

667th Leicester Meeting

ABSTRACTS

Abstract no.

Page no.

WELLCOME TRUST MEDAL LECTURE

- L1 From genomics to aetiology in the multifactorial disease type-1 diabetes
J.A. Todd 1

SPEAKER ABSTRACTS

HOST COLLOQUIUM

Enzyme Catalysis: Structure, Dynamics and Chemistry

Speaker Session Times: Monday 21 September, 08.45 – 16.00
Tuesday 22 September, 09.00 – 16.00

- A1 Trimeric G-proteins: structure, mechanism and regulation
P.B. Sigler 1
- A2 Time-resolved crystallography of protein intermediates
K. Moffat 1
- A3 Protein kinase structure and mechanism
L. Johnson 1
- A4 Single molecule enzyme kinetics: application to myosin ATPases
C.R. Bagshaw 2
- A5 The structure of bovine mitochondrial F₁-ATPase: an example of rotary catalysis
A.G.W. Leslie 2
- A6 Time-resolved intermediate trapping and X-ray crystallographic studies of enzyme mechanism: isocitrate dehydrogenase and nuclease catalysts
B.L. Stoddard 2
- A7 Galactose and amine oxidases: making the most of tyrosine residues
S. Phillips 2
- A8 Antibiotics and CoA enzymology: some useful connections
B. Shaw 3
- A9 The enzymology of polyketide antibiotic biosynthesis
P.F. Leadlay 3
- A10 DNA gyrase as a drug target
A. Maxwell 3
- A11 Dihydropteroate synthase: an old drug target revisited
J.P. Derrick 3
- A12 Penicillin and cephalosporin biosynthesis
J. Hajdu 4

Abstract no.	Page no.
EDUCATION GROUP COLLOQUIUM	
Does Biochemistry Have a Core?	
<i>Speaker Session Time: Monday 21 September, 09.15 – 16.00</i>	
C1 Overview of the biochemistry curriculum E.J. Wood	8
C2 Core biochemistry: the Society's view J.M. Wrigglesworth	8
C3 Core biochemistry: a European perspective J. Aghion	8
C4 Core biochemistry: lessons from biological sciences L. Jervis	9
C5 Core biochemistry: the necessity for chemistry R.J.H. Davies	9
C6 Core biochemistry: an industrial perspective D. Boxer	9
C7 Core biochemistry: a pharmaceutical industry perspective M.J.B. Brown	9
 GLYCOBIOLOGY GROUP/BRITISH CONNECTIVE TISSUE SOCIETY COLLOQUIUM	
The Biology of Hyaluronan	
<i>Speaker Session Times: Monday 21 September, 09.00 – 16.00 Tuesday 22 September, 09.00 – 16.00</i>	
D1 Properties of the hyaluronan synthase from Group A <i>Streptococcus pyogenes</i> P.H. Weigel	10
D2 Mammalian hyaluronan synthases: investigation of functional relationships <i>in vivo</i> A.P. Spicer	10
D3 Mammalian hyaluronan synthases and their functions N. Itano	10
D4 Colon-derived smooth-muscle cells treated with double-stranded RNA (poly I:C) increase adherence of mononuclear leucocytes via hyaluronan–CD44 interactions V.C. Hascall	10
D5 Structural regulation of hyaluronan binding to proteins A.J. Day	11
D6 The conformations of hyaluronan in aqueous solution: comparison of theory and experiment J. Sheehan	11
D7 New approaches to the investigation of hyaluronan networks T. Hardingham	11
D8 Biomedical applications of hyaluronan E. Balazs	11

Abstract no.	Page no.
D9 Hyaluronan in embryogenesis C. Archer	12
D10 Hyaluronan in joint cavitation A.A. Pitsillides	12
D11 Hyaluronan receptors: the regulation of the cytoskeleton and their impact on skin wound E. Turley	12
D12 The chondrocyte pericellular matrix: a model for hyaluronan-mediated cell-matrix interactions C.B. Knudson	12
D13 TSG-6: a hyaladherin associated with inflammation H.-G. Wisniewski	13
D14 Mode of action of hyaluronate enhancement of haemopoiesis H. Ponta	13

