

colloquia**66th Meeting, University of Bath****colloquium: Xanthine Oxidase: Enzymology and Pathophysiology**

Xanthine oxidase: introductory remarks	R. HARRISON AND R. C. BRAY	749
Milk xanthine oxidoreductase: the first one hundred years	V. MASSEY AND C. M. HARRIS	750
Crystal structure and mechanism of action of the xanthine oxidase-related aldehyde oxidoreductase from <i>Desulfovibrio gigas</i>	M. J. ROMÃO AND R. HUBER	755
Biosynthesis and processing of the molybdenum cofactors	K. V. RAJAGOPALAN	757
Towards the reaction mechanism of xanthine oxidase from EPR studies	R. C. BRAY AND D. J. LOWE	762
Recent mechanistic studies of xanthine oxidase	M. XIA, P. ILICH, R. DEMPSKI AND R. HILLE	768
Role of Mo—C bonds in xanthine oxidase action	D. J. LOWE, R. L. RICHARDS AND R. C. BRAY	774
Structure of the molybdenum cofactor genes in <i>Drosophila</i>	K. P. KAMDAR, J. P. PRIMUS, M. E. SHELTON, L. L. ARCHANGELI, A. E. WHITTLE AND V. FINNERTY	778
Conversion of xanthine dehydrogenase into oxidase and its role in reperfusion injury	T. NISHINO, S. NAKANISHI, K. OKAMOTO, J. MUZISHIMA, H. HORI, T. IWASAKI, TO. NISHINO, K. ICHIMORI AND H. NAKAZAWA	783
Human xanthine oxidoreductase: in search of a function	R. HARRISON	786
The xanthine oxidoreductase gene: structure and regulation	M. TERAO, M. KUROSAKI, S. ZANOTTA AND E. GARATTINI	791
Transcriptional regulation of human xanthine dehydrogenase/xanthine oxidase	J. R. HOIDAL, P. XU, T. HUECKSTEADT, K. A. SANDERS AND K. PFEFFER	796
The human molybdenum hydroxylase gene family: co-conspirators in metabolic free-radical generation and disease	R. M. WRIGHT AND J. E. REPINE	799
Physiology of reactive oxidant-mediated signal transduction: an overview	G. B. BULKLEY	804
Xanthine oxidase: four roles for the enzyme in rheumatoid pathology	D. R. BLAKE, C. R. STEVENS, T. SAHINOGLU, G. ELLIS, K. GAFFNEY, S. EDMONDS, M. BENBOUBETRA, R. HARRISON, S. JAWED, J. KANCZLER, T. M. MILLAR, P. G. WINYARD AND Z. ZHANG	812

colloquium: New Insights into Ligand-Gated Ion-Channel Receptors from Molecular Genetic Strategies

The use of expressed sequence tag databases to identify novel human γ-aminobutyric acid type receptor genes	P. J. WHITING, G. McALLISTER, T. BONNERT, R. P. HEAVENS, M. R. RIGBY, D. J. S. SIRINATHSINGHJI, G. MARSHALL, S. A. THOMPSON AND K. A. WAFFORD	817
--	---	------------

<i>γ</i>-Aminobutyric acid type A receptor subunit assembly and sorting: gene targeting and cell biology approaches	W. WISDEN AND S. J. MOSS	820
Contribution of nicotinic acetylcholine receptors containing the β2-subunit to the behavioural effects of nicotine	M. R. PICCIOTTO, M. ZOLI, V. ZACHARIOU AND J.-P. CHANGEUX	824
Glutamate-gated Cl⁻ channels in <i>Caenorhabditis elegans</i> and parasitic nematodes	A. J. WOLSTENHOLME	830
Ligand recognition in glutamate receptors: insights from mutagenesis of the soluble α-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid (AMPA)-binding domain of glutamate receptor type D (GluR-D)	K. KEINÄNEN, M. ARVOLA, A. KUUSINEN AND M. JOHNSON	835
Use of the two-hybrid system to find novel proteins that interact with α-amino-3-hydroxy-5-methyl-4-isoxazole propionate (AMPA) receptor subunits	J. M. HENLEY, A. NISHIMUNE, S. R. NASH AND S. NAKANISHI	838
Ligand-gated ion channels of sensory neurons: from purines to peppers	O. KRYLOVA, C.-C. CHEN, A. AKOPIAN, V. SOUSLOVA, K. OKUSE, N. ABSON, S. RAVENALL AND J. N. WOOD	842

colloquium: Glycoconjugate Biosynthesis

The mycobacterial cell wall: biosynthesis of arabinogalactan and lipoarabinomannan	G. S. BESRA AND P. J. BRENNAN	845
Molecular biology of lipopolysaccharide biosynthesis in <i>Salmonella</i> and <i>Bordetella</i>	D. MASKELL AND A. ALLEN	850
Identification and characterization of a major building block in the cell wall of <i>Saccharomyces cerevisiae</i>	F. M. KLIS, L. H. P. CARO, J. H. VOSSEN, J. C. KAPTEYN, A. F. J. RAM, R. C. MONTIJN, M. A. A. VAN BERKEL AND H. VAN DEN ENDE	856
Glycosylphosphatidylinositols: biosynthesis and intracellular transport	A. K. MENON, N. A. BAUMANN, W. VAN'T HOF AND J. VIDUGIRIENE	861
Biosynthesis of glycosaminoglycans in mammalian cells and in bacteria	K. LIDHOLT	866
Biosynthesis and functions of O-glycans and regulation of mucin antigen expression in cancer	I. BROCKHAUSEN	871
Structure and function of the genes encoding N-acetylglucosaminyltransferases which initiate N-glycan antennae	H. SCHACHTER, S.-H. CHEN, S. ZHOU, J. TAN, B. YIP, M. SARKAR AND A. SPENCE	875
The α(1-3)-fucosyltransferases come of age	M. R. EDBROOKE, C. J. BRITTON, V. A. M. KELLY, S. L. MARTIN, N. SMITHERS, A. J. WINDER, S. J. WITHAM AND M. I. BIRD	880
Novel pathways in complex-type oligosaccharide synthesis: new vistas opened by studies in invertebrates	D. H. VAN DEN EIJNDEN, H. BAKKER, A. P. NEELEMAN, I. M. VAN DEN NIEUWENHOF AND I. VAN DIE	887

colloquium: Nitric Oxide, Mitochondria and Metabolism

Nitric oxide biochemistry	R. G. KNOWLES	895
----------------------------------	---------------	-----

