

EPITHELIAL TRANSPORT GROUP NEWSLETTER

March, 2001

MESSAGE FROM THE CHAIR

This is my last message as Chair of the Epithelial Transport Group which I would like to use to say "Thank You" to the following members of the Steering Committee for their support of our collective activities and of my own efforts: Dennis Brown, David Dawson, Michael Duffey, Kevin Foskett, Catherine Fuller, Thomas Kleyman, and John Pritchard. I also thank, John Cuppoletti, our past chair and sage, for his good knowledge of the machinations at APS, and for his advice during the two years of my term as chair. And I would like to give special recognition Carol Liedtke for producing our ETG Newsletter.

The duties of chair have brought me several times to the APS offices in Washington for the purpose of organizing and programming EB meetings. These meetings were perhaps the most challenging but enjoyable tasks of my tenure. First, there is the privilege of being first at the pulse of physiological research when reading and sorting Abstracts submitted for APS/EB meetings. Second, there is the chaos and camaraderie when more than 40 people (Section representatives and APS staff) assemble around a very long table to sort and group thousands of Abstracts. What in the beginning appears as the promise of mayhem, emerges in the end as a lesson on Frank-Allen ex machina (akin to deus). Finally, there is the encouragement and motivation one gets from working inside a well-run organization and with well-meaning people. In brief, I can only encourage you to participate in the affairs of your Group or Section. You will find the experience confirming your association with the American Physiological Society.

Our Steering Committee will elect a new chair and Secretary/Treasurer from among the present members of the Committee at the upcoming EB 2001 meeting in 2001. I will remain on the Committee as "sage" for the next three years, which is daunting because while wisdom is finite, folly is infinite.

I look forward to seeing many of you in Orlando, particularly in the Symposium and Featured Topics offered by the Epithelial Transport Group.

Keep well,
Klaus W. Beyenbach

DATA PROJECTION AT ORLANDO MEETINGS

Linda Allen writes that data projectors are available in all scientific session rooms. Presenters must bring their own laptop (and software). The data projectors are both PC- and MAC- compatible. Let me (KWB) add an observation I made at the recent Biophysics meetings in Boston: A lot of time was wasted and sessions lost their timelines as speakers figured out too late how to connect to the system. Be sure to rehearse the technology with your session chair in advance of your presentation.

The entire program of EB 2001 can be viewed on-line at:
http://www.the-aps.org/meetings/eb/mtg_eb_info.htm
Please note the underlined spaces bracketing "eb"

ATTEND OUR SYMPOSIUM AND FEATURED TOPICS

ETG SYMPOSIUM: **Structure and Gating of Epithelial Ion Channels.**
Thomas Kleyman, chair. Tuesday, April, 3; 10:15 am; Peabody Orlando II

ETG FEATURED TOPIC 1: **Ion Transport in Gametes and Reproductive Epithelia.**
Patrick Wong & Sylvie Breton, chairs. Monday, April, 2; 10:15 am; Convention Center Room 313

ETG FEATURED TOPIC 2: **Molecular Mechanisms of Bicarbonate Transport.**
Michael Romero & Paul M. Quinton, chairs. Monday, April, 2; 8 am; Convention Center Room 321A

APS INVITES PROPOSALS FOR APS CONFERENCES

The American Physiological Society holds one to two small specialty APS Conferences every year. In addition, APS joins with other societies to sponsor Intersociety Meetings as interest warrants. For questions on APS Conferences, e-mail: meetings@aps.faseb.org and check out <http://www.the-aps.org/meetings/aps/mtg%5Fconferrn.htm>
APS conferences typically last 3 days, involve 30-40 speakers, and attract about 300 people. APS supports each conference to the tune of \$25,000.

APS Conferences held this year are:

Cellular and Molecular physiology of Sodium-Calcium Exchange, October 10-14, 2001, Banff, Alberta, Canada. Organized by Mordecai Blaustein, Larry Hryshko, Jonathan Lytton, and Paul Schnetkamp.

Genome & Hormones: An Integrative Approach To Gender Differences in Physiology, October 18-20, 2001, Pittsburgh, Pennsylvania. Organized by Virginia Miller, Julie Deloia, Michael Lockshin, and Nancy Milliken.