HORMONE GROUP COLLOQUIUM

Oestrogen Metabolism and Breast Cancer Risk

Speaker Session Time: Monday 21 September, 09.30 – 16.00

E1 Introduction: importance of oestrogen, xenoestrogen and phytoestrogen metabolism in breast cancer risk? H. Wiseman	13
E2 Oestrogen and phytoestrogen metabolism: role of the gut microflora I. Rowland	13
E3 Phytoestrogens in human milk and other biomatrices A.A. Franke	14
E4 Phytoestrogen sulphoconjugates as inhibitors of sterol sulphatase W.M. Keung	14
E5 4-Hydroxylation of oestrogens as a marker of breast cancer risk J.G. Liehr	14
E6 Aromatase and breast cancer risk M. Dowsett	14
E7 Regulation of steroid sulphatase and oestradiol 17 β -hydroxysteroid dehydrogenase in breast cancer M.J. Reed	15

INDUSTRIAL BIOCHEMISTRY AND BIOTECHNOLOGY GROUP COLLOQUIUM

Harnessing Plant Metabolites for Industry: Tools, Systems and Implementation

*Speaker Session Times: Tuesday 22 September, 09.00 – 16.10
Wednesday 23 September, 09.00–14.00*

F1 Metabolic pathway engineering of plant secondary metabolites A.J. van Tunen	15
--	----

Abstract no.	Page no.
G5 Enzyme kinetics from a metabolic perspective A. Cornish-Bowden	19
G6 Modelling lipid metabolism in plants: a slippery problem? J.L. Harwood	20
G7 Modelling metabolism <i>in vivo</i> : approaches using NMR R.A. Iles	20
G8 Control and structural design of glycolysis: an evolutionary approach R. Heinrich	20
G9 Traditional concepts of metabolic control mislead more than enlighten D.A. Fell	20
G10 Using practicals to teach metabolic control analysis (MCA): a worked example P. Quant	21
G11 Towards understanding the extras of metabolic pathways: the implementation of quantitative analyses J.L. Snoep	21
G12 Kinetics for the numerically challenged K.F. Tipton	21
G13 Using computers to learn about metabolism P. Mendes	21
G14 Mrs. Spratt, young penguins and drunken elephants: teaching metabolic regulation in relation to health and disease requires a whole-body approach M. Watford	22
G15 Applying the learning: the case for teaching in industry D. Myles	22
G16 Overview: linking research and teaching M. Brand	22

MEMBRANE GROUP COLLOQUIUM

Membrane Protein Secretases

Speaker Session Time: Wednesday 23 September, 08.45 – 15.45

H1 Shedding of the interleukin-6 receptor: mechanisms and physiological consequences S. Rose-John	22
H2 Characterization of the tumour-necrosis-factor (TNF α)-converting enzyme [(TACE)/ADAM17]-deficient mouse and its role in the shedding of cell-surface proteins D.P. Cerretti	23
H3 Interleukin-6 receptor shedding: a role for members of the ADAM (a disintegrin and metalloproteinase-like) family P.I. Croucher	23
H4 Angiotensin-converting enzyme and the amyloid precursor protein secretases N.M. Hooper	23
H5 Proteolytic processing of β -amyloid precursor protein and presenilins H. Steiner	23

Abstract no.	Page no.
H6 Mechanisms controlling the shedding of transmembrane molecules J. Arribas	24
H7 Protease-activated receptors: novel functions for serine proteases N.W. Bunnett	24
H8 A role for ADAMs (a disintegrin and metalloproteinase-like) proteinases as membrane protein secretases A.J. Turner	24

NEUROSCIENCE GROUP COLLOQUIUM

G-Protein-Coupled Receptor Signalling in the Central Nervous System

Speaker Session Time: Monday 21 September, 09.15 – 16.00

I1 Diversity in the signalling and regulation of G-protein-coupled receptors G. Milligan	24
I2 Metabotropic glutamate receptor signalling E. Hermans	25
I3 Acute and chronic regulation by G-protein-coupled receptors S. Cotecchia	25
I4 Involvement of the N-terminus of neuronal calcium channels in G-protein modulation A.C. Dolphin	25
I5 Cell-cycle-dependent coupling of vasopressin V ₁ -receptor to G _{q/11} and G ₁₃ F. Kalkbrenner	25
I6 Organization of G-protein-coupled receptors and ion channels at the synapse P. Somogyi	26
I7 Role of G-protein-coupled receptors in adaptative neuronal processes G.L. Collingridge	26
I8 Clinical exploitation of 5-hydroxytryptamine receptor diversity D. Hoyer	26
I9 Dopamine receptor antagonists or inverse agonists as anti-psychotics? P.G. Strange	26

