

NAVBO NEWSLETTER

North American Vascular
Biology Organization

Volume 6 Number 2
September 1999

MESSAGE FROM THE PRESIDENT

Dear NAVBO members,

It is my great pleasure to assume leadership of NAVBO for 1999-2000 as its Sixth President. I must acknowledge Gary Owens early in this message for the wonderful job he did this past year as President. NAVBO is in excellent shape with a membership of over 600, national and international recognition, and a highly successful annual meeting. Thus my goals for the year are incremental.

I plan to build on our current successes to maintain our position as the premier vascular biology organization in the United States. The field of vascular biology is in an amazing growth phase with investigators from multiple disciplines discovering the importance of blood vessels and cells of the vessel wall. Thus my first goal is to increase membership in NAVBO. In particular, I would like to increase the numbers of younger scientists (postdoctoral fellows and junior faculty) and to bring researchers from other areas (cancer, bone, lung, etc) into our organization. You can help by urging postdocs in your labs and junior faculty to apply for membership. We will continue our policy of charging only \$25 for students and postdocs. My second goal is to make NAVBO useful to your research on a regular basis. We will post information pertinent to vascular biology on our Web page; especially new initiatives by the AHA, NIH, foundations, and industry. I have also asked the administration of NHLBI to provide a regular newsletter to the vascular biology community

that will be emailed to our members and posted on the web page. David Robinson, Director, Vascular Research Program, Division of Heart and Vascular Diseases, has kindly agreed to provide us monthly updates and information regarding current and future NHLBI initiatives and programs.

Finally, I will strive, with the help of Paul DiCorleto, to make VB 2000 the best meeting yet. VB 2000 is important because it will be our first meeting jointly hosted with the Arteriosclerosis, Thrombosis, and Vascular Biology Council (ATVB) of the American Heart Association. While many members of NAVBO are also members of ATVB, it will be critical to maintain and define our identity as we work on this joint effort. At the same time I will begin preparations for NAVBO participation in IVBM 2001 in Geneva. Perhaps most importantly, we are continuing Michael Gimbrone's efforts to raise sufficient funding to guarantee the fiscal solidarity of NAVBO and ensure that our future is successful.

I look forward with great expectations to the coming year. I welcome your comments and urge you to participate in making NAVBO even better.

Yours truly,

Bradford C. Berk, NAVBO President

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Vascular Biology 2000 Program
Co-Sponsors: NAVBO and the ATVB Council of the American Heart Association
First Conference on Arteriosclerosis, Thrombosis and Vascular Biology
May 20-22, 2000 - Omni Interlocken Hotel, Denver Colorado

SATURDAY, MAY 20 –

MORNING

NAVBO Satellite Session: Vascular Development

8:00AM-12 Noon

Vasculogenesis/Angiogenesis

Vascular Smooth Muscle Cell Differentiation

12:00 NOON

Registration for Conference

SATURDAY 4PM

Hot Topics

Angiogenesis

Apoptosis

Regulation of Cell Cholesterol

Nitric oxide and vascular function

Poster Session I

SATURDAY EVENING

Reception

SUNDAY, MAY 21

MORNING

Plenary Session I:

Molecular Genetics of Vascular Disease

Genes in atherosclerosis

Gene therapy

Combined Factor V-VIII Deficiency

General Sessions I

Lipoprotein Metabolism: Insights from

Transgenic and Adenovirus Models

- Arteriosclerosis

Smooth muscle cell pathobiology

- Vascular Biology

Protein C pathway

- Thrombosis

Poster Session II

General Sessions will consist of a keynote speaker and several 15 minute presentations selected from abstracts.

These sessions will run concurrently.

End of Conference approximately 4PM.

UPDATES WILL BE AVAILABLE ON THE NAVBO WEBSITE: <http://vessel.med.umn.edu/navbo>

SUNDAY AFTERNOON

General Sessions II

Role of HDL in Atherosclerosis

- Arteriosclerosis

Endothelial Cell Function

- Vascular Biology

Platelet Signaling Pathways

- Thrombosis

Earl P. Benditt Award Presentation and Lecture –

5:00-6:00PM

Poster Session III – 4:30-6:30PM

MONDAY, MAY 22

MORNING

Plenary Session II: Endothelial Cell Dysfunction

Endothelial function

Tissue factors and cell dysfunction

Oxidative events and protective mechanisms

Jeff Hoeg Clinical Investigator Award

General Sessions III

Dyslipoproteinemia: Diet and Genes

- Arteriosclerosis

Vascular and Cardiac Auto-Regulation and

Remodeling

- Vascular Biology

Humoral & Cellular Factors in Fibrinolysis

- Thrombosis

Poster Session IV

MONDAY AFTERNOON

General Sessions IV

Lipases in Atherosclerosis

- Arteriosclerosis

Inflammation and Causative Factors in

Vascular Disease

- Vascular Biology

Integrin Biology

- Thrombosis

Earl P. Benditt Award

This annual award was established in 1998 to honor the memory of Dr. Earl P. Benditt and formally recognize those individuals who have made important advances in vascular biology. The primary criteria, established by NAVBO Council, is research excellence as defined by a specific discovery or development of a concept that has been seminal to our understanding of vascular biology or disease. The Award is intended to go to an individual rather than multiple recipients and to emphasize career contributions rather than young investigator achievements.

Our first awardee, Morris Karnovsky, is a shining example. His work on endothelial permeability, membrane domains, biological functions of polysaccharides and many other areas has stimulated a large part of our field. It was remarkable how many individuals in attendance at VB99 had been influenced either directly or indirectly by the scientific and intellectual activities of this exceptional man.

