

3rd Mayo Clinic Angiogenesis Symposium:

*State of the Art Connections From
Biology to Translational Medicine*

This course has been supported in part by the Mayo Clinic Biochemistry and Molecular Biology Department and Department of Internal Medicine.

In Memoriam: Judah Folkman, M.D. (1933-2008)

October 24-26, 2008

**Marriott Hotel & Mayo Clinic
Rochester, Minnesota**

Program Directors:

Philip Greipp, M.D., Mayo Clinic

Debabrata Mukhopadhyay, Ph.D., Mayo Clinic

Program Co-Chairpersons:

David Cheresh, Ph.D., University of California-San Diego
Medical Center, Moores Cancer Center

Raghu Kalluri, M.D., Beth Israel Deaconess Medical Center,
Harvard Medical School

Neil Kay, M.D., Mayo Clinic

Mark Pittelkow, M.D., Mayo Clinic

Thomas Witzig, M.D., Mayo Clinic

Please visit our website: <http://mayoresearch.mayo.edu/mayol/research/bmblangiogenesis-symposium.cfm> and <http://www.mayo.edu/cm/oct2008.html#2008R507> for information, on-line registration and updates regarding the symposium.

Program Summary

The main goal of our symposium is to bring together basic science and clinical experts in the field of angiogenesis to facilitate the exchange of ideas and science involving basic biology and pathways of angiogenesis and new anti-angiogenic agents that can be used for specific targeting of tumor blood vessels and stroma. Moreover, the clinician scientists will present the results of ongoing clinical trials on anti-angiogenic therapy. Novel genetic and imaging methods to assess tumor vasculature for monitoring the effectiveness of angiogenic response in the pre-clinical and clinical trials will be discussed in this symposium. Overall, the symposium will assist in establishing strong collaborations among leading national, international, and Mayo Clinic experts in the field.

Learning Objectives

Upon completion of this program, participants should be able to:

- Critically assess the role of angiogenesis in different pathological situations.
- Analyze the molecular pathways in angiogenesis.
- Identify the importance of angiogenesis in cancer progression and metastasis.
- Evaluate angiogenesis as a potential target for future cancer therapy.
- Establish the therapeutic potential of anti-angiogenic molecules and translate basic science to clinical applications.
- Build a collaborative platform where basic scientists and clinicians can interface.

Attendance at this Mayo course does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course.

Intended Audience

- Clinicians involved in cancer-related practice or research
- Laboratory scientists
- Translational researchers
- Industry partners
- Graduate or medical students
- Postdoctoral fellows or residents
- Others with an interest or with backgrounds in cardiovascular biology and developmental biology, myeloma, cancer, angiogenesis and related clinical trials, lymph angiogenesis, extracellular matrix, and anti-angiogenic therapy in differential tumors.

Credit

Mayo Clinic College of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Mayo Clinic College of Medicine designates this educational activity for a maximum of 15.75 *AMA PRA Category 1 Credit(s)*[™]. Physicians should only claim credit commensurate with their participation in the activity.

Other health care professionals will be provided a certificate of attendance for requesting credits in accordance with state nursing boards, specialty societies, or other professional associations.

Date and Location

The *3rd Mayo Clinic Angiogenesis Symposium: State of the Art Connections From Biology to Translational Medicine* will be held **October 24-26, 2008**. Symposium headquarters will be located in the Marriott Hotel (101 First Avenue S.W.), Rochester, Minnesota.

General Information

Educational Grants

This symposium is supported in part by educational grants in accordance with ACCME Standards. At the time of this printing, a complete listing of commercial supporters was not available. Appropriate acknowledgement will be given to all supporters at the time of the meeting.

Registration

To register online, visit <http://www.mayo.edu/cme/oct2008.html#2008R507>, or complete the attached registration form with payment and return by mail or fax. The registration fee includes tuition, comprehensive course syllabus, continental breakfasts, break refreshments, lunches, receptions and dinners. Although it is not Mayo School of CME policy to limit the number of registrants for a course, conference room facilities may necessitate closing of enrollment; therefore, early registration is advised. A letter of confirmation will be emailed upon receipt of payment and completed registration form. Please present the confirmation email when checking in at the meeting registration desk.

