

BDH Medal Lecture**N.m.r. and biochemistry**

I. D. CAMPBELL

243**colloquia****637th Meeting, Birmingham****colloquium: Intercellular Cross-Talk****An overview of conventional and novel routes of protein secretion**

A. COLMAN

249**Bacterial haemolysin and mammalian P-glycoprotein**

I. B. HOLLAND, O. POSSOT, M. BLIGHT & K. YUE

252**Interleukin 1 β and thioredoxin are secreted through a novel pathway of secretion**

A. RUBARTELLI & R. SITIA

255**Transforming growth factor- α**

A. PANDIELLA & J. MASSAGUE

259**Antigen processing and class II MHC-restricted antigen presentation in B-lymphocytes**

C. WATTS, P. A. REID, P. D. SIMONSEK & M. A. WEST

263**Characterization of signal-transducing molecules on natural killer cells**

J. B. IMBODEN, G. BELL & W. E. SEAMAN

265**Tyrosine phosphorylation regulates phospholipase C activation in human T-cells**J. A. LEDBETTER, L. S. GROSMIRE, T. T. TSU &
G. L. SCHIEVEN**269****Cross-talk between surface immunoglobulin and Interleukin-4 receptors on murine B-lymphocytes**

G. G. B. KLAUS & M. M. HARNETT

272**Long-term proliferating early pre-B-cell lines and clones with the potential to develop to surface immunoglobulin-positive, mitogen-reactive B-cells *in vitro* and *in vivo***

A. ROLINK, A. KUDO & F. MELCHERS

275**Transmembrane signalling by interleukin 2**G. B. MILLS, N. ZHANG, R. SCHMANDT, M. FUNG,
W. GREENE, A. MELLORS & D. HOGG**277****Regulation of the interleukin 4 signal in human B-lymphocytes**

M. FINNEY, R. H. MICHELL, S. GILLIS & J. GORDON

287**Role of oncogenes in the regulation of MHC antigen expression**

D. J. MAUDSLEY

291**The role of Ras in signal transduction**

C. JOHNSTON, J. MORRIS & A. HALL

296**Regulation of cytosolic phosphoinositide-phospholipase C by G-protein, G_p**

S. COCKCROFT, B. GENY & G. M. H. THOMAS

299**Growth and differentiation in the haemopoietic system**

T. M. DEXTER

303**Control of proliferation by myeloid growth factors**

S. J. VALLANCE & A. D. WHETTON

307

Protein phosphorylation events and changes in inositol metabolism during HL60 cell differentiation	J. M. LORD, C. M. BUNCE, P. J. FRENCH, N. A. JONES, M. A. BAXTER, G. GRAFTON, R. H. MICHELL & G. BROWN	315
---	--	-----

colloquium: Receptor Regulation of Intracellular Phospholipases

Regulation of the hydrolysis of phosphatidylcholine in Swiss 3T3 cells	M. J. O. WAKELAM, S. J. COOK, S. CURRIE, S. PALMER & R. PLEVIN	321
Receptor-coupled phospholipase D: regulation and functional significance	M. M. BILLAH, J. C. ANTHES & T. J. MULLMANN	324
Regulation of phospholipase A₂ by receptors in MDCK-D1 cells	P. A. INSEL, B. A. WEISS, S. R. SLIVKA, M. J. HOWARD, J. J. WAITE & C. A. GODSON	329
Is phospholipase A₂ activation regulated by G-proteins?	S. COCKCROFT, C. P. NIELSON & J. STUTCHFIELD	333
Multiple forms of phosphoinositide-specific phospholipase C and different modes of activation	S. G. RHEE, H. KIM, P.-G. SUH & W. C. CHOI	337
Avian G-protein-regulated phospholipase C	T. K. HARDEN, A. J. MORRIS, G. L. WALDO, C. P. DOWNES & J. L. BOYER	342

colloquium: Biochemistry of Exercise

Energy metabolism and fatigue during intense muscle contraction	E. HULTMAN, P. L. GREENHAFF, J.-M. REN & K. SÖDERLUND	347
Control of energetic processes in contracting human skeletal muscle	K. SAHLIN	353
Physical and mental fatigue: do changes in plasma amino acids play a role?	E. A. NEWSHOLME, E. BLOMSTRAND, P. HASSMEN & B. EKBLOM	358
Effect of diet manipulation on substrate availability and metabolism in trained cyclists	F. BROUNS	362
Stretch and force generation induce rapid hypertrophy and myosin isoform gene switching in adult skeletal muscle	G. GOLDSPINK, A. SCUTT, J. MARTINDALE, T. JAENICKE, L. TURAY & G.-F. GERLACH	368
Control of gene expression in adult skeletal muscle by changes in the inherent level of contractile activity	F. W. BOOTH & C. R. KIRBY	374

colloquium: Vectors

Retroviral vectors	A. M. L. LEVER	379
---------------------------	----------------	-----

colloquium: Stimulation of Eicosanoid and Complex Lipid Turnover in the Central Nervous System

