

EPITHELIAL TRANSPORT GROUP  
NEWSLETTER

December, 2000

**Message from the Chair of the Epithelial Transport Group**

With a new year ahead of us, I trust that this year has been good to you. It has been good for the Epithelial Transport Group (ETG). Members of the ETG come from a diversity of disciplines and ETG Symposia and Featured Topics attract wide appeal and large attendance. We have an active Steering Committee, we have launched a newsletter, and we have revised the Topic Category List of ETG to reflect the breadth and dynamics of epithelial research. APS continues to support our activities and goals.

Since the spring 2000 edition of our newsletter, three new members have been elected to the Steering Committee: Michael E. Duffey (SUNY, Buffalo, NY), Catherine M. Fuller (Birmingham, AL), and John B. Pritchard (NIEHS, Research Triangle Park, NC). It is my pleasure to welcome Michael, Catherine and John to the board and to wish them a fruitful and rewarding tenure. They will serve for 3 years until 31 May 2003, but may serve longer in case of election to the executive committee. In this issue we call for nominations for 2 additional members to the Steering Committee of ETG.

The tasks before us for next year are 1) the adoption of bylaws, and 2) the recruitment of new members to the Epithelial Transport Group. These are reasonable goals that we can reach, and that I have set for my remaining term as chair of the ETG.

Next to the usual columns in this newsletter, I would like to encourage your submission of proposals for Symposia and Featured Topics for EB 2002, and your self-nomination for service on our Steering Committee. In addition, I draw your attention to excellent support for short- and long-term (sabbatical) research projects in Germany under the auspices of the Alexander-von-Humboldt Stiftung.

With best wishes for your good health, good relations, good research and good funding,

Cheers,  
Klaus W. Beyenbach  
Chair, Epithelial Transport Group  
<kwb1@cornell.edu>

## Call for Nominations for New Members on the ETG Steering Committee

As the Table below shows, Beyenbach will become past chair and Liedtke and Cuppoletti will complete their terms on the Steering Committee effective June 1, 2001. Accordingly, your nominations for two (2) new members serving for three (3) years are solicited. Please submit your recommendation before January 31, 2001 to

Prof. Thomas Kleyman, M.D.  
Chief, Renal-Electrolyte Division  
Professor of Medicine  
University of Pittsburgh  
(412) 647-3121  
email: [kleyman@pitt.edu](mailto:kleyman@pitt.edu)

We are particularly interested in self-nominations since they profess a willingness to contribute to the aims of the ETG.

### EPITHELIAL TRANSPORT STEERING COMMITTEE

Position	Name	Term of office
Chair	Klaus W. Beyenbach	June 1, 1999 – May 31, 2001
Secr./Treasurer	Thomas Kleyman	June 1, 1999 – May 31, 2002
Newsletter Editor	Carole M. Liedtke	June 1, 1999 – May 31, 2001
Past-Chair	John Cuppoletti	June 1, 1999 – May 31, 2001
Member	Michael E. Duffey	June 1, 2000 – May 31, 2003
Member	Catherine M. Fuller	June 1, 2000 – May 31, 2003
Member	John B. Pritchard	June 1, 2000 – May 31, 2003

## Call for Symposia and Featured Topics for Experimental Biology 2002

APS supports one (1) symposium and two (2) Featured Topics offered by the Epithelial Transport Group. Symposia (2.5-3 hours) are funded at \$ 4,000. In addition, APS waives registration fees for the chair and invited speakers. Featured Topics (2.5-3 hours) are funded at \$ 1,000. Registration fees are not waived.

We will follow the same selection process of ETG Symposia and Featured Topics that has worked well this year: a pre-selection followed by an invitation for a formal application.

For the pre-selection, please submit only the title (topic) of the ETG Symposium or Featured Topic and the name of the chair before March 15, 2001 to

Prof. Catherine Fuller  
Department of Physiology and Biophysics  
1918 University Boulevard, 830 MCLM  
University of Alabama at Birmingham  
Birmingham, AL 35294-0005  
Phone (205) 934-6085  
FAX (205) 934-1445  
Email: [fuller@physiology.uab.edu](mailto:fuller@physiology.uab.edu)

The Steering Committee will then select 3 proposals for further development.