Nitric oxide and oxygen metabolism	G. C. BROWN, A. G. McBRIDE, E. J. FOX, K. ST. P. MCNAUGHT AND V. BORUTAITE	901
Interactions of cytochrome c oxidase with nitric oxide: reactions of the ‘turnover’ intermediates	M. T. WILSON, J. TORRES, C. E. COOPER AND M. A. SHARPE	905
Induction of the mitochondrial permeability transition by peroxynitrite	M. A. PACKER, J. L. SCARLETT, S. W. MARTIN AND M. P. MURPHY	909
Nitric oxide and mitochondrial Ca²⁺	C. RICHTER, P. GHAFOURIFAR, M. SCHWEIZER AND R. LAFFANCHI	914
Role of poly(ADP-ribose) synthetase activation in the suppression of cellular energetics in response to nitric oxide and peroxynitrite	C. SZABÓ	919
Nitric oxide, free radicals and cell signalling in cardiovascular disease	V. M. DARLEY-USMAR, J. MCANDREW, R. PATEL, D. MOELLERING, T. M. LINCOLN, H. JO, T. CORNWELL, S. DIGERNES AND C. R. WHITE	925
Nitric oxide, sepsis and liver metabolism	E. D. CEPELLI, F. S. SMITH AND M. A. TITHERADGE	929
Involvement of reactive oxygen and nitrogen species in signalling mechanisms that control tissue respiration in muscle	M. S. WOLIN, H. HINTZE, W. SHEN, K. M. MOHAZZAB-H. AND Y.-W. XIE	934
Nitric oxide, energy metabolism and neurological disease	S. J. R. HEALES, J. E. BARKER, V. C. STEWART, M. P. BRAND, I. P. HARGREAVES, P. FOPPA, J. M. LAND, J. B. CLARK AND J. P. BOLAÑOS	939
Potential mechanisms for nitric oxide-mediated impairment of brain mitochondrial energy metabolism	J. P. BOLAÑOS, A. ALMEIDA, E. FERNÁNDEZ, J. M. MEDINA, J. M. LAND, J. B. CLARK AND S. J. R. HEALES	944

colloquium: Structure, Function and Regulation of Glucose Transporters

Structure, function and biosynthesis of GLUT1	M. MUECKLER, R. C. HRESKO AND M. SATO	951
Regulation of GLUT1 in response to cellular stress	S. A. BALDWIN, L. F. BARROS, M. GRIFFITHS, J. INGRAM, E. C. ROBBINS, A. J. STREETS AND J. SAKLATVALA	954
Molecular events involved in glucose-induced intestinal Na⁺/D-glucose co-transporter (SGLT1) expression	S. P. SHIRAZI-BEECHEY, J. DYER, K. BAGGA, R. SIMMONDS, I. S. WOOD, G. G. ALLISON, D. SCOTT AND T. P. KING	958
Metabolic and molecular consequences of modifying GLUT4 expression in skeletal muscle	M. J. CHARRON, E. B. KATZ AND J. R. ZIERATH	963
GLUT4 trafficking in cardiac and skeletal muscle: isolation and characterization of distinct intracellular GLUT4-containing vesicle populations	A. ZORZANO, L. SEVILLA, E. TOMÀS, A. GUMÀ, M. PALACÍN AND Y. FISCHER	968
Compartment-ablation studies of GLUT4 distribution in adipocytes: evidence for multiple intracellular pools	C. A. MILLAR, L. C. CAMPBELL, D. L. COPE, D. R. MELVIN, K. A. POWELL AND G. W. GOULD	974
Is stimulation of class-I phosphatidylinositol 3-kinase activity by insulin sufficient to activate pathways involved in glucose metabolism	P. R. SHEPHERD, K. SIDDELL AND B. T. NAVÉ	978

A role for the serine/threonine kinase, Akt, in insulin-stimulated glucose uptake

S. A. SUMMERS AND M. J. BIRNBAUM

981

colloquium: Small G-Proteins in Animals and Plants

Common themes and surprising differences in small G-proteins	D. TISI, C. TEAHAN, S. GREASLEY, B. BAX, M. NEU AND H. JHOTI	989
Inositol 1,3,4,5-tetrakisphosphate and Ca^{2+} homoeostasis: the role of GAP I^{P4BP}	P. J. CULLEN, J. LOOMIS-HUSSLEBEE, A. P. DAWSON AND R. F. IRVINE	991
Co-ordination and specificity of the action of GTPase-activating proteins and GDP/GTP-exchange factors on Ras	M. C. PARRINI, C. GIGLIONE AND A. PARMEGGIANI	997
Small G-proteins in <i>Arabidopsis thaliana</i>	K. PALME, F. BISCHOFF, F. CVRCKOVA AND V. ZARSKY	1001
Signalling by Rho family proteins	A. J. RIDLEY	1005

colloquium: G-Protein-Coupled Receptors for Peptide Hormones

Post-secretory processing of peptide signals: a novel mechanism for the regulation of peptide hormone receptors	A. I. SMITH, I. J. CLARKE AND R. A. LEW	1011
G-protein-coupled receptors for peptide hormones in yeast	K. DAVIS AND J. DAVEY	1015
Molecular basis of the regulation of the lutropin/choriogonadotropin receptor	M. ASCOLI	1021
Structure-function relationships of leucocyte chemoattractant receptors	M. D. BARKER AND P. N. MONK	1027
Molecular pharmacology of receptors for calcitonin-gene-related peptide, amylin and adrenomedullin	D. R. POYNER	1032
Role of the third cytoplasmic loop in signal transduction by galanin receptors	K. SAAR, A. VALKNA, U. SOOMETS, K. REZAEI, M. ZORKO, M. ZILMER AND Ü. LANGEL	1036
G-protein-coupled receptors for peptide hormones: angiotensin II receptors	A. J. BALMFORTH, A. J. LEE, F. H. SHEPHERD, P. WARBURTON, D. DONNELLY AND S. G. BALL	1041
Structure and function of neurohypophyseal hormone receptors	M. WHEATLEY, J. HOWL, N. J. YARWOOD, S. R. HAWTIN, A. R. L. DAVIES, G. MATTHEWS AND R. A. PARSLAW	1046
Discovery and development of non-peptide antagonists of peptide hormone receptors	D. J. PETTIBONE AND R. M. FREIDINGER	1051
Molecular biology of the oxytocin receptor: a comparative approach	R. IVELL, R. BATHGATE, T. KIMURA AND L. PARRY	1058

Simulations on dimeric peptides: evidence for domain swapping in G-protein-coupled receptors?	P. R. GOULDSON AND C. A. REYNOLDS	1066
--	-----------------------------------	------

Fifth Joint Membrane Group/Canadian Society of Biochemistry, Cell and Molecular Biology Meeting, London

colloquium: The Lipid–Protein Interface

Introductory remarks	P. J. QUINN	1073
Studies of membrane physical properties and their role in biological function	R. M. EPAND	1073
Lipid unsaturation of the organization of photosynthetic complexes in higher-plant chloroplasts	P. J. QUINN	1080
The P-glycoprotein multidrug transporter: interactions with membrane lipids, and their modulation of activity	F. J. SHAROM	1088
Mobility of cell-surface MHC molecules investigated by single-particle fluorescent imaging	R. J. CHERRY, P. R. SMITH, I. E. G. MORRISON, M. KOUKIDOU, K. M. WILSON AND N. FERNÁNDEZ	1097
What NMR can tell us about where lung surfactant proteins live	M. R. MORROW, S. TANEVA, A. S. DICO, J. HANCOCK AND K. M. W. KEOUGH	1103
A structure-based model for the 16 kDa membrane sector of the vacuolar H⁺-ATPase	J. B. C. FINDLAY, M. E. FINBOW, P. C. JONES, Y.-I. KIM, M. A. HARRISON AND G. HUGHES	1107
Protein–lipid interactions of apolipoporphin-III, a model exchangeable amphipathic apolipoprotein	V. NARAYANASWAMI AND R. O. RYAN	1113
Protein conformational distortions induced by membrane interfacial interactions	A. WATTS	1119