APS HAS NEW WEBSITE AND URL.

The APS has moved to a new website; <http://www.the-aps.org>. The first page, the home page, brings your attention to APS News, APS Special Calls for Manuscripts and APS Deadlines. The search engine in the pull-down menu is excellent should you not immediately find your interest.

NEW APS PRESIDENT

John Hall is the next APS President. He has selected "Translational Physiology" as the theme of his tenure at the helm of the APS. 'Translational' refers to the transfer of knowledge from the laboratory to bedside.

APS ABSTRACTS RECEIVED FOR EB 2001

Submission of Abstracts to the Epithelial Transport Group is up nearly 3-fold from previous years thanks to the revision of categories listed under EPITHELIAL TRANSPORT GROUP in the Call for Abstracts. Here is how we compare to other sections in the numbers of Abstracts received.

Physiology in Focus, 26	History of Physiology Group, 2
Physiological Genomics, 68	Hypoxia Group, 30
Cardiovascular Section, 538	MyoBio (Muscle) Group, 65
Cell and Molecular Physiology Section, 211	Neural Control and Autonomic Regulation Section, 129
Central Nervous System Section, 72	Renal Physiology Section, 100
Comparative Physiology Section, 68	Respiration Section, 205
Education Committee, 2	Teaching of Physiology Section, 13
Endocrinology and Metabolism Section, 110	Water & Electrolyte Homeostasis Section, 63
Environment & Exercise Physiology Section, 164	Biomedical Engineering Society, 22
Epithelial Transport Group, 99	Microcirculatory Society, 139
Gastrointestinal Section, 85	

EB '01 Workshop "How to Get Published in ASPET and APS Journals.":

Sponsored by **The APS Women in Physiology Committee** and the **ASPET Committee on Women in Pharmacology**, the workshop is 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. Chair Kim Barrett and six panelists will draw on their experiences as Editors/Associate Editors of APS and ASPET Journals to provide participants with useful information on scientific writing. The workshop will be held Sunday, April 1 from 9 am to 11 am at the Peabody Hotel, Plaza Ballroom B. Please encourage graduate students, postdoctoral fellows, and junior faculty members to attend.

EB2002: The Epithelial Transport Group will feature the following symposium and Featured Topics at EB 2002:

- 1) Symposium: "Epithelial Channels: Regulation by Differentiation and Growth Factors." Chair is James Stockand, UT San Antonio. The tentative speakers are listed in the attachment.
- 2) Featured Topic 1: "Insights into epithelial transport physiology gleaned from interactions with intestinal pathogens". Chair is Kim Barrett, UC San Diego.
- 3) Featured Topic 2: "Epithelial Calcium Channels: From Identification to Physiology and Pathophysiology". Chair is Matthias Hediger, Harvard.

The American Physiological Society is pleased to announce the 12 awardees of the 2001 **Undergraduate Summer Research Fellowship**, as listed below, in alphabetical order:

- Jennifer L. Barone, Williams College, Williamstown, MA; Host: Steven J. Swoap, PhD., Williams College, Williamstown, MA
- Kush R. Desai, University of Illinois at Urbana-Champaign, IL; Host: Dorothy A. Hanck, PhD., University of Chicago, Chicago, IL
- Helen M. Eddy, Acadia University, Nova Scotia; Host: Rene J.L. Murphy, PhD., Acadia University, Nova Scotia
- Jewell A. Jessup, Salem College, Winston-Salem, NC; Host: Debra I. Diz, PhD., Wake Forest University School of Medicine, Winston-Salem, NC
- Roger Kapoor, George Washington University, Washington, DC; Host: Celia D. Sladek, PhD., Chicago Medical School, Chicago, IL
- Sanjana T. Karim, Davidson College, Davidson, NC; Host: Abu B. Al-Mehdi, MD, PhD., University of Pennsylvania School of Medicine, Philadelphia, PA
- Michael A. Llewellyn, Oregon State University, Corvallis, OR; Host: Thomas J. Roberts, PhD., Oregon State University, Corvallis, OR
- Manus M. Patten, Syracuse University, Syracuse, NY; Host: John M. Russell, PhD., Syracuse University, Syracuse, NY
- Sunita Puri, Yale University, New Haven, CT; Host: Darrell P. Neuffer, PhD., Yale University; John B. Pierce Laboratory, New Haven, CT
- Vikram J. Vaz Harvard College, Cambridge, MA; Host: Charles A. Czeisler, PhD, MD, Harvard Medical School: Brigham & Women's Hospital, Boston, MA
- Francisco C. Villafuerte, Universidad Peruana Cayetano Heredia, Peru; Host: Carlos Monge, MD, Universidad Peruana Cayetano Heredia, Peru
- Daniel S. Wu, Cornell University, Ithaca, NY; Host: Klaus W. Beyenbach, PhD., Cornell University, Ithaca, NY

