

# 669th Keele Meeting

## ABSTRACTS

---

Abstract no.

Page no.

### MORTON LECTURE

- E1 The need for expression expertise in solid-state NMR studies of membrane protein and peptides: successes and wish lists  
**A. Watts** 131

### SPEAKER ABSTRACTS

#### SOCIETY SPECIAL COLLOQUIUM

##### Structure and Function of A-Domains

*Speaker Session Time: Thursday 22 July, 09.15 – 16.45*

- A1 Structural studies of the integrin  $\alpha 2$ -I domain  
**J. Emsley** 131
- A2 Structure and function of von Willebrand factor type A (vWF-A) domains in complement and coagulation  
**S.J. Perkins** 131
- A3 Functional role of A-domains in type VI collagen  
**C.A. Shuttleworth** 131
- A4 The matrilins: a growing family of A-domain-containing proteins  
**M. Paulsson** 132
- A5 Integrin I-domains and their function  
**B. Leitinger** 132
- A6 The A-domain of a malaria protein mediates infectivity  
**M.R. Hollingdale** 132
- A7 Vitrin: the second member of a new branch of the von Willebrand factor type A (vWF-A) superfamily  
**R. Mayne** 132
- A8 The evolution of A-domains  
**D.S. Tuckwell** 133

Abstract no.	Page no.
<b>HOST COLLOQUIUM</b>	
<b>Molecular Control of Apoptosis</b>	
<i>Speaker Session Times:</i> <i>Tuesday 20 July, 09.00 – 15.30</i> <i>Wednesday 21 July, 09.15 – 15.30</i>	
B1 Control of apoptosis in cell-free systems <b>P.R. Clarke</b>	133
B2 Biochemical mechanisms of nuclear changes during apoptotic execution <b>K. Samejima</b>	133
B3 Caspases and commitment to cell death <b>V.L. Hedge</b>	133
B4 Mechanisms of neutrophil apoptosis and the regulation of inflammation <b>M. Whyte</b>	134
B5 Epstein–Barr virus (EBV) and apoptosis: viral mimicry of cellular pathways <b>L.S. Young</b>	134
B6 Death receptors, nuclear factor (NF)- $\kappa$ B activation and apoptosis: the potential for therapeutic intervention <b>S.N. Farrow</b>	134
B7 Poxvirus strategies to prevent apoptosis of infected cells <b>G.L. Smith</b>	134
B8 Apoptosis and the MHC <b>T. Rich</b>	135
B9 T cell apoptosis: mechanism and consequences <b>H.J.M. Brady</b>	135
B10 Bcl-2 related proteins and cancer <b>G. Packham</b>	135
B11 c-Jun and Bax: regulators of programmed cell death in developing neurons <b>J. Ham</b>	135
B12 Suppression of apoptosis by v-Abl protein tyrosine kinase <b>C. Dive</b>	136
<b>HORMONE GROUP COLLOQUIUM</b>	
<b>Gene Therapy: from Bench to Bedside</b>	
<i>Speaker Session Times:</i> <i>Tuesday 20 July, 09.00 – 16.10</i> <i>Wednesday 21 July, 09.10 – 12.50</i>	
C1 Lentivirus vectors for gene therapy <b>A.M.L. Lever</b>	136
C2 Favourable expression and safety profiles with “gutless” adenoviral vectors <b>S. Kochanek</b>	136
C3 Adeno-associated virus vectors; gene therapy and viral vectors, the gap is closing <b>R.J. Samulski</b>	136

<b>Abstract no.</b>	<b>Page no.</b>
C4 Herpes virus vectors for gene therapy in the nervous system <b>D.S. Latchman</b>	137
C5 Towards gene therapy for cystic fibrosis <b>C.F. Higgins</b>	137
C6 Indefinite heart allograft survival after adenovirus-mediated gene transfer of transforming growth factor (TGF) $\beta$ 1 or CTLA4 <b>I. Anegon</b>	137
C7 Immunotherapy of autoimmune disease by gene transfer <b>Y. Chernajovsky</b>	137
C8 The basic science of brain tumour gene therapy: advantages and challenges ahead <b>P.R. Lowenstein</b>	138
C9 Gene transfer approaches for the treatment of neurodegenerative diseases <b>P. Aebischer</b>	138
C10 Clinical trials of brain glioblastoma using retroviral vectors <b>D. Klatzmann</b>	138
C11 Gene delivery to the central nervous system (CNS) using non-viral vectors <b>L.W. Seymour</b>	138
C12 Targeting the hypothalamus: curing salt loss in Brattleboro rats <b>J.B. Uney</b>	139
C13 Cell-type-specific expression in the pituitary: physiology and cancer treatment <b>M.G. Castro</b>	139
C14 Genetic approaches to vaccination for lymphoma <b>R.E. Hawkins</b>	139