BIOCHEMICAL IMMUNOLOGY GROUP COLLOQUIUM

Biosensors: Into the 21st Century

Speaker Session Time: Wednesday 23 September, 08.45 – 17:10

J1 Analysis of structure–activity relationships with biosensors M.H.V. Van Regenmortal	27
J2 Design of molecular biosensor surfaces for screening ligand–receptor interactions by functional assay H. Vogel	27
J3 Biosensors: past, present and future H.A.O. Hill	27

POSTER ABSTRACTS**EDUCATION GROUP***Poster Session Time: Monday 21 September, 16.00 – 17.30*

- 1 Problem-based learning: scaling-up issues
L. Jervis 31

NEUROSCIENCE GROUP COLLOQUIUM**G-Protein-Coupled Receptor Signalling in the Central Nervous System***Poster Session Time: Monday 21 September, 16.00 – 17.30*

- 2 The effect of site-directed mutagenesis of two transmembrane serine residues on agonist-specific coupling of a cloned human α_{2A} -adrenergic receptor
J.E. Rudling and P.D. Evans 31
- 3 Muscarinic receptor (M_1)-evoked increase in $[Ca^{2+}]_i$ in SH-SY5Y cells inhibits noradrenaline release
D.J. Roberts, C. Peers and P.F.T. Vaughan 32
- 4 Characterization of purinoceptor-mediated Ca^{2+} oscillations in L-fibroblasts
R.J. Davis, R.A.J. Challiss and S.R. Nahorski 32
- 5 Cultured spinal cord cells take up and release $[^3H]$ noradrenaline: evidence for intrinsic noradrenergic neurons
J.R. Purkiss, L.M. Fris, S. Doward and C.P. Quinn 32
- 6 How does the internalization of G-protein-coupled receptor agonists relate to the internalization of their receptors?
J.A. Koenig, R. Kaur and P.P.A. Humphrey 32
- 7 Distribution of histamine H_3 -receptor binding in the normal human basal ganglia: comparison with Huntington's disease and Parkinson's disease cases
R.E. Goodchild, J.A. Court, I. Hobson, M.A. Piggott, R.H. Perry, P. Ince, E. Jaros and E.K. Perry 33
- 8 Molecular determinants for high-affinity binding to the vasopressin V_{1a} receptor
S.R. Hawtin and M. Wheatley 33
- 9 Naloxone benzoylhydrazone inhibits K^+ -evoked glutamate release from rat brain slices
B. Nicol, D.J. Rowbotham, D. Smart, A.T. McKnight and D.G. Lambert 33
- 10 Effects of steroidal neuromuscular-blocking drugs on $[^3H]$ noradrenaline release from SH-SY5Y cells
T.M. Cembala, B.L. Appadu and D.G. Lambert 33
- 11 Gonadotropin-releasing hormone receptors with added cytoplasmic C-terminal tails undergo accelerated β -arrestin-dependent internalization
A. Heding, M. Vrecl, A. Hanyaloglu, P.L. Taylor, R. Sellar, B. Byrne, G.B. Willars and K.A. Eidne 34
- 12 A comparative study of growth factor receptor and G-protein-coupled receptor phosphoinositide and Ca^{2+} signalling in SH-SY5Y neuroblastoma cells
L.M. Wheldon, P.J. White, S.R. Nahorski and G.B. Willars 34

Abstract no.	Page no.
13 Absence of rapid desensitization and agonist-dependent phosphorylation of the mammalian gonadotropin-releasing hormone receptor is associated with the absence of a cytoplasmic C-terminal tail G.B. Willars, S.R. Nahorski, K.A. Eidne and A. Heding	34
14 Phosphorylation and functional regulation of the β_2 -adrenergic receptor by the phospholipase-C-coupled M_3 -muscarinic receptor D.C. Budd, K.W. Young, R.A.J. Challiss and A.B. Tobin	34
115 Calmodulin-dependence of presynaptic metabotropic glutamate receptor signalling V. O'Connor, O. El Far, E. Bofill-Cardona, C. Nanoff, M. Freissmuth, J.M. Airas, H. Betz and S. Böhm	35

NEUROSCIENCE GROUP

Poster Session Time: Monday 21 September, 16.00 – 17.30

15 Biochemical characterization of morphological differentiation of malignant epithelial cells induced by contact with peripheral nerve tissue G. Cuttle and S.J. Pape	35
16 Screening for CCK _A -binding inhibitors: a comparison of combinatorial chemistry approaches L. Clark, B. Evans, A. Pipe, S. Arpino and M. Banks	35
17 Studies with compounds that enhance the binding of [¹²⁵ I]-labelled ovine CRF in a recombinant human CRF-1 receptor scintillation proximity assay V. Shield, L. Clark, S. Parsons and M. Banks	35

