MAYO CLINIC

Mayo School of Continuous Professional Development

Mayo Clinic Angiogenesis and Microenvironment Symposium 2016: *From Translational Research to Precision Clinical Practice*

November 18-20, 2016
Ritz Carlton Hotel
Amelia Island, Florida

Course Director
Debabrata Mukhopadhyay, Ph.D.

Co- Directors
Asher Chanan-Khan, M.D.
Leslie Cooper, M.D.

Ritz Carlton Hotel
Amelia Island, Florida

Amelia Island is an enchanting blend of French, Spanish, English and Mexican influences which have shaped the landscape and culture of this 400+ year-old Florida island. Bask in 13 miles of Atlantic coastline, try your luck at one of the island's gorgeous golf courses or take a horse-drawn carriage down 50 blocks of unique housing, shops and dining in the historic district of Fernandina Beach. This island has consistently been recognized as one of the Top 10 Islands in the United States by Condé Nast Traveler.

REGISTER ON-LINE!

Registration and additional course information can be found on our new course website:
https://ce.mayo.edu/hematology-and-oncology/content/mayo-clinic-angiogenesis-and-tumor-microenvironment-symposium-translational-research

AVAILABLE CREDIT: 18.25 *AMA PRA Category 1 Credit™*

EVENT STARTS: 11/18/2016 - 8:00am **EVENT ENDS:** 11/20/2016 - 12:00pm

COST: $500.00 (MD, PhD, MD/PhD) **Cost: $375 (post-doctoral fellows, residents, graduate students**
Please login or create an account to take this course. Payment required

Course Description

The main goal of our symposium is to bring together basic science and clinical experts in the field of angiogenesis and nanotechnology 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 conclusion of this program, participants should be able to:

1. Assess the role of angiogenesis in different pathological situations.
2. Analyze the molecular pathways in angiogenesis.
3. Identify the importance of angiogenesis in cancer progression and metastasis.
4. Evaluate angiogenesis as a potential target for future cancer therapy.
5. Establish the therapeutic potential of anti-angiogenic molecules and translate basic science to clinical applications.
6. Evaluate state-of-the-art technologies as they relate to therapeutic strategies against tumor microenvironment and angiogenesis in tumors and defined diseases.
7. Identify the current challenges of anti-angiogenic therapies in clinical outcomes of anti-angiogenic therapy that lead to better drug discoveries.

INTENDED AUDIENCE

This course is intended for basic scientists, oncology and vascular specialists, and clinical experts in the field of angiogenesis and nanomedicine to facilitate the discovery of new drugs and therapies in the treatment of cancer by discussing the current challenges of anti-angiogenic therapies and tumor micro-environment as they relate to clinical outcomes.

CREDIT

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

Mayo Clinic College of Medicine designates this live activity for a maximum of *18.25 AMA PRA Category 1 Credits.* Physicians should claim only the credit commensurate with the extent of their participation in the activity.

TRAVEL AND LODGING ACCOMODATIONS

Ritz Carlton is offering rooms at $229.00 per night (plus applicable taxes) for attendees and their guests. In order to receive the special rate, reservations must be made before the block is full or before the expiration date of October 17, 2016. Reservations can be made on-line (https://resweb.passkey.com/go/MayoAngiogenesis2016) or by calling 866-763-2960. Please reference the group name Mayo Clinic Angiogenesis Biannual Symposium when making reservations.

Friday, November 18, 2016

7:00 a.m. Registration

8:00 a.m. **Section I: Mini-Symposium - Nanotechnology**
Chairs- Priyabrata Mukherjee, Ph.D., and Santanu Bhattacharya, Ph.D.

8:05 a.m. Complexity of Nanoparticle Targeting to Tumors
Warren Chan, Ph.D., University of Toronto
8:25 a.m. Discussion

8:30 a.m. Biomedical Applications of Single Walled Carbon Nanotubes and Graphene
Michael S. Strano, Ph.D., Massachusetts Institute of Technology
8:50 a.m. Discussion

8:55 a.m. Understanding the Multivalent Nanoparticles in Role of Angiogenesis
Sudipta Seal, Ph.D., University of Central Florida
8:15 a.m. Discussion

9:20 a.m. Coffee Break

9:45 a.m. Systemic Delivery of miRNA and Chemotherapeutic Agents for Treating Pancreatic Cancer
Ram I. Mahato, Ph.D., Nebraska Medical Center
10:05 a.m. Discussion

10:10 a.m. Probing Cellular Processes Using Engineered Nanoparticles
Priyabrata Mukherjee, Ph.D., University of Oklahoma
10:30 a.m. Discussion