The Fellowships provides \$2,000 summer stipend to the student (10 weeks support), \$500 grant to the faculty sponsor/advisor, and up to \$800 travel award/reimbursement to the student so that he/she may attend and present their data at the Experimental Biology meeting.

From Matthias A. Hediger (Harvard), we received the following invitation to attend an innovating conference:

Dear Colleague,

You are cordially invited to participate in the PharmaConference (see attachment).

Combine your summer vacation with a chance to meet with the leaders in Membrane Transport as well as to see the beautiful area of Interlaken, Switzerland. Most importantly, enjoy a breathtaking excursion to the Jungfrauoch, 3454 m above sea level. Don't miss this opportunity!

PharmaConference 01

Membrane Transporters: From Identification to Drug Discovery

Organizer: Matthias A. Hediger (Harvard Medical School)

**Co-Organizers: Robert Burrier (GelTex/Genzyme),
Wolf Frommer (Tübingen), Peter Meier-Abt
(Zürich), Heini Murer (Zürich)**

August 5-9, 2001, Interlaken, Switzerland

The completed human genome sequence offers a wealth of molecular information on membrane transporters and opens exciting opportunities in the field of drug discovery. Our goal is to foster interactions in this area with the leading scientists from universities and industry. A multidisciplinary scientific program has been assembled to bring together scientists working in various disciplines. Since different organisms (human, animal, plant, yeast and bacteria) use similar transport mechanisms, a broad range of applications can be devised from the combined information from these organisms. The conference will feature overviews of the human transporter superfamilies presented by the experts in each field. Additional topics will include the physiology of transporters and implications in human diseases, biophysical and structural properties of transporters, strategies of how to use transporters for the treatment of human diseases, strategies for novel high throughput drug screening, transporters of a variety of substrates (lipid/cholesterol, neurotransmitters, amino acids, organic anions and cations, urea, etc.) and transporters in the hepatobiliary system and the choroid plexus.

CONFIRMED SPEAKERS INCLUDE:

N. Abumrad, B. Andre, E. Boles, R. Burrier, H. Daniel, J. Erickson, F. Ghersi-Egea, R. Oude Elferink, K. Giacomini, J-F Ghersi-Egea, R. Gimeno, M. Hediger, M. Kavanaugh, W. Kramer, M. Krieger, T. Large, R. Lawn, S. Mager, P. Meier, J. Mindell, M. Mueckler, H. Murer, M. Palacin, G. Sachs, S. Shirazi-Beechey, Bruno Stieger, W. Tanner, L. Tartaglia, M. Xie, E. Wright.

REGISTRATION

Registration deadline is May 20, 2001. Poster submission deadline is June 30. The number of participants is limited to 200. Registration fees are US\$ 625 (academic rate) and US\$ 940 (industry rate). Special rates available for students and post-docs. **CHECK WEB SITE FOR DETAILS:**

<http://pharmaconference.bwh.harvard.edu>

International Conference on " Cell Volume: Signaling and Regulation "

October 25-28, 2000; Berlin, Germany

Organizers: PD Dr. Frank Wehner, Prof. Dr. Dr. h.c. Rolf K.H. Kinne (Dortmund), Prof. Dr. Florian Lang (Tübingen)

The proceedings of this conference are now published in Cellular Physiology and Biochemistry, vol. 10, 2000. Special editions of this volume are available at the price of \$45 plus shipping. The table of content of this issue is shown below. To order your copy, please send Dr. Frank Wehner an email: frank.wehner@mpi-dortmund.mpg.de

