

ENDOTOXIN NEWSLETTER



Scientific Program Announced for IES Paris 2000 Conference

The scientific program for the 6th Conference of the International Endotoxin Society, to be held in Paris on August 24-27, 2000, is taking shape and promises to capture all of the current excitement in the endotoxin field. The Scientific Program Committee has assembled an outstanding program covering all aspects of endotoxin research, with particular emphasis on topics related to endotoxin recognition and signaling and the role of endotoxin in various disease processes. A summary of the program is shown below, and more detailed information on all aspects of the conference can be found at www.pasteur.fr/recherche/unites/ies2000. This meeting offers a unique opportunity to hear the latest developments in endotoxin research, to mingle with colleagues in the endotoxin field, and to experience the ambience and attractions of one of the world's great cities. Make your plans to attend now!

Program Summary – IES Paris 2000 Conference

Clinical Aspects

Therapy / Anti-CD14 / Anti-cytokines / Etiology / Mechanisms of tissue injury / Local inflammatory responses / Clotting / Inflammatory mediators / Roles for LPS in disease processes (asthma, occupational respiratory disease, atherosclerosis, alcoholic cirrhosis, gingival disease, inflammatory bowel disease, viral hepatitis)

Biology and Immunology

Innate immunity / Toll-like receptors / LPS hyporesponsive mice / Instructing adaptive immunity / Tolerance (*in vivo* and *in vitro*) / Induction of mediators (iNOS, PLA2, cytokines, etc.) / Origins of species specificity for synthetic antagonists / Alternative ligands for CD14

Biochemistry

LPS binding proteins - structural and functional studies / 3D structures of LBP, CD14, etc. / Defining LPS initiated signaling pathways / Mechanisms of signal transduction by TLRs / Ligands for TLR4 / LPS uptake and metabolism / LPS distribution in plasma, lipoproteins / LPS epitopes

Chemistry

Biosynthesis / Structures and definition of epitopes / Structure-activity correlations / 3D structures

Volume 9, Number 3/4
Fall 1999

Newsletter Editor

Kent R. Myers, Ph.D.
Corixa Corporation
553 Old Corvallis Road
Hamilton, MT 59840-3131 USA
Tel: 001-406-363-6214
Fax: 001-406-363-6129
E-mail: kmyers@corixa.com

Website Editor

Carl R. Alving, M.D.
Chief, Dept. of Membrane Biochemistry
Walter Reed Army Institute of Research
Walter Reed Army Medical Center
Washington, DC 20307-5100 USA
Tel: 001-202-782-3248
Fax: 001-202-782-0721
E-mail: alvinge@wrair-emh1.army.mil

INSIDE:

Obituary Dr Margaret Isla Halliday (1954-1999)

**Robin Barclay and Keith Gardiner,
on behalf of Dr. Halliday's many
colleagues and friends**

Isla Halliday, Lecturer in the Department of Surgery, The Queen's University of Belfast, died on July 17, 1999 after a short final illness. Isla was a valued colleague, collaborator and friend to many of the community of scientists involved in research on endotoxin and Gram negative sepsis in the UK and around the world, and those who knew her are

(Continued on next page)

<i>Scientific Program Announced for IES Paris 2000 Conference</i>	1
<i>Obituary: Dr. Margaret Isla Halliday</i>	1
<i>Nominations Sought for Honorary Lifetime Members</i>	2
<i>JER is Going Strong...</i>	3
<i>Biography: André Biovin</i>	4
<i>IES Website Updated; Now Offers Online Membership Services</i>	6
<i>JER Impact Factor Increases</i>	6
<i>IES Membership Application Process Streamlined</i>	6
<i>Society News: New IES Members</i>	7
<i>Change of Address/Missing Issues/What's Up?</i>	8

Dr Margaret Isla Halliday

Continued from previous page

deeply aware of the sudden loss so early in her career of a highly regarded scientist with so much to offer.