Jubilee medal lecture*Abstract*

Machinery and mechanisms of intracellular protein transport and synaptic transmission	J. ROTHMAN	377S
---	------------	-------------

Bioinformatics - education for the 21st century*Speaker Abstracts*

An Overview	A. BRASS	377S
Experience of a virtual learning community	P. MURRAY-RUST	377S
Bioinformatics: learning by doing	P. GOULD	377S
Principles of protein structure	C. SANSOM	377S
Research into metabolic diseases	G. BARTON	377S

Poster Free Communications

Studies on the production of galactomannanase by thermophilic fungi	J. RYAN AND M. K. BHAT	378S
---	------------------------	-------------

Protein and peptide science group*Poster Free Communications*

Ubiquitinated extracellular matrix proteins in insect cuticle	P. LÖW, N. H. BORHEGYI, M. SASS, L. LÁSZLÓ AND S. E. REYNOLDS	379S
ESR studies of pig citrate synthase	F. SEVERCAN, C. STENLAND AND G. MILLHAUSER	380S
The role of protein secretion on the adhesion strength of Chinese Hamster Lung (CHL) cells	A. YILDIRIM AND W. J. D. WHISH	381S
5'-Nucleotidase in mouse muscle is a zinc-containing protein	A. MARTÍNEZ-MARTÍNEZ, C. FLORES-FLORES, E. MUÑOZ-DELGADO AND C. J. VIDAL	382S

Nitric oxide, mitochondria and metabolism*Speaker Abstracts*

Nitric oxide biochemistry	R. KNOWLES	383S
Nitric oxide and mitochondrial respiration	G. BROWN	383S
Nitric oxide, peroxynitrite and mitochondrial damage	R. RADI	383S
Nitric oxide physiology	S. MONCADA	383S
Reactions of nitric oxide with cytochrome c oxidase	M. WILSON	383S
Induction of the mitochondrial permeability transition by peroxynitrite	M. MURPHY	383S
NO, peroxynitrite and mitochondrial calcium	C. RICHTER	384S
Nitric oxide, peroxynitrite and poly(ADP-ribose) synthetase activation: role in the suppression of cellular energetics	C. SZABÓ	384S
Nitric oxide, free radicals and cell signalling in cardiovascular disease	V. DARLEY-USMAR	384S

contents — communications

Nitric oxide, sepsis and liver metabolism	M. TITHERADGE	384S
Reactive O ₂ and N ₂ species in signalling mechanisms that control tissue respiration in muscle	M. WOLIN	384S
Nitric oxide and neurodegeneration	S. HEALES	384S
Impairment of astrocyte and neuronal energy metabolism by nitric oxide	J. BOLAÑOS	385S
Poster Free Communications		
The relationship between methylenetetrahydrofolate reductase (MTHFR) genotype, serum homocysteine and folate levels	N. S. ALI, J. POWELL, R. SWAMINATHAN AND H. S. MARKUS	386S
Electrospray ionization (ESI)-MS studies of heart mitochondrial subunit c	D. E. GRIFFITHS, A. L. MILLAR, J. USTA AND K. R. JENNINGS	387S
Cation adducts of mitochondrial ATPase subunit c: is subunit c a proton/cation exchanger?	D. E. GRIFFITHS	388S
Ischaemia-reperfusion injury during peripheral arterial surgery - the effect of nitric oxide	P. H. WHITING, R. NAYLOR, G. G. COOPER, J. ENGESET AND E. M. MACAULEY	389S
Nitric oxide: effects on duodenal iron absorption	K. B. RAJA, N. N. JAYASINGHE, R. J. SIMPSON AND T. J. PETERS	390S
Duodenal ferri-reductase is not mediated by ascorbate	R. J. SIMPSON AND H. AL-BARWANI	391S
Fast cytochrome bo from <i>Escherichia coli</i> reacts with azide and nitric oxide to form a complex analogous to that formed by cytochrome c oxidase	C. S. BUTLER, M. R. CHEESMAN, C. GREENWOOD, A. J. THOMSON AND N. J. WATMOUGH	392S
Lack of effect of two nitric oxide donors on hydrogen peroxide-induced endothelial barrier dysfunction	V. C. CULLEN, N. P. EUSTACE AND A. K. KEENAN	393S
3-Nitrotyrosine in human serine albumin and low-density lipoproteins	J. KHAN, K. R. BRUCKDORFER AND M. JACOBS	394S
Effect of lipopolysaccharide on nitric oxide synthase activity in muscle layers of the rat small and large intestine	Y. YUGAI, K. J. PRICE, R. I. BERSIMBAYEV AND P. J. HANSON	395S
Inhibition of platelet activation by carbon monoxide: comparison with nitric oxide	K. M. NASEEM AND K. R. BRUCKDORFER	396S
Nitration of platelet cytosolic proteins by peroxynitrite	K. M. NASEEM, J. KHAN, M. JACOBS AND K. R. BRUCKDORFER	397S
Non-invasive measurements of mitochondrial damage during neonatal hypoxia-ischaemia - a role for nitric oxide?	R. J. SPRINGETT, J. M. PENRICE, P. N. AMESS, L. TYSZCZUK, D. T. DELPY, J. S. WYATT AND C. E. COOPER	398S
Comparison of effects of chylomicrons and chylomircron remnants on agonist-induced endothelium-dependent relaxation in rat aorta	D. J. GRIEVE, M. A. AVELLA, K. M. BOTHAM AND J. ELLIOTT	399S
NO synthase activity in skeletal muscle from hypertensive rats	M. E. YOUNG, J. F. CLARK AND B. LEIGHTON	400S
Zaprinast raises glucose utilization in spontaneously hypertensive rat (SHR) skeletal muscle	M. E. YOUNG, J. F. CLARK AND B. LEIGHTON	401S
Formation of the F' intermediate of cytochrome c oxidase using nitric oxide	J. TORRES AND M. T. WILSON	402S

Evidence for the involvement of glutamine in nitric oxide (NO) production by immunostimulated neutrophils	Y. O'DOWD AND P. NEWSHOLME	403S
Glutamine as a possible precursor of L-arginine and thus nitric oxide synthesis in murine macrophages	C. MURPHY AND P. NEWSHOLME	404S
Effect of astrocytic nitric oxide production on neuronal mitochondrial activity	V. C. STEWART, J. M. LAND, J. B. CLARK AND S. J. R. HEALES	405S
Does carbon monoxide inhibit cytochrome oxidase <i>in vivo</i> ?	N. A. DAVIES, C. TRIKKAS AND C. E. COOPER	406S
Nitric oxide reacts with mitochondrial cytochrome c	M. A. SHARPE AND C. E. COOPER	407S
Nitric oxide - a mediator of the effects of garlic?	D. J. MASLIN, C. A. BROWN, I. DAS AND X.-H. ZHANG	408S
Production of peroxynitrite from nitric oxide, hydrogen peroxide and superoxide dismutase: pathological implications	A. McBRIDE AND G. C. BROWN	409S
Different mitochondrial coupling in neurons and in astrocytes in primary culture	A. ALMEIDA AND J. M. MEDINA	410S
Nitric oxide causes release of glutamate from brain synaptosomes	K. ST. P. MCNAUGHT AND G. C. BROWN	411S