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Burg, M.B. (Bethesda, Maryland)
- 257 **Actin Cytoskeleton: A Signaling Sensor in Cell Volume Regulation**
Papakonstanti, E.A.; Vardaki, E.A.; Stournaras, C. (Heraklion)
- 265 **Regulation of the Epithelial Na⁺/H⁺ Exchanger Isoform by the Cytoskeleton**
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- 273 **Intracellular Signalling Involved in Volume Regulatory Decrease**
Hoffmann, E.K. (Copenhagen)
- 289 **Signalling Mechanisms Involved in Volume Regulation of Intestinal Epithelial Cells**
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- 297 **Calcium Signalling During RVD of Kidney Cells**
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- 303 **Heat Shock Proteins and the Cellular Response to Osmotic Stress**
Beck, F.-X.; Grünbein, R.; Lugmayr, K.; Neuhofer, W. (München)
- 307 **Tyrosine Kinases Open Lymphocyte Chloride Channels**
Lepple-Wienhues, A.; Szabò, I.; Wieland, U.; Heil, L.; Gulbins, E.; Lang, F. (Tübingen)
- 313 **The Endothelial Volume-Regulated Anion Channel, VRAC**
Nilius, B.; Eggermont, J.; Droogmans, G. (Leuven)
- 321 **Murine CFTR Channel and its Role in Regulatory Volume Decrease of Small Intestine Crypts**
Valverde, M.A. (Barcelona); Vázquez, E. (Barcelona); Muñoz, F.J. (Barcelona); Nobles, M. (London); Delaney, S.J. (Loughborough); Wainwright, B.J. (Brisbane); Colledge, W.H. (Cambridge); Sheppard, D.N. (Bristol)
- 329 **Structure and Function of the Ion Channel ICln**
Fürst, J.; Jakab, M.; König, M.; Ritter, M.; Gschwentner, M.; Rudzki, J.; Danzl, J.; Mayer, M.; Burtscher, C.M.; Schirmer, J.; Maier, B.; Nairz, M.; Chwatal, S.; Paulmichl, M. (Innsbruck, Milano)
- 335 **The Hypertonicity-Induced Na⁺ Conductance of Rat Hepatocytes: Physiological Significance and Molecular Correlate**
Wehner, F.; Böhmer, C.; Heinzinger, H.; van den Boom, F.; Tinel, H. (Dortmund)
- 341 **K-Cl Cotransport: Properties and Molecular Mechanism**
Lauf, P.K.; Adragna, N.C. (Dayton, Ohio)
- 355 **Organic Osmolyte Channels: A Comparative View**
Junankar, P.R.; Kirk, K. (Canberra)
- 361 **Amino Acid Osmolytes in Regulatory Volume Decrease and Isovolumetric Regulation in Brain Cells: Contribution and Mechanisms**
Pasantés-Morales, H.; Franco, R.; Torres-Marquez, M.E.; Hernández-Fonseca, K.; Ortega, A. (Mexico)

- 371 **Regulation of Sorbitol Efflux in Different Renal Medullary Cells: Similarities and Diversities**
Kinne, R.K.H.; Tinel, H.; Kipp, H.; Kinne-Saffran, E. (Dortmund)
- 379 **How Renal Cells Handle Urea**
Bagnasco, S.M. (Atlanta, Georgia)
- 385 **Cell-Volume Changes and Ion Conductances in Amphibian Gallbladder Epithelium**
Reuss, L.; Vanoye, C.A.; Altenberg, G.A.; Vergara, L.; Subramaniam, M.; Torres, R. (Galveston, Texas)
- 393 **Regulation of Hormone Secretion by Acute Cell Volume Changes: Ca²⁺-Independent Hormone Secretion**
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- 403 **Cell Hydration and Insulin Signalling**
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- 409 **Hepatocellular Hydration: Signal Transduction and Functional Implications**
Weiergräber, O.; Häussinger, D. (Düsseldorf)
- 417 **Cell Volume in the Regulation of Cell Proliferation and Apoptotic Cell Death**
Lang, F.; Ritter, M.; Gamper, N.; Huber, S.; Fillon, S.; Tanneur, V.; Lepple-Wienhues, A.; Szabo, I.; Gulbins, E. (Tübingen)
- 429 **Aldosterone and Nuclear Volume Cycling**
Oberleithner, H. (Münster); Reinhardt, J. (Münster); Schillers, H. (Münster); Pagel, P. (New Haven, Connecticut); Schneider, S.W. (Münster)