Isla graduated from Queen's in Biochemistry in 1977 and proceeded to postgraduate research in the Department of Biochemistry, gaining her PhD in 1981. During this time Isla met her future husband and fellow biochemist Neil McFerran, whom she married in 1981. After post-doctoral research studying protease biochemistry, Isla took a career break to look after her young daughters, Claire and Elaine, but in 1989 was enticed by Professor Brian Rowlands to take on the challenge of applying her biochemical training and experience to surgical diseases. Isla was appointed to the academic staff of the Department of Surgery, initially as Research Officer, becoming Senior Research Officer in 1990 and Lecturer in 1995.

The Rowlands-Halliday research axis proved a very effective partnership which soon established an international scientific standing. The major focus was in understanding the interactions of endotoxin with host immune cells and circulating proteins and how endotoxaemia and activation of the systemic inflammatory cascade impacted on the clinical outcome of patients with major trauma, inflammatory bowel disease, obstructive jaundice, pancreatitis and ischaemia-reperfusion injury. During her time in the Department of Surgery, Isla was scientific adviser, mentor, colleague and friend to staff and students, and established excellent working relationships with the tribe of eager surgical research fellows that Brian Rowlands attracted to the Department and instilled some scientific discipline into their enthusiasm. Isla also forged links with fellow scientists working in these areas in Ireland, the UK and around the world, and established relationships which for many of us went beyond collaboration to lasting friendships.

Besides family and social life and an active interest in sports, Isla was a member of the Research Committee of the School of Clinical Medicine at Queen's and was instrumental with others in the establishment of the Research Centre of Inflammation and Repair. She was actively involved in Medical Undergraduate teaching and examination, and was a founding member of the Cranmore Club, an influential Faculty of Medicine think-tank. Outside Queen's, Isla was chairperson of the Ulster Immunology Group which she represented at the British Society for Immunology, where she chaired the group responsible for the allocation of Science and Medicine Immunology Prizes.

To those of us who knew and collaborated with her, whether in Belfast or around the world, we valued and will miss her contribution, energy, humour and friendship. Even more, we were keenly aware of her enthusiasm for developing her work and have a sense of loss at a career with much yet to offer now cut short. □



Plan to attend the Paris 2000 Meeting

www.pasteur.fr/recherche/unites/ies2000

Nominations Sought for Honorary Lifetime Members

Dr. Jon A. Rudbach
IES Secretary

Nominations are now being solicited for Honorary Lifetime Membership in the IES. Each year, one individual may be designated as an Honorary Life Member of the Society as a tribute to his or her contributions to the knowledge and understanding of bacterial endotoxins. Two individuals to be considered for this honor shall be identified biennially; one each year between the biennial IES Conferences. Election to Honorary Life Member will be by a two-thirds majority vote of the membership attending the biennial business meeting. Honorary Life Members will have all the rights and privileges of active members but shall be exempt

from Society dues and meeting registration fees. Please send nominations, in the form of a letter describing the nominee's history of achievements in endotoxin research, to:

Dr. Jean-Marc Cavaillon, IES President
Unite d'Immuno-Allergie
Institut Pasteur
28 rue du Dr. Roux
75724 Paris
FRANCE

Journal of Endotoxin Research Is Going Strong... But Keep Those Manuscripts Coming!

The *Journal of Endotoxin Research* resumed publication in July and is once again fulfilling its role as the official journal of the IES. Four issues have appeared since publication resumed and the final issues of Volume 5 are in preparation. As can be seen from the list of recent articles shown below, the revived Journal has been very successful in attracting quality manuscripts of broad interest to the endotoxin research community. However, the continued health of the Journal is critically dependent on the availability of a steady flow of quality manuscripts for publication. Dr. Jack Levin, Editor-in-Chief for *JER*, therefore urges all IES members to consider using the Journal for publication of their endotoxin-related papers. Advantages of publishing in *JER* include rapid turnaround time, no page charges, free reprints, and high visibility (see related article on Page 6). The Journal considers manuscripts in all areas of endotoxin research, including those in which endotoxin is employed in the study of more fundamental questions relating to basic or clinical science.