Last year, nominations for the award were made by current and former NAVBO Council members and the awardee was selected by a majority vote of the Council. This year, the Council has voted to solicit nominations for the Benditt Award from NAVBO members. A Meritorious Awards committee has been established (Mark Majesky, Chair, Joseph Miano, Dawn Schwenke, William Aird and Christie Ballantyne) to develop nomination and selection procedures. The recipient will be presented with the award and give a lecture at VB2000. Further information about nomination criteria will be available through the NAVBO office and website by mid-October and the awardee will be selected by January 1, 2000. As a NAVBO member, your input and participation in the nominating process are very important in ensuring that this award truly reflects the opinion and sentiments of the NAVBO membership.

Mark Majesky and Stephen Schwartz

1999 Earl P. Benditt Award Recipient— Morris Karnovsky

A Pore Poem

Morris Karnovsky, M.B.B.Ch, D.Sc.

The amazing John Pappenheimer,
(Whose name defies any rhymers!)
And many others, postulated small and large
pores to be
The basis of capillary permeability
I, perhaps foolishly, ascribed small pore function
To the endothelial junction
Which I opined is incompletely tight
But I was told this is not right!
Suppose there are also rare gaps, sufficiently large
Thru which big macromolecules can barge
Others fervidly disagree,
And localize to Palade's caveolae
Not only large, but small pores as well!
What is correct? Will time tell?
Will this 35 year old dispute
Be one day rendered mute?



At the VB99 meeting, NAVBO proudly recognized Morris J. Karnovsky as the 1999 Earl P. Benditt Awardee. At the awards ceremony, Dr. Karnovsky was presented with an engraved

crystal jade award and gave the premiere Earl P. Benditt Award Lecture.

Dr. Morris J. Karnovsky was recognized for his numerous fundamental discoveries on cell structural and functional relationships that have had far-reaching impact in pathology as well as cell biology and physiology. Dr. Karnovsky was born in South Africa and received his medical education at the University of Witwaterstrand and after internships in medicine and surgery, he went to London where he received a postgraduate degree in clinical pathology. He then moved to Boston to work as a Research Fellow in Pathology at Harvard Medical School. Dr. Karnovsky remained at Harvard, advancing through the ranks, and today is the Shattuck Professor of Pathological Anatomy at Harvard Medical School. From 1975 to 1989 he was the Chair of the Program in Cell and Developmental Biology at Harvard Medical School.

Two common threads link Morris' research through the years -- the study of the structural components of cells and their function, and the analysis of how disease states change structure and function. His research papers pioneered the

invention and development of different technologies and are often an elegant weave of innovative techniques, creative experimental techniques and sophisticated models.

One of Morris' most widely recognized contributions was the extension of the horseradish peroxidase (HRP) tracer method of Werner Straus to both the light and electron microscopic level, by introducing diaminobenzidine (DAB) as an electron donor. HRP oxidizes DAB in the presence of H₂O₂ and converts it to an insoluble primer which causes the reduction of added osmium tetroxide. The reduced osmium forms an insoluble electron opaque precipitate, localized to the site of the HRP. When HRP is injected into the bloodstream, its pathways can be followed by fixation of the tissue at various times following injection and then carrying out the DAB reaction. The first paper to introduce this technique authored by Morris Karnovsky and Richard Graham traced the endocytotic uptake of HRP from the glomerular filtrate into cells of the proximal tubules. This study is a citation classic, and is one of the most highly quoted studies in the biomedical literature.

With Thomas Reese, Morris used the HRP method to establish that the endothelial cells in the brain vasculature form the cellular correlate of the so-called blood brain barrier. This endothelial barrier prevents macromolecules in the blood from reaching neurons. Likewise, with Elio Raviola, Morris established the blood-thymus barrier, and with Eveline Schneeberger, the blood-air barrier of the lungs. The small pore system of Pappenheimer was identified in muscle capillaries at the level of permeable intercellular junction, an observation that is still controversial today (see poem above).

Another innovation developed by Morris was the introduction of colloidal lanthanum as an electron opaque tracer. Using this tracer, Morris and Jean-Paul Revel succeeded in revealing the fine structure of gap junctions, the structural correlate of electrophysiologically defined electrical synapses that were known to occur in cells of excitable tissues. Morris advanced a number of other cytochemistry techniques including methods to detect mitochondrial

cytochrome c oxidase, cholinesterases, and oxygen derived products of the oxygen burst. With Richard Rodewald, he described the slit diaphragm of the glomerulus, and with Graeme Ryan, he demonstrated that the glomerular basement membrane serves as the barrier to endogenous albumin.

More recently, Morris, together with Alexander Clowes, discovered that heparin, a well known anticoagulant, also inhibits the proliferation of smooth muscle cells. The antiproliferative activity of heparin and related molecules is presently a major research focus of Morris's laboratory, and was the subject of his Benditt Award Lecture.

In addition to his research contributions, Morris is an inspiring teacher and a prominent figure in the community of experimental pathology and cell biology. He has served as the President of the American Society of Cell Biology (1984), and Co-President of the American Association of Pathologists (1978). He has served on the editorial boards of *The Journal of Cell Biology*, and *The American Journal of Pathology*, among others. Morris has received numerous honors and awards, among them: the Rous-Whipple Award of the American Association of Pathologists (1981); the E.B. Wilson Award of the American Society for Cell Biology (1990), the Gold-Headed Cane Award (1994) from the American Society for Investigative Pathology (formerly the American Association of Pathologists), and was the Maude Abbott Lecturer (1994) of the US and Canadian Academy of Pathology. He is a member of the Institute of Medicine of the National Academy of Sciences, a fellow in the American Academy of Arts and Sciences, and Honorary Fellow of the Royal Microscopical Society, London, and a Distinguished Scientist Awardee of the Electron Microscope Society of America.

Apart from indulging in the writing of light verse, Morris is an avid fly fisherman. (Perhaps that was Morris you saw floating around in his waiters and the tube catching the big trout on the weekends?)