## **MEMBRANE GROUP/MOLECULAR AND CELLULAR PHARMACOLOGY GROUP**

### **Expression and Purification of Membrane Proteins**

*Speaker Session Times:*      *Wednesday 21 July, 08.45 – 16.55*  
*Thursday 22 July, 09.10 – 16.25*

D1 Membrane protein biosynthesis at the endoplasmic reticulum <b>S. High</b>	139
D2 Expression and purification of the mitochondrial uncoupling proteins (UCPs): a comparative study between <i>Escherichia coli</i> and <i>Saccharomyces cerevisiae</i> <b>B. Miroux</b>	140
D3 Expression of prokaryotic membrane transport proteins in <i>Escherichia coli</i> : successes and failures <b>A. Ward</b>	140
D4 Functional expression in <i>Escherichia coli</i> and purification of a G-protein-coupled receptor for neurotensin <b>R. Grishammer</b>	140
D5 Overexpression, refolding and crystallization of an 80 kDa outer membrane iron transporter from the outer membrane of <i>Escherichia coli</i> <b>S.K. Buchanan</b>	140

Abstract no.	Page no.
D6 Refolding of G-protein-coupled receptors from inclusion bodies produced in <i>Escherichia coli</i> <b>H. Kiefer</b>	141
D7 Amplified expression and membrane reconstitution of transport protein <b>B. Poolman</b>	141
D8 Characterization and purification of a plant sucrose transporter produced in <i>Saccharomyces cerevisiae</i> <b>J. Stolz</b>	141
D9 Heterologous expression of the human red-cell anion exchanger (Band-3; AE1) <b>J.D. Groves</b>	141
D10 Purification and crystallization of His <sub>6</sub> -tagged membrane proteins produced in transgenic tobacco <b>R. Flachmann</b>	142
D11 The use of baculovirus vectors for the production of membrane proteins in insect cells <b>R.D. Possee</b>	142
D12 Improving the expression of the serotonin transporter in insect cells by co-expression of molecular chaperones <b>C.G. Tate</b>	142
D13 Recombinant baculovirus-based functional expression of visual pigments: optimization of expression level, purification and reconstitution <b>W.J. DeGrip</b>	142
D14 Heterologous expression of nicotinic acetylcholine receptors in mammalian and <i>Drosophila</i> cell lines: the importance of the host cell environment <b>N.S. Millar</b>	143
D15 Expression and purification of rhodopsin and its mutants from stable mammalian cell lines for NMR studies <b>P.J. Reeves</b>	143
D16 Expression of seven transmembrane receptors in mammalian cells <b>M. Needham</b>	143
D17 Transient expression technologies, their application and scale-up: 5-hydroxytryptamine-3 (5HT-3) receptor case study <b>H. Blasey</b>	143

## POSTER ABSTRACTS

### SOCIETY SPECIAL COLLOQUIUM

#### Structure and Function of A-Domains

*Poster Session Times:*      *Tuesday 20 July, 17.00 – 18.30*  
    *Wednesday 21 July, 17.00 – 18.30*  
    *Thursday 22 July, 10.00 – 11.00*

1 Investigating the metal-ion-dependent adhesion site (MIDAS) function in collagen VI assembly <b>C. Baldock, H. Fakhoury, S.G. Ball, C.A. Shuttleworth and C.M. Kielty</b>	144
--	-----

Abstract no.	Page no.
2 <i>In vitro</i> assembly of type VI collagen S.G. Ball, C.M. Kielty and C.A. Shuttleworth	144
3 The collagen sequence, GFOGER, is a binding site for integrin $\alpha 1$ and $\alpha 2$ A-domains and fully mediates $\alpha 2\beta 1$ -dependent cell recognition by collagen C.G. Knight, L.F. Morton, A.R. Peachey, D.S. Tuckwell, R.W. Farndale and M.J. Barnes	144
4 Identification of the C3B binding site in the recombinant von Willebrand factor type-A (vWF-A) domain of complement factor B by laser desorption/ionization MS and homology modelling J. Hinshelwood, D.I.R. Spencer and S.J. Perkins	144
5 The A-domain of integrin $\alpha_E\beta_7$ is involved in binding to E-cadherin J.M.G. Higgins, M. Cernadas and M.B. Brenner	145