Contributions can be published as original research articles, brief definitive reports, or minireviews. IES members are also urged to support the Journal through their subscriptions. Personal subscriptions are available to members at a discounted rate of \$78 US. More information on the Journal is available on the enclosed subscription form, at www.kumc.edu/IES/jerc.htm, or by contacting Dr. Jack Levin at the address shown below:

Jack Levin, M.D.
Editor-in-Chief, *Journal of Endotoxin Research*
VA Medical Center (111-H2)
4150 Clement Street
San Francisco, CA 94121 USA
Tel: 001-415-750-6913
Fax: 001-415-221-7542
E-mail: levinj@medicine.ucsf.edu

Examples of articles that have appeared in recent issues of the *Journal of Endotoxin Research* (Vol. 5, Nos. 1/2, 3)

In vivo priming of mice with antigen and lipid A bestows proliferative ability on peritoneal exudate T cells in response to antigen or anti-ab TCR antibody in the absence of macrophages *in vitro*: accessory function of NK cells

T. Nitta, H. Shoji, M. Nakano

LPS induced translocation of NF- κ B occurs only in a subpopulation of CD 14-positive mononuclear cells

T. ten Hove, M. J. B. M. Vervoordeldonk, P. E. P. Dekkers, P. H. Reitsma, S. J. H. van Deventer

Induction of hypersensitivity to endotoxin lethality in mice by treatment with trehalose 6,6'-dimycolate but not with 2,3,6,6'-tetraacyl trehalose 2'-sulfate

K. Watanabe, R. Hasunuma, T. Horikoshi, H. Yamana, H. Maruyama, N. Fujiwara, Y. Kumazawa, I. Yano

Endotoxin effects on hypothalamic gene expression in swine following sequencing of porcine c-fos mRNA

S. V. Vellucci, R. F. Parrott, M. L. Mimmack, W. J. Coadwell S. V. Vellucci, R. F. Parrott, M. L. Mimmack, W. J. Coadwell

Anti-endotoxin properties of a cinnamon bark-derived compound and its effect on the endotoxin shock model

S. Azumi, K. Tanamoto

Endotoxin-induced cross-tolerance to Gram-positive sepsis

K. Guyton, R. Bond, C. Romeo, R. Southern, J. Cochran, G. Teti, J. A. Cook

Lipopolysaccharide-induced vacuoles in macrophages: Their origin is plasma membrane-derived organelles and endoplasmic reticulum, but not lysosomes

K. Yoshida, M. Ono, H. Sawada

Inhibition by a CD14 monoclonal antibody of lipopolysaccharide binding to murine macrophages

Y. Adachi, C. Satokawa, M. Saeki, N. Ohno, H. Tamura, S. Tanaka, T. Yadomae

André Boivin (1895 - 1949): The first to characterize the biochemical composition of endotoxin

**Dr. Jean-Marc Cavaillon
President, IES**

André Boivin was born in Auxerre, France, on April 18th, 1895. He was the oldest in a modest family of three children. His father was a tailor and his mother was the daughter of a cooper. He was a bright schoolboy and attended the courses of the Ecole Normale intending to become a school teacher. Thanks to his good marks, he was admitted on July 1914 to join the Ecole Normale Supérieure to become a high school professor. But World War I along with other events prevented André Boivin from ever pursuing his career as a school teacher. In 1914, he was hospitalized in Marseille for what was supposed to be an attack of appendicitis. There, he was asked to work in the hospital laboratory to perform various analyses, which allowed him to discover the rewards of scientific research and to reconsider his career plans. At the end of the war he got married (1919) and started scientific studies. He obtained his Licence-ès-Sciences in 1921 and got a position at the Sciences and Medicine University in Marseille. In 1924 he described and published a new and efficient technique to prepare insulin. Indeed, during the next two years he provided insulin for diabetic patients of some local professors. Mean-while, he continued his studies and got his MD degree in 1926. His medical thesis was on a technique he had developed for microtitration of urea. In 1927 he moved to Strasbourg and worked on micro-analysis in the Biological Chemistry Institute of the Medicine University with a grant from the Rockefeller Foundation. There, he set up a microtitration technique for determination of carbon and a method for the measurement of purine and pyrimidine bases. All these research efforts allowed him to defend his Doctorat-ès-Sciences in 1931. Throughout this period, Boivin also continued to work