HOST COLLOQUIUM

Enzyme Catalysis: Structure, Dynamics and Chemistry

Poster Session Time: Monday 21 September, 16.00 – 17.30

18 A single amino acid (Glu-146) governs the substrate specificity of human catecholamine sulphotransferase SULT1A3 R. Dajani, A. Hood and M. Coughtrie	36
19 Hydrogen bonding and protein perturbation in β -lactam acylenzymes of <i>Streptococcus pneumoniae</i> penicillin-binding protein PBP2x A.-S. Wilkinson, C.W. Wharton, R. Chittock, S. Ward, M.G.P. Page and J.J. Goodall	36
20 Investigation of cytochrome P-450 3A4 by surface-enhanced resonance Raman scattering I.D.G. MacDonald and M.P. Pritchard	36
21 Studies on deacetoxycephalosporin C synthase M.D. Lloyd, H.-J. Lee, J.E. Baldwin, C.J. Schofield, J.M. Charnock and C.D. Garner	36
22 Evaluation of a kinetic approach to the determination of catalytic-site content in enzymes and enzyme-like catalysts S. Sonkaria, S. Gul, M. Resmini and K. Brocklehurst	37

Abstract no.	Page no.
23 Investigation of electrostatic and hydrogen and caricain bonding interactions of caricain Asp-158→Asn with time-dependent inhibitors S. Hussain, K.K. Allen, I.F. Connerton, N.J. Cummings, S. Gul, A. Khan, M.A.J. Taylor, E.W. Thomas, C. Verma and K. Brocklehurst	37
24 Rho-GDI-Rac interaction by NMR I. Barsukov, L.-Y. Lian, R. Badii, K.-H. Sze and G.C.K. Roberts	37
25 Structural studies of histidines in zinc β -lactamases and their interactions with inhibitors C. Damblon, C.L.Y. Lian, R.P. Soto, M.H. Villadares, M. Galleni, J.M. Frère and G.C.K. Roberts	37
26 Investigation of chymotrypsin-ligand complexes using IR spectroscopy: a model for the study of β -lactamases? J.J. Goodall, A.-S. Wilkinson and C.W. Wharton	38
27 Characterization of <i>Dictyostelium</i> myosin II mutated in the converter region P.A. Kuhlman, N. Sasaki, R. Ohkura, K. Sutoh and C.R. Bagshaw	38
28 Kinetic mechanism of aspartate- β -semialdehyde dehydrogenase and its interaction with small molecule inhibitors C.J. Greenwood, K.J. Moore, T. Allinson, G. Burton, C. Frydych, F. Harrington, N. Nicholson, M. Hartley, M. Pearson and A.J. Pope	38
29 Site-directed mutagenesis in the active site of <i>Rhodotorula gracilis</i> D-amino-acid oxidase M.S. Pilone, G. Molla, C. Harris, D. Porrini, C. Vegezzi, S. Campaner and L. Pollegioni	38
30 Mechanistic insights into substrate turnover and inhibition of metallo- β -lactamases M.J.B. Brown, M. Gilpin, D. Witty, J. Bateson and A.J. Pope	39
31 The structure, function and convergent evolution of intron-encoded homing endonucleases B.L. Stoddard, M. Jurica, P. Heath and K. Flick	39
32 β -Carbonyl-substituted glutathione conjugates as inhibitors of <i>Onchocerca volvulus</i> glutathione S-transferase 2 P.M. Brophy, A.M. Cambell, A.-M. van Eldick, P.H. Teesdale-Spittle and M.F. Wang	39
114 Structure and function studies of hydroxymethylbilane synthase using SRS and ESRF P.F. Faulder, Y.P. Nieh, J. Raftery, J. Habash, A. Haedener, S. McSweeney, F. Schotte, T. Ursby, M. Wulff, A.W. Thompson and J.R. Helliwell	39

GLYCOBIOLOGY GROUP/ BRITISH CONNECTIVE TISSUE SOCIETY COLLOQUIUM

The Biology of Hyaluronan

Poster Session Time: Monday 21 September, 16.00 – 17.30

33 CD spectroscopy in hyaluronan research G. Siligardi and R. Hussain	40
34 An N-terminal link protein peptide stimulates biosynthesis of collagen and proteoglycans by explants of human articular cartilage H. Liu, L.A. McKenna and M.F. Dean	40