Our congratulations to Dr. Karnovsky!

Mary E. Gerritsen

Member News

THANK YOU FOR THE GENEROUS CONTRIBUTIONS!

The members who contributed to the “Young Investigators Travel Award” are too numerous to mention. However, it is important to announce that we have received over \$500 in contributions and still counting. Your generosity will enable at least one additional student or postdoc to attend the VB2000 Meeting (NAVBO will sponsor several). Even if you have paid your dues, it is not too late to contribute, simply send a check for any amount to NAVBO, 9650 Rockville Pike, Bethesda, MD 20814-3993, indicate that the payment is a contribution toward the Travel Award.

Information about eligibility for Travel Awards will be in the Call for Papers (First Conference on Arteriosclerosis, Thrombosis and Vascular Biology). Awardees will be selected and notified prior to the meeting.

WEBSITE

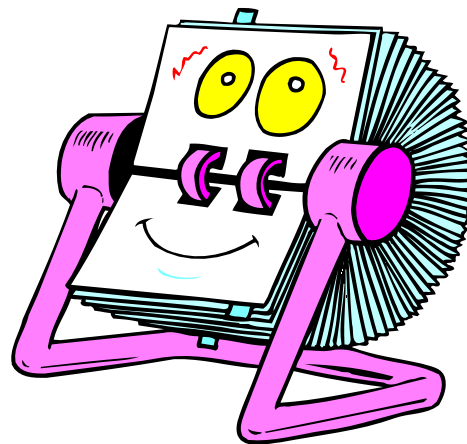
We are continually in the process of updating the NAVBO web page. If you have links (e.g. to your institution or laboratory) that you would like included on the NAVBO web links page, please email that information to Bernadette Englert, email: benglert@pathol.faseb.org.

Also, please send meeting announcements, web sites and other information for either the website or this newsletter to Bernadette Englert at the above email address.

ON-LINE MEMBERSHIP DIRECTORY

Please take a moment to review your information on the NAVBO On-line Directory of Members. (<http://vessel.med.umn.edu/navbo>). Updates are made on a continual basis but errors or missing information can still occur. If there is an error or omission, please send corrections to the NAVBO administrator via email at benglert@pathol.faseb.org or via fax at (301) 571-1879.

All members are asked to check their email address. Very often important announcements are emailed to the membership. Be sure you don't miss out on these announcements, verify your email address in the on-line directory today!.



ELECTION RESULTS

President-Elect

Mary E. Gerritsen

Councillors

Alexander W. Clowes

Tucker Collins

The following appointments have been made:

Secretary-Treasurer

Linda L. Demer

Meritorious Awards Committee Chair

Mark W. Majesky

Job Opportunities

SENIOR RESEARCH ASSISTANT, LEVEL-1 (SRA1) - TISSUE ENGINEERING

Position is available immediately for a research assistant to perform human and animal cell isolation, maintain cell lines, and perform/assist in the development of new tissue engineering systems (70% time). The research assistant will also supervise a multi-user culture facility, instruct users in general tissue culture techniques, establish protocol for laboratory safety, maintenance and quality control, and maintain various tissue culture equipment and stocks of clean and sterile culture material (30% time). Candidates will have M.S. or B.S. in biological sciences and significant experience in human cell culture will be a decisive advantage. Long-term commitment required.

Send C.V. and names of three references to Dr. John Frangos, Department of Bioengineering, UCSD, La Jolla, CA 92093-0412

POSTDOCTORAL POSITION: MECHANOTRANSDUCTION

University Health Network, Toronto.

The Vascular Research Laboratory has positions available for postdoctoral fellows to study signal transduction in response to mechanical forces in vascular endothelial cells and in smooth muscle, and to study arterial remodeling in response to mechanical loads *in vivo*. Studies of mechanotransduction investigate the effects of *in vitro* shear stress and stretch on activation of signaling pathways (primarily using Western blotting, co-immunoprecipitations, transfections with reporter constructs), and the physiological responses of cells to this activation. *In vivo* experiments involve surgical manipulations that alter mechanical loads combined with studies of signaling and structural remodeling (cell migration, proliferation & death, matrix synthesis/degradation and regulation of these processes) in response to these manipulations.

Candidates should send CVs and direct inquiries to:

Lowell Langille, PhD

The Toronto General Hospital

CCRW 1-836

200 Elizabeth Street

Toronto, ON M5G 2C4

email: lowell.langille@utoronto.ca

fax: (416) 340-4287

POSTDOCTORAL ASSOCIATE - SIGNAL TRANSDUCTION

Position is available immediately to study mechanochemical signal transduction in cultured cells. Emphasis will be on the role of G proteins in transducing flow-induced signals. Must have knowledge of cell biology and molecular techniques related to signal transduction. Candidate will have a Ph.D. in relevant area of biochemistry, molecular biology, or cell biology. Send C.V. and names of three references to Dr. John Frangos, Department of Bioengineering, UCSD, La Jolla, CA 92093-0412

RESEARCH CAREER POSITION VASCULAR BIOLOGY

We are currently seeking candidates for a full time Senior Research Associate in the Vascular Research Laboratories, Department of Surgery at the Health Sciences Center, State University of New York and the Syracuse Veterans Affairs Medical Center. The research program is investigating the molecular bases of thrombosis and vascular healing, focussing on platelets, integrins, other vascular cells and heparins. The Vascular Research Laboratories are currently funded by the NIH and other extramural agencies, and have rich collaborations with the Departments of Anatomy and Cell Biology, and Pathology.

Experiences in protein and peptide biochemistry, glycobiology, signal transduction, or cellular receptors would all be welcome. Depending on qualifications and experience, academic appointment at the Research Assistant Professor level or higher may be available. Candidates should have a PhD or M.D. degree and relevant past experience.