Nerve-growth-factor-treated and v-src-expressing PC 12 cells: a model for neuronal differentiation	G. HECKER, D. L. LEWIS, D. M. RAUSCH & C. L. JELSEMA	385
Arachidonic acid metabolism: potential for diverse signalling within the same neuron	J. H. SCHWARTZ	387
Is arachidonic acid a retrograde messenger in long-term potentiation?	M. A. LYNCH, M. P. CLEMENTS, K. L. VOSS, C. R. BRAMHAM & T. V. P. BLISS	391
Phorbol ester activation of the isotypes of protein kinase C from bovine and rat brain	F. J. EVANS, P. J. PARKER, A. R. OLIVIER, S. THOMAS, W. J. RYVES, A. T. EVANS, P. GORDGE & P. SHARMA	397
Signal-dependent activation of phosphatidylcholine hydrolysis: role of phospholipase D	M. LISCOVITCH	402
Inositol lipid metabolism in hippocampus	S. D. LOGAN & E. E. McDERMOTT	407
Arachidonate release consequent to bradykinin-stimulated phospholipid metabolism in dorsal root ganglion cells	P. MORELL, A. C. ALLEN, C. M. GAMMON & S. A. LYONS	411
Neuronal muscarinic receptors and phosphoinositide metabolism	S. R. NAHORSKI, D. G. LAMBERT, R. J. H. WOJCIKIEWICZ R. A. J. CHALLISS & S. T. SAFRANY	416

colloquium: Mechanisms of Nucleotide Binding and Hydrolysis

Characterization of the nucleotide-modulated interaction of myosin with actin by n.m.r. spectroscopy	B. A. LEVINE, A. J. G. MOIR, A. J. GOODEARL & I. P. TRAYER	423
Insulin receptor tyrosine kinase structure and function	L. ELLIS, J. M. TAVARÉ & B. A. LEVINE	426
Fluorescence approaches to the study of the p21^{ras} GTPase mechanism	J. F. ECCLESTON, K. J. M. MOORE, G. G. BROWNBRIDGE, M. R. WEBB & P. N. LOWE	432
Mutations in G_a that alter the kinetics of guanine nucleotide binding and hydrolysis	M. FREISMUTH	437

colloquium: Chirality and its Importance in Drug Development

Chirality and its importance in drug development: what are the issues?	A. H. BECKETT	443
Chirality and its importance in drug development: a synthetic chemist's perspective	S. M. ROBERTS	446
Chirality and its importance in drug development: an analytical chemist's perspective	A. F. FELL & G. W. LEY	454
Chiral drug metabolism: a perspective	B. KAYE	456

A clinical pharmacologist's perspective	G. T. TUCKER	460
Regulatory implications: a committee member's perspective	J. R. BROWN	463
Regulatory implications: an authority's perspective	A. C. CARTWRIGHT	465
Regulatory implications: a company's perspective	C. M. MACDONALD	467
A patent lawyer's perspective	A. W. WHITE	469
Chirality and its importance in drug development	D. B. CAMPBELL & K. WILSON	472

colloquium: Laser Light Scattering in Biochemistry

Introductory Remarks	S. E. HARDING, D. B. SATTELLE & V. A. BLOOMFIELD	477
Combined static and dynamic light scattering approaches to biopolymeric analysis	W. BURCHARD	478
Low-bias macroscopic analysis of polydispersity	S. W. PROVENCHER	479
Mesoparticle diffusion in biopolymer and polymer solutions	G.D. J. PHILLIES	481
An overview of current methods of analysing QLS data	R. M. JOHNSEN & W. BROWN	482
Static and dynamic light scattering by semidilute rod-like polyelectrolyte solutions	T. ODJK	482
A study of the diffusion of probe molecules in poly(<i>N</i>-isopropylacrylamide) gels using forced Rayleigh scattering	W. G. GRIFFIN & M. C. A. GRIFFIN	483
Developments in electrophoretic laser light scattering and some biochemical applications	K. H. LANGLEY	484
Light scattering as a tool for characterizing biopolymer solutions and gels	H.-U. TER MEER	484
Combined differential light scattering with various liquid chromatography separation techniques	P. J. WYATT	485
Use of low-angle laser light scattering with gel permeation chromatography for the molecular mass determination of biomolecules	K. JUMEL, P. BROWNE & J. F. KENNEDY	486
New tools for biochemists: combined laser doppler micro-electrophoresis/photon correlation spectroscopy	A. PARKER	486
An on-line dynamic light-scattering instrument for protein chromatography	P. CLAES, M. DUNFORD, A. KENNEY & P. VARDY	487
Compactness of protein molecules in native and denatured states as revealed by laser light scattering and X-ray scattering	K. GAST, G. DAMASCHUN, H. DAMASCHUN, R. MISSELWITZ & D. ZIRWER	488
Dynamic light scattering from casein micelle suspensions	D. S. HORNE	489

Light-scattering studies of protein association	J. G. RARITY, P. C. M. OWENS, T. ATKINSON, R. N. SEABROOK & R. J. G. CARR	489
Hydrodynamic behaviour of myosin filaments studied by laser light scattering	S. FUJIME	490
Quasi-elastic light-scattering studies of the assembly properties of microtubules	F. M. MUÑOZ, P. I. KARECLÀ & P. M. BAYLEY	491
Quasi-elastic and total intensity light-scattering studies of mucin glycoproteins and cartilage proteoglycans	A. M. JAMIESON, J. BLACKWELL, D. ZANGRANDO & A. DEMERS	493
Use of on-line laser light-scattering photometry coupled to chromatographic separations for determination of biopolymer molecular mass, branching, size and shape distributions	J. E. ROLLINGS	493
Conformational aspects of ionic polysaccharides: laser light scattering of aqueous solution of hyaluronic acid and alginate	S. PAOLETTI, A. GAMINI & F. ZANETTI	494
Laser light-scattering studies of polysaccharide gels	P. M. BURNE & D. B. SELLEN	495
Light scattering studies on DNA condensation	V. A. BLOOMFIELD, S. HE, A.-Z. LI & P. B. ARSCOTT	496
Dynamics and structures of DNA	J. M. SCHURR, U.-S. KIM, L. SONG & B. S. FUJIMOTO	497
Dynamics of oligonucleotides and DNA restriction fragments	R. PECORA	498
Total intensity and quasi-elastic light-scattering applications in microbiology	S. E. HARDING	499
Quasi-elastic light scattering studies of membrane structure and dynamics	J. C. EARNSHAW	499
Quasi-elastic light scattering from an evanescent wave to probe particle/wall interactions	N. OSTROWSKY & N. GARNIER	500
Quasi-elastic laser light-scattering studies of size and dispersity of secretory vesicles and neurosecretosomes isolated from vertebrate neurohypophyses	D. B. SATTELLE, A. L. OBAID & B. M. SALZBERG	501
Photon correlation spectroscopy and zeta potential characterization of model particles and colloidal drug carriers — essential information for the interpretation of cell culture studies	R. H. MÜLLER & S. HEINEMANN	502
Light scattering from liquid crystalline solutions of rod-like macromolecules	P. V. D. SCHOOT & T. ODJK	503
Particle sizing using methods of discrete Legendre analysis	J. EVERITT & I. K. LUDLOW	504
Size-exclusion chromatography/low-angle laser light scattering experiments to detect aggregation phenomena in biopolymer solutions	A. HUBER	505
Conformation of muscle proteins: a laser light-scattering study	A. PIATKOWSKI, J. SEILS, W. EIMER & T. DORFMÜLLER	507