Experimental Biology 2002 will take place in New Orleans, from April 20-24. Participating societies include APS, ASPET (Pharmacology and Experimental Therapeutics), ASIP (Investigative Pathology), ASNS (Nutritional Sciences), AAI (Immunology), AAA (Anatomy), and ASBMB (Biochemistry and Molecular Biology).

## EB 2001 Events of Interest to the Epithelial Transport Group

Once again, the representatives of the Epithelial Transport Group, the Renal Physiology Section, and the Cell and Molecular Physiology Section, serving on the APS Program Committee, have pooled and integrated their resources and ideas to come up with a broad offering of topics and subjects of interest to all of us. Below is a sampling of that effort.

Section	Symposium/Featured Topic	Chair
Epithelial Transport Group	Structure and Gating of Epithelial Ion Channels. Ion Transport in Gametes and Reproductive Epithelia. Molecular Mechanisms of Bicarbonate Transport.	Thomas Kleyman Patrick Wong & Sylvie Breton  Michael Romero & Paul M. Quinton
Distinguished Lectureships	Structure, Function, and Biogenesis of a Model Cation Pump. Abnormal Regulation of ENaC in the Collecting Duct.	Carolyn Slayman  James Schafer
X-Sectional Symposia	Membrane Fusion.	Dennis Brown
Guest Society Symposia	Regulation of Fluid and Electrolyte Balance in the GI Tract. DNA Microarray in Bioengineering and Physiology.	Kim E. Barrett & Richard H. Moseley  Shu Chien
APS Symposia	Tight Junctions: Convergence of Molecular and Physiological Insights. Adaptive Regulation of Epithelial Solute Transporters. Effects of Changes in Blood Pressure on Renal Transporters. Renal and Comparative Physiology of Urea Transporters. Model Organisms: Functional Genomics of Membrane Transport. Protein-protein Interactions in Signal Transduction.	James M. Anderson  Barry H. Hirst & Ronaldo P. Ferraris Alicia McDonough  Jeff M. Sands & Mark A. Knepper Kevin Strange  Edward J. Weinman & Shirish Shenolikar
APS Featured Topics	Cellular Mechanisms of Regulated Secretion in the GI Tract. Physiology of Urea Transporters. Hypertonicity Stress: New Sites of Recognition Mechanisms and Modifications of Alveolar Epithelial Fluid Transport in the Mammalian Lung. Electroneutral Ion Transport in the Central Nervous System. Ion Channel Remodeling in Cardiovascular Disease. Cell Stress and Protein Kinases: Integrated Signalling in vivo.	Catherine S. Chew & John G. Forte Robert Gunn & Jeff Sands H. Moo Kwon Michael M. Mathay  John Payne  Nancy Rush & Craig H. Gelband  Kenneth B. Storey

**EB '01 Workshop: The APS Women in Physiology Committee and the ASPET Committee on Women in Pharmacology** are co-organizing a Workshop designed to mentor young scientists of both genders on developing effective tools to be able to write, review, and publish manuscripts in APS and

ASPET Journals. The seven panelists will draw on their experiences as Editors/Associate Editors of APS and ASPET Journals to provide participants with useful information on scientific writing. You will learn such things as the importance of writing a clear Introduction, the differences between reiterating your results and discussing your data in the Discussion, and what reviewers look for when they read your submitted manuscript. This workshop will use an interactive forum to engage the audience in activities designed to make scientific writing and reviewing an exciting challenge rather than a necessary chore. The target audience is graduate students, postdoctoral fellows, and junior faculty members. *Check final program for date, time and location.*

## Meeting Announcements

**Keystone Symposium**, March 5-11, 2001, Tahoe City, CA  
 Membrane Protein Structure/Function Relationships  
 Organizers H.Ron Kaback & Ernest M. Wright  
[www.keystonesymposia.org](http://www.keystonesymposia.org)