on the purification of insulin, and he eventually demonstrated that the pancreas was the only source of this hormone.

In 1930, Boivin was invited by Professor Cantacuzène to re-organize the medical chemistry teaching program at the Bucharest School of Medicine and to work in Prof. Cantacuzène's institute where the sera and vaccines for Romania were being prepared. There, he started performing chemical analysis of bacterial compounds. It was during this period that, together with Ion and Lydia Mesrobeanu, he made his main discoveries on the biochemical

It was considered at that time that the O-antigen could only be linked to a protein carrier, but the finding that the "antigène glucido-lipidique" was devoid of protein showed for the first time that molecules other than proteins can function as antigens.

characterization of endotoxin obtained using a trichloroacetic acid extraction. His first report in this area was published in 1933 in C.R. Soc. Biol. (Vol. 113, 490), a few months before Raistrick and Topley in London reached similar conclusions using trypsin (Brit. J. Exp. Pathol. 1934, 15, 113). The scientists met during the 2nd International Congress of Microbiology in London in 1936 and agreed on their common observations.

After the discoveries Boivin published in 1933 on endotoxin structure, he used the

term "antigène complet" to describe the endotoxin molecule. He later modified this to "antigène glucido-lipidique," to more accurately reflect the chemical nature of endotoxin. This was indeed the title of the thesis that Lydia Mesrobeanu defended in Strasbourg and published in 1936 in the "Archives Roumaines de Pathologie Expérimentale et de Microbiologie" (vol. 9, p 1-120). Boivin and his colleagues also studied the "antigène glucido-lipidique" from other bacteria such as Salmonella, Proteus and collibacillus. They demonstrated that the molecule was thermoresistant and that other factors were associated with the virulence of the various bacteria. They also studied the endotoxin of bacteria pathogenic for plants and demonstrated that the "antigène glucido-lipidique" of Bacillus tumefaciens was capable of inducing tumors in plants similar to those induced by the parent bacteria.

A. Boivin's chemical analysis work on endotoxins represented a major advance in the knowledge of these molecules. Not only was it the first chemical characterization of endotoxin, but also it was the first demonstration that the toxic part of the molecule and the fraction which carries the O-antigen were linked together in a single structure. It was considered at that time that the O-antigen could only be linked to a protein carrier, but the finding that the "antigène glucido-lipidique" was devoid of protein showed for the first time that molecules other than proteins can function as antigens. This resulted in the concept of a hapten, since the isolated polysaccharide moiety alone was not sufficient to induce antibodies (i.e., not immunogenic), yet it retained the antigenicity of the endotoxin molecule. Boivin knew that anti-O antigen antibodies were associated with protection, so he concluded that the

André Boivin

Continued from previous page

"antigène glucido-lipidique" was the active element of bacterial vaccines while the corresponding antibodies were the active elements of the anti-bacterial antisera. He also reported that the complete structure he had described was only found on smooth bacteria but not on rough ones. Together with the works of Morgan, Miles, and Pirie, his findings clearly showed that this structure was only found on Gram negative bacteria and never on Gram positive bacteria. In accordance with the White-Kauffman classification of Salmonella, he demonstrated that the immune sera

which cross-reacted with the bacteria (assessed by agglutination) showed similar cross-reactivity with the "antigène glucido-lipidique". It could then be concluded that the "antigène glucido-lipidique" shared all of the properties ascribed, since the work of Pfeiffer, to endotoxin, and that the two entities were in fact the same.