## HOST COLLOQUIUM

### Molecular Control of Apoptosis

*Poster Session Times:*  
 Tuesday 20 July, 17.00 – 18.30  
 Wednesday 21 July, 17.00 – 18.30  
 Thursday 22 July, 10.00 – 11.00

6 Anti-hepatotoxic activity of caffeic acid: a phenolic compound from <i>Artemisia scoparia</i> A.H. Gilani, K.H. Janbaz and S.A. Saeed	145
7 Jun protein is involved in suppression of apoptosis during herpes simplex virus type-1 infection G. Zachos and J. Conner	145
8 Inhibition of apoptosis by nitric oxide donors in guinea-pig gastric mucous cells K. Johal, C.L. Potter and P.J. Hanson	145
9 4-Hydroxyphenyl retinamide-induced apoptosis in squamous cell carcinoma cells of vulva: role of $Ca^{2+}$ E. Ulukaya and E.J. Wood	146
10 Nitric-oxide-induced cell death of PC12 cells A. Price and G.C. Brown	146
11 Effects of nitric oxide on activity of caspases <i>in vitro</i> and in macrophages V. Borutaite and G.C. Brown	146
12 The Golgi fragments during apoptosis J.G. Pryde and A. Walker	146
13 Micro-environmental survival stimuli combine to regulate Bcl- $X_L$ and Bax and suppress drug-induced apoptosis in B lymphoma cells S.T. Taylor, J.A. Hickman and C. Dive	147
14 v-Abl-mediated up-regulation of p21 <sup>WAF-1</sup> in growth-arrested and proliferating myeloid cells S. Khanna, R. Brown, K. Ball and C. Dive	147
15 Activation of v-Abl tyrosine kinase suppresses apoptosis and regulates phosphorylation of protein kinase B (PKB) and the pro-apoptotic protein Bad D. James and C. Dive	147

Abstract no.	Page no.
16 Isolation and characterization of Epstein–Barr virus (EBV) BHRF1 homologues from <i>Herpesvirus papio</i> T. Williams and S. Hazlewood	147
17 Isolation and characterization of apoptosis-controlling genes from primate herpesviruses M. Howell and S. Hazlewood	148

### HORMONE GROUP COLLOQUIUM

#### Gene Therapy: from Bench to Bedside

*Poster Session Times:*  
 Tuesday 20 July, 17.00 – 18.30  
 Wednesday 21 July, 17.00 – 18.30  
 Thursday 22 July, 10.00 – 11.00

18 Poster withdrawn	148
19 A physiologically regulated adenoviral vector for the treatment of ischaemic disease K. Binley, L. Griffiths, S. Iqball, H. Spearman, S.M. Kingsman, A. Kingsman and S. Naylor	148
20 Development of retroviral transduced haematopoietic stem cells towards a novel approach to cancer gene therapy J.S. Freeth, S. Iqball, J. Rohll, S. Watt, C.E. Lewis, S.M. Kingsman and S. Naylor	148
21 A gene transfer strategy to manipulate nitric oxide in the vasculature of a hypertensive rat model M.Y. Alexander, M.J. Brosnan, J. Fennell, A.M. Devlin, C.A. Hamilton and A.F. Dominiczak	149

### MEMBRANE GROUP COLLOQUIUM

#### Expression and Purification of Membrane Proteins

*Poster Session Times:*  
 Tuesday 20 July, 17.00 – 18.30  
 Wednesday 21 July, 17.00 – 18.30  
 Thursday 22 July, 10.00 – 11.00