Regulation in metabolism group

Poster Free Communications

Indirect evidence for hepatic induction in patients with cholesterol gallstones	L. N. SANDLE, H. V. WORTHINGTON, B. RAMEH AND J. M. BRAGANZA	412S
Quantitative analysis of control exerted by mitochondrial outer-membrane carnitine palmitoyltransferase over carbon fluxes from palmitate in hepatocytes isolated from suckling rats	K. J. NEW, K. R. F. ELLIOTT AND P. A. QUANT	413S
Regulation of glucose-6-phosphatase by the extracellular matrix	D. TOSH, A. BURCHELL AND S. OAKLEY	414S
Differential expression of inducible nitric oxide synthase in murine myocardium infected with wild-type or attenuated Coxsackievirus B3	H. ZHANG, A. BEVAN, H. INNIS, L. C. ARCHARD, N. M. K. ROBINSON, A. DEBELDER, J. F. MARTIN, I. G. CHARLES AND S. MONCADA	415S
The effects of different buffers on glycolysis in rat liver during cold ischaemic preservation	P.-W. SO, A. L. BUSZA AND B. J. FULLER	416S
Effect of antioxidants on the degradation of 3-morpholino sydnonimine (SIN-1)	L. A. QUINE, M. J. CARRIER AND E. E. ÄNGGÅRD	417S
Oxidative stress and superoxide dismutase in schizophrenia	N. S. KHAN AND I. DAS	418S

Glycoconjugate biosynthesis

Speaker Abstracts

The mycobacterial cell wall: arabinogalactan and lipoarabinomannan biosynthesis	G. BESRA	419S
Molecular biology of lipopolysaccharide biosynthesis in <i>Salmonella</i> and <i>Bordetella</i>	D. MASKELL	419S

contents — communications

Diversity of Nod factors structures, biosynthetic pathways and plant recognition relationships	J. PROMI	419S
Biosynthesis of polysaccharides of the plant cell-wall matrix	J. REID	419S
Identification and characterization of a major building block in the fungal cell wall	F. KLIS	419S
Glycosylphosphatidylinositol (GPI) anchors: biosynthesis, intracellular transport and linkage to protein	A. MENON	419S
Biosynthesis of glycosaminoglycans in mammalian cells and in bacteria	K. LIDHOLT	420S
Genetic analysis of heparan sulphate synthesis and turnover	J. ESKO	420S
A family of polypeptide GalNAc-transferases controls initiation of mucin-type O-glycosylation	H. CLAUSEN	420S
Biosynthesis and functions of O-glycans: regulation of mucin antigen expression in cancer	I. BROCKHAUSEN	420S
Structure and function of the genes encoding N-acetylglucosaminyltransferases which initiate N-glycan antennae	H. SCHACHTER	420S
Fucosyltransferase enzymes in cellular adhesion processes	M. EDBROOKE	420S
Novel pathways in complex-type oligosaccharide synthesis. New vistas opened by studies in invertebrates	D. VAN DEN EIJNDEN	421S
Poster Free Communications		
Monomeric behaviour of <i>Mytilus edulis</i> (mussel) glue protein in dilute solution	M. P. DEACON, S. S. DAVIS, R. WHITE, J. H. WAITE AND S. E. HARDING	422S
Mannosyltransferases in mycobacterial lipoarabinomannan biosynthesis	P. R. WHEELER, P. M. ANDERSON AND K. DUNCAN	423S

Glycobiology group

Poster Free Communications		
Development of a high through-put spectrophotometric assay to monitor <i>Trypanosoma cruzi</i> trans-sialidase	J. A. HARRISON, K. P. R. KARTHA, S. L. SMITH, J. H. NAISMITH, S. SCHENKMAN AND R. A. FIELD	424S
Fucosylation of sialyllactosamine chains by the human leukocyte α -3-fucosyltransferase; FucT-VII	C. J. BRITTON, W. McDOWELL, V. A. KELLY, T. DE VRIES, D. H. VAN DEN EIJNDEN AND M. I. BIRD	425S
Expression of a secreted form of human α -1,3-fucosyltransferase VII from insect cells	N. SMITHERS, V. A. KELLY, S. J. WITHAM, M. R. EDBROOKE AND C. J. BRITTON	426S
An N-terminal peptide from link protein stimulates synthesis of cartilage proteoglycans	H. LIU, L. A. MCKENNA AND M. F. DEAN	427S

G-protein-coupled receptors for peptide hormones

Speaker Abstracts		
Post-secretory processing of peptide signals: a novel mechanism for the regulation of peptide-hormone receptors	I. SMITH	428S

Pheromone communication in the fission yeast <i>Schizosaccharomyces pombe</i>	K. DAVIS	428S
Molecular basis of the regulation of the lutropin/choriogonadotropin (LH/GT) receptor	M. ASCOLI	428S
Structure-function relationships of leucocyte chemoattractant receptors	M. BARKER	428S
Neuropeptide Y and its receptors: molecular characterization and interaction	A. BECK-SICKINGER	428S
The molecular pharmacology of receptors for CGRP, amylin and adrenomedullin	D. POYNER	428S
Signal transduction by galanin receptor	Ü. LANGEL	429S
Angiotensin II receptors	A. BALMFORTH	429S
Structure and function of neurohypophysial hormone receptors	M. WHEATLEY	429S
Discovery and development of non-peptide antagonists for peptide receptors	D. PETTIBONE	429S
Gene structure, expression and regulation of the receptor for the peptide hormone oxytocin	R. IVELL	429S
Domain swapping in the activation of G-protein-coupled receptors	C. REYNOLDS	429S
Mapping of binding sites and conformational interchange in 7TM receptors	T. SCHWARTZ	430S
Probing 7TM receptor activation by a combination of Fourier transform-IR (FTIR) spectroscopy and mutagenesis	F. SIEBERT	430S
<i>Poster Free Communications</i>		
Biotinylated and fluorescent analogues of bradykinin	J. HOWL	431S
Chimaeric analogues of vasopressin and bradykinin	J. HOWL, R. MONDSZEIN, N. J. YARWOOD AND M. WHEATLEY	432S
Somatostatin inhibits Ca^{2+} -activated K^+ channels in human colonic crypts	I. BUTTERFIELD, G. WARHURST AND G. I. SANDLE	433S
Correlated mutations and subtype specificity in the adrenergic receptor	P. R. GOULDSON, R. P. BYWATER AND C. A. REYNOLDS	434S
The role of putative glycosylation sites in the extracellular loops of the vasopressin V _{1a} receptor	S. R. HAWTIN, A. R. L. DAVIES, G. MATTHEWS AND M. WHEATLEY	435S
Characterization of the human oxytocin-receptor ligand-binding site	N. J. YARWOOD, J. HOWL AND M. WHEATLEY	436S
Characterization of an epitope-tagged vasopressin V _{1a} receptor: a probe for receptor structure and function	S. R. HAWTIN AND M. WHEATLEY	437S
Visualization of oxytocin receptors using selective biotinylated probes	N. J. YARWOOD, J. HOWL, G. LENG AND M. WHEATLEY	438S
Site-directed mutagenesis of putative protein kinase C phosphorylation sites in human angiotensin II AT ₁ receptor: effects on angiotensin-provoked intracellular calcium mobilization in stably transfected Chinese hamster ovary cells	S. BARKER, P. M. LAVENDER AND A. J. L. CLARK	439S