At the end of his Romanian contract in 1936, André Boivin was invited to join the Institut Pasteur by Gaston Ramon (1886-1963), who was then assistant director of the Institut Pasteur. Ramon had discovered the way to prepare toxoids from tetanus and diphtheria toxin and had demonstrated their usefulness for vaccines. Toxoids were employed to prepared horse antisera for passive immunotherapy. (At that time the Pasteur Institute had approximately 400 horses!) André Boivin was offered a laboratory in the Institut Pasteur's annex in Garches (in the Paris suburbs) where he started to work on Gram positive toxins with Ramon and continued to work on the so-called "antigène glucido-lipidique" and its capacity to induce protection against

infection. In collaboration with L. Mesrobianu they also worked on the toxins of the Shiga bacillus (*Shigella dysenteriae*). Their demonstration (C.R. Soc. Biol. 1937, 124, 439 & 442) on the production of two

distinct toxins (the neurotoxin + the endotoxin) by this bacteria was confirmed the same year by Morgan (Biochem. J. 1937, 31, 2003). This work was pursued by A. Delaunay, a young French scientist who joined A. Boivin's laboratory.

André Boivin had a bright intelligence, he had a clear and original mind, and he possessed encyclopedic know-

ledge. These traits are illustrated by some of the books he wrote, including "Bacteria and Viruses" (1941 & re-edited in 1947) and two major works together with Delaunay, "The Host Fighting Microbes" (1947) and "Phagocytosis and Infection" (1947). He published numerous articles such as the one in "La Presse Médicale" in 1940 in which he presented "the problems about the origin of the life on Earth illustrated by the recent discoveries in biology and astronomy." He was frequently invited to give conferences such the one he gave in October 1945 at the Hygiene and Bacteriology Institute of the Geneva University about the new findings in cellular immunology, where he mentioned that immunity was both cellular and humoral, explained various mechanisms such as the opsonisation, and defined the word "lymphocyte" (J. Suisse Med. 1946,

19, 416). Dr. Lucienne Corre-Hurt, a colleague of Boivin's at the Garches hospital, recounted the time when she accompanied Boivin to the French Academy of Medicine. The honorable members of the Academy were not so attentive to the other speakers, but when it was Boivin's turn to talk and he presented his data with great conviction, then a respectful silence occurred. After the session, A. Boivin bought drinks for his young colleagues at "Aux deux magots", a famous café in Saint-Germain-des-Près.

André Boivin stayed at the Institut Pasteur until 1947. His Parisian career was particularly bright even though it spanned the difficult World War II period, during which he was responsible for production of anti-typhoid vaccine for the civilian population. He became Head of his unit in 1938, he was nominated as assistant director of the Institute in 1940, and was also member of the French Academy of Medicine and president of the medical sciences section at the Centre National de Recherche Scientifique (CNRS). But, A. Boivin missed the teaching activity and when he was offered the position of Professor of Chemical Biology at the Strasbourg School of Medicine as well as a laboratory, he moved to Alsace. Unfortunately, he was not able to enjoy his new appointment for very long. Intestinal cancer forced him to be hospitalized on December 1948, and he died on July 8th, 1949, after a long, painful and depressing fight with the disease. News of Boivin's passing brought expressions of esteem and sorrow from throughout France and the world. As A. Delaunay wrote in an obituary for the newspaper of the French intelligentsia, "Les Nouvelles Littéraires," one of the very best immunologists of France and of the world had been lost. □

The honorable members of the French Academy of Medicine were not so attentive to the other speakers, but when it was Boivin's turn to talk and he presented his data with great conviction, then a respectful silence occurred.



