

Epithelia and Membrane Transport Themed Meeting

Focused symposium: "Epithelial form, function and environment"

Location: Newcastle University, UK

Date: Sunday 6 - Tuesday 8 September 2009

Organised by: Dr Andreas Werner and Dr Mike Gray, Newcastle University



Sunday 6 September 2009

1200 Registration, including lunch

1345 Welcome and introduction
Mike Gray

Development of epithelial structures

Chair: *Alison Howard and Barry Hirst (Newcastle University, UK)*

1400 **Nick Wright (Cancer Research UK, London, UK)**
Stem cells and the organisation of the gut

1430 **David Tosh (University of Bath, UK)**
Conversion of pancreas to liver

1500 **John Sayer (University of Newcastle, UK)**
Nephronophthisis – disease mechanisms of a ciliopathy

1530 - 1600 Refreshments

Chair: *Andreas Werner and Georgina Carr (Newcastle University, UK)*

1600 **Markus Affolter (University of Basel, Switzerland)**
Branching morphogenesis: a closer view using live imaging

1630 **Diane Barber (University of California, San Francisco, USA)**
Signaling to the cytoskeleton by pH sensing

1700 C1 **Evidence of apical to basal organisation of microtubules in the mpkCCDc14 mouse collecting duct cell line**
J. Thanabalasingham and [D. Marples](#)

1715 C2 **Stretch-activated channels in the postnatal rat pulmonary epithelium**
[A. Benjamin](#), M. Orogo-Wenn and D. Walters

1730 C3 **Calcium-dependent secretion is differentially affected by genetic background in colon of different mouse strains**
[C.A. Flores](#), L.P. Cid and F.V. Sepúlveda

1745 - 1845 Posters, including Blue Riband Poster Competition, and Trade Exhibition

1930 Symposium Speakers' Dinner

Monday 7 September 2009

0800 Morning coffee

Physiology and pathophysiology of epithelial solute transport

Chair: *Colin Brown and David Thwaites (Newcastle University, UK)*

0900 Jashvant Unadkat (University of Washington, USA)

Molecular Imaging of P-glycoprotein activity at the human and non-human primate blood-brain and blood-placental barriers

0930 Stephan Broer (Australian National University, Australia)

Disorders of neutral amino acid transport

1000 C4 **Iodothyronine interactions with System L1 amino acid transport in mouse 3T3-L1 adipocytes**

F.E. Mitchell and P.M. Taylor

1015 C5 **Slc26 anion transporters involvement in acid-activated duodenal HCO₃⁻ secretion**

A.K. Singh, B. Riederer, A. Krabbenhöft, J. Bonhagen, B. Rausch, R. Engelhardt and U. Seidler

1030 C6 **Glucocorticoid-inducible leucine zipper protein 1 (GILZ1) induces membrane Na⁺ current (I_{Na}) in hormone-deprived airway epithelial cells**

G. Watt, M. Gallacher, S.C. Land, N. McTavish and S.M. Wilson

1045 - 1115 Refreshments

Chair: *Mike Gray and Barry Argent (Newcastle University, UK)*

1115 Peter Agre (Duke University, North Carolina, USA)

Aquaporin water channels: from atomic structure to malaria

1145 C7 **Epilepsy, Ataxia, Sensorineural deafness, Tubulopathy (EAST) syndrome - KCNJ10 involved in renal salt and Mg²⁺ handling**

A.A. Zdebik, D. Bockenhauer, H.C. Stanescu, G. Landouere, W. van't Hoff, R. Kleta, S. Feather, A. Dobbie, E. Sheridan and R. Warth

1200 C8 **Functional characterization of mutations of the epithelial sodium channel (ENaC) associated with atypical cystic fibrosis**

R. Rauh, R. Huber, A. Tzschoppe, A. Diakov, J. Korbmacher, B. Krueger, S. Haerteis and C. Korbmacher

1215 C9 **Role of CFTR in bicarbonate secretion by Calu-3 airway epithelial cells**

D. Kim, M.C. Steward and L. Best

1230 C10 **Cystic fibrosis transmembrane conductance regulator regulates an apical chloride-bicarbonate exchanger in airway submucosal gland epithelial cells**

J.P. Garnett, M.A. Gray, E. Hickman, R. Burrows, and A.W. Cuthbert

1245 C11 **Electrogenic and electroneutral HCO₃⁻ secretion in the possum ileum, a model HCO₃⁻ secreting epithelium**
M. Gill, R.C. Bartolo, A.G. Butt and C. Bartolo

