood cells and plasma of rats	J. N. MORRISON, A. M. WOOD & I. BREMNER	820
Model mono-oxygenase reaction by binuclear copper(I) complexes involves an oxygen protonated intermediate	L. CASELLA, M. GULLOTTI & G. PALLANZA	821
Dinuclear manganese-oxide complexes as models for manganese catalase	J. B. VINCENT, K. FOLTING, J. C. HUFFMAN & G. CHRISTOU	822
Photoaffinity inactivation of the gastric (H ⁺ + K ⁺)-ATPase at a site involved in ion translocation	C. FALLOWFIELD, K. W. M. LAWRIE, D. SAUNDERS, R. J. IFE & D. J. KEELING	823
Crystallochemical recognition at organized inorganic-organic interfaces	B. R. HEYWOOD, S. R. RAJAM, J. D. BIRCHALL & S. MANN	824
Structural studies on transferrins: the anion-binding sites	P. F. LINDLEY, R. W. EVANS, R. C. GARRATT, B. GORINSKY, S. S. HASNAIN, H. JHOTI, R. SARRA & A. R. WALTON	825
Effects of lithium on mouse osteoclasts and on the biomechanical properties of long bone in the rat	A. S. WILSON, J. D. PHILLIPS & N. J. BIRCH	826
Transport of lithium in human erythrocytes as studied by ⁷ lithium nuclear magnetic resonance and atomic absorption spectroscopy	M. S. HUGHES, K. J. FLAVELL & N. J. BIRCH	827
Evidence of a biosynthetic link between ferritin and haemosiderin	M. J. O'CONNELL, R. J. WARD, H. BAUM, A. TREFFRY & T. J. PETERS	828
Biochemical investigation of hepatocytopoietic porphyria — homozygous porphyria cutanea tarda	T. HOUSTON, E. J. FITZSIMONS, I. CAVILL, K. E. L. MCCOLL, G. G. THOMPSON, A. HERRICK, M. R. MOORE & SIR ABRAHAM GOLDBERG	829
Heterogeneity of the iron cores in hepatic haemosiderins from primary and secondary haemochromatosis	R. J. WARD, M. J. O'CONNELL, S. MANN, V. WADE, D. P. E. DICKSON, N. REID, A. BOMFORD & T. J. PETERS	830
A simple reversed phase high performance liquid chromatographic method for the separation of haem, protoporphyrin and iron	T. HOUSTON, E. J. FITZSIMONS & M. R. MOORE	831
Use of irradiation inactivation to investigate intestinal iron absorption by isolated brush-border vesicles <i>in vitro</i>	C. DOREY, R. J. SIMPSON, R. WILLSON & T. J. PETERS	832
Interaction of indium with transferrin	R. W. EVANS & W. OGWANG	833
Characterization of the amino acid change in a transferrin variant	R. W. EVANS, A. MEILAK, A.AITKEN, K. J. PATEL, C. WONG, R. C. GARRATT & B. CHITNAVIS	834
Computer-aided modelling of the structures and metal-ion affinities of chelating agents	D. J. BARLOW, R. C. HIDDER, S. SINGH & K. S. WIBLEY	835
Very-low-resolution structure of a bacterioferritin	J. M. A. SMITH, G. C. FORD & P. M. HARRISON	836
Expression and purification of the rat liver ferritin light chain after cloning in <i>Escherichia coli</i>	C. D. THOMAS, W. V. SHAW, D. M. LAWSON, A. TREFFRY, P. J. ARTYMIUK & P. M. HARRISON	838
Solid-state and solution-state ³¹ P nuclear-magnetic-resonance studies of the haemoglobin-inositol hexaphosphate complex	H. KHODR, G. R. MOORE, A. J. STRIKE & D. J. WILLIAMSON	839
Redox properties of <i>Azotobacter</i> 7 Fe ferredoxin	F. A. ARMSTRONG, S. J. GEORGE, A. J. THOMSON & M. G. YATES	840
Towards macromolecular recognition at electrodes: fast interfacial electron transfer to cytochrome c peroxidase at graphite electrodes is promoted by aminoglycosides	F. A. ARMSTRONG & A. M. LANNON	842
Structure of yeast iso-1-cytochrome c in which arginine-38 is replaced by alanine-38	A. M. DAVIES, R. L. CUTLER, M. SMITH, A. G. MAUK, A. G. P. THURGOOD & G. R. MOORE	844
A ¹³ C nuclear-magnetic-resonance investigation of the interaction between cytochrome c and cytochrome b ₅	A. M. BURCH, S. E. J. RIGBY, W. FUNK, R. T. A. MACGILLIVRAY, A. G. MAUK, M. MAUK, & G. R. MOORE	844