Bridging flocculation of polystyrene latex by β-lactoglobulin: photon correlation spectroscopy studies	J. C. PRICE, W. G. GRIFFIN & M. C. A. GRIFFIN	508
Gel permeation chromatography—multi-angle laser light scattering characterization of the molecular mass distribution of 'Pronova' sodium alginate	J. C. HORTON, S. E. HARDING & J. R. MITCHELL	510
Photon correlation spectroscopy study of a 2311 bp relaxed circular DNA — applicability of Rouse-Zimm and wormlike chain models	J. SEILS & R. PECORA	511
Analysis of pH-induced population oscillations of <i>Saccharomyces cerevisiae</i> and <i>Escherichia coli</i> using photon correlation spectroscopy	R. I. JEPRAS, J. RARITY, E. A. PERKINS, D. J. CLARKE, R. J. G. CARR & T. ATKINSON	513
Influence of scattering on physiological measurement using laser light <i>in vivo</i>	F. FARIS, Y. WICKRAMASINGHE, M. THORNILEY, R. HOUSTON & P. ROLFE	514

colloquium: Proteins of Unusual Sequence Composition

Proteins containing unusual amino acid sequences	R. P. AMBLER	517
The interpretation of alignments between proteins of unusual sequence composition	S. J. McQUAY	523
Proteins of unusual sequence composition from the malarial parasite <i>Plasmodium falciparum</i>	R. G. RIDLEY	525
Sulphur-poor prolamins of barley, wheat and rye	P. R. SHEWRY, G. HULL & A. S. TATHAM	528
TonB; a model for signal transduction between membranes	K. HANNAVY & C. F. HIGGINS	530
Circadian oscillations in protein and mRNA levels of the period gene of <i>Drosophila</i> <i>melanogaster</i>	L. J. ZWIEBEL, P. E. HARDIN, J. C. HALL & M. ROSBASH	533

contents — communications

Intercellular cross-talk

Phorbol esters trigger the inactivation of the inhibitory guanine-nucleotide binding regulatory protein (G_i) in airway smooth muscle	N. J. PYNE, D. SHEHNAZ & I. W. RODGER	75S
Detection of sustained mass increases in inositol 1,3,4,5-tetrakisphosphate in agonist-stimulated airway smooth muscle	E. R. CHILVERS, R. A. J. CHALLISS & S. R. NAHORSKI	76S
ATPγS activates the respiratory burst in electroporemeabilized neutrophils: the role of protein kinases	P. J. HARTFIELD & J. M. ROBINSON	77S
Effects of lipoxin A₄ on cytosolic calcium in human neutrophils	K. E. MOORES & J. E. MERRITT	78S
Basic fibroblast growth factor in the developing bovine heart	P. CUMMINS, A. LOGAN & B. CUMMINS	79S
G_i function in the streptozotocin-treated diabetic rat liver	D. M. KIRKHAM, G. J. MURPHY & P. YOUNG	80S
Prostanoid-mediated downregulation of G_s in NG108-15 cells	F. R. MCKENZIE, E. J. ADIE & G. MILLIGAN	81S
Effects of age, vitamin D₃ metabolites and calcium ionophore A23187 on cytosolic free calcium in rat hippocampus	J. J. DYER, N. R. BELTON & N. MCINTOSH	82S
The effect of interferons on the expression of major histocompatibility class I genes in adenovirus-transformed cells	R. YUSOF & G. E. BLAIR	83S
The role of adenovirus oncogenes in down-regulation of major histocompatibility class I gene expression	E. SHARMA, T. HOLLETT, M. E. B. ZAJDEL & G. E. BLAIR	84S
Regulation of myelin basic protein gene transcription in glial cells	A. ASIPU & G. E. BLAIR	85S
The role of inositol transport in cellular differentiation	M. A. BAXTER, G. GRAFTON, C. M. BUNCE, J. M. LORD, R. H. MICHELL & G. BROWN	86S
Novel vasopressin receptor ligands	J. HOWL, I. KERR, C. H. W. CHAN & M. WHEATLEY	87S
Effect of inhibitors of eicosanoid synthesis upon lymphocyte proliferation	P. C. CALDER, J. A. BOND & E. A. NEWSHOLME	88S
Stimulation of U937 human monocytic cells by thrombin results in inositol trisphosphate formation and the mobilisation of intracellular Ca^{2+} but not the synthesis of thromboxane B₂	S. JOSEPH & J. MACDERMOT	89S
The role of inositol lipid hydrolysis in the selection of immature thymocytes	L. A. CONROY, E. J. JENKINSON, J. J. T. OWEN & R. H. MICHELL	90S