## 34<sup>th</sup> International Congress of Physiological Sciences in Christchurch, New Zealand, Aug. 26-31, 2001

Symposia and sessions of interest to the Epithelial Transport Group

Symposium	Chair
Cell Bicarbonate Transport	S. Alper (Harvard)
Cell/Matrix Interaction	R.K. Reed (Bergen)
Cell Volume Regulation	F. Lang (Tuebingen)
Cystic Fibrosis	R.C. Boucher (Chapel Hill)
Fluid and Electrolyte Transport in the Eye	M.M Civan (U. Penn.)
Formation & Function of Local Angiotensin Systems	L.G. Navar (Tulane)
Gastric Acid Secretion	G. Sachs (Los Angeles)
Ion Channel Gating	C.M. Armstrong (U. Penn.)
Ion Sensors	E.M. Brown (Harvard)
Regulation of Epithelial Transporters by Protein Kinase	P.S. Aronson (Yale)
Membrane Targeting	M. Cerejido (Mexico City)
Modelling Cellular Complexity	R.L. Winslow (Johns Hopkins)
Modular K Channels	G. Giebisch (Yale)
Molecular Motors	R. Vale (San Francisco)
Mutant Ligand-gated Ion Channels	D.E. Clapham (Harvard)
Mutant Voltage-gated Ion Channels	F. Lehmann-Horn (Ulm, Ger.)
Neuronal, Endocrine and Immune Signalling Systems of the Gut	J.B. Furness (Melbourne)
New Insights on Exocytosis, Endocytosis, and Vesicle Recycling	E. Neher (Goettingen)
Organic Anion/Cation Transport	G. Burckhardt (Goettingen)
Regulation of Epithelial Secretion	J.A. Young (Sydney)
Water Balance	R.W. Schrier (Colorado)
Water Transport Controversies	L. Reuss & B.H. Hirst (Galv.)

## Satellite Meetings in Australia and New Zealand

For investigators of epithelia attending the International Congress in New Zealand the following satellite meetings may be of interest.

Satellite Meetings	Site & Date	Chair
Blood-Brain Barrier Mechanisms from Molecule to Patient	Tasmania, Australia Aug. 21-24, 2001	N. Saunders (Tasmania)
Cell and Molecular Biology of Membrane Transport Systems and Disorders	Queensland, Australia Sept. 2-5, 2001	D. Markovich (Queensland)
Digestive Physiology and Metabolism: Something to Absorb	Palmerston North, NZ Aug. 20-22, 2001	T. Wester (Palmerston North)
Electrolyte Transport across Exocrine Epithelia	Blue Mountains, AUS Aug. 22-24, 2001	J. Young & D.Cook (Sidney)
Molecular Mechanisms in Cell Volume Regulation	Mt. Cook Natl. Park, NZ Aug. 22-24, 2001	J. Lederer & J. Bedford
Renin Angiotensin Aldosterone – From Molecule to Malady	Upper Hut, NZ Aug. 23-24, 2001	J.P. McNatty (NZ)
Structure and Function of Ion Channels	Blue Mountains, AUS Sept. 2-5, 2001	T. Lewis (Darlingshurst, AUS)

**Focus Group on Urea Transport:** There will be a Designated Poster Focus Group on Urea Transport at the 34th International Congress of Physiological Sciences in Christchurch, New Zealand, 26-31 August, 2001. We would like to ask you to submit an abstract on your work to be included in the poster session and to attend the meeting. This focus group will allow these posters to be clustered in one area and have an accompanying discussion room for discussion and summaries of the posters using overhead projection. The Congress is being organized by Dr. Tony McKnight one of the first people to suggest that the Jk antigen was the urea transporter in red cells. For US attendees, the American Physiological Society has a travel grant application form at [http://www.the-aps.org/meetings/internat/mtg\\_iups2001.htm](http://www.the-aps.org/meetings/internat/mtg_iups2001.htm). For those in other countries, you should apply to your national society member of the International Union of Physiological Sciences to see if they have any travel grants to the Congress. The Congress.

## OPPORTUNITIES FOR RESEARCH AND SCHOLARSHIP IN GERMANY

### HUMBOLDT RESEARCH FELLOWSHIPS FOR FOREIGN SCHOLARS

Up to 600 research fellowships are granted annually to highly qualified scholars holding a doctorate and not yet having reached the age of 40, enabling them to carry out research projects of their own choice at research institutes in Germany.

Applications may be submitted at any time by scholars from all nations and academic disciplines (no quotas); selection meetings are held every March, June/July and November.

Sponsorship period: initially 6 - 12 months; extensions of up to 24 months may be granted on application. Up to six months of this period may be spent at research institutes in Europe.