Abstract no.	Page no.
35 Hyaluronan bound to CD44 on keratinocytes is displaced by hyaluronan deca-saccharides and not hexa-saccharides R. Tammi, D. MacCallum, V.C. Hascall, J.-P. Pienimäki, M. Hyttinen and M. Tammi	40
36 Epidermal growth factor regulates keratinocyte hyaluronan metabolism J.-P. Pienimäki, R. Tammi, K. Törrönen and M. Tammi	40
37 Characterization of trans-synovial flow 'plateau' caused by high-molecular-mass hyaluronan D. Scott, J.R. Levick, P.J. Coleman and R.M. Mason	41
38 A simple theory for concentration polarization during ultrafiltration across a partially reflecting membrane in a stirred cell J.R. Levick	41
39 Serum chondroitin sulphate epitopes in rheumatoid arthritis J. Middleton, S. White, E. Parry, C. Jackson, A. Darby, J. Dixey and B. Ashton	41
40 The expression of mucin genes in Barretts oesophagus G.S. Arul, N. Myerscough, M. Moorghen, R.D. Spicer, D. Alderson and A.P. Corfield	41
41 Regulation of the cell-surface hyaluronan receptor, CD44 P. Townsend, C. Lewis, J. Legg and C. Isacke	42
42 Recovery of mRNA from chondrocytes in agarose Z.V. Hazlehurst, V.L. Church, S.M. Kennedy and B.A. Ashton	42
43 Co-localization of a proteoglycan epitope and type X collagen by human intervertebral disc cells <i>in vitro</i> S. Roberts, E. Johnson, B. Garguilo, B. Catterson and A. Kwan	42

GLYCOBIOLOGY GROUP

Poster Session Time: Monday 21 September, 16.00 – 17.30

44 Synthesis of hyaluronan by bacterial fermentation C.M. Lockett and J.N. Hunter	42
45 Immunolocalization of matrix metalloproteinase-3 (stromelysin-1) in carotid artery plaques A.D. Khattab, J. Bowley, I.S. Ali, A. Bowley, R.R. Dils and M.Z. Rana	43
46 Hyaluronic acid fragments activate nuclear factor (NF) κ B in ECV304 cells via its principal cell-surface receptor CD44 K.A. Fitzgerald and L.A.J. O'Neill	43

HORMONE GROUP

Poster Session Time: Monday 21 September, 16.00 – 17.30

47 Switching species specificity of the growth hormone receptor G.J. Allen, J.H. Shand, J. Beattie and D.J. Flint	43
---	----