Late breaking talks

10:35 am. Tumor Microenvironmental Modulation to Improve Nanomedicine Delivery
Betty Kim, M.D., Ph.D., Mayo Clinic Jacksonville
10:45 a.m. Discussion

10:50 a.m. New Advancements in Cancer Nanotherapeutics
Dhanjay Jhurry, Ph.D., University of Mauritius
11:00 a.m. Discussion

11:05 a.m. Current Challenges in Nanomedicine and in the Future:
Open floor Discussion

11: 20 a.m. Adjourn and Lunch Break

12:00 p.m. **Section II: Welcome and Introduction Angiogenesis and Tumor Microenvironment Symposium**
Debabrata Mukhopadhyay, Ph.D., Mayo Clinic Jacksonville
Robert Diasio, M.D., Mayo Clinic Rochester

12:10 p.m. Pre-Plenary Assessment Utilizing Audience Response

12:20 p.m. ***Joseph Austin McCartney and Ruth McCartney Hauck Named Visiting Professorship Lecture***
Chair: Robert Diasio, M.D.

12:30 p.m. Therapeutic Potential of Vascular Growth Factors
Kari Alitalo, M.D., Ph.D., University of Helsinki

12:55 p.m. Discussion

1:05 p.m. **Section III: Molecular Crosstalk in Angiogenesis and Microenvironment**
Chair: Nanping Wang, Ph.D.

1:15 p.m. Mechanisms of Vascular Pericyte Activation into Myofibroblasts
Vijay Shah, M.D., Mayo Clinic Rochester
1:35 p.m. Discussion

1:40 p.m. Non-endothelial Vascular Functions of Tie2
Hellmut Augustin, Ph.D., Heidelberg University
2:00 p.m. Discussion

2:05 p.m. Human Endothelial Cell Transformation by High level Expression of Integrin AVB3
David Cheresh, Ph.D., University of California
2:25 p.m. Discussion

2:30 p.m. Break

2:55 p.m. A Crosstalk between Vasculature and Microglia
Tatiana Byzova, Ph.D., Cleveland Clinic
3:15 p.m. Discussion

3:20 p.m. Epigenetic Regulation of Glioma Angiogenesis and Growth
Susan Huang, Ph.D., University of Texas MD Anderson Medical Center
3:40 p.m. Discussion

3:45 p.m. The Role of Brain Tumor Stem Cells in Tumor Angiogenesis
Jeremy Rich, Ph.D., Cleveland Clinic
4:05 p.m. Discussion

Hot Topic

4:10 p.m. Intratumoral Immune Landscape: From Chemotherapy to Immunotherapy
Gaurisankar Sa, Ph.D., Bose Institute, India
4:22 p.m. Adjourn

4:25 p.m. Section IV: Cardiotoxicity Challenges in Anti- angiogenesis and Chemotherapy therapy
Chairs: Asher Chanan-Khan, M.D., Mayo Clinic Jacksonville and Leslie Cooper, M.D., Mayo Clinic Jacksonville

4:45 p.m. Cardiotoxicity with Angiogenesis Inhibitors
Joerg Herrmann, M.D., Mayo Clinic Jacksonville

5:00 p.m. Cardiac Toxicity of Anti-cancer Drugs
Taimur Sher, M.D., Mayo Clinic Jacksonville

5:15 p.m. Panel Discussion

5:30 p.m. Adjourn

5:30 – 7:30 p.m. Poster Session and Reception

Saturday, November 19, 2016

7:00 a.m. Continental Breakfast and Registration

8:00 a.m. Section V: Vascular Biology and Permeability
Chair: Panagiotis Z. Anastasiadis, Ph.D., Mayo Clinic Jacksonville

8:10 a.m. TM4SF1: A Cancer Target Present on Both Tumor Cells and the Tumor Vasculature
Harold Dvorak, M.D, Beth Israel Deaconess Medical Center
8:30 a.m. Discussion

8:35 a.m. Vascular Endothelial Growth Factors Regulate Tissue Microenvironment by Dynamic Opening and Closure Of Endothelial Junctions
Lena Claesson-Welsh, Ph.D., Uppsala University
8:55 a.m. Discussion

9:00 a.m. Metabolic controls of vascular development
Michael Simons, M.D., Yale University
9:20 a.m. Discussion

9:25 a.m. Break

9:50 a.m. Section VI: Regulation of Microenvironment in Disease
Chair: Derek Radisky, Ph.D., Mayo Clinic Jacksonville

10:00 a.m. Resistance to anti-VEGF therapy in the absence of angiogenic compensation
Rolf A. Brekken, Ph.D., University of Texas, Southwestern
10:20 a.m. Discussion