Please submit your CV with a cover letter to:

Professor Michael Sobel, M.D.

Division of Vascular Surgery

Health Science Center

State University of New York

750 East Adams St, Syracuse NY 13210

Fax 315 477-4858

SobelM@hscsyr.edu

POSTDOCTORAL POSITIONS

UNIVERSITY OF WASHINGTON, SEATTLE

DEPARTMENT OF BIOCHEMISTRY

Two NIH-funded postdoctoral positions are available to study 1) the mode of action of the angiogenesis inhibitor, thrombospondin 2 (TSP2); and 2) the regulation of expression of type I collagen genes. Studies of TSP2 will take advantage of the TSP2 knockout mouse. The

complex phenotype of these mice includes increased angiogenesis, a defect in collagen fibrillogenesis, abnormal cell-matrix interactions manifest as reduced fibroblast adhesion, and a bleeding tendency. Mutations will be introduced into regulatory regions of collagen genes by homologous recombination in embryonic stem cells to study gene regulation in mice.

Experience in mammalian molecular and/or cell biology is desirable. Salary will be commensurate with experience.

Interested individuals should send a resume and the names of three references to:

Paul Bornstein, M.D.

Department of Biochemistry

Box 357350

University of Washington

Seattle, WA 98195

TEL: 206-543-1789; FAX: 206-685-4426

E-MAIL: bornsten@u.washington.edu

POSTDOCTORAL RESEARCH POSITION: ANGIOGENESIS/REVASCLARIZATION

A postdoctoral position is available to study mechanisms of angiogenesis/revascularization in physiological and pathological situations. A recent Ph.D. in Experimental Pathology/Physiology or related field with strong enthusiasm in scientific research is necessary. Previous expertise in cardiovascular biology (publications), gene expression, and gene transfer is desirable.

Qualified candidates please contact Dr. David Gordon or Dr. He Wang at Parke-Davis Pharmaceutical Research

Department of Cardiovascular Therapeutics

2800 Plymouth Road, Ann Arbor, MI 48105

Fax: 734-622-1480

Tel. 734-622-5421 (Dr. Gordon)

Tel. 734-622-5710 (Dr. Wang)

POSTDOCTORAL FELLOWSHIPS

ALBERT EINSTEIN COLLEGE OF MEDICINE

The "Mechanisms of Cardiovascular Disease" Training Grant offers NIH-funded postdoctoral positions to candidates with Ph.D.s and/or M.D.'s desiring two or three years of laboratory based training. Participating laboratories have programs in molecular regulators of angiogenesis (J. A. Ware); cardiomyocyte growth and cell death (R.N. Kitsis); gap junctions in cardiovascular tissues (D. Spray); transcription factors in cardiac development (T.R. Evans, H. Nguyen); TGF- β in vascular growth (E. Bottinger); diabetic cardiomyopathy (M. Charron); mechanisms of cell migration (J.

Condeelis); anti-myosin antibodies in myocarditis (B. Diamond); cholesterol in membrane transport (M. Kielian); genetics of cardiovascular abnormalities (B. Morrow, R. Kucherlapati, A. Skoutchi); caveolae in cardiovascular tissues (M. Lisanti); ion channel regulation (T. McDonald); monocyte - endothelial interaction (J. Berman); prostaglandin transport (V. Schuster); adhesion molecules (P. Stanley); T. cruzi myocarditis (H. Tanowitz); and cell cycle control (R. Pestell, L. Zhu).

Candidates must be U.S. citizens or permanent residents. To apply, please send a curriculum vitae, names of three references, and a statement of research interests to:

J. Anthony Ware, M.D.

Chief, Cardiovascular Division

Albert Einstein College of Medicine

Jack & Pearl Resnick Campus

1300 Morris Park Avenue

Bronx, New York, 10461

Fax: (718) 430-8989

POSTDOCTORAL POSITION

TO START AROUND JUNE, 2000

HARVARD MEDICAL SCHOOL

Field of vascular biology and/or obesity. Study the role of leukocyte and platelet adhesion receptors in thrombosis, inflammation, atherosclerosis and adipogenesis. Prefer candidates with experience in molecular biology and/or working with mice. Publications in international journals are a prerequisite. Curriculum vitae to: Denisa D. Wagner, Ph.D., Professor of Pathology, Harvard Medical School, The Center for Blood Research 800 Huntington Avenue, Boston, MA, 02115. Fax: (617) 278-3368. An Equal Opportunity Employer.

POSTDOCTORAL POSITIONS are available for individuals interested in investigating the role of leukocyte adhesion receptors in inflammation using gene targeted mice. Present studies include investigating 1) mechanisms regulating neutrophil apoptosis; 2) leukocyte dependent mechanisms in glomerulonephritis; 3) role of the β_2 integrin, CD11b/CD18, in leukocyte functions. Strong background in molecular biology/cell biology, immunology or pathology is desired. Experience in investigating signaling mechanisms or small animal experimentation a plus. Publication(s) in international journals is a prerequisite.

Send CV and names of 3 references to: Tanya Mayadas, Ph.D., Associate Professor of Pathology, Brigham and Women's Hospital and Harvard Medical School, 221 Longwood Ave., Rm. 404, Boston, MA 02115, Fax: (617) 732-5933.

POSTDOCTORAL POSITIONS

PATHOGENESIS OF VASCULAR DISEASE

Positions are now available to conduct research on the mechanisms of signal transduction in vascular endothelium. Challenging opportunities exist to study nongenomic steroid hormone responses and the compartmentalization of signal transduction (Cell 78:751, 1994; JBC 271:6518, 1996; PNAS 94:13666, 1997; JCI 102:176, 1998) in model systems addressing the pathogenesis of atherosclerosis and hypertension. Candidates desiring to work in an interdisciplinary "laboratory without walls" research environment should send a CV and description of research goals to:

Richard G.W. Anderson, Ph.D. or

Philip W. Shaul, M.D.