Characterization of ZK643.3: a putative 7TM neuropeptide receptor	D. COATES, D. A. BRIGGS, D. MACGREGOR, A. S. LYNCH, L. F. KOLAKOWSKI, I. A. HOPE AND R. E. ISAAC	440S
Differential glycosylation of asymmetric acetylcholinesterase forms in external and internal muscle membranes	M. T. MORAL-NARANJO, J. CABEZAS-HERRERA, F. J. CAMPOY AND C. J. VIDAL	441S
Evidence for protein kinase A (PKA)-dependent and -independent desensitization and phosphorylation of the human vasoactive intestinal peptide receptor (VIP₂)	T. P. McDONALD, C. F. MORRISON, D. M. DINNIS AND A. J. HARMAR	442S
Changes in transforming growth factor β (TGF-β) expression in the myocardium	K. DOBIE AND P. CUMMINS	443S
Analysis of PrkI, a putative receptor kinase from fission yeast	P. WATSON AND J. DAVEY	444S
Kexin activation requires both the removal and the destruction of the pro-sequence	D. POWNER AND J. DAVEY	445S
Proteolysis of Sxa2, a carboxypeptidase involved in pheromone adaptation in yeast	G. LADDS AND J. DAVEY	446S
Proteases involved in the maturation of the M-factor mating pheromone in fission yeast	M. HUGHES AND J. DAVEY	447S
Evidence of a role for the guanine nucleotide binding protein during growth and morphogenesis in <i>Candida albicans</i>	S. J. WARD, O. S. KINSMAN AND D. J. ADAMS	448S

Hormone group

Poster Free Communications

Fourier transform-IR (FTIR) studies of vitamin D₂-model membrane interactions	F. SEVERCAN, N. KAZANCI AND F. EKER	449S
Calcium-mobilizing actions of chimaeric hormone-mastoparan peptides	M. MEZNA, Ü. LANGEL, M. HÄLLBRINK, M. WHEATLEY, F. MICHELANGELI AND J. HOWL	450S
The effect of phosphate transporter inhibitors on the InsP₃-induced Ca²⁺ release	M. MEZNA AND F. MICHELANGELI	451S
Stable overexpression of protein tyrosine phosphatases: effect on insulin signalling	S. R. ORR AND B. R. HOLLOWAY	452S
Regulation of growth-hormone secretion in lactating sheep	A. FAULKNER AND P. A. MARTIN	453S

Molecular and cellular pharmacology group

Poster Free Communications

Neutrophil transmigration: modulation by pentoxifylline and nitric oxide	S. C. CLARK, B. K. SHENTON, J. H. DARK AND J. A. KIRBY	454S
Construction of chimaeric human bombesin receptors to identify neuromedin B and gastrin-releasing peptide receptor binding sites	E. J. R. MAUGHFLING, P. BODEN AND M. D. HALL	455S
The effect of garlic on cell growth and cell division in cultured trophoblast and endothelial cell lines	S. R. SOORANNA, S. PATEL AND I. DAS	456S

Fenretinide inhibits phorbol ester-induced cyclo-oxygenase-2 expression in human colon adenocarcinoma cells	E. T. ALIPRANDIS, G. MERRITT, F. PRADA, B. RIGAS AND K. KASHFI	457S
Translocation of the α and β isotypes of protein kinase C in Swiss 3T3 cells in response to phorbol ester stimulation	S. A. ROBERTS, W. J. RYVES AND F. J. EVANS	458S
<hr/>		
Structure, function and regulation of glucose transporters		
<i>Speaker Abstracts</i>		
Structure—activity relationship of sugar-transport proteins	P. HENDERSON	459S
Structure, function and biosynthesis of GLUT1	M. MUECKLER	459S
Regulation of GLUT1 in response to cellular stress	S. BALDWIN	459S
Role of conserved residues and motifs in function and ligand binding of glucose transporters	H.-G. JOOST	459S
Nutrient and sugar transporter gene interaction in the intestinal epithelia	S. SHIRAZI-BEECHEY	459S
Role of GLUT2 in glucose fluxes and β-cell glucose sensing revealed by gene knockout	B. THORENS	459S
Improved glycaemic control db/db mice overexpressing glucose transporters	M. GIBBS	460S
Metabolic and molecular consequences of GLUT4 gene disruption	M. CHARRON	460S
GLUT4 subcellular trafficking: molecular components and vesicular pathways	S. CUSHMAN	460S
Isolation of distinct intracellular GLUT4 vesicle populations from cardiac and skeletal muscle	A. ZORZANO	460S
Compartment-ablation approaches for the study of the trafficking and targeting of GLUT4	G. GOULD	460S
Real-time analysis of GLUT4 trafficking in single living cells using green fluorescent protein	J. TAVARÉ	460S
Involvement of phosphatidylinositol 3-kinase in insulin-stimulated glucose transport in human skeletal muscle	P. SHEPHERD	461S
Phosphatidylinositol 3-kinase-dependent pathways regulating GLUT4 translocation	M. BIRNBAUM	461S
Subcellular compartmentalization of insulin-regulated vesicular traffic	P. PILCH	461S
<i>Poster Free Communications</i>		
Increased glycogen synthesis in rat diaphragm following chloroquine treatment <i>in vivo</i>	A. P. BEVAN AND G. D. SMITH	462S
Studies on the expression of the human erythrocyte glucose transporter (GLUT1) in the yeast <i>Saccharomyces cerevisiae</i>	C. H. SIMONS, A. B. WEINGLASS AND S. A. BALDWIN	463S
Regulation of GLUT1 expression in the mammary gland	E. R. HUDSON, L.-S. MA, C. J. WILDE, D. J. FLINT AND S. A. BALDWIN	464S