Cancellation Policy

Your registration fee, less a \$75 administrative fee, will be refunded when written notification is received by the Mayo School of Continuing Medical Education office before **October 10, 2008**. Fax#: 507-284-0532. No refunds will be made after **October 10, 2008**.

Travel

Rochester, Minnesota is serviced by a modern international airport with multiple flights daily from Chicago and Minneapolis via American or Northwest Airlines. Access to and from the airport is provided by taxi cab and shuttle service. The airport is located approximately 10 driving miles from the Mayo Clinic complex.

Travel arrangements are the sole responsibility of the individual registrant.

Parking

Parking is available in hotel, city, and Mayo patient/visitor ramps. The cost for parking is not included in the registration fee. A map indicating the location of downtown parking facilities will be mailed with the registrant confirmation letter.

Lodging Accommodations

Blocks of guestrooms have been reserved with special course rates at each of the following downtown Rochester hotels. To ensure accommodations and the discounted rate, please make your reservations on or before **September 29, 2008**, and identify yourself as a participant of the *3rd Mayo Clinic Angiogenesis Symposium*.

Hilton Garden Inn

225 South Broadway
800-445-8667 or 507-285-1234
\$96 single/double

Kahler Grand Hotel

20 Second Avenue SW
800-533-1655 or 507-282-2581
\$89 single/double

Radisson Plaza Hotel

150 South Broadway
800-333-3333 or 507-281-8000
\$104 single/double

Rochester Marriott Hotel

101 First Avenue SW
877-623-7775 or 507-280-6000
\$129 single/double

The hotels listed above are connected by skyway and pedestrian subway to Mayo Clinic, downtown shops, and restaurants. You may also wish to visit the Rochester Convention and Visitors Bureau website (www.rochestercvb.org) for additional accommodation options and local events.

Lodging arrangements are the sole responsibility of the individual registrant.

Social Programs

Welcome Reception

(Friday, October 24, 2008, 1:00 p.m.)

Attendees are cordially invited to join the symposium faculty and directors for a Welcome Reception in the Ballroom of the Rochester Marriott Hotel. This casual reception welcomes you to Rochester and the Mayo Clinic and offers you the perfect opportunity to make connections with existing and new colleagues. Pre-registration is requested.

Dinner Buffet/Poster Session

(Friday, October 24, 2008, 4:45 p.m.)

All registrants are encouraged to attend the Dinner Buffet and Poster Session. The Friday (and Saturday) evening Poster Session will highlight abstracts focused on angiogenesis and related therapies. Young Investigator Travel Awardees will be selected, and recipients will be announced at the beginning of the Saturday morning session. These awardees will be honored during their oral presentations on Saturday at the Dinner. Pre-registration is requested.

Dinner Reception

(Saturday, October 25, 2008, 7 p.m.)

Attendees are cordially invited to attend a dinner reception in the Mayo Clinic's Nathan Landow Atrium, Gonda Building. This unique setting features marble from six countries and a glass "wave wall" that overlooks terraced gardens and the historic 1928 Plummer Building. Mayo's most famous symbol, the sculpture, Man and Freedom, which for many years was displayed outside the Mayo Building, is also featured inside this atrium. Another highlight is the adjoining Mayo Nurses Atrium which houses the Dale Chihuly hanging glass chandelier sculptures. Pre-registration is requested.

Faculty

Program Planning Committee

Robert Diasio, M.D.

Mayo Clinic, Mayo Clinic Cancer Center, Department of Molecular Pharmacology & Experimental Therapeutics

Charles Erlichman, M.D.

Mayo Clinic, Department of Oncology

Stephen Ekker, Ph.D.

Mayo Clinic, Department of Biochemistry & Molecular Biology

Kalpna Gupta, Ph.D.

University of Minnesota, Department of Medicine

Nicholas LaRusso, M.D.