University of Texas Southwestern Medical Center

5323 Harry Hines Blvd., Dallas, TX 75235

E-MAIL: anderson06@utsw.swmed.edu or pshaul@mednet.swmed.edu

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POSTDOCTORAL POSITIONS

BIOCHEMISTRY, CELL AND MOLECULAR BIOLOGY

CENTER FOR MOLECULAR MEDICINE

MAINE MEDICAL CENTER RESEARCH INSTITUTE

The Center's major research focus is on the molecular mechanisms of human diseases of the cardiovascular system, cancer, and bone and mineral metabolism.

Specific research interests of participating faculty, include the following:

Volkhard Lindner, Dr.med.habil,

(lindnv@poa.mmc.org)

The biology of high molecular weight FGF-2 complexes.

Characterization of novel genes expressed in the vessel wall.

Lucy Liaw, Ph.D. (liawl@poa.mmc.org)

Function of adhesion proteins during vascular injury.

Extracellular signals affecting tumor growth and progression.

Robert Friesel, Ph.D. (friesr@mail.mmc.org)

Normal and abnormal signal transduction during bone growth and development.

Identification of novel antagonists of FGF signaling.

Douglas Spicer, Ph.D. (spiced@poa.mmc.org)

Regulation of growth and differentiation of muscle, bone, and endothelial cells.

Transcriptional regulation of mesenchyme formation from the cranial neural crest.

Thomas Maciag, Ph.D. (maciat@mail.mmc.org)

The Role of FGF and Jagged in the regulation of angiogenesis

Novel mechanisms of protein traffick

Applications are invited from candidates with a strong background in biochemistry, cell and molecular biology. For information about Maine Medical Center Research Institute, visit our website at: <http://zappa.mmc.mmc.org>.

Interested candidates should send a curriculum vitae and the names, addresses and telephone numbers of three references to the faculty E-mail address or mail to: Center for Molecular Medicine, Maine Medical Center Research Institute, 125 John Roberts Rd., Suite 12, South Portland, ME 04106, USA

POSTDOCTORAL FELLOWSHIPS

Postdoctoral Fellowships are available to study the molecular mechanisms of cardiovascular disease in the laboratory of Dr. Tim McCaffrey, in the Division of Hematology/Oncology and the Center of Vascular Biology at Cornell University Medical College in New York City. The current focus of the laboratory is on mechanisms of resistance to growth inhibitory and apoptotic factors in cells cultured from human vascular lesions (J. Clin. Invest. 100(9): 2182-2188, available at www.jci.org). Experience in molecular biology is required and some experience with growth factor biology would be preferred.

Cornell University Medical College is one of the top ten medical schools in the U.S. and is located on Manhattan's Upper East Side. Cornell is a part of a much larger research complex that includes The Rockefeller University, Memorial Sloan-Kettering Cancer Center, and The Hospital for Special Surgery. The present position would be a traineeship funded through the National Institutes of Health. The successful candidate would be educated in a highly collaborative environment that includes scientists and physicians from the Center of Vascular Biology, the Divisions of Hematology/Oncology, Pathology, Cardiology, Vascular Surgery, and Microbiology.

Contact Dr. McCaffrey
Email: tamccaf@med.cornell.edu
FAX at (212) 746-8866

POSTDOCTORAL RESEARCH POSITIONS

available to study signal transduction in endothelial cell biology. Projects include (1) interaction between estrogen receptor- and growth factor-mediated signaling pathways (2) biomechanical stimuli of NO and growth factor production; and (3) regulation of signaling pathways by reactive oxygen species. Training in cell/molecular biology essential (less than 4 years from Ph.D.); experience with mechanisms of cell activation or regulation of gene expression desirable.

Send CV and names of three references to William Schnaper, M.D. or Stephen Black, Ph.D.; Mail Stop W-140; Northwestern University Medical School; 303 E. Chicago Ave.; Chicago, IL 60611-3008.

For more information, e-mail: schnaper@nwu.edu or steveblack@nwu.edu Northwestern University is an equal opportunity, affirmative action educator and employer.

POSTDOCTORAL POSITION

is available to study the regulation of smooth muscle-specific gene expression. Our laboratory is utilizing the telokin gene to begin to identify nuclear factors that are responsible for the development of smooth muscle. Experience in molecular and cell-biological techniques is essential.

For further information please contact,
Dr. Paul Herring
Department of Physiology
Indiana University School of Medicine
635 Barnhill Drive, Indianapolis IN 46202
(317) 278-1785, Email: pherring@iupui.edu

GRADUATE STUDENTS & POSTDOCTORAL FELLOWS - OUTSTANDING OPPORTUNITIES IN CARDIOVASCULAR RESEARCH

The University of Virginia offers a multidisciplinary training program in basic cardiovascular research. Our special strengths are in the area of vascular biology with studies emphasizing molecular biology, physiology, pharmacology, biophysics, and cell biology of the vessel wall. Thirty-one investigators are participants in a training program with a long history of successful mentoring of both graduate students and postdoctoral fellows. Our particular

strengths are in the areas of: structural biology, cell signaling, and microvascular function. Laboratory investigations are underway in cell-cell communication in microvessels; cardiac, smooth muscle cell signal transduction; angiogenesis, and leukocyte-endothelial cell interactions. Positions are well supported and include stipend, health insurance, and travel. A special program also exists for MD's wishing to pursue the PhD. Details of the interests of the faculty, a description of the program, and application forms may be found on our website: <http://www.med.virginia.edu/medicine/interdis/cvrc>. For additional information e-mail cimcon@virginia.edu. Interested and competitive applicants may also apply directly to: Dr. Brian R. Duling, Department of Molecular Physiology and Biological Physics, P.O. Box 10011, Health Sciences System, University of Virginia, Charlottesville, VA 22906-0011. *These positions are restricted to permanent residents or citizens of the United States. The University of Virginia is an Equal Opportunity Employer.*