Characterization of proteins associated with the GLUT4 intracellular compartment	C. A. MILLAR, D. E. JAMES AND G. W. GOULD	465S
GLUT4 translocation in human muscle strips	S. LUND, O. PEDERSEN, G. D. HOLMAN, A. E. CLARK, J. R. ZIERATH AND H. WALLBERG-HENRIKSSON	466S
Determination of the sequence of an mRNA from lactating sheep mammary gland that encodes a protein identical to the Na ⁺ -dependent glucose transporter (SGLT1)	J. M. SHILLINGFORD, I. S. WOOD, D. B. SHENNAN, S. P. SHIRAZI-BEECHEY AND R. B. BEECHEY	467S
Plastidial phosphoglucomutase catalyses a non-equilibrium reaction in wheat endosperm amyloplasts	I. J. TETLOW, K. J. BLISSETT, C. G. BOWSHER AND M. J. EMES	468S
Altered GLUT4 subcellular trafficking in primary cultures of rat adipocytes	D. TOSH, A. E. CLARK, P. R. PRYOR, J. YANG AND G. D. HOLMAN	469S
Cell-surface biotinylation of GLUT4	F. KOUMANOV, J. YANG, A. JONES, Y. HATANAKA AND G. D. HOLMAN	470S
Purification, reconstitution and CD of the galactose/H ⁺ transport protein [GalP-(His) ₆] of <i>Escherichia coli</i>	N. M. SANDERSON, G. E. M. MARTIN, N. G. RUTHERFORD AND P. J. F. HENDERSON	471S
Evidence for ras- and rho-dependent pathways in the regulation of glucose transport by growth factors	F. J. THOMSON, T. J. JESS, C. MOYES, R. PLEVIN AND G. W. GOULD	472S
GLUT5 and fructose transport in human skeletal muscle	F. DARAKHSHAN, S. KRISTIANSEN, E. RICHTER AND H. S. HUNDAL	473S
Structure-function studies of the brain-type glucose transporter, GLUT3: alanine-scanning mutagenesis of putative transmembrane helix 8	M. J. SCATTER, S. KANE, L. M. PORTER AND G. W. GOULD	474S
<i>In situ</i> labelling of insulin-stimulated GTP-binding proteins in adipocytes	P. R. PRYOR, P. W. YOUNG AND G. D. HOLMAN	475S
Purine nucleobase transport in bloodstream forms of <i>Trypanosoma brucei brucei</i>	H. P. DE KONING AND S. M. JARVIS	476S
Synthesis of a membrane-impermeable d-glucose analogue: studies on the mechanism of nutrient regulation of the intestinal Na ⁺ /glucose co-transporter (SGLT1)	K. BAGGA, J. DYER, R. SIMMONDS, D. SCOTT, R. B. BEECHEY AND S. P. SHIRAZI-BEECHEY	477S
The expression of sugar transporters in the endocrine cell line STC-1	J. DYER, A. VARRO, G. J. DOCKRAY AND S. P. SHIRAZI-BEECHEY	478S
Changes in the levels of intestinal Na ⁺ /glucose co-transporter (SGLT1) in experimental diabetes	J. DYER, A. GARNER, I. S. WOOD, A. K. SHARMA, I. CHANDRANATH AND S. P. SHIRAZI-BEECHEY	479S
Expression of the Na ⁺ /glucose co-transporter (SGLT1) along the length of the avian intestine	J. DYER, A. RITZHAUPT, I. S. WOOD, C. DE LA HORRA, A. A. ILLUNDAIN AND S. P. SHIRAZI-BEECHEY	480S
Measurement of ovine SGLT1 mRNA levels by competitive reverse transcription (RT)-PCR	G. G. ALLISON AND S. P. SHIRAZI-BEECHEY	481S
Expression of Na ⁺ /glucose co-transporter in the intestinal brush-border membrane of ruminants with different feeding habits	A. ROWELL, J. DYER, R. R. HOFMANN AND S. P. SHIRAZI-BEECHEY	482S
Characterization of spectrin isoforms associated with GLUT4	S. L. CORCORAN, P. G. WYLIE, N. V. L. HAYES, A. J. BAINES AND H. M. THOMAS	483S
Role of SNARE proteins in GLUT4 translocation	K. N. WESTON, S. NICOL AND H. M. THOMAS	484S

Rapid activation of GLUT1 by osmotic stress	L. F. BARROS, S. A. BALDWIN AND M. GRIFFITHS	485S
<hr/>		
Membrane group		
<i>Poster Free Communications</i>		
Evaluation of the ECV304 spontaneously transformed HUVEC cell line for adhesion molecule research	A. K. STANNARD, N. J. BRADLEY AND J. S. OWEN	486S
Volume-activated formate transport in parotid tissue	H.-V. NGUYEN, D. B. SHENNAN AND R. B. BEECHEY	487S
Formate transport in ovine parotid acinar cells: an anion-exchange mechanism in vesicles prepared from the basolateral membrane	H.-V. NGUYEN AND R. B. BEECHEY	488S
Molecular approaches towards identifying the gene(s) encoding mammalian Na ⁺ /nucleobase transporters	M. SHAYEGHI AND S. M. JARVIS	489S
Urea transport in gastrointestinal tract of ruminants: effect of dietary nitrogen	A. RITZHAUPT, G. BREVES, B. SCHRÖDER, C. G. WINCKLER AND S. P. SHIRAZI-BEECHEY	490S
Towards molecular characterization of ovine renal Na ⁺ /phosphate co-transporter: a progress report	L. T. FORD, I. S. WOOD, D. SCOTT, W. D. REES AND S. P. SHIRAZI-BEECHEY	491S
Trans-bilayer phospholipid movements in human red blood cells deficient in the 32 kDa band-7.2b membrane protein, stomatin	M. M. HO, A. NICOLAOU, A. C. ARGENT, G. W. STEWART	492S
<hr/>		
Lipid group		
<i>Poster Free Communications</i>		
Turbidity studies of the effect of divalent cations on tamoxifen-model membrane interactions	F. SEVERCAN, E. SULEYMANOGLU AND H. BOYAR	493S
In vivo absorption and metabolism of α,β-unsaturated aldehydes generated in polyunsaturate-rich culinary oils during episodes of thermal stressing	M. ATHERTON, C. SILWOOD, E. LYNCH AND M. GROOTVELD	494S
Production of lipid peroxidation products in culinary oils and fats during episodes of thermal stressing: a high field ¹ H NMR investigation	A. N. SHEERIN, C. SILWOOD, E. LYNCH AND M. GROOTVELD	495S
The effects of inflammatory cytokines on acyl coenzymeA-dependent acyltransferase	N. T. NEVILLE, S. K. JACKSON AND J. L. HARWOOD	496S
Cholesterol-3-sulphate enhances phospholipase A ₂ activity by promoting interfacial binding	A. R. KINKAID, J. E. VOYSEY AND D. C. WILTON	497S
Association of surfactant deficiency with alveolar bronchiolitis	L. W. MORGAN, R. SKELTON AND J. L. HARWOOD	498S
Effect of drought on volatile production by the lipoxygenase pathway in olive fruit	M. WILLIAMS AND J. L. HARWOOD	499S
<hr/>		
Biochemical immunology group		
<i>Poster Free Communications</i>		
Correlation of intercellular adhesion molecule-1 (ICAM-1) expression with post-operative acute cellular rejection in human liver allograft	M. EL-WAHSH, B. J. FULLER, N. S. SREEKUMAR, A. K. BURROUGHS, P. A. DHILLON, K. ROLLES AND B. R. DAVIDSON	500S