1300 - 1400 Lunch, Posters and Trade Exhibition

Chair: *Barry Hirst and Ruth Valentine (Newcastle University, UK)*

1400 Edith Brot-Laroche (University of Paris, France)
Intestinal sugar absorption via GLUT2: from mice to humans

1430 Dianne Ford (University of Newcastle, UK)
Epithelial zinc transport and its regulation in health and disease

1500 C12 **Direct effects of erythropoietin on iron absorption by human intestinal epithelial cells**
B. Chung, C. Rapisarda, K. Pourvali and P. Sharp

1515 C13 **Ferroportin 1 is expressed on basolateral membranes of kidney proximal tubule cells and iron excess increases FPN1 trafficking to the membrane**
C.P. Smith, W. Lui, N.A. Wolff, W. Lee, F. Thévenod and R.A. Fenton

1530 C14 **Differential methylation of the SLC30A5 zinc transporter gene in cancerous compared with normal human colon epithelium**
J. Mathers, D. Ford, L.J. Coneyworth, G. Davison, C. Blackwell, R. Valentine and D. Ford

1545-1615 Refreshments

Chair: *Nick Simmons (Newcastle University, UK)*

1615 C15 **A simple model for nephrolithiasis: *Drosophila* Prestin (Slc26a5) functions as a Cl⁻/Oxalate exchanger in the gut with kinetics similar to mammalian Slc26a6**
J. Dow, P. Cabrero, T. Hirata, M. Chang and M.F. Romero

1630 C16 **Voltage-dependence of H⁺ absorption in the larval posterior midgut epithelium of *Drosophila***
S. Shanbhag and S. Tripathi

1645 C17 **Epidermal Growth Factor chronically regulates chloride secretion across colonic epithelial cells**
M.S. Mroz, F. Toumi, F. O'Mahony and S.J. Keely

1700-1800	Biller Prize Lecture introduced by: Nick Simmons <i>The physiological roles of urea transporters</i> Gavin Stewart (University College Dublin, ROI)
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1800-1900 Posters, including Blue Riband Poster Competition, and Trade Exhibition

2000 Society Dinner, As You Like It, Jesmond

Tuesday 8 September 2009

0800 Morning coffee

Epithelia under stress

Chair: **Mike Gray and Jeff Pearson (Newcastle University, UK)**

0900 **Richard Boucher (University of North Carolina, USA)**

0930 **Ole Petersen (University of Liverpool, UK)**
Pathophysiology of epithelial Ca²⁺ signalling

1000 C18 **Cystic fibrosis transmembrane conductance regulator-dependent expression of SLC26A7 in the thyroid**
P. Fong

1015 C19 **Spatial segregation of calcium release and uptake in secretory epithelium**
G. Lur, O.V. Gerasimenko, O.H. Petersen, R.D. Burgoyne, A.V. Tepikin

1030 C20 **Non-conjugated bile acids induce mitochondrial damage and inhibit bicarbonate transport mechanisms in pancreatic duct cells**
P. Hegyi, J. Maléth, Z. Rakonczay, V. Venglovecz, Z. Rázgam and L. Tiszlavicz

1045 - 1115 Refreshments

Chair: **Catriona Anderson and Andreas Werner (Newcastle University, UK)**

1115 **Marshall Montrose (University of Cincinnati, USA)**

1145 **James M Anderson (University of North Carolina, USA)**
Creating selectivity in paracellular transport

1215 C21 **Distribution of vascular connexin proteins in the airway epithelium of the rat: evidence for myo-epithelial gap junctions**
M. Zbaeda, T. Kamishima, J. Quayle and K. Stuart-Smith

1230 C22 **The anti-secretory response to oestrogen in the distal colon is dependent on synergistic transcriptional and signal transduction events**
F. O'Mahony, R. Alzamora, H. Chung, W. Thomas and B.J. Harvey

1245-1345 Lunch, Posters and Trade Exhibition

Chair: **Judith Hall and Dianne Ford (Newcastle University, UK)**

1345 **Tomas Ganz (University of California, USA)**

1415 C23 **Lack of restoration *in vivo* by K⁺ channel modulators of jejunal fluid absorption after heat stable Escherichia coli enterotoxin (STa) challenge**
M.L. Lucas, L.C. Gilligan, C. Whitelaw and J.D. Morrison

1430 C24 **Mitochondria are crucial for maintaining of store-operated Ca²⁺ influx and ER refilling under prolonged acinar cell stimulation**
N. Fedirko, O. Kopach, I. Kruglikov and N. Vojtenko

1445	C25	Modulation of Ca²⁺ signalling in mouse lacrimal acinar cells by nitric oxide <u>J.C. Malone</u> , L.J. Dawson and P.M. Smith
1500	C26	Primary human bronchial epithelial cells respond to a bile acid challenge by up regulating interleukin-8 production <u>M. Brodlie</u> , C. Ward, A. Aseeri, M.D. Wilcox, I.A. Brownlee and J.P. Pearson
1515-1545		Closing remarks and close of meeting (including Theme business remarks) Andreas Werner