CELLULAR AND INTEGRATIVE PHYSIOLOGY GRADUATE PROGRAM

Indiana University School of Medicine Department of Physiology and Biophysics offers a program leading to a Ph.D. A Combined Degree program (Ph.D./M.D.) is also available for those who are accepted into the Indiana University School of Medicine. The goal of the program is to train physiologists for careers in a variety of teaching and research institutions. Most graduates of these programs have found positions in universities, frequently in a medical school setting. However, the training received also prepares graduates for positions in industry and government. The programs consist of academic course work, research, and teaching experience. Students pursue programs of study under the guidance of a faculty advisor and graduate committee. All students complete core courses in mammalian physiology, cell biology and biochemistry. Since graduate study is a highly individualized enterprise, the additional advanced courses taken by each student depend to some extent on interest and previous training. Instruction to small groups of students in advanced areas of physiology is an important feature of the program. Graduate training in the department reflects the modern view of physiology as an integrative science, utilizing information obtained from several different levels to gain a better understanding of organ system functions. State-of-art techniques are

used to study physiological responses at the molecular, cellular and whole organ levels. Changes in gene expression, protein function, and intracellular events are integrated with changes in organ function. The specific research interests of most of the faculty can be grouped under four principal themes: cardiovascular physiology, cell growth & development, respiratory biology and signal transduction mechanisms. The choice of research specialization within these themes is left to the student. The student-research advisor ratio is usually no more than 2:1. Training in teaching is an important component of graduate study. Advanced students have the opportunity to gain lecturing experience in a basic Physiology course taught to undergraduates. For more information check us out on the web at www.iupui.edu/~medphys/grad.

POSTDOCTORAL POSITION

Available immediately, Vascular Biology Center of the Medical College of Georgia in Augusta, GA. The NIH funded project deals with the molecular and cellular control of the type II nitric oxide synthase (iNOS) induction in rat and human vascular smooth muscle cells. The fellow would be part of an active 10-member laboratory, one of the 10 vascular laboratories in the newly constructed 20,000sq feet Vascular Biology Center. The successful candidate will have a Ph.D. in a basic science with strong publishing expertise in cellular and molecular methodologies. Salary \$25,000/yr.

Send CV including names of three references to:
Prof. John Catrava
Vascular Biology Center, Med Col of Georgia
Augusta GA 30912-2500, USA
Tel. #: (706) 721 6338
FAX : (706) 721 9799
Email: jcatrava@mail.mcg.edu

POSTDOCTORAL RESEARCH ASSOCIATES VASCULAR BIOLOGY OF CANER THE SCRIPPS RESEARCH INSTITUTE

New positions available for qualified candidates with strong backgrounds in molecular biology, cell biology and vascular biology to investigate tumor microvascular endothelium, angiogenesis, selective tumor vascular thrombosis, mechanisms of tumor cell implantation and regulation of relevant genes. Qualified candidates must be U.S. citizens or permanent residents and have received a Ph.D. or M.D. degree.

Faculty: Thomas S. Edgington, M.D., David A. Cheresch, Ph.D., Nigel Mackman, Ph.D., Barbara M. Mueller, Ph.D., Wolfram Ruf, M.D.
Please submit letters of interest and C.V. to T.S. Edgington, M.D., The Scripps Research Institute, IMM-17, 10550 North Torrey Pines Road, La Jolla, CA 92037.

SCIENTIST/SENIOR SCIENTIST POSITION Genentech, South San Francisco.

Requisition #: 98-0001037

Dept of Cardiovascular Research has a position available immediately. Responsibilities: developing in vivo models of human pathophysiology, and efficacy testing of therapeutic candidates. As part of a multidisciplinary team you will be responsible for experimental design and execution, and interacting with a variety of groups in collaborative efforts aimed at drug discovery. Specific areas of investigation include, but are not limited to, stroke research, therapeutic angiogenesis and models of heart failure. Requirements: Ph.D. or M.D. with demonstrated record of accomplishment in cardiovascular pharmacology, physiology and in vivo model development. Send your resume to jobs@gene.com

POST DOCTORAL FELLOWS

The Centre for Research in Vascular Biology, University of Queensland is happy to receive applications from post-doctoral fellows at any time. These can be applied for through Australian granting bodies.

Contact: <http://www.uq.edu.au>
Professor Julie H. Campbell, Director,
Centre for Research in Vascular Biology
Department of Anatomical Sciences
The University of Queensland
Brisbane QLD 4072, Australia
Telephone: +61 7 3365 4658
Fax: +61 7 3365 7261

Calendar of Scientific Meetings

September 12-15, 1999. Boston, MA **.6th International Conference on Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation and Related Diseases.**

Contact: Dr. Charles Serhan
Center for Experimental Therapeutics and Reperfusion Injury
Brigham and Women's Hospital
75 Francis Street, Boston, MA 02115
E-mail: cetri@zeus.bwh.harvard.edu
Tel.: 617-732-8822 Fax: 617-278-6957
Internet: <http://zeus.bwh.harvard.edu/poster.htm>

September 12-16, 1999 Melbourne Australia. **XXIVth World Congress of the International Society for Cardiovascular Surgery.** Contact: International Society for Cardiovascular Surgery World Congress, 13 Elm Street, Manchester, MA 01944, USA

September 16-19, 1999. Warrina Paradise Resort, Second Valley, South Australia. **Seventh Annual Scientific Meeting of the Australian Vascular Biology Society.** "The Development and Maintenance of the Vascular System."