Effect of free-radical scavenger (reduced glutathione) on platelets endothelial cell adhesion molecule (PECAM) expression in liver transplantation	M. EL-WAHSI, B. J. FULLER, N. S. SREEKUMAR, A. K. BURROUGHS, P. A. DHILLON, B. R. DAVIDSON AND K. ROLLES	501S
Differential expression of the human high-affinity IgG receptor FcγRI and associated signalling molecules in differentiated U937 monocyte cells	A. J. M. CAMERON AND J. M. ALLEN	502S
Activation of mitogen-induced T-lymphocyte proliferation by leukotriene C-4	J. M. BAILEY, J. Y. VANDERHOEK, A. N. MAKHEJA AND M. PUPILLO	503S
The expression of MUC5AC in allergic rhinitis	S. J. WOOD, M. A. BIRCHALL, I. CARLSTEDT AND A. P. CORFIELD	504S
Pneumococcal lipopolysaccharide stimulation of B-lymphocytes in non-immunized BALB/c mice	B. E. LOVETT, M. C. WINSLET AND N. J. BRADLEY	505S
The influence of allergy and smoking on the sulphation of nasal mucins	S. J. WOOD, M. A. BIRCHALL, T. IRIMURA AND A. P. CORFIELD	506S

Small G-proteins in animals and plants

Speaker Abstracts

Common themes and surprising differences in small G-proteins	H. JHOTI	507S
The GTPase reaction of Ras	A. WITTINGHOFER	507S
GAP1PIP4BP, a protein linking inositol 1,3,4,5-tetrakisphosphate with Ras and Ca²⁺ homoeostasis	P. CULLEN	507S
Co-ordination of the action of GTPase-activating protein (GAP) and GDP/GTP exchange factor (GEF) on Ras	A. PARMEGGIANI	507S
Small G-proteins in plants	K. PALME	507S
<i>In vitro</i> and <i>in vivo</i> analysis of plant G-protein-linked pathways	P. MILLNER	507S
Rho family proteins and signal transduction	A. RIDLEY	508S
GTPase-activating proteins (GAPs) for Ras and Rho: mechanism and structure	J. ECCLESTON	508S
Rac interactions with guanine nucleotide dissociation inhibitor (GDI): mechanism and structure	M. WEBB	508S

Poster Free Communications

Interaction of p21 activated kinase (PAK) with Rac: determination of a minimum binding domain on PAK	G. THOMPSON, P. A. CHALK AND P. N. LOWE	509S
Small G-protein characterization by isothermal titration calorimetry	D. G. LAWTON, C. GORMAN AND P. N. LOWE	510S
Interaction of Ras with Raf (residues 136-189) and related cysteine-rich protein fragments	C. GORMAN, C. J. DELVES, J. V. SKELLY AND P. N. LOWE	511S

Characterization of the interaction of normal and mutant Rho-GAP (GTPase-activating protein) with Rho family proteins	D. L. GRAHAM, J. F. ECCLESTON AND P. N. LOWE	512S
<hr/>		
Molecular enzymology group		
<i>Poster Free Communications</i>		
Solubilization of a cholesterol ester hydrolase activity from rat liver microsomes	S. CRISTÓBAL, O. FRESNEDO AND B. OCHOA	513S
<hr/>		
Xanthine oxidase: enzymology and pathophysiology		
<i>Speaker Abstracts</i>		
History of milk xanthine oxidoreductase	V. MASSEY	514S
Crystal structure and mechanism of the xanthine oxidase-related aldehyde oxidoreductase from <i>D. gigas</i>	R. HUBER	514S
Biosynthesis and processing of Mo cofactors	K. RAJAGOPALAN	514S
Towards the reaction mechanism of xanthine oxidase from EPR studies	R. BRAY	514S
Recent mechanistic studies of xanthine oxidase	R. HILLE	514S
The role of Mo-C bonds in xanthine oxidase action	D. LOWE	514S
Genetic analysis of the molybdenum-containing hydroxylases of <i>Aspergillus nidulans</i>	C. SCAZZOCCHIO	515S
Structure of the molybdenum cofactor genes in <i>Drosophila</i>	V. FINNERTY	515S
Conversion of xanthine dehydrogenase to oxidase and role of reperfusion injury	T. NISHINO	515S
Xanthine oxidase: a source of oxidants and mediator of inflammation in post-ischaemic tissues	D. GRANGER	515S
Human xanthine oxidase (HXO): in search of a function	R. HARRISON	515S
Mouse xanthine dehydrogenase gene: structure and regulation in the mammary gland myoepithelial cell	E. GARATTINI	515S
Transcriptional regulation of human xanthine dehydrogenase/xanthine oxidase	J. HOIDAL	516S
The molybdenum hydroxylase gene family, co-conspirators of metabolic free-radical generation	R. WRIGHT	516S
The physiology of oxidant-mediated signal transduction	G. BULKLEY	516S
Specific high-affinity binding of xanthine oxidase to the vessel wall and its role in vascular disease	B. FREEMAN	516S
Xanthine oxidase, rheumatoid disease and bone resorption	D. BLAKE	516S
<i>Poster Free Communications</i>		
The reaction of human xanthine dehydrogenase with NADH	S. A. SANDERS, R. HARRISON AND R. EISENTHAL	517S
NF- κ B activation in human knee-joint synovial tissue during the early stage of joint inflammation	V. GILSTON, H. W. JONES, C. C. SOO, A. COUMBE, S. BLADES, C. KALTSCHMIDT, P. A. BAEUERLE, C. J. MORRIS, D. R. BLAKE AND P. G. WINYARD	518S