Abstract no.	Page no.	
MOLECULAR ENZYMOLOGY GROUP COLLOQUIUM		
Enzyme-Catalysed Electron/Radical Transfer		
<i>Poster Session Time: Tuesday 22 September, 16.00 – 17.30</i>		
48	Characterization of a Leu→Trp mutant of the flavodehydrogenase domain of flavocytochrome b_2 R. Moysey, F. Welsh, S.K. Chapman and G.A. Reid	43
49	Bio I: is it a cytochrome <i>P</i> -450? A.J. Green, A.W. Munro, S.L. Rivers, S.K. Chapman and G.A. Reid	44
50	Determinants of substrate binding in flavocytochrome <i>P</i> -450 BM3 M.A. Noble, C.S. Miles, G.A. Reid, S.K. Chapman and A.W. Munro	44
51	Catalytic properties of key active-site mutants of flavocytochrome <i>P</i> -450 BM3 M.A. Noble, C.S. Miles, G.A. Reid, S.K. Chapman and A.W. Munro	44
52	The interaction of nitric oxide with flavocytochrome <i>P</i> -450 BM3 L. Quaroni, W.E. Smith, M.A. Noble and A.W. Munro	44
53	Analysis of flavocytochrome <i>P</i> -450 BM3 using resonance Raman spectroscopy A.W. Munro, L. Quaroni, I.D.G. MacDonald, W.E. Smith, J. Hudecek, V. Baumruk and P. Anzenbacher	45
54	Altering the electron acceptor specificity of flavocytochrome b_2 F. Welsh, S. Rivers, S.K. Chapman and G.A. Reid	45
55	Voltammetric navigation of a flavocytochrome film K. Turner, M. Doherty, S. Chapman, D. Heering and F. Armstrong	45
56	Stepwise electron transfer to 6- <i>S</i> -cysteinyl FMN in trimethylamine dehydrogenase J. Basran, M.-H. Jang, M.J. Sutcliffe, R. Hille and N.S. Scrutton	45
57	Substrate inhibition in wild-type and mutant trimethylamine dehydrogenases P. Roberts, J. Basran, M. Mewies, R. Hille and N.S. Scrutton	46
58	Electron transfer in φ -hydroxylation: analysis of rubredoxin reductase and rubredoxin H.J. Lee, J. Basran, L.-Y. Lian and N.S. Scrutton	46
59	Structure and mechanism of an opiate-transforming redox enzyme: morphinone reductase D.H. Craig, N.C. Bruce, P.C.E. Moody and N.S. Scrutton	46
60	Study of intramolecular electron transfer and catalytic action of quinohaemoprotein alcohol dehydrogenase from <i>Gluconobacter</i> sp. 33 A. Ramanavičius, J. Razumiene, V. Laurinavičius, L. Marcinkevičiene, I. Bachmatova, R. Meškys and R. Rudomanskis	46
61	Site-directed mutagenesis of an active-site residue in <i>Salmonella typhimurium</i> dehydroquinase synthase M.A. Skinner and K.A. Brown	47
62	Construction and expression of the truncated forms of the <i>katG</i> gene from <i>Mycobacterium tuberculosis</i> Jesmin, J.M. Nagy, A.E.G. Cass and K.A. Brown	47
63	Expression and preliminary purification of a Zn ²⁺ form of <i>Escherichia coli</i> dehydroquinase synthase M. Shafiq, M.A. Skinner and K.A. Brown	47

Abstract no.	Page no.
64 Purification of 5-enolpyruvylshikimate-3-phosphate synthase from <i>Haemophilus influenzae</i> P. Vaithanomsat and K.A. Brown	47

**REGULATION IN METABOLISM GROUP/EDUCATION GROUP
COLLOQUIUM**

Modelling Metabolism

Poster Session Time: Tuesday 22 September, 16.00 – 17.30

65 Regulation of ATP synthesis and proton handling in ischaemically exercising skeletal muscle G.J. Kemp, M. Roussel, D. Bendahan, Y. Lefur and P.J. Cozzone	48
66 Simulation of the epidermal growth factor signal transduction pathway F.A. Brightman, S. Thomas and D.A. Fell	48
67 Computer simulation and evolution strategies in the study of rat heart glucose metabolism S. Thomas, M.G. Poolman and D.A. Fell	48

**REGULATION IN METABOLISM GROUP/HORMONE GROUP
COLLOQUIUM**

Endocrine Control of Perinatal Programming in Health and Disease

Poster Session Time: Tuesday 22 September, 16.00 – 17.30

68 A role for the endogenous cannabinoid, anandamide, in the human placenta I. Das and S.R. Sooranna	48
69 Dexamethasone administration in adulthood leads to cardiac protein kinase C expression reminiscent of early development M.L. Langdown, M.J. Holness and M.C. Sugden	49
70 The effect of maternal protein deficiency on the expression of the growth-arrest-specific gene 6 (<i>gas6</i>) in the fetal kidney W.D. Rees and S.M. Hay	49
71 Sulphotransferase activity in the human placenta E.L. Stanley, M.W.H. Coughtrie and R. Hume	49
72 Effect of birth and ambient temperature on abundance of long and short forms of the prolactin receptor in ovine brown-adipose tissue J. Bispham, L. Heasman, L. Clarke, P. Ingleton, T. Stephenson and M.E. Symonds	49
73 Developmental changes in the appearance of leptin in ovine adipose tissue V. Wilson, L. Heasman, J. Dandrea, T. Stephenson and M.E. Symonds	50

Abstract no. **Page no.**

REGULATION IN METABOLISM GROUP

Poster Session Time: Tuesday 22 September, 16.00 – 17.30

- 74 Platelet nitric oxide synthase activity and plasma cGMP levels suggests dysregulation in nitric oxide metabolism in schizophrenia
I. Das and N.S. Khan 50
- 75 Regulation of the hepatic microsomal triglyceride transfer protein (MTP) gene by dietary cholesterol is maintained in isolated hepatocytes
A.J. Bennett, H.M. Sims, A. Ford, K. Lawler, D.A. White, A.M. Salter and M.A. Billett 50