10:25 a.m. The biology and function of exosomes in diagnosis and treatment in cancer
Raghu Kalluri, M.D., Ph.D., MD Anderson Medical Center
10:45 a.m. Discussion

10:50 a.m. Regulatory Nodes in Vascular Homeostasis
Luisa Iruela-Arispe, Ph.D., University of California
11:10 a.m. Discussion

Hot Topics
11:15 a.m. Tissue Engineered Tumor Extracellular Matrices for Investigating Nanoparticle Therapies
Michael Fenn, Ph.D., Florida Institute of Technology
11:25 a.m. Discussion

11:27 a.m. TBA
Tanya Das, Ph.D., Bose University, India
11:37 a.m. Discussion

11:40 a.m. Lunch

1:00 p.m. Section VII: Molecular Mechanisms of Lymphangiogenesis
Chair: Resham Bhattacharya, Ph.D., University of Oklahoma

1:10 p.m. An important role of lymphatic vessels in promoting cancer progression and limiting anti-tumor immune responses
Michael Detmar, M.D., Swiss Federal Institute of Technology
1:30 p.m. Discussion

1:35 p.m. Regulation of pathologic brain angiogenesis
Calvin Kuo, M.D., Ph.D., Stanford University
1:55 p.m. Discussion

2:00 p.m. Forkhead (Fox) transcription factors in vascular formation
Tsutomu Kume, Ph.D., Northwestern University
2:20 p.m. Discussion

2:25 p.m. Break

2:50 p.m. Section VIII: Microenvironment and Cell Signaling
Chair: Dr. Gopal Kundu, National Center for Cell Science, Pune, India

3:00 p.m. The Role of Vasculature in Neural Stem Cell Development
Ramani Ramchandran, Ph.D., Medical College of Wisconsin
3:20 p.m. Discussion

3:25 p.m. Tris DBA Palladium: A Mechanism Based Antiangiogenic and Antitumor Agent
Jack Arbiser, M.D., Ph.D., Emory University School of Medicine
3:45 p.m. Discussion

3:50 p.m. KLF4 Signaling in ADM and Angiogenesis in Pancreatic Cancer
Keping Xie, M.D., Ph.D., MD Anderson Medical Center
4:10 p.m. Discussion

4:15 p.m. Adjourn

4:45 p.m. Section IX: Poster Sessions/Reception

6:00 p.m. Section X: Travel Scholarships/Oral Presentations
Chairs: Tushar C. Patel, M.B., Ch.B, Mayo Clinic Jacksonville, and Robert Diasio, M.D., Mayo Clinic - Rochester

Young Investigator Scholarship
Young Faculty Scholarship

7:00 p.m. Banquet/buffet

Sunday, November 20, 2016

7:00 a.m. Continental Breakfast and Registration

8:00 a.m. Section XI: Anti-Angiogenesis Therapy and Clinical Outcomes
Chair: John (A) Copland, Ph.D., Mayo Clinic Jacksonville

8:10 a.m. Precision Oncology: targeted prevention and therapy
Zigang Dong, M.D., Dr. P.H., Hormel Institute
8:30 a.m. Discussion

8:35 a.m. Understanding the stroma as a means to patient selection for anti-angiogenesis and immunotherapy
Laura Benjamin, Ph.D., Eli Lilly
8:55 a.m. Discussion

9:00 a.m. Angiogenesis Inhibition and Advanced Thyroid Cancers
Robert Smallridge, M.D., Mayo Clinic Jacksonville
9:20 a.m. Discussion

9:25 a.m. TBD
Napoleone Ferrara, M.D., University of California
9:45 a.m. Discussion

9:50 a.m. Break

10:15 a.m. The Future of Angiogenesis Inhibition and Lung Cancer Therapy
Alex Adjei, M.D., Ph.D., Mayo Clinic Rochester
10:35 a.m. Discussion

10:40 a.m. Dysfunctional Hematopoiesis in CLL
Neil Kay, M.D., Mayo Clinic Rochester
11:00 a.m. Discussion

11:05 a.m. Section XII: Folkman Lecture
Chair: Raghu Kalluri, M.D. Ph.D., MD Anderson Medical Center

11:10 a.m. Angiopoietin actions in angiogenesis and vascular remodeling?
Donald M. McDonald, M.D., Ph.D., University of California
11:35 a.m. Discussion

11:40 a.m. Closing Comments and Course Overview
Harold Dvorak, M.D., and Napoleone Ferrara, M.D.

12:00 p.m. Vote of Thanks
Drs. Asher Chanan-Khan, Leslie Cooper and Debabrata Mukhopadhyay

12:10 p.m. Adjourn. Please pick up your boxed lunches upon your departure.

Thank you for attendance!