CONFERENCE ALERTS

"International Symposium on Cell Signaling - From Diseases to Drug Discovery" October 15-17, 2001, Hong Kong

Topics

Intracellular signaling
Signaling involved in cell-cell communication
Defective signaling in diseases
Signaling pathways involved in drug actions

For further information:

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hsiaocchan

IUBS Australia-2003-Call for Symposia

The Sixth International Congress of Comparative Physiology and Biochemistry will be held in Australia in early February 2003. The site we have chosen is The Mount Buller Campus of La Trobe University. The area is a ski resort in Winter and in summer provides bush walking, chair lifts, mountain cycling and many other sporting activities. It is an easy bus ride from Melbourne, but can also be reached from Sydney or Canberra. The Campus is located in the Victorian high country in an area of mountain ranges, snowgums and rivers. It is three hours from Melbourne and free from the hassles of down-town campuses. A range of accommodation from backpacker-style rooms to 4 star suites is available. Dining facilities also cover this range.

The Comparative Section of the American Physiological Society is soliciting ideas for symposia and plenary speakers for this meeting. Please send you idea (title and a couple of sentences describing the symposia) to Jim Hicks, at jhicks@uci.edu. The deadline for these titles is March 25th, 2001.

Symposia title – “Epithelial channels: regulation by differentiation and growth factors”
Organized by

James D. Stockand, PhD
Assistant Professor of Physiology
University of Texas Health Science Center San Antonio
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Speakers:

1. SG Rane (confirmed) – Purdue Univ., Dept. Biological Sciences “Ion channel function in the growth factor activated signaling networks which mediate nonexcitable cell growth and differentiation”
2. D. Ann (confirmed) – U. Southern Cal. Sch. Pharm., Dept. Mol. Pharm. and Tox. Speaking on modulation of ENaC by the MAPK cascade.
3. F. Verrey (confirmed) – Univ. of Zurich, Institute of Physiology. Speaking on modulation of ENaC by Ras and Sgk.
4. J. Stockand (confirmed) – Univ. Texas HSC San Antonio, Dept. Physiology. “Modulation of ENaC by the MAPK and PI3K cascades”
5. L. King (not confirmed) – Johns Hopkins U. Sch. Med., Dept. Medicine. Speaking on modulation of AQ5 by ERK signaling.
6. C.L. Huang (confirmed) – Univ. of Texas Southwestern Med. Sch., Dept. Med. “Regulation of ROMK potassium channels by phosphoinositides”

CANDIDATES FOR ELECTION TO THE STEERING COMMITTEE (SPRING, 2001)

The ETG has seven candidates for two (2) positions on the ETG Steering committee. The term of office for each position is three (3) years.

Mouhamed S. Awayda, Ph.D. is an Assistant Professor of Physiology and of Medicine at Tulane University Medical School. I have participated in functions of the APS since 1988 when I was a beginning graduate student. My main research interests are epithelial biology and epithelial ion transport. I am affiliated with the ETG, and the cell, renal, & teaching sections of the APS. I am a member of the Porter Physiology Education Committee and I have actively participated in previous ETG featured topics. I currently serve as an Ad Hoc reviewer for a variety of physiological journals and study sections. I believe that the ETG is unique as its interests cross many of the conventional scientific boundaries of the different APS sections. My main reason for wanting to actively participate in ETG is to promote epithelial transport by increasing membership participation in the Group. This will allow us to increase our representation at scientific meetings and to further promote our common cause.

Shaila Basavappa, Ph.D. is an Associate Research Scientist in the Department of Cellular and Molecular Physiology at Yale University School of Medicine. His statement is as follows: "I am a relatively new American Physiological Society member. However, I have participated in many American Physiological Society events and have published significantly in the American Journal of Physiology. My past and present research has primarily centered on epithelial transport. In fact, the current research in our laboratory is focused on understanding Cl⁻ transport in renal proximal tubule cells. As a future committee member, I hope to bring a fresh and novel perspective to the Epithelial Transport Group steering committee."