Monthly research fellowship rates: between DM 3,600 and DM 4,400 net; additional assistance: travel expenses, family grants, an initial allowance, grants for German language courses etc.

Application requirements: an academic degree comparable to a doctorate (Ph.D., C.Sc. or equivalent), high academic qualification, academic publications, a specific research plan, a good command of the German language (humanities and social sciences scholars) or at least a good command of English (natural scientists).

## **HUMBOLDT RESEARCH AWARDS FOR FOREIGN SCHOLARS**

Up to 150 Humboldt Research Awards are granted annually to internationally recognized foreign scholars.

Nominations for awards may be made at any time by eminent German scholars; direct applications are not accepted; no age limit.

Selection meetings: twice a year in March and October. Award winners are invited to spend a research stay of 4 - 12 months at German institutes.

Total value of awards: up to DM 150,000.

Nomination requirements: full professor or equivalent standing, internationally recognized research record.

## **MAX PLANCK RESEARCH AWARDS TO FOREIGN AND GERMAN SCHOLARS FOR INTERNATIONAL COOPERATION**

Every year, about 12 Max Planck Research Awards for International Cooperation are granted to highly qualified and internationally recognized foreign and German scholars (about six awards each), enabling them to carry out long-term, project-orientated joint research with German or foreign partners. This programme is jointly implemented by the Humboldt Foundation and the Max Planck Society.

Nomination: for scholars of all disciplines and nations. Nominations are initiated from Germany.

Rectors/presidents of universities and parent organizations of non-university research establishments are entitled to nominate scholars for this award. Selection takes place every autumn.

Value of awards: up to DM 250,000 for bilateral cooperation between foreign and German researchers, including travel to partner-institutes, periods of research at partner-institutes, joint academic conferences, workshops etc. and any necessary additional funds for purchase of material or payment of assistants.

Nomination requirements: outstanding, internationally recognized research work.

In addition there are programs for the support of American graduate students in Germany (Bundeskanzler Stipendiaten Program) German post-docs in American laboratories (Feodor Lynen Research Fellowships) and fellowships for scholars from developing countries (George Forster Research Fellowships).

## **FOLLOW-UP PROGRAM**

From 1953 to 2000, more than 20,000 foreign scholars from 128 nations were sponsored by the AvH. The Foundation maintains contact with these scholars by inviting them to spend further short periods conducting research in Germany, by donation of academic literature and scientific equipment (the latter only to countries with low foreign exchange reserves) and by grants towards the cost of attending academic conferences in Germany and towards printing costs.

For further information you may contact the Website of the Humboldt Stiftung: <http://www.avh.de/>

The home address of the Stiftung is  
Alexander von Humboldt-Stiftung (AvH)  
Jean-Paul-Str. 12  
D-53137 Bonn  
Federal Republic of Germany  
Phone: 011-49-228-8330  
FAX: 011-49-228-833199  
Email: [post@alex.avh.uni-bonn.de](mailto:post@alex.avh.uni-bonn.de)

Many members of the ETG have had Humboldt support. Feel free to contact Klaus W. Beyenbach ([kwb1@cornell.edu](mailto:kwb1@cornell.edu)) to talk to one or more 'Humboldtians' about their experiences.

**ASSISTENTENSTELLE IN HANNOVER:** Am Physiologischen Institut der Tierärztlichen Hochschule Hannover ist ab 1.1.2001 eine C1-Stelle zu besetzen. Unsere Arbeitsgruppe beschäftigt sich mit der Neurobiologie des Gastrointestinaltraktes und untersucht die neurophysiologischen und neurochemischen Eigenschaften des enterischen Nervensystems, dem sogenannten "Bauchgehirn". Ziel ist die neurophysiologische und funktionelle Charakterisierung von Schaltkreisen im enterischen