Receptor regulation of intracellular phospholipases

Purification and characterisation of phospholipase A2 from human epidermis	M. J. FINNEN & C. R. LOVELL	91S
---	-----------------------------	------------

The influence of inflammatory mediators on the effects of phenytoin on steroidogenesis by human gingival fibroblasts (HGF)	M. SOORY & D. B. GOWER	92S
Stimulation of inositol phosphate turnover and calcium influx in ovine pars tuberalis (PT) cells: effect of melatonin	M. THOMPSON, M. HASTINGS & P. J. MORGAN	93S
Effects of phytoalexin elicitor on levels of inositol phosphates in lucerne cells in suspension culture	C. J. COOKE, C. J. SMITH, R. P. NEWTON & T. J. WALTON	94S
Kinetics of calcium mobilisation and inositol phosphate metabolism in endotoxin-stimulated HL-60 cells	J. QU, H. A. LEAVER, P. L. YAP & N. H. WILSON	95S
Phosphoinositide and superoxide responses to endotoxin during HL-60 cell differentiation	H. A. LEAVER, J. QU, P. L. YAP, M. C. ALDHous & N. H. WILSON	96S
Prolonged stimulation of SH-SY5Y cells with carbachol inhibits inositol 1,4,5-trisphosphate (InsP_3) binding and InsP_3-induced Ca^{2+} mobilisation	R. J. H. WOJCIKIEWICZ & S. R. NAHORSKI	97S
U937 cell differentiation: G protein alterations and interaction with the chemotactic peptide receptor	F. M. MITCHELL & G. MILLIGAN	98S
Mechanism of thromboxane receptor activation of phospholipase A_2 in endothelial cells	J. A. HUNT & M. KEEN	99S
Differences in the coupling of ET-1 and LPA receptors in $\text{Ins}(1,4,5)\text{P}_3$ formation in Rat-1 fibroblasts	R. PLEVIN, E. E. MACNULTY, S. PALMER & M. J. O. WAKELAM	100S
Homologous desensitization of bombesin-stimulated $\text{Ins}(1,4,5)\text{P}_3$ production in Swiss 3T3 fibroblasts	S. PALMER, R. PLEVIN & M. J. O. WAKELAM	101S
Signal transduction in Rat-1 fibroblasts expressing high levels of the $\alpha 2\text{-C}10$ adrenergic receptor	G. MILLGAN, E. E. MACNULTY, S. J. McCLOUE & M. J. O. WAKELAM	102S
Phosphoinositide turnover in human neuroblastoma cells (SK-N-BE)	A. SPINEDI, L. PACINI, C. LIMATOLA & P. LULY	103S
Effects of adipokinetic hormones on inositol phosphate metabolism in locust fat body	S. PANCHOLI, C. J. BARKER, D. J. CANDY, M. GOKULDAS & C. J. KIRK	104S
Dephosphorylation of D-myo-inositol-1,4,5-trisphosphate in testes	M. HODGKIN, J. B. PARRY, R. H. MICHELL & C. J. KIRK	105S
Growth factor-induced release of a glycosylphosphatidylinositol (GPI-) linked protein from HEp-2 carcinoma cells and human syncytiotrophoblast	J. M. ROBERTS, P. KENTON & P. M. JOHNSON	106S
Lack of effect of epidermal growth factor on radiolabelled diacylglycerol in rat parietal cells	P. MCKENNA & P. J. HANSON	107S
Epidermal growth factor stimulates phospholipase D activity in the absence of inositol lipid hydrolysis in Swiss 3T3 cells	S. J. COOK & M. J. O. WAKELAM	108S
Purification and use of hepatocyte couplets	R. COLEMAN, J. WILTON, D. WILLIAMS, A. STRAIN & K. CHIPMAN	109S
Murine macrophage phospholipase A_2	J. E. MEATS, & L. STEELE	110S
Late gestation changes in rat tissue phosphatidylcholine composition	A. N. HUNT, A. F. BELLHOUSE, F. J. KELLY & A. D. POSTLE	111S