Mayo Clinic, Department of Gastroenterology & Hepatology/GI Basic Res. Center

Edward Leof, Ph.D.

Mayo Clinic, Thoracic Diseases Research Unit

Mark McNiven, Ph.D.

Mayo Clinic, Department of Biochemistry & Molecular Biology/GI Basic Res. Center

Sundaram Ramakrishnan, Ph.D.

University of Minnesota, Department of Pharmacology

Vijay Shah, M.D.

Mayo Clinic, Department of Gastroenterology/GI Basic Res. Center

Gary Sieck, Ph.D.

Mayo Clinic, Department of Physiology & Biomedical Engineering

Robert Simari, M.D.

Mayo Clinic, Department of Cardiovascular Disease

– Faculty continued on next page.

General Information

Mayo Clinic Faculty

Resham Bhattacharya, Ph.D.
Department of Biochemistry &
Molecular Biology

Shaji Kumar, M.D.
Department of Hematology

Svetomir Markovic, M.D., Ph.D.
Department of Hematology

Franklyn Prendergast, M.D., Ph.D.
Mayo Clinic, Department of
Biochemistry and Molecular Biology

S. Vincent Rajkumar, M.D.
Department of Hematology

Nicholas Vlahakis, M.D.
Pulmonary and Critical Care Medicine

Guest Faculty

Kari Alitalo, M.D., Ph.D.
University of Helsinki, Finland

Jack Arbiser, M.D., Ph.D.
Emory University, School of Medicine,
Winship Cancer Institute

Laura Benjamin, Ph.D.
Beth Israel Deaconess Medical Center,
Harvard Medical School

Frederico Caligaris-Cappio, M.D.
Universita Vita-Salute San Raffaele,
Italy

Lena Claesson-Welsh, Ph.D.
Uppsala University, Sweden

Michael Detmar, M.D.
Institute of Pharmaceutical Sciences,
Swiss Federal Institute of Technology

Harold Dvorak, M.D.
Beth Israel Deaconess Medical Center,
Harvard Medical School

Napoleone Ferrara, M.D.
Genentech, Inc.

Abhijit Guha, MSc., M.D.
University of Toronto, Canada

Suyun Huang, M.D., Ph.D.
The University of Texas,
M.D. Anderson Cancer Center

M. Luisa Iruela-Arispe, Ph.D.
University of California, Los Angeles

Michael Klagsbrun, Ph.D.
Children's Hospital, Boston

Gopal Kundu, Ph.D.
National Center for Cell Sciences,
Pune, India

Jack Lawler, Ph.D.
Beth Israel Deaconess Medical Center,
Harvard Medical School

Donald McDonald, M.D., Ph.D.
University of California San Francisco
Medical Center

Vivek Mittal, Ph.D.
Cancer Genome Research Center, Cold
Spring Harbor Laboratory

Suresh Mohla, Ph.D.
National Institutes of Health/National
Cancer Institute

Malcolm Moore, Ph.D.
Memorial Sloan-Kettering Cancer Center

Ulhas Naik, Ph.D.
University of Delaware

Ramani Ramchandran, Ph.D.
Medical College of Wisconsin,
Children's Research Institute

Michael Simons, M.D.
Dartmouth Hitchcock Medical Center

Mihaela Skobe, Ph.D.
Beth Israel Deaconess Medical Center,
Harvard Medical School

Angelo Vacca, M.D.
University of Bari Medical School, Italy

Ryan Watts, Ph.D.
Genentech, Inc.

Keping Xie, M.D., Ph.D.
The University of Texas,
M.D. Anderson Cancer Center

George Yancopoulos, M.D., Ph.D.
Regeneron Pharmaceuticals, Inc.

Program Schedule

Friday, Oct. 24, 2008

12:00 p.m. Registration begins

1:00 p.m. Welcome Reception

2:00 p.m. Welcome and Introduction

Section I Judah Folkman, M.D. Memorial and Lectureship

2:15 p.m. A Tribute to Judah Folkman, M.D.