For Details:
<http://www.baker.edu.au/AVBS/meet99.html>
or contact: Dr. Jennifer Gamble, Organiser,
(jennifer.gamble@imvs.sa.gov.au)

September 24-25, 1999. Maebashi, Gumma, Japan. **Second Japanese Vascular Biology Organization Meeting.** Contact: Chairperson Prof. Ryozo Nagai (2nd Dpt of Int Medicine, Gumma University Medical School) E-mail: tnakamura@sb.gumma-u.ac.jp

October 3-7, 1999. The Fairmont Copley Plaza, Boston, MA. **AATD '99: Advances in Anticoagulant, Antithrombotic and Thrombolytic Drugs.** Website: www.ibcusa.com/2198; email: jlevinson@ibcusa.com IBC USA Conferences

October 7-10, 1999. Bethesda, MD, **Concepts in Molecular Biology. American Society for Investigative Pathology.**
Email: asip@pathol.faseb.org

October 12-15, 2000. Washington University Medical Center, St. Louis, MO. **The Biology And Pathology Of Extracellular Matrix, An International Workshop** A comprehensive meeting emphasizing new directions in

extracellular matrix biology. This workshop will be organized to promote interactions among established investigators, trainees, and students. Plenary Sessions are planned for mornings with poster sessions and informal workshops in the afternoons. There will also be daily social events with lots of food and drink. Workshops will include featured speakers and short presentations from selected abstracts.

For more information, please visit the meeting web site at:

WWW.ECM2000.WUSTL.EDU

Local Organizing Committee:

Robert P. Mecham, Ph. D.
(bmecham@cellbio.wustl.edu)
William C. Parks, Ph. D.
(parks_w@kids.wustl.edu)
Linda J. Sandell, Ph. D.
(sandelll@msnotes.wustl.edu)
Robert M. Senior, M.D.
(rsenior@imgate.wustl.edu)

October 28-31, 1999. Venice, Italy. 5th International symposium "**Multiple risk factors in cardiovascular disease: global assessment and intervention**". Contact: MRF '99 Giovanni Lorenzini Medical Foundation. Houston.
Tel 713 797 0401; Fax 713 796 8853

November 2-4, 1999. Miami Beach, FL. "**Horizons in Vascular Biology and Therapeutics.**" Sponsored by the American Society of Nephrology. Co-organized by Thomas O. Daniel, Vanderbilt University Medical Center. Travel support for trainees available.

Applications and Abstract forms can be obtained through:

Lisa Gundling, American Society of Nephrology
Fax: 202/429-5140
Email: Lisa_Gundling@dc.sba.com

November 2-5, 1999. The Claremont Resort & Spa . Berkeley, CA. 1999 **IBC's 6th Annual Biochip Technologies Conference Presents: Chips to Hits '99 .Harnessing the Power of Microtechnology**, www.chipstohits.com. For more information contact: Ellen Massa, IBC USA Conferences Tel: 508-481-6400

Fax: 508-481-7911, E-mail: emassa@ibcusa.com
November 7-10, 1999. Atlanta GA, **72nd Scientific Sessions. American Heart Association.**

Contact: www.americanheart.org/sessions

November 8-10, 1999. Milan, Italy. **Biological basis for antiangiogenic therapy.** Contact: Gabriella Vocaturo, gvocaturo@imcgroup.it

November 18-22 1999. New Orleans, LA . **Oxygen '99** Contact: The Oxygen Society (415) 564-3124, Email: info@oxygenociety.org <http://www.mcw.edu/biophys/oxsoc/> or www.cardinalweb.com/oxygen99

Dec 9-11, 1999. Paris France. **Beyond Monogenic Disorders: The Challenge of Complex Cardiovascular Diseases.** Contact: heart.workshop@myologie.infobiogen.fr Pascale Guicheney, PhD, Chairman INSERM U523, Institut de Myologie, Hôpital Pitié-Salpêtrière, 47, boulevard de l'Hôpital 75651 Paris Cedex 13, France Fax: 33 1 42 16 57 00

January 6-12, 2000. Keystone, CO. **Gene Therapy: The Next Millenium** Contact: keystone@symposia.com or <http://www.symposia.com>

January 12-17, 2000 Snowbird, UT. **Molecular Biology of the Cardiovascular system** Contact: keystone@symposia.com or <http://www.symposia.com>

February 17-18, 2000. Hyatt Regency Hotel, Bethesda, MD. 2000 Research Initiatives in Vascular Disease Conference- **"The Biology of Vascular Interventions: Minimally Invasive Approaches to Vascular Disease."** Sponsored by: The Lifeline Foundation & The Cardiovascular and Interventional Radiology Research and Education Foundation Call for Abstracts: Trainees at the level of student (undergraduate, medical or graduate school), residents and fellows are encouraged to submit abstracts for a poster session. Selected abstracts will be considered for publication in the *Journal of Vascular Surgery* and the *Journal of Vascular and Interventional Radiology*. Trainees selected to participate in the poster session will receive up to \$1,000 for travel expenses to attend the conference. Abstract deadline: October 27.