contents — communications

The biosynthesis of phosphatidylcholine molecular species in fetal and neonatal guinea pig lung	G. C. BURDGE, F. J. KELLY & A. D. POSTLE	I12S
The biosynthesis of molecular species of phosphatidylcholine in neonatal guinea pig liver	G. C. BURDGE, F. J. KELLY & A. D. POSTLE	I13S
Activation of human platelets by mastoparan	C. P. D. WHEELER-JONES, T. SAERMARK, V. V. KAKKAR & K. S. AUTHI	I14S
Protein kinase C-dependent and -independent actions of arachidonic acid in GH₃ cells	D. MACEWAN, R. MITCHELL, M. S. JOHNSON & F. J. THOMSON	I15S
Does inositol hexakisphosphate induce Ca²⁺ entry into GH₃ cells	R. MITCHELL, D. J. MACEWAN, L. DOUGAN, M. JOHNSON & F. THOMSON	I16S
Differential activation of phospholipase A₂ by protein kinase C in pituitary cells	F. J. THOMSON, R. MITCHELL, M. S. JOHNSON & D. J. MACEWAN	I17S
<hr/> RNA processing, stability and transport <hr/>		
Differential regulation of gene expression in mouse parotid glands in response to isoprenaline treatment	S. G. E. ROBERTS & C. J. McDONALD	I18S
Stimulation of DNA synthesis by 340 nm/351 nm UV laser irradiation	R. A. MELDRUM & C. W. WHARTON	I19S
The identification of protein-RNA interactions within the 5' untranslated region of human preproinsulin mRNA	S. W. KNIGHT & K. DOCHERTY	I20S
<hr/> Advances in chemotherapy <hr/>		
Differential cisplatin responses in human carcinoma cell lines pre-exposed to fractionated X-irradiation	W. C. M. DEMPKE, L. K. HOSKING, S. A. SHELLARD & B. T. HILL	I21S
Detection of herpes simplex virus type I DNA sequences in normal and Alzheimer's disease brain using polymerase chain reaction	G. A. JAMIESON, N. J. MAITLAND, J. CRASKE, G. K. WILCOCK & R. F. ITZHAKI	I22S
Properties of the diadenosine tetraphosphate nucleoside analogue, bis (N⁶-adenosyl)dodecane, and its possible use in the treatment of disorders of purine metabolism	H. CHEN, R. COSSTICK & A. G. MCLENNAN	I23S
A rapid bioassay technique for arginine-vasopressin	M. R. HIRJI & J. C. MUCKLOW	I24S
A lack of Adriamycin (ADR) resistance in Chinese hamster ovary (CHO) cells overexpressing P-glycoprotein (Pgp) following <i>in vitro</i> exposure to fractionated X-irradiation	R. D. H. WHELAN, L. K. HOSKING & B. T. HILL	I25S
Differential modulation of cisplatin cytotoxicity by human ovarian carcinoma cell lines <i>in vitro</i>	S. A. SHELLARD, A. M. J. FICHTINGER-SCHEPMAN, L. K. HOSKING & B. T. HILL	I26S
Reductive activation of N-oxides to cause DNA strand breakage in cell lines <i>in vitro</i>	A. CAHILL & I. N. H. WHITE	I27S
Trough levels of gentamicin do not indicate tissue accumulation	B. E. C. BANKS	I28S
N-acetyltransferase in human urothelium and bladder cell lines	E. CORONEOS & E. SIM	I29S

Biochemistry of exercise

The effect of catecholamines on the metabolism of glutamine by skeletal muscle of the rat	M. PARRY-BILLINGS, B. LEIGHTON, G. D. DIMITRIADIS, J. BOND & E. A. NEWSHOLME	I30S
Muscle pH recovery after high intensity cycle exercise in malignant hyperthermia susceptible subjects	P. ALLSOP, L. JORFELDT, H. RUTBERG & G. M. HALL	I31S
The effect of an acute load of glucose on the rate of clearance of lactate from the blood of adult males after severe exercise	I. A. FOREST, S. A. ADAMS, I. A. NIMMO, D. H. SAUNDERS & A. D. STEWART	I32S
Dose related stimulation of glucose metabolism by peroxovanadate in rat skeletal muscle preparations <i>in vitro</i>	E. A. FOOT, T. BLISS, C. DA COSTA & B. LEIGHTON	I33S
Effect of electrical stimulation of the sciatic nerve in anaesthetized rats on content of CGRP in rat skeletal muscle	B. LEIGHTON & L. ARNOLDA	I34S
Changes in serum lipids after exercise and on exposure to altitude	C. H. E. IMRAY, M. BILLINGHAM, J. MILLES, A. WRIGHT, R. FILER, J. BRADWELL & J. P. NEOPTOLEMOS	I35S
Regulation of fructose 2,6-bisphosphate in perfused flight muscle of the locust, <i>Locusta migratoria</i>: The effect of octopamine	C. BLAU, D. J. CANDY & G. WEGENER	I36S
Metabolic changes in skeletal muscle of frog during exercise and recovery	U. KRAUSE & G. WEGENER	I37S
The loading of fura 2 into mitochondria in intact rat heart and its use to estimate matrix Ca^{2+}	S. P. ALLEN & J. G. McCORMACK	I38S

Vectors

Mammalian expression constructs based on the Rous sarcoma virus LTR in high yield plasmids	C. OMAR, F. KAMLIN, G. C. N. PARRY, K. RAHMAN, A. D. B. MALCOLM, T. KAMALATI & L. BULUWELA	I39S
---	---	-------------

Stimulation of eicosanoid and complex lipid turnover in the central nervous system

Regulation of lipogenesis from lactate in isolated cells from early neonatal rat brain	C. VICARIO, A. TABERNERO & J. M. MEDINA	I40S
The fate of lactate in isolated cells from early neonatal rat brain. Comparison with glucose and 3-hydroxybutyrate	C. VICARIO, J. P. BOLAÑOS & J. M. MEDINA	I41S
Chemical modification of the D_1 dopamine receptor from bovine brain	C. M. HOLLIS & P. G. STRANGE	I42S
Site-specific antibodies as probes of the structure and function of the brain D_2 dopamine receptor	P. L. CHAZOT, M. WILKINS & P. G. STRANGE	I43S
High level expression of serotonin (5HT-1a) receptor in animal cells	A. NEWMAN-TANCREDI & P. G. STRANGE	I44S
Muscarinic acetylcholine receptors in the lung	D. C. W. MURRAY, M. MOSLEY & P. G. STRANGE	I45S
Expression of the D_2 dopamine receptor in animal cells	S. CASTRO & P. G. STRANGE	I46S