Cryokinetic studies of cytochrome c in aqueous alcohols	F. A. ARMSTRONG, H. ELLUL, S. E. B. HANLON & A. M. LANNON	846

Effects of some antidepressant drugs on rat hepatic 5-amino-laevulinate synthase	A. L. HERRICK, G. G. THOMPSON, A. M. GRAHAM, K. E. L. MCCOLL, I. MEDLEY & M. R. MOORE	847
Hormonal regulation of mouse uterine alkaline phosphatase	M. JAHAN, J. W. POLLARD & P. J. BUTTERWORTH	848
Amino acid inhibition of aminopeptidases purified from human cerebral cortex	B. LAUFFART, J. McDERMOTT, P. JONES & D. MANTLE	849
Purification and characterization of leucine aminopeptidase from human cerebral cortex	B. LAUFFART, J. McDERMOTT, A. GIBSON & D. MANTLE	850
Peptidases involved in the degradation of neuropeptides by human brain synaptic membranes	J. R. McDERMOTT, A. M. GIBSON & J. A. BIGGINS	851
High M_r multicatalytic peptidases in human and rat brain	J. A. BIGGINS, J. R. McDERMOTT, B. LAUFFART & D. MANTLE	852
Activation of carbonic anhydrase III by phosphate	J. B. SHELTON & W. R. CHEGWIDDEN	853
Studies on the subcellular processing of iron dextran by rat liver	S. C. ANDREWS, A. TREFFRY & P. M. HARRISON	854
Antibodies to a 200 kDa cholinergic antigen in Alzheimer's disease	D. M. MICHAELSON, J. CHAPMAN, O. BACHAR, A. D. KORCZYN & E. WERTMAN	855
Pre-steady-state kinetics of aldehyde oxidation by pig liver cytosolic aldehyde dehydrogenase	J. P. HILL & F. M. DICKINSON	856
Steady-state kinetics of aldehyde oxidation by pig liver cytosolic aldehyde dehydrogenase	J. P. HILL & F. M. DICKINSON	857
Structural comparison of the guanosine 5'-phosphate reductase and inosine 5'-phosphate dehydrogenase of <i>Escherichia coli</i>	S. C. ANDREWS & J. R. GUEST	858
Involvement of an arginine residue in glutamate dehydrogenase with the 1-position carboxyl of glutamate	L. JANSON & E. BELL	860
Modification of the ADP regulatory site of glutamate dehydrogenase by PLP-AMP	E. BELL	861
Dehydrogenase binding by cofactor analogues	B. M. GOLDSTEIN, J. E. BELL & V. E. MARQUEZ	862
Archaeabacterial dehydrogenases with dual cofactor specificity: glucose dehydrogenase from <i>Thermoplasma acidophilum</i>	L. D. SMITH, S. J. BUNGARD, M. J. DANSON & D. W. HOUGH	864
Purification and characterization of D-(+)-mandelate dehydrogenase from <i>Rhodotorula graminis</i> KGX 39	D. P. BAKER & C. A. FEWSON	865
Redox cycling quinones induce an interconversion of hepatocyte pyridine nucleotides	C. R. STUBBERFIELD, S. M. A. FORROW, E. ZAERA & G. M. COHEN	866
Endogenous 6-phosphogluconate dehydrogenase and the biochemical and histochemical quantification of hexokinase	G. M. LAWRENCE, A. C. H. BEESLEY, M. A. JEPSON & J. B. MATTHEWS	867
Identification of an adenosine-dependent trifluoperazine (Stelazine)-sensitive system in the tegumental membrane of the rat tapeworm <i>Hymenolepis diminuta</i>	M. A. SHARIF, W. J. D. WHISH, C. J. BRANFORD WHITE & R. V. BRUNT	868
Effect of inhibitors of ADP-ribosylation on NAD ⁺ metabolism in leukaemic cells	B. N. PATEL, J. JONES & C. J. SKIDMORE	869
<i>Acinetobacter calcoaceticus</i> isocitrate dehydrogenase — fractionation, AMP stimulation and hysteretic behaviour	S. O'NEIL & P. D. J. WEITZMAN	870
Purification and characterization of NAD-linked isocitrate dehydrogenase from <i>Methylophilus methylotrophus</i>	A. J. LLOYD & P. D. J. WEITZMAN	871
NAD(P)H-cytochrome reductase from <i>Escherichia coli</i>	M. G. P. PAGE	872
Rapid purification and properties of pig heart NAD ⁺ -isocitrate dehydrogenase	G. A. RUTTER & R. M. DENTON	873
Site-directed mutagenesis studies of <i>Escherichia coli</i> glutamate dehydrogenase	K. M. JONES, A. J. BARON, J. C. WOOTTON & M. J. MCPHERSON	874