For abstract forms and information contact: Lifeline Foundation, 13 Elm Street, Manchester, MA 09144; (978) 526-8330; Fax: (978) 526-7521; Email: lifeline@prii.com

March 2-7, 2000 Salt Lake City, UT **Experimental and Clinical Regulation of Angiogenesis.** Contact: keystone@symposia.com or <http://www.symposia.com>

March 9-11, 2000. Tucson, Arizona. The International Society for Applied Cardiovascular Biology (ISACB) 7th Biennial Meeting **"Towards Biofunctional Cardiovascular Implants"** For additional information contact: S.P. Schmidt, Falor Center for Vascular Studies, Summa Health System, 525 East Market Street , Akron, Ohio 44309 USA Tel: 330 375-3693. email: schmidt@brain.biomed.uakron.edu Or visit ISACB's web site at: www.neoucom.edu/isacb

April 12-15, 2000. Groningen, The Netherlands 9th International ANCA Workshop and Clinical Vasculitis Symposium. **Systemic Vasculitides and the role of ANCA in these diseases.** Contact: Groningen University Hospital Centre for Postgraduate Education Ch. L. Brugman, Coordinator Hanzeplein 1, 9713 GZ Groningen The Netherlands Telephone: +31-50-3612745 Fax: +31-50-3611819 E-mail: Ch.Brugman@RVB.AZG.NL

April 14-16, 2000. San Diego, CA. **The Microcirculatory Society** For information visit the society's website at: microcirc.org/NEWS/FALL99/ARTICLES/MeetInfo.html

April 15-18, 2000. San Diego, CA. **Experimental Biology 200.** Contact: FASEB Office of Scientific Meetings and Conferences - Tel: (301) 530-7010, fax: (301) 530-7014 www.faseb.org/meetings or email: eb@faseb.org

May 20-22, 2000. Omni Interlocken Hotel, Denver, CO. **First Conference on Arteriosclerosis, Thrombosis and Vascular Biology.** Co-sponsored by NAVBO and the ATVB Council of the American Heart Association. Contact Jo Anderson at the AHA: joa@heart.org or Bernadette Englert at NAVBO: benglert@pathol.faseb.org

May 20, 2000. Denver, CO. **NAVBO Satellite Session on Vascular Development** at the First Conference on Arteriosclerosis, Thrombosis and Vascular Biology. Contact NAVBO: benglert@pathol.faseb.org.

June 24-July 3, 2000. Knossos Royal Village, Crete, Greece **NATO Advanced Study Institute: Vascular Endothelium: Source and Target of Inflammatory Mediators**

This conference is limited to 100 people. To apply, send letter to:

John D. Catravas, Ph.D., Vascular Biology Center, Medical College of Georgia, Augusta, GA 30912-2500, USA. tel:706-721-6338; fax: 706-721-9799; email: jcatrava@mail.mcg.edu

June 4-7, 2000. Stockholm, Sweden. **21st Conference on Microcirculation for the European Society of Microcirculation.** Contact: www.motivationservice.se/esm2000/

September 5-9, 2000. Geneva, Switzerland **IVBM 2000: The XIth International Vascular Biology Meeting.** Scientific Committee: Goeran Bondjers, Alexander W. Clowes, Patrice Delafontaine, Daniel Hayoz, Thomas F. Luescher, Sei-itsu Murota, Rodolfo Paoletti, Michael S. Pepper and Giulio Gabbiani.

Local Committee: Marie-Luce Bochaton-Piallat, Christine Chaponnier, Sophie Clement, Pascal Neuville and Myriam Vitali.

For more: <http://cmu.unige.ch/ivbm2000/> or email the Organizing Agency at: Anne-lise@mcitravel.com

October 19-22, 2000. Washington University Medical Center St. Louis, Missouri, USA. **The Biology And Pathology Of Extracellular Matrix, An International Workshop.** A comprehensive meeting emphasizing new directions in extracellular matrix biology. This workshop will be organized to promote interactions among established investigators, trainees, and students. Plenary Sessions are planned for mornings with poster sessions and informal workshops in the afternoons. There will also be daily social events. Workshops will include featured speakers and short presentations from selected abstracts.

For more information, please visit the meeting web site at:

WWW.ECM2000.WUSTL.EDU

Local Organizing Committee:

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In support of NAVBO's efforts to promote vascular biology, in particular Vascular Biology '99, attendance at VB meetings by fellows and students, and funding for future International Vascular Biology Meetings held in North America.

International Vascular Biology Meeting 2004

Late Summer, 2004

Somewhere in North America!!!

Maybe your campus!!

The NAVBO Council is considering possible sites for IVBM 2004. If you are interested or would like more information please contact Gary Owens, gko@virginia.edu or Stephen Schwartz, steves@u.washington.edu

A major goal of NAVBO for the next two years will be to establish some seed funding to help in the establishment of the IVBM meeting.

NAVBO MEMBERSHIP INFORMATION

Membership in NAVBO is growing! As of July 1, we have over 600 active members and a substantial number of members are trainees (which we encourage)! Now is the time to encourage your colleagues and trainees to join NAVBO and network with other members of the vascular biology community!

How do I apply for membership?

Complete the membership application form in this newsletter and return it, along with a check or authorization for credit card payment (Visa or Mastercard only) for your first year membership dues (\$45 Regular, \$25 Trainee, payable to NAVBO). There are two membership categories:

Regular Member: Those who hold an advanced degree (M.S., M.D., Ph.D) or who have professional experience in the field.

Trainee Member: Graduate students, residents, postdoctoral fellows, undergraduate students, technicians with interest or experience in vascular biology. Applicant must be sponsored by their academic supervisor, laboratory head or department chairman.

COPY THIS FORM AND GIVE IT TO YOUR COLLEAGUES!

NAVBO Application for Membership

Name: _____

Position: _____

Department: _____

Institution: _____

Street Address: _____

City: _____

State: _____

Zip: _____

Phone: _____

Fax: _____

Email: _____

Degree: MS__ PhD__ MD__ Other ____

Trainee: Fellow/Resident Graduate Student

I hereby apply for (check appropriate box):

Regular

Trainee* membership in NAVBO.

Signature: _____

Submit this form and current curriculum vitae (*letter from supervisor/department head) along with a check payable to NAVBO (\$45 regular, \$25 Trainee) to:

NAVBO
9650 Rockville Pike
Bethesda, MD 20814-3993.

If paying by VISA or Master Card please include

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