contents — communications

The effect of perfusion rate on the apparent release of tritiated L-glutamate from superfused synaptosomes	K. J. COLLARD	147S
Studies of presynaptic kainate and quisqualate effects on $[Ca^{2+}]_i$ and phosphoinositide metabolism	S. RICHMOND, J. XIANG, M. BRAMMER & I. CAMPBELL	148S
β-Endorphin C-terminal dipeptide elicits calcium influx and release of arachidonic acid metabolism in cortical neurones	L. W. HAYNES	149S
Apparent calcium-independent phorbol ester binding to protein kinase C	A. GATTI, T. WATSUJI & M. HANLEY	150S
Comparison of inositol 1,4,5-trisphosphate and inositol 1,3,4,5-tetrakisphosphate binding sites in cerebellum	R. A. J. CHALLISS, A. L. WILLCOCKS, B. V. L. POTTER & S. R. NAHORSKI	151S
Inositol hexakisphosphate-membranes interactions: the role of metal ions	F. COOKE, D. POYNER, P. HAWKINS, C. B. ERLEBACH & M. HANLEY	152S
Ethanolamine as well as choline is released to the external medium on phorbol ester and foetal calf serum stimulation of glial cells in primary culture	S. McNULTY, R. SAYNER & M. RUMSBY	153S
Metabotropic receptor-mediated regulation of cytoplasmic free calcium in cultured cerebellar granule cells	M. J. COURTNEY & D. G. NICHOLLS	154S
Observations on platelet prostaglandin metabolism in schizophrenia: the response to ADP	A. E. GLIDDON, K. O. CHUNG-A-ON, K. D. GRIFFITHS, J. W. PAYNE & J. I. DAVIES	155S
The effect of energy status on phosphatidylinositol turnover in rat brain	K.-W. WANG, B. M. GRAIL & J. I. DAVIES	156S
Investigation of the tissue distribution of the calcium independent kinase, Rx kinase; which is distinct from known isozymes of protein kinase C	A. T. EVANS, P. C. GORDGE, P. SHARMA, W. J. RYVES & F. J. EVANS	157S
Effect of Caprogen on membrane lipid peroxidation and mobility of bovine sperm	D. DOHERTY, M. WALL & J. A. HOUGHTON	158S
<hr/>		
Mechanisms of nucleotide binding and hydrolysis		
Fourier transform infrared spectroscopy of $[^{13}C=O]trans$-cinnamoyl-and $[^{13}C=O]hydrocinnamoyl-chymotrypsins$	A. J. WHITE, K. DRABBLE & C. W. WHARTON	159S
Light amplification by a coupled biological system: ATP, firefly luciferase and recycling of ATP	R. S. CHITTOCK, C. W. WHARTON, J. B. JACKSON, N. BEROVIC & D. BENYON	160S
A monoclonal antibody that distinguishes phospho- and dephosphorylated forms of cardiac troponin-I	B. CUMMINS, G. J. RUSSELL & P. CUMMINS	161S
Predictions of cyclic GMP-dependent protein kinase structure from its primary sequence	J. P. HUGGINS & J. T. PELTON	162S
Secondary structure and conformational changes associated with substrate-binding and the N-terminus in cyclic GMP-dependent protein kinase	J. P. HUGGINS, W. LANDGRAF, F. HOFMANN & J. T. PELTON	163S
<hr/>		
General topics		
Aspects related to 3-hydroxy-3-methylglutaryl-CoA synthesis in higher plants	A. ALAM, G. BRITTON, R. POWLS & J. GOAD	164S

Effects of acute ethanol toxicity on protein synthesis in three anatomically distinct regions of the rat gut	J. S. MARWAY, J. R. SALISBURY & V. R. PREEDY	165S
Protein synthesis in the lungs of young rats <i>in vivo</i> and its nutritional modification	V. R. PREEDY & P. J. GARLICK	166S
Ethanol-induced reductions in skeletal muscle protein synthesis: use of the inhibitors of alcohol and aldehyde dehydrogenase	V. R. PREEDY, P. EDWARDS & T. J. PETERS	167S
Characterization of microvascular endothelial cells derived from human fat	G. STANSBY, N. SHUKLA, B. FULLER & G. HAMILTON	168S
Biochemical subfractionation of retrograde transported proteins from rat sciatic nerve	A. J. HARGREAVES & W. G. McLEAN	169S
The effects of <i>p</i>-bromophenacyl bromide on brain microtubule assembly <i>in vitro</i>	J. FLASKOS, W. G. McLEAN & A. J. HARGREAVES	170S
Gas liquid chromatography (GLC) analysis of hamster conjugated biliary bile acids	A. E. DAVIS, C. H. E. IMRAY, T. MINOURA, M. WINSLET, P. R. BAKER & J. P. NEOPTOLEMOS	171S
Active accumulation of creatine by cultured rat myoblasts	S. E. BENNETT, A. BEVINGTON & J. WALLS	172S
Collagen stimulation of intracellular calcium mobilization in washed platelets from patients with familial hypercholesterolaemia	M. B. COOPER, K. C. B. TAN & D. J. BETTERIDGE	173S
One-step facile synthesis of radioactive acyl-CoA and acylcarnitines using rat liver outer mitochondrial membrane as the enzyme source	A. K. M. J. BHUIYAN & S. V. PANDE	174S
Immunoreactive [arginine]vasopressin (AVP) in human fetal and neonatal muscle	N. MCINTOSH, R. I. STEPHEN, M. M. ARKLEY & A. SMITH	175S
Net membrane permeability to P_i: a key factor controlling transient changes in cellular $[P_i]$	G. J. KEMP & A. BEVINGTON	176S
Prostaglandin metabolism in dystrophin-deficient MDX mouse muscle	A. MCARDLE, A. FOXLEY, R. H. T. EDWARDS & M. J. JACKSON	177S
DNA concentrations are increased in MDX mouse muscles	P. A. MACLENNAN, M. J. JACKSON & R. H. T. EDWARDS	178S
Immunoblotting of cerebellar proteins in multiple sclerosis	Y. CHEN, S. PEUCHEN & M. CARROLL	179S
Enhanced lipid peroxidation in Duchenne dystrophy muscle may be secondary to muscle damage	A. FOXLEY, R. H. T. EDWARDS & M. J. JACKSON	180S
Progesterone promotes the coupling of β-adrenoceptors to G-proteins in rat myometrium	A. J. NIMMO, E. M. WHITAKER & J. F. B. MORRISON	181S
Studies on the rat liver benzpyrene binding protein	P. H. YIANNAKIS, H. ROSS & S. BROWN	182S
Fluo-3, an ideal calcium indicator for measuring calcium fluxes in SR and ER	F. MICHELANGELI	183S
Biosynthesis of platelet activating factor (PAF) by an osteosarcoma cell line (UMR 106)	M. WASIL, W. HARVEY, C. T. MURPHY & R. M. HOPPS	184S
Selective increases in Type II muscle protein synthesis in NSAID induced inflammatory bowel disease (IBD)	A. K. BANERJEE, V. R. PREEDY & T. J. PETERS	185S