LIPID GROUP

Poster Session Time: Tuesday 22 September, 16.00 – 17.30

- 76 The effect of oestrogen on the metabolism of chylomicron cholesterol in the rat *in vivo*
K.M. Botham, M. Avella, A. Cantafora and E. Bravo 50
- 77 The conversion of chylomicrons of different fatty acid composition into chylomicron remnants *in vivo*
M.H. Rahman, M. Avella and K.M. Botham 51
- 78 Preparation and evaluation of an antibody to rat hepatic lipase: effect on liver chylomicron remnant uptake
M.S. Lambert, M. Avella, Y. Berhane, E. Shervill and K.M. Botham 51
- 79 Effects of hypercholesterolaemia on endothelial cell function and chylomicron remnant uptake by the rat aorta
D.J. Grieve, M.A. Avella, J. Elliott and K.M. Botham 51

INDUSTRIAL BIOCHEMISTRY AND BIOTECHNOLOGY GROUP

Poster Session Time: Tuesday 22 September, 16.00 – 17.30

- 80 *p*-Hydroxycinnamoyl-CoA hydratase/lyase: a *Pseudomonas* enzyme expressed in hairy root cultures of *Datura stramonium*
A. Mitra, M.J. Mayer, A.J. Michael, Y. Kitamura, C. Sewter, A. Narbad, A.J. Parr and N.J. Walton 51
- 81 Identification of the amylogenin gene of rice
D.A. Jackson and H.F.J. Bligh 52

BIOENERGETICS GROUP

Poster Session Time: Tuesday 22 September, 16.00 – 17.30

- 82 Solute transport in *Methylophilus methylotrophus*
J. Mills, N. Wyborn, S. Williams, J. Greenwood and C.W. Jones 52

BIOCHEMICAL IMMUNOLOGY GROUP COLLOQUIUM

Biosensors: Into the 21st Century

Poster Session Time: Wednesday 23 September, 10.00 – 11.00

- | | | |
|----|---|----|
| 83 | Employment of quinohaemoprotein alcohol dehydrogenase from <i>Gluconobacter</i> sp. 33 entrapped in polypyrrole film for creation of reagentless alcohol biosensor
A. Ramanavičius, W. Schuhmann, K. Habermüller, V. Laurinavičius, L. Marcinkevičiene, I. Bachmatova, L. Gorton and E. Csoregi | 52 |
| 84 | Biological fluids alter the surface chemistry of nanostructured silicon semiconductors
S.C. Bayliss and L.D. Buckberry | 52 |
| 85 | The viability of mammalian cells on nanostructured silicon semiconductors
S.C. Bayliss and L.D. Buckberry | 53 |
| 86 | Characterization of the interaction of prothrombin with immobilized phospholipid membranes
R.R. Patel, J. Patel, K.A. Brown and C. Longstaff | 53 |

BIOCHEMICAL IMMUNOLOGY GROUP

Poster Session Time: Wednesday 23 September, 10.00 – 11.00

- | | | |
|----|--|----|
| 87 | Immunostimulatory peptides from fish waste hydrolysates
L. Gilmartin, J. Roper, R. Ravallec, A. Gildberg, E. Stenberg, J.E. Harris and L. Jervis | 53 |
|----|--|----|

MEMBRANE GROUP COLLOQUIUM

Membrane Protein Secretases

Poster Session Time: Wednesday 23 September, 10.00 – 11.00

- | | | |
|----|--|----|
| 89 | The effect of A β -amyloid peptides on the uptake of choline and noradrenaline by the human neuroblastoma SH-SY5Y
N.J. Webster, S. Hodges, C. Peers and P.F.T. Vaughan | 53 |
| 90 | Insulin-stimulated release of glycosylphosphatidylinositol-anchored proteins
S. Pang, S. Movahedi and N.M. Hooper | 54 |
| 91 | Proteolytic fragmentation of aminopeptidase N
L.D. Ofner and N.M. Hooper | 54 |
| 92 | Detergent solubility and proteolytic processing of the prion protein
A.R. Walmsley, F. Zeng and N.M. Hooper | 54 |
| 93 | Use of neopeptide antibodies to study membrane processing of CD23
T.J. Wright, R.A. Maciewicz and C.R.A. Hewitt | 54 |
| 94 | Sequence analysis and characterization of the rat orthologue of tumour-necrosis-factor- α -converting enzyme
A.J. Beaumont, J.A. Jury, J. Frayne, R. Devos, J. van der Heyden, L. Jeffrey, G.J. Price and L. Hall | 55 |
| 95 | Role of internalization in the regulation of phospholipase-C-coupled receptor desensitization and resensitization
A. Rae and A.B. Tobin | 55 |