≥95% of xanthine oxidase in human milk is present as the demolybdo form, lacking molybdopterin	B. GODBER, S. A. SANDERS, R. HARRISON, R. EISENTHAL AND R. C. BRAY	519S
Expression of wild-type and mutated <i>Drosophila melanogaster</i> xanthine dehydrogenases in <i>Aspergillus nidulans</i>	B. ADAMS, A. T. SMITH, W. A. DOYLE, R. C. BRAY, M. G. RYAN, R. HARRISON, A. J. WOLSTENHOLME, M. J. ROMÃO, R. HUBER, S. DEMAIS AND C. SCAZZOCCHIO	520S
Effect of aspirin and salicylate on low-density lipoproteins (LDL) oxidation <i>in vitro</i>	C. H. BOLTON, J. DWIGHT, M. I. HOPTON, K. STEER AND M. HARTOG	521S
Antioxidant defences and lipid peroxidation in preterm infants	C. H. BOLTON, A. A. LEAF AND L. G. DOWNS	522S
The action of garlic upon plasma total antioxidant capacity	X.-H. ZHANG, S. R. MAXWELL, G. H. THORPE, H. THOMPSON, C. A. REA, M. J. CONNOCK AND D. J. MASLIN	523S
Human xanthine oxidase converts nitrite ions into nitric oxide (NO)	Z. ZHANG, D. P. NAUGHTON, D. R. BLAKE, N. BENJAMIN, C. R. STEVENS, P. G. WINYARD, M. C. R. SYMONS AND R. HARRISON	524S
Redox modulation of haem oxygenase-I transcription in endothelial cells	V. R. WINROW, T. M. MILLAR AND D. R. BLAKE	525S
Amplification of a xanthine dehydrogenase gene is associated with insecticide resistance in the common house mosquito <i>Culex quinquefasciatus</i>	M. COLEMAN AND J. HEMINGWAY	526S
ENDOR evidence relating the Fe/S EPR signals from xanthine oxidase to the individual clusters	D. J. LOWE, C. J. MITCHELL AND R. C. BRAY	527S
Xanthine oxidase can generate nitric oxide from nitrate in ischaemia	T. M. MILLAR, C. R. STEVENS AND D. R. BLAKE	528S
Correlated mutations amongst the external residues of G-protein-coupled receptors	P. R. GOULDSON, C. R. SNELL, R. P. BYWATER AND C. A. REYNOLDS	529S
Xanthine oxidoreductase: dehydrogenase-to-oxidase conversion	M. G. RYAN, A. BALENDRAN, R. HARRISON, A. J. WOLSTENHOLME AND G. B. BULKLEY	530S
Elevated circulating plasma NADH-oxidizing activity of xanthine oxidoreductase in plasma	S. JAWED, C. R. STEVENS, R. HARRISON AND D. R. BLAKE	531S
Expression of xanthine oxidase activity in human endothelial cells as a function of cell density	M. ROUQUETTE, C. R. STEVENS, D. R. BLAKE, R. HARRISON, J. WHISH AND W. D. WHISH	532S
The effects of garlic oil upon serum indicators of liver function	R. T. KASINATH, P. K. JOSEPH, K. HEBRON, X.-H. ZHANG, M. J. CONNOCK AND D. J. MASLIN	533S
Identification of the cape buffalo serum trypanocidal protein: xanthine:oxygen oxidoreductase	S. J. BLACK, M. MURANJAN AND Q. WANG	534S

New insights into ligand-gated ion-channel receptors from molecular genetic strategies

Speaker Abstracts

The use of the EST database to identify novel human GABA receptor genes	P. WHITING	535S
Ligand-gated ion-channel subunit partnerships: GABA_A receptor α_6 subunit gene inactivation inhibits δ subunit expression	W. WISDEN	535S

Nicotinic receptor β 2 knockout	M. PICCIOTTO	535S
Natural glycine receptor mutants in human and murine disease	C.-M. BECKER	535S
Glutamate-gated chloride channels in <i>Caenorhabditis elegans</i> and parasitic nematodes	A. WOLSTENHOLME	535S
Ligand recognition in glutamate receptors: insights from mutagenesis of the soluble AMPA-binding domain of GluR-D	K. KEINÄNEN	535S
The yeast two-hybrid system: screening for proteins that interact with non-NMDA receptor subunits	J. HENLEY	536S
Ligand-gated cation channels of sensory neurons	J. WOOD	536S
<i>Poster Free Communications</i>		
Effects of phospholipase A ₂ on α -amino-3-hydroxy-5-methyl-4-isoxazolepropionate receptor subunits	K. K. DEV, T. HONORÉ AND J. M. HENLEY	537S
Effect of thiol group modification on [³ H]-NBQX binding in rat cortical membranes	R. CHITTAJALLU, K. K. DEV AND J. M. HENLEY	538S
Half-life analysis of the α -amino-3-hydroxy-5-methyl-4-isoxazolepropionate receptor subunit GluRI in primary cultured rat cerebellar granule cells	M. J. M. PERRY AND J. M. HENLEY	539S
Green fluorescent protein (GFP) fusion proteins and AMPA receptor trafficking	A. J. DOHERTY, G. L. COLLINGRIDGE AND J. M. HENLEY	540S
Subcellular localization of α -amino-3-hydroxy-5-methyl-4-isoxazolepropionate receptor subunits in rat cortex	K. ARCHIBALD AND J. M. HENLEY	541S
Capsaicin stimulates release of substance P from dorsal root ganglion neurons via two distinct mechanisms	J. R. PURKISS, M. J. WELCH, S. DOWARD AND K. A. FOSTER	542S
Differentiation of a Schwann cell line expressing reporter genes in the presence and absence of nerve axons	A. R. FOOKS, S. SCHMITZ, J. A. RUSHTON, S. J. HOWE, P. D. GRAHAM, V. GODBOLE, G. STACEY, J. C. S. CLEGG AND L. W. HAYNES	543S
Differential up-regulation of α 7 and α 3 subunit-containing nicotinic acetylcholine receptors in rat hippocampal and PC12 cell cultures	A. T. ROGERS AND S. WONNACOTT	544S
Structure-activity studies of bicyclic and tricyclic analogues of methyllycaconitine	A. R. L. DAVIES, D. J. HARDICK, I. S. BLAGBROUGH, B. V. L. POTTER, A. J. WOLSTENHOLME AND S. WONNACOTT	545S
Labelling and characterization of γ -aminobutyric acid _A receptor subunit-specific antibodies with monomaleimido Nanogold	S. L. RAYNER AND F. A. STEPHENSON	546S
Characterization of novel β 2 and β 3 γ -aminobutyric acid _A receptor antibodies	S. POLLARD AND F. A. STEPHENSON	547S
Molecular-dynamics study of water and Na ⁺ ions in models of the pore region of the nicotinic acetylcholine receptor	G. R. SMITH AND M. S. P. SANSON	548S

- Molecular modelling and electrostatic properties of the pore domain of ligand-gated receptors** C. ADCOCK, G. R. SMITH AND M. S. P. SANSON **549S**

Neurochemical group

Poster Free Communications

- Pharmacology of nicotinic acetylcholine receptor (nAChR) up-regulation in the transfected cell line M10** P. WHITEAKER, C. G. V. SHARPLES AND S. WONNACOTT **550S**
- Interaction of a polyamine amide wasp toxin with cloned and mutant glutamate receptors** S. R. TOMLINSON, S. KIRWIN, I. MELLOR, J. HARRIS, M. MUNDEY, M. BRIERLEY, D. R. BELL AND P. N. R. USHERWOOD **551S**
- Characterization of a *Caenorhabditis elegans* neurotransmitter transporter gene** D. MACGREGOR, D. WILLIAMS, R. N. PERRY, D. COATES AND R. E. ISAAC **552S**
- The expression of a *Caenorhabditis elegans* neurotransmitter transporter gene (T25B6.7)** C. T. JAMES, D. MACGREGOR, A. S. LYNCH, D. COATES AND R. E. ISAAC **553S**

Techniques group

Poster Free Communications

- Isolation and culture of porcine renal tubular cells after cold hypoxia** J. FULLER, J. MURDOCK, D. NEMITZ, P. RHODES, B. FULLER AND E. GEORGE **554S**

Nucleic acids and molecular biology group

Poster Free Communications

- Regulation of expression of the chitinase gene *CTS1* in *Saccharomyces cerevisiae*** L. KING AND G. BUTLER **555S**
- Molecular cloning and expression of a rat AF-9 homologue** H. E. MORGAN AND D. A. CARTER **556S**