contents — communications

Gut protein synthetic studies in a NSAID model of inflammatory bowel disease (IBD)	A. K. BANERJEE, J. S. MARWAY, V. R. PREEDY & T. J. PETERS	186S
Morphogenetic proteins from dentine extracellular matrix and cell-matrix interactions	A. J. SMITH, R. S. TOBIAS, C. G. PLANT, R. M. BROWNE, H. LESOT & J.-V. RUCH	187S
Phosphoproteins of dentine extracellular matrix: silver colloid staining	K. S. AULAK, A. J. SMITH, J. B. MATTHEWS, A. J. C. POTTS, H. PERRY & C. WILSON	188S
Changes in EGF and TGF-β receptor expression reflects differentiation of rat malignant oral keratinocytes	S. GAME, A. STONE, C. SCULLY & S. PRIME	189S
Calmodulin from lucerne: its potential role in intracellular signal transduction	P. ROBINSON, R. P. NEWTON, T. J. WALTON & C. J. SMITH	190S
Alterations in neuromuscular function following thermal injury	J. M. WARD & J. MARTYN	191S
Yeast cells with a low-affinity binder of methotrexate	M. P. IQBAL, N. MEHBOOBALI & M. A. WAQAR	192S
Dihydrofolate reductase from a reptile, <i>Uromastix</i>	M. P. IQBAL, N. MEHBOOBALI, M. A. WAQAR & H. S. ZUBERI	193S
Calcium-translocation into mammary Golgi vesicles: molecular identity of Ca^{2+}-ATPases	R. A. CLEGG & D. W. WEST	194S
In situ hybridisation of a Y chromosome-specific probe to male myoblasts after implantation into female skeletal muscle	G. COULTON, M. SKYNNER, C. PAGEL, J. MORGAN & T. PARTRIDGE	195S
The effects of acutely administered anaesthesia on various plasma analytes, insulin and growth hormone concentrations and rates of cardiac and skeletal muscle protein synthesis <i>in vivo</i> in the rat	T. SIDDIQ, P. J. RICHARDSON, I. A. HASHIM, J. S. MARWAY & V. R. PREEDY	196S
An investigation into the early effects of aortic constriction on the rates of protein synthesis in the rat heart	T. SIDDIQ, P. J. RICHARDSON & V. R. PREEDY	197S
The effect of cell volume on the rate of lactate release from rat skeletal muscle	S. J. BEVAN, M. PARRY-BILLINGS, E. OPARA & E. A. NEWSHOLME	198S
Genetic regulation of the pituitary control of smolting and sexual maturation in Atlantic salmon	S. A. M. MARTIN & L. A. J. STEFANI	199S
Expression of chromosome 21 specific DNA sequences in brain tissue and in neuronal cell lines	J. DAVIDSON, L. STEFANI, J. CANDY, D. HUGHES, D. NEILL & J. EDWARDSON	200S
Improved human faecal bile acid extraction	C. H. E. IMRAY, A. DAVIS, G. BARKER, S. RADLEY, P. BAKER, & J. P. NEOPTOLEMOS	201S
Inducible expression of mutant human proinsulins in a mouse pituitary cell line controlled by the mouse metallothionein promoter	N. A. TAYLOR, K. I. J. SHEENAN & K. DOCHERTY	202S
Detection by PCR of thyroid hormone receptor transcripts in <i>Xenopus</i> oocytes and eggs	G. E. SWEENEY & R. W. OLD	203S
The refolding of mitochondrial proteins after denaturation	S. M. KELLY & N. C. PRICE	204S