2:45 p.m. On the Crosstalk Between Angiogenic and Lymphangiogenic Signal Transduction Networks
Kari Alitalo, Ph.D.

3:30 p.m. Break

Section II Michael A. O'Connor Awards

3:50 p.m. Michael A. O'Connor Awards Ceremony
Recipients:
Napoleone Ferrara, M.D.
Philip Greipp, M.D.

Section III Keynote Lecture

4:10 p.m. Cellular Actions of Angiogenesis Inhibitors on Tumor Blood Vessels
Donald McDonald, M.D., Ph.D.

4:45 p.m. Poster Session followed by Dinner Buffet

Section IV Hem-Malignancies and Angiogenesis Chair: *S. Vincent Rajkumar, M.D.*

7:00 p.m. Roundtable

8:30 p.m. Adjourn

Saturday, Oct. 25, 2008

6:30 a.m. Continental Breakfast and Registration

8:30 a.m. Announcements: Young Investigator Award Recipients

Section V Regulation of Angiogenesis Chair: *Keping Xie, M.D., Ph.D.*

8:40 a.m. VEGF Biology in Normal Tissues
M. Luisa Iruela-Arispe, Ph.D.

9:05 a.m. Regulation of Arteriogenesis
Michael Simons, M.D.

9:30 a.m. Targeting Angiogenesis Molecular Pathways
David Cheresh, Ph.D.

9:55 a.m. Regulation of Angiogenesis by Signal Transduction Pathways
Jack Arbiser, M.D., Ph.D.

10:10 a.m. Break

Section VI Tumor Microenvironment Chair: *Suresh Mohla, Ph.D.*

10:35 a.m. Tumor Micro-environment in Cancer Progression and Metastasis
Raghu Kalluri, Ph.D.

11:00 a.m. Bone Marrow-Derived Progenitor Cells are Critical Regulators of Tumor Progression and Metastasis
Vivek Mittal, Ph.D.

11:25 a.m. Angiogenesis, Immunity, and Clinical Trials for Metastatic Melanoma
Svetomir Markovic, M.D., Ph.D.

11:50 a.m. Lunch

Section VII Molecular Mechanisms of Angiogenesis and Lymphangiogenesis Chair: *Nicholas Vlahakis, M.D.*

1:00 p.m. Lymphatic Vessel Activation in Cancer
Mihaela Skobe, Ph.D.

1:25 p.m. (Lymph) Angiogenesis in Inflammation and Cancer Metastasis
Michael Detmar, M.D.

Short Communications

1:50 p.m. Understanding the Molecular Mechanism of Osteopontin-Induced Angiogenesis
Gopal Kundu, Ph.D.

Program Schedule

2:00 p.m. Regulation of Tumor Angiogenesis and Metastases by Stat3 Signaling Pathway
Suyun Huang, M.D., Ph.D.

2:10 p.m. A Serendipitous Discovery of a Novel Signaling Pathway in Vascular Development and Disease
Ramani Ramchandran, Ph.D.

2:25 p.m. Break

Section VIII **Angiogenesis and Cell Signaling**
Chair: *Resham Bhattacharya, Ph.D.*

2:45 p.m. VEGF Receptor Signals Regulating Vascular Permeability
Lena Claesson-Welsh, Ph.D.

3:10 p.m. Exploring the Role of Neuropilin-1 in Development and Disease
Ryan Watts, Ph.D.

3:35 p.m. Semaphorin Signaling and Expression in Endothelial and Tumor Cells
Michael Klagsbrun, Ph.D.

4:00 p.m. Cross-Talk Between Pro- and Anti-Angiogenic Signaling Pathways
Jack Lawler, Ph.D.