Matthias A. Hediger, Ph.D. is an Associate Professor of Medicine (Biological Chemistry and Molecular Pharmacology) at Harvard Medical School, and the Director of the Membrane Biology Program at Brigham and Women's Hospital. He is a member of the Epithelial Transport Group and the Renal Section of the American Physiological Society. The major goals of his research are to understand the mechanisms of epithelial transporters of various solutes (calcium, iron, zinc, vitamins, amino acids, peptides), how these transporters are regulated to support appropriate body demands, and how they are involved in human diseases. The American Physiological Society is his primary professional affiliation, of which he has actively participated during the past decade. Dr. Hediger is the Founder of a new Gordon Research Conference series which focuses on the physiological and pathological implications of transporters as well as of a new International Conference series (see <http://pharmaconference.bwh.harvard.edu>) to advance the development of therapeutic applications in the growing area of membrane transporter research.

Kevin L. Kirk, Ph.D. is a Professor in the Department of Physiology and Biophysics at the University of Alabama at Birmingham. His statement is as follows: "Our current research is directed toward characterizing the intermolecular and intramolecular interactions that regulate the CFTR chloride channel in epithelial cells. One of our long term goals is to identify novel pathways and reagents that may prove useful for treating diseases that involve this ion channel (i.e., cystic fibrosis and secretory diarrhea). I have been a regular member of the American Physiology Society since 1996 and presently serve on the editorial board of the American Journal of Physiology: Cell Physiology.

Thomas A. Pressley, Ph.D. is an Associate Professor of Physiology at Texas Tech University Health Sciences Center in Lubbock, Texas. He has been a member of APS and the Renal Section since 1996, and attended ETG-sponsored conferences for many years before formal membership. His statement is as follows: "My work is focused on the function and regulation of the Na,K-pump and related transporters. I have been an active member of the transport

community since the days of my graduate training in salinity acclimation. My recent service as a co-editor of the *American Journal of Kidney Diseases* has given me an appreciation of modern epithelial research that I hope to apply to the ETG steering committee."

Bruce D. Schultz, Ph.D. is an Assistant Professor of Physiology at the College of Veterinary Medicine, Kansas State University, Manhattan, KS. He has been a member of APS since 1997 and has participated in the Gastrointestinal Section and the Water and Electrolyte Homeostasis Section as well as the ETG. "Research efforts in my laboratory are focused on understanding the physiological regulation of epithelial ion transport. Dysfunction of epithelial transport mechanisms, especially the anion channel CFTR, is associated with pancreatic, renal, intestinal, reproductive, and pulmonary disorders. In the laboratory we strive to achieve a better understanding of epithelial physiology and to develop interventions that prevent or overcome such pathological conditions. The American Physiological Society is my primary professional affiliation, of which I have actively participated in since 1997. I currently serve on the Editorial Board of the *American Journal of Physiology: Cell Physiology* and have published extensively in APS journals. For EB 2001, I have the added pleasure of an oral presentation in the ETG Featured Topic Workshop, "Ion transport in gametes and reproductive epithelia."

James Stockand, Ph.D. is an Assistant Professor of the Department of Physiology at the University of Texas Health Science Center San Antonio. He is a member of the ETG and Renal Sections and has been a member of APS since 1993. "My research interests are to better understand the cellular signal transduction and mechanisms of action involved in regulating ion channel kinetics and number in epithelial cells. I am particularly interested in how aldosterone modulates the activity of the epithelial Na⁺ channel. My recent work in this regard has been primarily published in the *American Journal of Physiology* and the *Journal of Biological Chemistry*. I have been an active participant in the American Physiological Society since 1993 - first as a student member and more recently as an elected member. In addition to the APS, which is my primary professional affiliate, I also am an active member of the American Society of Nephrology and the American Heart Association (Kidney Council). I am a newly appointed investigator that will bring both enthusiasm and fresh perspective."

BALLOT

Please vote for no more than two (2) candidates.

- Mouhamed S. Awayda, Ph.D.
- Shaila Basavappa, Ph.D.
- Matthias A. Hediger, Ph.D.
- Kevin L. Kirk, Ph.D.
- Thomas A. Pressley, Ph.D.
- Bruce D. Schultz, Ph.D.
- James Stockand, Ph.D.

Return ballot postmarked no later than April 15, 2001 to:

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