The effect of a monoclonal antibody on specific steps of the reaction sequence of the (Ca^{2+}-Mg^{2+})-ATPase from sarcoplasmic reticulum	A. M. MATA, J. COLYER, F. MICHELANGELI, A. G. LEE & J. M. EAST	205S
Regulation of Ca^{2+} mobilization by $\text{Ins}(1,4,5)\text{P}_3$ and intraluminal Ca^{2+} in permeabilized hepatocytes	D. L. NUNN & C. W. TAYLOR	206S
Proton buffering in human skeletal muscle studied <i>in vivo</i> by phosphorus magnetic resonance spectroscopy	G. J. KEMP, D. J. TAYLOR, J. F. DUNN & G. K. RADDAG	207S
Age-dependent changes in cardiac muscle metabolism upon replacement of creatine β-guanidinopropionic acid	M. L. FIELD, J. F. UNITT, G. K. RADDAG, C. HENDERSON & A.-M. L. SEYMOUR	208S
NMR visibility of ATP, PCr and P_i in the rat heart: effects of perfusion conditions	R. M. TOWNSEND & P. B. GARLICK	209S
Energy status in the post myocardial infarcted rat heart	L. K. RIX, F. BRUNOTTE & A.-M. L. SEYMOUR	210S
Prediction of serum apolipoprotein B levels from total cholesterol and triacylglycerols, or from total heparin-precipitable lipoprotein	R. H. PAYNE, K. MADHAVANKUTTY & V. AVARA	211S
Effects of prolonged treatment of adipocytes with PGE_1, N^6-phenylisopropyl adenosine and nicotinic acid on G-proteins and antilipolytic sensitivity	A. GREEN, G. MILLIGAN & S. E. BELT	212S
N-Acetyl-β-D-glucosaminidase isoenzyme-A in human ovarian cyst adenoma	M. H. JAVED, A. N. HUSSAIN & M. A. WAQAR	213S
Effect of clenbuterol on the activity of proteolytic enzymes partially purified from rat skeletal muscle	T. LEES, C. A. MALTIN & D. MANTLE	214S
Identification of aminopeptidases in sinovial fluid from rheumatoid arthritis patients	T. LEES, D. MANTLE, D. WALKER, P. JONES & D. BLAKE	215S
Analysis of plasma lactate levels following ischemic exercise in patients with suspected metabolic myopathy	T. LEES & D. MANTLE	216S
A study of the distribution of desferrioxamine in the isolated perfused rabbit kidney	S. TOFFA, K. CHEETHAM, B. FULLER, J. GOWER & C. GREEN	217S
Separation of ferritin dimer, trimer and tetramer by preparative polyacrylamide gel electrophoresis and their identification by electron microscopy	S. A. SAEED & T. R. C. BOYDE	218S
Lactate dehydrogenase isoenzymes from human heart: separation by preparative gel electrophoresis; and a crystalline preparation of isoenzyme-I	S. A. SAEED & T. R. C. BOYDE	219S
Human colon membrane mucins have a glycosyl-phosphatidyl inositol membrane anchor	A. P. CORFIELD, S. DUGGLEBY, S. A. WAGNER & J. R. CLAMP	220S
The generation of heavy atom derivatives by site-directed mutagenesis: can successful changes be rationalised?	J. M. A. SMITH	221S
The acute phase protein response in Crohn's colitis	M. C. WINSLET, J. SHERWELL, S. RADLEY & M. R. B. KEIGHLEY	222S
The influence of faecal exclusion on the colonic bile acid profile in Crohn's colitis	M. C. WINSLET, V. POXON, R. W. OWEN, A. DAVIES & M. R. B. KEIGHLEY	223S

contents — communications

Chronological variation in faecal and ileal bile acid excretion	M. C. WINSLET, V. POXON, A. DAVIES, R. W. OWEN & M. R. B. KEIGHLEY	224S
Serum phospholipase A2 and free fatty acid levels in acute pancreatitis	M. C. WINSLET, C. HALL, C. HENDRICKSE, N. LAWSON & J. NEOPTOLEMOS	225S
The influence of total colectomy on secondary bile acid metabolism	M. C. WINSLET, V. POXON, C. IMRAY, R. W. OWEN & M. R. B. KEIGHLEY	226S
Human erythrocyte SOD in adults and normal, hypoxaemic and anaemic foetuses	S. ALIAKBAR, D. E. BIDWELL, K. N. NICOLAIDES & P. R. BROWN	227S
The modulation of phenylalanine hydroxylase activity by okadaic acid	A. K. GREEN & M. J. FISHER	228S
Phosphorylation-dephosphorylation of renal phenylalanine hydroxylase	S.-C. B. RICHARDSON, A. K. GREEN & M. J. FISHER	229S
A possible role for eicosanoids in ATP-induced plasma membrane bleb formation in isolated hepatocytes	J. M. WOOD & A. A. HORTON	230S
The biotin-carboxylation reaction of pyruvate carboxylase: the roles of acetyl-CoA, Mg²⁺ and biotin	P. V. ATTWOOD & B. D. L. A. GRANERI	231S
Human red cell malate dehydrogenase purification and antibody production	M. NEBBALI & S. BROWN	232S
The S-oxidation of thioamides by rat liver microsomes	M. J. RUSE & R. H. WARING	233S
Reaction of N-terminal valine dipeptides with two ninhydrin derivatives	Y. VIDAL & E. NEUZIL	234S
High Mn²⁺ sensitivity of vesicular galactosyltransferase in thymus and mammary gland	H. DJABALLAH, A. D. STANFORTH, S. WARD & N. J. KUHN	235S
Demonstration of an isoenzymic form of a cell surface protease expressed in human colonic tumour cells but not in normal colonic cells	F. S. STEVEN & I. C. TALBOT	236S
Recombinant human granulocyte colony stimulating factor (rhG-CSF) and superoxide production in a haematopoietic cell line	W. S. GILMORE, B. M. HANNIGAN, S. J. EASTON, C. P. MCGUCKIN & A. A. NELSON	237S
A scintillation proximity assay for transforming growth factor alpha (TGFα)	R. HOFFMAN & L. CAMERON	238S
Specific immunodetection of G-proteins in plant cell membranes	J. CLARKSON, P. M. FINAN, C. A. RICART, I. R. WHITE & P. A. MILLNER	239S
Some glutathione-related enzymatic activities in skeletal muscle and myocardium of the rat. Adaptations to endurance training	E. MONSALVE, C. HERMENEGILDO, E. NIES, F. J. PUERTAS, M. M. ALMAR, P. S. COLLADO, J. GONZALEZ & F. J. ROMERO	240S
The effects of high fat diet on ionic transport in rat intestine	J. M. CARTWRIGHT-SHAMOON & J. A. DODGE	241S