Section IX **Michael A. O'Connor Travel Awards/Oral Presentations**
Chairs: *Philip Greipp, M.D.* and *Vijay Shah, M.D.*

4:30 p.m. Poster Sessions/ Reception

5:00 p.m. Michael A. O'Connor Young Investigator Presentations

7:00 p.m. Dinner and Entertainment
Mayo Clinic Nathan Landow Atrium, Gonda Building

Sunday, Oct. 26, 2008

6:30 a.m. Continental Breakfast and Registration

Section X **Angiogenesis in the Preclinical Setting**
Chair: *Stephen Ekker, Ph.D.*

9:00 a.m. JAM and Angiogenesis
Ullhas Naik, Ph.D.

9:25 a.m. Endothelial Signaling Pathways as Targets for Anti-Angiogenesis
Laura Benjamin, Ph.D.

9:50 a.m. How Tumors Make Bad Blood Vessels
Harold Dvorak, M.D.

10:15 a.m. Break

Section XI **Angiogenesis in the Clinical Setting**
Chair: *Debabrata Mukhopadhyay, Ph.D.*

10:35 a.m. VEGF and CLL in B Cells
Neil Kay, M.D.

11:00 a.m. Molecular Heterogeneity in Glioblastoma Multi-forme: Angiogenesis and Regulators of Apoptosis
Abhijit Guha, MSc., M.D., FRCS(C), FACS

11:25 a.m. Beyond the VEGF Trap in Tumor Angiogenesis: The Delta Paradox
George Yancopoulos, M.D., Ph.D.

Section XII **Michael A. O'Connor Lectureship**

11:50 a.m. Plenary Lecture
VEGF: From Bench to Bedside
Napoleone Ferrara, M.D.

12:35 p.m. Adjourn and Pick up Boxed Lunch

ABSTRACT FORM

3rd Mayo Clinic Angiogenesis Symposium: State of the Art Connections From Biology to Translational Medicine

October 24-26, 2008 • Marriott Hotel • Rochester, MN

Overview: As part of the Mayo Clinic Angiogenesis Symposium: State of the Art Connections From Biology to Translational Medicine, a poster session for presentation of original research dedicated to the field of angiogenesis will be held. Any projects that pertain to the training and practice of angiogenesis are welcome. They may include guidelines, randomized trials, outcome studies, practice innovations, or descriptive analyses. Posters will be chosen from all abstracts received by the August 29, 2008, submission deadline.

Abstract Eligibility: Original abstracts that either have or have not been presented at other meetings will be considered. Abstracts are eligible if they have been published; abstracts based upon full papers that have been published are also eligible.

Research Competition: Outstanding abstracts will be selected for poster presentations at the Mayo Clinic Angiogenesis Symposium: State of the Art Connections From Biology to Translational Medicine.

Number of Entries: A participant may be the primary author on no more than two abstracts; however, he or she may be a contributing author on any number of abstracts.

Deadline: Abstract submission deadline is **Friday, August 29, 2008.**

Notification of Results: All primary authors will be notified by Friday, August 29, 2008, if their submission has been selected for the poster session, and details regarding poster set-up will follow.

Printing of Abstracts: Abstracts chosen for presentation will be printed in the course syllabus.

Inquiries: For further information, contact Denise Lecy, Mayo Clinic, via Phone: 507-284-4070, Fax: 507-284-1767, or Email: angiogenesis@mayo.edu, or access the following website to complete the abstract submission form: <http://mayoresearch.mayo.edu/mayo/research/bmb/angiogenesis-symposium.cfm>.

Contact Information

Please type the following information. Duplicate this form for multiple abstract submissions

Primary Author - first name, middle name or initial, and last name		Degree - select all that apply <input type="checkbox"/> MD <input type="checkbox"/> PhD <input type="checkbox"/> DO <input type="checkbox"/> PA <input type="checkbox"/> NP <input type="checkbox"/> Other - specify	
Name of Institution		Medical Specialty	
Address - street address		Home Phone - include all country and city/area codes as needed along with complete phone number	
City	State or Province	ZIP or Postal Code	Country
E-mail Address	FAX - include all country and city/area codes as needed along with complete phone number		FAX Location - select one <input type="checkbox"/> Work/Business <input type="checkbox"/> Home

Abstract Format Instructions:

1. Type abstract in 200 words or less.
2. Type all abstracts in English.
3. Leave one character space (two mm) between the margins and text material.
4. Use 11-point Arial font.
5. Type the title of the abstract in bold, uppercase letters. Do not use abbreviations in the title.
6. Using italics, list the names of all authors (place an asterisk next to the primary author) and the institution, city and state where the work was done.
7. Leave space (one line) after the list of authors and begin typing the main body of the abstract.
8. Indent the first line of the main body of the abstract three spaces.
9. Type single-spaced.
10. Send a computer file of the abstract in Microsoft Word on a CD or diskette or send as an e-mail attachment to: angiogenesis@mayo.edu.
11. Or please go to <http://mayoresearch.mayo.edu/mayo/research/bmb/angiogenesis-symposium.cfm> to submit your abstract electronically.

*3rd Mayo Clinic Angiogenesis Symposium:
State of the Art Connections From Biology to Translational Medicine*

October 24-26, 2008 • Marriott Hotel • Rochester, MN

To register, complete and return this form by mail, fax or online submission. The Professional (\$450) and Graduate Student/Medical Student/Postdoc/Resident (\$300) registration fee includes final program, continental breakfast, lunches, and refreshment breaks. There is no policy to limit the number of registrants for a course; however, conference room facilities may necessitate closing enrollment. Early registration is advised. A letter of confirmation will be sent upon receipt of payment and completion of registration form.

Submit online registration at: <http://www.mayo.edu/cme/oct2008.html#2008R507>.

(or)

Mail form and payment to:

Mayo Clinic	Phone	800-323-2688 or 507-284-2509
Plummer 2-60	FAX	507-284-0532
200 First Street SW	E-mail	cme@mayo.edu
Rochester, MN 55905	Web site	www.mayo.edu/cme

Contact Information

Name of Registrant - first name, middle name or initial, and last name		Degree - select all that apply <input type="checkbox"/> MD <input type="checkbox"/> PhD <input type="checkbox"/> DO <input type="checkbox"/> PA <input type="checkbox"/> NP <input type="checkbox"/> Other - specify	
Name of Institution		Medical Specialty	
Preferred Mailing Address - select one <input type="checkbox"/> Work/Business <input type="checkbox"/> Home			
Work/Business Address - street address		Work Phone - include all country and city/area codes as needed along with complete phone number	
City	State or Province	ZIP or Postal Code	Country
Home Address - street address		Home Phone - include all country and city/area codes as needed along with complete phone number	
City	State or Province	ZIP or Postal Code	Country
E-mail Address	FAX - include all country and city/area codes as needed along with complete phone number	FAX Location - select one <input type="checkbox"/> Work/Business <input type="checkbox"/> Home	
<div style="display: flex; align-items: center;"> <div style="background-color: black; color: white; padding: 5px; font-weight: bold; margin-right: 10px;">SPECIAL NEEDS</div> <div>If you have special assistance needs or dietary restrictions, describe here:</div> </div>			

Social Events

<p>Welcome Reception (October 24, 2008)</p> <input type="checkbox"/> I plan to attend <input type="checkbox"/> I do not plan to attend	<p>Dinner Buffet/Poster Session (October 24, 2008)</p> <input type="checkbox"/> I plan to attend <input type="checkbox"/> I do not plan to attend	<p>Dinner (October 25, 2008)</p> <input type="checkbox"/> I plan to attend <input type="checkbox"/> I do not plan to attend
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Registration

Physician/Scientist	\$450	\$ _____
Graduate or Medical Student/Postdoc/Resident	\$300	\$ _____

Payment Information

<input type="checkbox"/> Check is enclosed in the amount shown at right - make checks payable to Mayo Clinic			Payment Total
Credit Card - select one <input type="checkbox"/> Discover <input type="checkbox"/> MasterCard <input type="checkbox"/> Visa	Account Number	Exp Date - mm/yy	
Name of Cardholder - as it appears on the card		Signature of Cardholder - required X	



MAYO CLINIC

200 First Street SW
Rochester, Minnesota 55905

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Organization
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