Identification of three essential lysine residues probably involved in substrate binding of the NAD ⁺ -dependent glutamate dehydrogenase of <i>Clostridium symbiosum</i>	K. S. LILLEY & P. C. ENGEL	875
Purification, chemical modification and analysis of pH-dependence of the NADP ⁺ -dependent glutamate dehydrogenase of <i>Escherichia coli</i>	K. S. LILLEY, D. P. HORNBY & P. C. ENGEL	876
Lack of correlation between enzymic Na ⁺ , K ⁺ -ATPase activity and ⁸⁶ Rb ⁺ uptake in peripheral nerve tissue of diabetic rats	N. J. PATEL, J. G. LLEWELYN, D. W. WRIGHT & P. K. THOMAS	878
Compartmentation of Ca ²⁺ -dependent pools of glutamate and aspartate in isolated cerebral cortical nerve terminals by isotopic exchange and fractionation	R. WILKINSON & D. G. NICHOLLS	879
Energetics of Ca ²⁺ -dependent glutamate release from synaptosomes and the effect of experimental anoxia, hypoglycaemia and ischaemia	H. T. McMAHON, R. KAUPPINEN & D. G. NICHOLLS	880
Presynaptic regulation of glutamate release from guinea-pig cortical synaptosomes	A. BARRIE and D. G. NICHOLLS	881

Localized osmotic forces and membrane fusion	Q. F. AHKONG & J. A. LUCY	882
Lack of detectable ADP-ribosylation in synaptosomes associated with inhibition of transmitter release by botulinum neurotoxins A and B	A. C. ASHTON, K. EDWARDS & J. O. DOLLY	883
Action of botulinum neurotoxin A on protein phosphorylation in relation to blockade of transmitter release	A. C. ASHTON, K. EDWARDS & J. O. DOLLY	885
Roles of the constituent chains of botulinum neurotoxin type A in the blockade of neuromuscular transmission in mice	J. D. F. WADSWORTH, C. C. SHONE, J. MELLING & J. O. DOLLY	886
G-proteins and the control of prolactin and growth hormone secretion	R. S. BOYD & M. WALLIS	887
Inhibition of superoxide generation by phagocytic leukocytes	A. R. CROSS, C. M. YEA & O. T. G. JONES	888
Comparison of the mechanistic effects of cytokines and a phorbol ester on synovial cell and chondrocyte glycolysis	D. J. TAYLOR, J. M. EVANSON & D. E. WOOLLEY	889
Effect of penicillamine on luminol-dependent chemiluminescence in human leucocytes	R. C. FRENCH, K. E. HERBERT, D. L. SCOTT & D. PERRETT	891
Effect of anti-rheumatic drugs on interleukin 1 activity in human synovial cells	L. A. J. O'NEILL & G. P. LEWIS	892
Studies on human fibroblast gelatinase	D. S. HIPPS & G. MURPHY	893
Na^+ -dependent proline uptake in isolated chondrocytes	G. A. BARKER & J. C. ELLORY	894
Tartrate-resistant acid phosphatase: purification and characterization of the human osteoclastoma enzyme	A. R. HAYMAN, M. J. WARBURTON, J. A. S. PRINGLE & T. J. CHAMBERS	895
Interactions of insulin receptor tyrosine kinase with heavy metals	P. P. VICARIO, R. SAPERSTEIN & A. BENNUN	896
Epidermal growth factor mimics the effect of insulin on phenylalanine hydroxylation in isolated liver cells	M. J. FISHER & A. J. DICKSON	897
Tissue-specific regulation of platelet aggregation: inhibition by rat liver cytosol	S. A. SAEED	898
Changes in the specific activities of hepatic NADP-dependent dehydrogenases during development of the rat	H. C. BARTON & E. BAILEY	899
Expression of 2', 3'-cyclic nucleotide 3'-phosphohydrolase and myelin basic protein, and formation of oligodendrocytes in mixed glial cultures maintained in a defined medium	E. M. CAREY, R. REYNOLDS & N. HERSHKOWITZ	900
Diphenyliodonium-sensitive killing of K562 tumour cells by blood mononuclear cells	L. ZHANG, G. M. ROBERTS & M. B. HALLETT	902
Effect of NADP^+ and NADPH on controlled tryptic cleavage of glucose-6-phosphate dehydrogenase from <i>Dicentrarchus labrax</i> (bass) liver	J. M. BAUTISTA, A. GARRIDO & G. SOLER	903