22 Comparative study of purine transporters in drug-sensitive and drug-resistant <i>Trypanosoma equiperdum</i> J.E. Leadsham and S.M. Jarvis	149
23 Transport of purine nucleobases by COS-1 cells occurs via a nitrobenzylthioinosine-insensitive ( <i>eti</i> ) nucleoside transporter D. Johnson and S.M. Jarvis	149
24 Characterization of purine transporters in L6 rat skeletal-muscle cells H.L. Maddock, S. Vine, J.D. Pearson and S.M. Jarvis	149
25 Expression of isotopically labelled membrane transport proteins H. Venter, R.B. Herbert, P.J.R. Spooner, A. Watts and P.J.F. Henderson	150
26 Overexpression, purification and structural analysis of the <i>Escherichia coli</i> L-fucose-H <sup>+</sup> membrane transport protein, FucP J. Clough and P.J.F. Henderson	150
27 <i>In vitro</i> expression and metabolism of presenilin-1 protein C. Houghton, J. Arnold, M. Shearman, S. Dawson, M. Landon, R.J. Mayer and R. Layfield	150

Abstract no.	Page no.
28 Multiplex TaqMan® combined reverse transcriptase (RT)-PCR: a novel method for the quantification of mRNA levels in receptor-transfected mammalian cell clones <b>P.R. Murdock, K.B. Tan, N.C. Herrity, G.I. Rennie and O. Jenkins</b>	150
29 Electrochemical detection of secreted placental alkaline phosphatase <b>E. Kelso, J. McLean and M. Cardosi</b>	151
30 Optimization of human $\mu$ opioid receptor expression in baculovirus-infected insect cells <b>D. Massotte, L. Baroche, C. Pereira, T. Suply, B. Perret, B. Kieffer and F. Pattus</b>	151
31 Expression of human $\alpha_2C2$ -adrenergic receptor in different host-vector systems <b>H. Heimo, V.-P. Jaakola, A. Kapat, P. Heikinheimo, M. Rantanen, T. Glumoff and A. Goldman</b>	151

#### BIOCHEMICAL IMMUNOLOGY GROUP

*Poster Session Times:*                      *Tuesday 20 July, 17.00 – 18.30*  
    *Wednesday 21 July, 17.00 – 18.30*  
    *Thursday 22 July, 10.00 – 11.00*

32 Effect of rabbit IgG anti-xanthine oxidoreductase antibodies on NADH and oxidase activities of human and bovine xanthine oxidoreductase <b>H. Djellili, F. Larguet, L. Arrar and M. Benboubetra</b>	151
33 Studies on semen and anti-sperm antibodies in male infertility <b>N. Alam and M.A. Rahman</b>	152

#### MOLECULAR ENZYMOLOGY GROUP

*Poster Session Times:*                      *Tuesday 20 July, 17.00 – 18.30*  
    *Wednesday 21 July, 17.00 – 18.30*  
    *Thursday 22 July, 10.00 – 11.00*

34 Kinetic inhibition studies of xanthine oxidase activity of both human and bovine milk xanthine oxidase (XO) by allopurinol, alloxanthine and uric acid <b>F. Larguet, H. Djellili, A. Baghiani and M. Benboubetra</b>	152
---	-----

#### NEUROSCIENCE GROUP

*Poster Session Times:*                      *Tuesday 20 July, 17.00 – 18.30*  
    *Wednesday 21 July, 17.00 – 18.30*  
    *Thursday 22 July, 10.00 – 11.00*

35 Astrocytes release and preserve antioxidants: implications for neuroprotection <b>R. Stone, V.C. Stewart, R.D. Hurst , J.B. Clark and S.J.R. Heales</b>	152
---	-----

Abstract no.

Page no.

**NUCLEIC ACIDS AND MOLECULAR BIOLOGY GROUP**

*Poster Session Times:*      *Tuesday 20 July, 17.00 – 18.30*  
   *Wednesday 21 July, 17.00 – 18.30*  
   *Thursday 22 July, 10.00 – 11.00*

- 36 Selective inhibition of phlebo-, retro-, flavo- and pox-viruses by nucleoside and PFA analogues  
**J.M. Bailey and K. Nelson** **152**

**PROTEIN AND PEPTIDE SCIENCE GROUP**

*Poster Session Times:*      *Tuesday 20 July, 17.00 – 18.30*  
   *Wednesday 21 July, 17.00 – 18.30*  
   *Thursday 22 July, 10.00 – 11.00*

- 37 The decrease of tabtoxin produced by *Pseudomonas tabaci* in batch culture  
**D. Harzallah and L. Larous** **153**

---

Speakers' papers will be published in *Biochemical Society Transactions*  
volume 27, part 6 (December 1999)