Nervensystem unter physiologischen und pathophysiologischen Bedingungen. Der Schwerpunkt der Untersuchungen liegt auf der optischen Messung der Nervenzellaktivitäten in Präparaten von Mensch, Meerschweinchen und Maus mit Photodioden- und CCD-Systemen. Die Mitwirkung an der Lehre in den Studiengängen Veterinärmedizin und Biologie ist erforderlich, ebenso wie Kenntnisse und Erfahrungen mit elektrophysiologischen Methoden. Weitere Informationen unter: [http://www.tiho-hannover.de/einricht/phys/ag\\_schemann/index.html](http://www.tiho-hannover.de/einricht/phys/ag_schemann/index.html). Bewerbungen (Lebenslauf, Publikationsliste, Namen und Adressen von 2 Gutachtern) an: Prof. Michael Schemann, Physiologisches Institut, Tierärztliche Hochschule Hannover, Bischofsholer Damm 15/102, 30173 Hannover. e-mail: Michael.Schemann@tiho-hannover.de

## POSITIONS AVAILABLE IN US

**POSTDOCTORAL POSITION AT NIH/NIEHS (IRTA or Visiting Fellow):** A postdoctoral position is currently available to study the cellular and molecular biology of drug transport mechanisms in renal proximal tubule, choroid plexus and brain capillary endothelium.. Applicants should have less than 5 years postdoctoral experience and a background in membrane transport or cell biology. To apply, send CV and the names of 3 references to: Dr. David S. Miller, Intracellular Regulation Section, Laboratory of Pharmacology and Chemistry, NIH/NIEHS, P.O. Box 12233, Research Triangle Park, NC 27709 ([miller@niehs.nih.gov](mailto:miller@niehs.nih.gov)).

**POSTDOCTORAL RESEARCH FELLOWSHIPS** in Molecular Biology of Membrane Transporters. Two postdoctoral research positions are available at the University of California Medical Program at the Long Beach VA Medical Center to work on NIH/VA sponsored investigations on molecular aspects of membrane transport of water-soluble vitamins (thiamine, folic acid and biotin) in intestinal and renal epithelial cells. Background in molecular biology is required. Salary depends on experience. Interested applicants, please forward (or e-mail) current C.V. and three letters of reference from mentors/collaborators to: Professor Hamid M. Said, VA Medical Center – 151, Long Beach, CA 90822-5201. Tel: (562) 494-5811, Fax: (562) 494-5675, E-mail: [hmsaid@uci.edu](mailto:hmsaid@uci.edu).

**POSTDOCTORAL FELLOWSHIP IN CELL PHYSIOLOGY:** Applications are invited for the post of Postdoctoral Fellow to lead a small research team to investigate non-genomic actions of sex steroids in human tissues (endometrium and sertoli cells) using a variety of cell physiology techniques such as patch-clamp, spectrofluorescence microscopy (including confocal microscopy). The Fellowship is tenable at the Cellular Physiology Research Unit (CPRU) at University College Cork in Ireland. The main focus of research in the CPRU is the cell physiology of rapid responses to steroid hormones in epithelia. The group has wide experience in the cell signalling involved in transducing non-genomic responses to estradiol and aldosterone in human colon, kidney and lung. Recent grant awards are funding research into the ion transport pathways affected and the molecular biology of the non-genomic receptor. The position is suitable for a Ph.D. in Physiology, Cell Biology or cognate science. Experience in electrophysiology (patch-clamp) and fluorescence microscopy would be an advantage. The Fellowship is available from January 2001 and may be tenable for up to 4 years. The salary and the benefits will be commensurate with experience. Closing date for applications will be end of December 2000. University College Cork is an equal opportunity employer. Send a Curriculum Vitae to, or for further information contact Prof BJ Harvey, Director, Wellcome Trust Cellular Physiology Research Unit, Biosciences Institute, National University of Ireland, University College, Cork, Ireland. Tel: 353-21 903500, Fax: 353-21 903506, Email: [BHarvey@pres.ucc.ie](mailto:BHarvey@pres.ucc.ie)

**POSTDOCTORAL POSITIONS IN MOLECULAR BIOLOGY, MARIE CURIE FELLOWSHIP:** The Cellular Physiology Research Unit at University College Cork in Ireland has obtained four Marie Curie Host Development Fellowships (2001-2004). Each Fellowship will be of 2 years duration with the possibility of a one year extension in the Fellow's country of residence. The project will involve the application of molecular biology techniques to cloning of the non-genomic steroid hormone receptor. Specifically a person is required with a background in receptor cloning, particularly with experience in molecular endocrinology. Familiarity with cell physiology experimental techniques would be an