MEMBRANE GROUP*Poster Session Time: Wednesday 23 September, 10.00 – 11.00*

- 96 The effect of poliovirus infection on mitochondrial function
A. Koundouris, C. Jonson, P.G. Sanders, G.E.N. Kass and M.J. Carter 55
- 97 Structure and mechanism of the bacterial protein toxin, pneumolysin
R. Gilbert, J. Rossjohn, M. Parker, T. Mitchell, A. Rowe, S. Chen, J. Jiménez, H. Saibil, O. Byron and P. Andrew 55
- 98 Phorbol-ester-induced juxtamembrane cleavage of angiotensin-converting enzyme is not inhibited by a disulphide-bridged stalk
S.L.U. Schwager, A.J. Chubb, R.R. Scholle, K. Naidoo, W.F. Brandt, C. Eckerskorn, E.D. Sturrock and M.R.W. Ehlers 56

MOLECULAR ENZYMOLOGY GROUP*Poster Session Time: Wednesday 23 September, 10.00 – 11.00*

- 99 Evolution of hexokinases
M.L. Cárdenas, A. Cornish-Bowden and T. Ureta 56
- 100 Ferredoxin NADP⁺ reductase: identification of key residues involved in NADPH binding and electron transfer
C. Leadbeater, D.J. Campopiano, R.L. Baxter and S.P. Webster 56
- 101 Characterization of ferredoxin (flavodoxin) NADP⁺ reductase and flavodoxin; key components of electron transfer in *Escherichia coli*
L. McIver, C. Leadbeater, D.J. Campopiano, R.L. Baxter and A.W. Munro 56
- 102 Photo-induced internal electron transfer in nitrite reductase from *Pseudomonas aeruginosa*
E.K. Wilson, A. Bellelli, P. Brzezinski, M. Arese, S. Grasso, S. Liberti, F. Cutruzzolà and M. Brunori 57
- 103 Cytochrome *P*-450 BM3: NMR, modelling, mutagenesis and substrate specificity
P. Tsan, C.F. Oliver, S. Modi, W.U. Primrose, M.J. Sutcliffe, L.Y. Lian and G.C.K. Roberts 57
- 104 Kinetic analysis of a unique fumarate reductase
M.K. Doherty, S.K. Chapman and G.A. Reid 57
- 105 Structure–function studies on Arg-289→Lys mutant flavocytochrome *b*₂
C.G. Mowat, A.D. Pike, S.K. Chapman, G.A. Reid, M. Gondry and F. Lederer 57
- 106 Cytochromes *c* from *Shewanella putrefaciens* NCIMB400
A.E. Hill 58
- 107 Characterization of L-mandelate dehydrogenase from *Rhodotorula graminis*
D.J. Robertson 58
- 108 Engineering non-physiological electron transfer
S.J. Sadeghi and G. Gilardi 58

Abstract no.

Page no.

MOLECULAR AND CELLULAR PHARMACOLOGY GROUP

Poster Session Time: Wednesday 23 September, 10.00 – 11.00

- 109 Mitogen-activated protein kinase/extracellular signal-regulated kinase kinase 2 (MEKK2) and MEKK3 activate both mitogen-activated protein kinase kinase 6 (MKK6) and MKK7 in intact cells
K. Deacon and J.L. Blank 58
- 110 The effect of protein kinase C on dynamin and endocytosis in *Schizosaccharomyces pombe*
W.G.C. Horsnell, S. Fletcher and N.T. Goode 59
- 111 The role of calcium in muscarinic receptor activation of extracellular signal-related protein kinase and c-Jun N-terminal kinase pathways
P.G. Wylie, R.A.J. Challiss and J.L. Blank 59
- 112 Vasopressin-induced translocation of S100 proteins in renal tissue discs *in vitro*
S. Brant, P. Sharma and A.T. Evans 59

PROTEIN AND PEPTIDE SCIENCE GROUP

Poster Session Time: Wednesday 23 September, 10.00 – 11.00

- 113 The nutritional toxicity of sweet lupin (*Lupinus angustifolius*) seed proteins
M.H. Rahman 59

Speaker manuscripts will be published in *Biochemical Society Transactions*
volume 27, part 2 (February 1999)