Visit the IES Website

www.kumc.edu/IES

IES Website Updated, Now Offers Online Membership Services

If you have not visited the IES website lately (www.kumc.edu/IES), you should stop by and see for yourself the many improvements that have occurred there. Thanks to the hard work of Jean Muderhwa, Carl Alving (IES Web Site Editor) and Olga Mancuso at WRAIR, and Karen Chinn at KUMC, the website now has a completely new look and offers a variety of enhancements for members. For example, visitors to the site can now read online versions of this newsletter, learn more about the *Journal of Endotoxin Research*, access the web site for the Paris 2000 meeting, and submit membership applications and make dues payments via a secure online connection. Useful features from the previous version are still available, including Society information, a bibliography of endotoxin-related articles, and links to other sites of potential interest to endotoxin researchers. Overall, the new site is now an even more important resource for IES members and non-members alike. Stop by and see what it can do for you. □

JER Impact Factor Increases

The *Journal Citation Reports*®, a publication of the Institute for Scientific Information®, reported recently that the "impact factor" for the *Journal of Endotoxin Research* increased substantially from 0.849 in 1997 to 1.449 in 1998. This increase indicates that articles published in *JER* are receiving greater attention from scientists who themselves are actively engaged in publishing, and is a sign of the increasing importance and visibility of the Journal. More information on impact factors and the *Journal Citation Reports* can be found at www.isinet.com/products/citation/jcr.html. See the related article on Page 3 for further details regarding the *Journal of Endotoxin Research*. □

Support the *Journal of Endotoxin Research*

● **Subscribe**

● **Tell a colleague**

● **Submit a manuscript**

IES Membership Application Process Streamlined

It has now become much easier to join the IES as well as to pay membership dues, as a result of recent innovations to the IES web site (www.kumc.edu/IES). Prospective members can now submit their membership applications online, and dues payments can be made by credit card via a secure server connection. The application form itself has been streamlined, so that the applicant need only supply the name of a sponsoring IES member and provide a brief list of activities and/or publications which demonstrate an interest in endotoxin-related research. Membership dues are \$45 US (\$15 for students), and members are entitled to reduced registration fees to IES conferences and discounted subscription rates to the *Journal of Endotoxin Research*. (Either of these discounts will cover the cost of membership!) Please pass this information along to any

colleagues who may have an interest in joining the IES. Further details regarding membership can be found at the IES web site, or by contacting the Membership Committee Chairperson, Dr. Richard Silverstein, at the address shown below:

Richard Silverstein, Ph.D.
Chairperson, IES Membership Committee
Kansas University Medical Center
Biochemistry Department
39th and Rainbow Blvd.
Kansas City, KS 66160 USA
Tel: 001-913-588-6954
Fax: 001-913-588-7440
E-mail: rsilvers@kumc.edu

New IES Members

Edward Abraham, MD
Univ of Colorado Health Science Ctr
Denver, CO USA

Shizuo Akira, Professor
Osaka University
Osaka, Japan

Salomon Amar
Boston University
Boston, MA USA

Tom A. Barr, BSc
Univ of Sheffield - Medical School
Sheffield, UK

Lesa J. Beamer
Univ of Missouri
Columbia, MO USA

Geoffrey J Bellingan, PhD
Bloomsbury Institute of Intensive Care
University College - London
London, UK