advantage. The latest starting date for the first fellowship must be sometime prior to May 2001 though it is hoped that the person could start in January 2001. The salary will be in the range of 3000 euros per month (net). Eligible candidates must be less than 35 years of age, hold a passport in an EU or associated member state excluding Ireland, or be resident in the EU for at least 5 years. In addition, applicants cannot be resident in Ireland for more than 12 of the last 24 months. Applicants must possess a Ph.D. in a relevant Life Science discipline. Closing date for applications will be end of December 2000. University College Cork is an equal opportunity employer. Send a Curriculum Vitae: Prof. BJ Harvey, Director, Wellcome Trust CPRU, University College Cork, Ireland. Tel. 353 21 4903500, Fax 353 21 4903506, Email [Bharvey@pres.ucc.ie](mailto:Bharvey@pres.ucc.ie)

**POSTDOCTORAL POSITION:** The appropriate candidate will participate in electrophysiological and/or immunocytochemical investigation of the cellular mechanisms of alkali secretion by the mosquito gut, and will spend a maximum of 1/2 time during the academic year in instructing laboratories in an undergraduate physiology course. Previous experience in these areas is highly desirable. The position begins Jan 1, 2001 and is guaranteed for 1 year, contingent on acceptable performance. Additional years are possible, depending on funding. Faculty-style benefits are included. The position is open until filled. WSU is located in a pleasant rural community with moderate living costs and easy access to a variety of outdoor recreation. I can be contacted by email at [dmoftett@wsu.edu](mailto:dmoftett@wsu.edu) or by telephone at 509-335-4549.

**POSTDOCTORAL POSITION:** NIH-funded Postdoctoral positions available immediately to study the mechanisms of epithelial Na<sup>+</sup> channel regulation (ENaC). Excellent opportunity to combine biophysical techniques with biochemical and molecular ones to examine ENaC's regulation by kinases in native and heterologous expression systems. Strong communication and writing skills required. Additional possibilities for clinically related projects involving epithelial Na<sup>+</sup> channels. Opportunities for an independent project by the end of the fellowship. Submit CV to Mouhamed Awayda, Ph.D., Department of Medicine SL 35, Tulane University Medical School, 1430 Tulane Ave., New Orleans, LA 70112. E-mail: [mawayda@tulane.edu](mailto:mawayda@tulane.edu).

## MEETING ANNOUNCEMENT

### Biophysical properties, regulation and physiological role of the Na/K ATPase.

Symposium organized in connection with the International Francqui Chair awarded to Prof. P. De Weer (Philadelphia), sponsored by the FWO-V and the FNRS.

Date: 3 March 2001

Location: Auditorium GA1, Campus Gasthuisberg, K. U. Leuven, Leuven (Belgium)

INFO: <http://amphibios.med.kuleuven.ac.be/Francqui-Chair/DeWeer.html>

Tentative program.

- 9:00 Welcome and Introduction by Professor Paul De Weer
- 9:10 **“Approaching an understanding of the ion transport mechanism of the Na,K-ATPase”**  
Professor Hans-Jürgen Apell  
Universität Konstanz, Germany
- 9:50 **“An inside view of the cation pathway through the sodium pump”**  
Professor Jean-Daniel Horisberger  
Université de Lausanne, Switzerland
- 10:30 Coffee break
- 10:50 **"Electrophysiology of the Na,K pump in single cardiac cells"**  
Professor Helfried Glitsch  
Ruhr-Universität Bochum, Germany
- 11:30 **“Lessons from the gastric proton pump”**  
Professor Jan Joep de Pont  
Katholieke Universiteit Nijmegen, The Netherlands
- 12:10 Lunch
- 13:10 Poster presentations
- 14:40 Keynote lecture: **“The identification of the Na,K-pump and its physiological function”**  
Professor Jens Chr. Skou, Nobel Prize 1997  
Aarhus University, Aarhus, Denmark
- 15:30 **“Presteady-state kinetics of the Na/Ca exchanger“**  
Professor Ernst Bamberg  
Max-Planck Institut für Biophysik, Frankfurt, Germany
- 16:10 **“How Ouabain Works: New Insight into the Mechanism of Action of Exogenous and Endogenous Cardiotonic Steroids”**  
Professor Mordecai P. Blaustein  
University of Maryland, Baltimore, USA