Dr. Jharna Bhattacharyya
Indian Institute of Chemical Biology
Calcutta, India

Clark M. Blatteis, PhD
Univ of Tennessee
Memphis, TN USA

Catherine Blondin, PhD
Pasteur Institute
Paris, France

Dr. Silvia E. Borrelli
Lund University
Lund, Sweden

Maria A. Bosch, MD
Universidad Complutense
Madrid, Spain

Dr. Michel Chignard
Res at Inst National de la Sant/INSERM
Paris, France

Wei Cui, MD
Univ of Kansas Medical Center
Kansas City, KS USA

Dr. Edwin A. Deitch
New Jersey Medical School
Newark, NJ USA

Patricia A. Detmers, PhD
Merck Research Laboratories
Rahway, NJ USA

Linda J. Eaton
List Biological Laboratories Inc.
Campbell, CA USA

Dr. Jianjun Gao
Univ of Kansas Medical Center
Kansas City, KS USA

Fabrice Godfroid
Namur (Beez), Belgium

Dr. Pascale Gueirard
Institut Pasteur
Paris, France

Dr. Nicole Guiso
Institut Pasteur
Paris, France

Jack J. Hawiger, MD, PhD
Vanderbilt Univ School of Medicine
Nashville, TN USA

Matthew Hirschfeld
Univ of Utah
Salt Lake City, UT USA

Joel N. Kline, MD
Univ of Iowa Hospitals & Clinics
Iowa City, IA USA

Priv-Doz Dr med Uwe Kreimeier
Ludwig-Maximilian-Universit
Munich, Germany

Wan-Wan Lin, PhD
National Taiwan University
Taipei, Taiwan

Subir Maitra, PhD, DSc
State Univ of New York
Stony Brook, NY USA

Masataka Mori
Kumamoto Univ
Kumamoto, Japan

Dr. Carlos G. Muñoz
University of Chile
Santiago, Chile

Constance F. Neely, MD
Link Technology, Inc
Research Triangle Park, NC USA

Jun Nishihira, MD, PhD
Hokkaido University
Sapporo, Japan

Dr. Robert M. Niven
North West Lung Centre
Manchester, UK

Shinji Ogura, MD, PhD
Kagawa Medical
Kagawa, JAPAN

Christopher J Papasian
Univ of Missouri School of Medicine
Kansas City, MO USA

Dr. Didier DP Payen
Hôpital Lariboisière
Paris, France

Frederick C. Pearson III
BioWhittaker, Inc
Walkersville, MD USA

Dr. Hiram C. Polk, Jr
Univ of Louisville
Louisville, KY USA

Sabita Roy, PhD
Univ of Minnesota
Minneapolis, MN USA

Dr. Myron E. Sasser
MIDI, Inc
Newark, DE USA

Dr. Steven Q. Simpson
Univ of Kansas Medical Center
Kansas City, KS USA

Lambertus G. Thijs, MD, PhD
Free University Hospital
Amsterdam, The Netherlands

Jean-Louis Vincent, MD, PhD
Erasme University Hospital
Brussels, Belgium

Ping-Yuan Wang
Univ of Texas Southwestern Medical
Dallas, TX USA

Peter M.C. Wong, PhD
Temple Univ School of Medicine
Philadelphia, PA USA

Welcome

Change of Address

It is important that the IES maintain an accurate list of current members. Please send all notices of change of address to Dr. Rudbach at the following address:

Dr. Jon A. Rudbach, IES Secretary
University of Montana
Office of Research Administration
116 University Hall
Missoula, MT 59812-1329 USA

Phone: 001 406 243 6670
Fax: 001 406 243 6330
E-mail: trilttd@aol.com

What's Up?

Do you have any news, questions, or comments that you think may be of interest to your colleagues in the IES? If so, this is the place where you can make yourself heard. The Newsletter enthusiastically welcomes any submissions of news items, meeting announcements or summaries, announcements of available positions, historical matters, photographs, pertinent (or otherwise) drolleries, and any other items that might be of interest to the membership. While the Newsletter does not expect to serve as a technical journal for publication of original research results (see the JER), it is an appropriate forum for discussion of issues of interest to the endotoxin community. Please submit any items for publication in the Newsletter to the Newsletter Editor at the address shown on p. 1.

Missing Newsletter Issues?

If you are an IES member and believe that you may have missed an issue of the IES Newsletter, please notify the Newsletter Editor at the address shown on p. 1.

International Endotoxin Society
% Kent R. Myers, Ph.D.
Corixa Corporation
553 Old Corvallis Road
Hamilton, MT 59840-3131
USA