

Departments of Neurosurgery and Radiology
University of California San Francisco, School of Medicine

Neurovascular Symposium: The Arteriovenous Connection 2024

Hyatt Regency Lake Tahoe • Incline Village, NV



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Thursday – Saturday

March 13 -16, 2024

UCSF

COURSE CHAIRS

Daniel Raper, MD

Assistant Professor of Neurological Surgery
University of California San Francisco

Steven W. Hetts, MD, FACR

Professor of Radiology,
Biomedical Imaging, and Neurological Surgery
Co-Chief, NeuroEndovascular Surgery Service Line
Chief of Interventional Neuroradiology,
Mission Bay Hospitals
University of California San Francisco

THE ARTERIOVENOUS CONNECTION

This course for neurointerventionalists, cerebrovascular and endovascular neurosurgeons, vascular neurologists, and scientists will begin with an essential anatomic unit in the central nervous system: the connection between arteries and veins. Beginning with embryology and molecular genetics, we will then broaden our view to development in normal and disease states, implications for current treatment approaches, and research directions. Eminent faculty will teach in an informal, interactive format. In addition to lectures, there will be opportunities for one-on-one and small group mentorship as well as time for recreational activities in the lovely venue of Lake Tahoe.

LECTURE SESSION FORMAT

Invited speakers will prepare talks 10-12 minutes in length. Each Session will have an Expert Panel to ask questions of the speakers and foster discussion with audience participation for 8-10 minutes after each talk. At the end of each session there will be a 15-20 minute focused case presentation and discussion highlighting a clinical correlation of one or more of the topics discussed in the session, presented by the chair of the Expert Panel.

OBJECTIVES

An attendee completing this course should be able to:

- Improve endovascular techniques and treatment of cerebral arteriovenous malformations and fistulas
- Incorporate the latest evidence in pathology, natural history, and treatment for central nervous system arteriovenous disorders
- Improve competence in applying advanced techniques in the diagnosis and treatment of arteriovenous fistulas and AVMs including transvenous approaches and novel embolic agents
- Apply updated anatomical and pathophysiologic knowledge regarding the development of intracranial vasculature and its abnormalities to the understanding of pediatric and adult cerebrovascular disease.

ACCREDITATION

In support of improving patient care, University of California, San Francisco Office of Continuing Medical Education is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

UCSF designates this live activity for a maximum of **14.50 AMA PRA Category 1 Credits™**. *Physicians should claim only the credit commensurate with the extent of their participation in the activity.*

This CME activity meets the requirements under California Assembly Bill 1195, continuing education and cultural and linguistic competency.

Nurses

For the purpose of recertification, the American Nurses Credentialing Center accepts **AMA PRA Category 1 Credit™** issued by organizations accredited by the ACCME.

Physician Assistants

AAPA accepts category 1 credit from AOACCME, Prescribed credit from AAFP, and AMA category 1 credit™ for the PRA for organizations accredited by the ACCME.

Pharmacy

The California Board of Pharmacy accepts as continuing professional education those courses that meet the standard of relevance to pharmacy practice and have been approved for **AMA PRA Category 1 Credit™**.

Neurovascular Symposium: The Arteriovenous Connection 2024

Wednesday, March 13, 2024

4:00 - 6:00 pm *Registration*

6:00 - 7:30 pm **Opening Reception**

Thursday, March 14, 2024

7:00 am *Registration and Continental Breakfast*

7:50 **Welcome and Overview / Pre-test** Course Chairs

SESSION I

8:00 **Arterial and Venous Development and Embryology** Michihiro Tanaka, MD
8:20 **Vascular Anatomy of the Arterial-Capillary and Capillary-Venous Units** Serge Bracard, MD
8:40 **AVMs as a Venous Disease** Georges Rodesch, MD
9:00 **Genetics and Genomics of AVM Vessels** Ethan Winkler, MD, PhD
9:20 **Role of Inflammation in AVM Development and Rupture** Helen Kim, PhD
9:40 **Vessel Wall Imaging in AVMs** David Saloner, PhD
10:00 *Coffee Break*

SESSION II

10:15 **Neurological Effects of Elevated Venous Pressure** Serge Bracard, MD
10:35 **Risk for Hemorrhage from an Unruptured and Untreated Brain AVM** Michael Soderman, MD, PhD
10:55 **Curative Treatment Approaches for Cerebral AVMs** Michihiro Tanaka, MD
11:15 **Clinical Consequences of AVM Rupture** Michael Soderman, MD, PhD
11:35 **Palliative Treatments for Incurable AVMs?** Steven Hetts, MD and Dan Cooke, MD
11:47 **Panel Discussion and Round Table: Multimodal Approaches to High Grade AVMs with Cases** Tanaka, Bracard, Rodesch, Winkler, Kim, Saloner, Hetts, Cooke
12:15 pm *Adjourn*
Afternoon free – recreation time
Optional Product Theater (Industry-Supported Presentations)
5:30 **Share Your Cases: Faculty and Attendee Case Presentation and Discussion Technological in AVM Embolization – Balloons, Embolic Agents, Approaches with Cases** Luis Savastano MD, PhD Dan Cooke, MD Daniel Raper, MD Kazim Narsinh, MD
7:00 pm *Adjourn*

Friday, March 15, 2024

SESSION III

8:00 **Natural History of Dural Arteriovenous Fistulas** Michael Soderman, MD, PhD
8:20 **Identification of Shunting Lesions on Non-invasive Imaging: Signal and Image Processing Techniques and Technology Application** Yi Li, MD
8:40 **Advanced Imaging and Applications – 4D Flow and Others** David Saloner, PhD
9:00 **Angio-architecture of Dural Arteriovenous Connections** Matthew Amans, MD, MS
9:20 **Congenital Arteriovenous Shunting Syndromes – Genetic and Phenotypic Aspects** Heather Fullerton, MD and Joseph Shieh, MD, PhD
9:40 *Coffee Break*

SESSION IV

10:00 **Pial AVMs and AVFs from a Surgical Perspective** Adib Abla, MD
10:20 **Genetics of AVMs** Georges Rodesch, MD
10:40 **Connections Between Cerebral Vasculature and Cerebral Tumorigenesis** David Raleigh, MD, PhD
11:00 **Radiosurgery for Arteriovenous Shunting Lesions – Efficacy and Imaging Over Time** Nalin Gupta, MD, PhD
11:20 **Panel Discussion and Round Table: Brainstem AVMs with Cases** Soderman, Li, Saloner, Amans, Fullerton/Fox, Shieh, Abla, Rodesch, Raleigh, Gupta, Raper
12:00 pm *Adjourn*
Afternoon free – recreation time
Optional Product Theater (Industry-Supported Presentations)

Friday, March 15, 2024 (cont'd)

5:30	Share Your Cases: Faculty and Attendee Case Presentation and Discussion - Endovascular Approaches to Non-Vascular Pathology (Hydrocephalus, Dementia, Macular Degeneration) with Cases	Luis Savastano MD, PhD Dan Cooke, MD Steven Hetts, MD Kazim Narsinh, MD
7:00 pm	<i>Adjourn</i>	

Saturday, March 16, 2024

7:00 am *Continental Breakfast*

SESSION V

7:55	Hemodynamics and Physiology of Cerebral Arterial and Venous Blood Flow	Luis Savastano MD, PhD
8:20	Glymphatic, Lymphatic, and Subarachnoid Lymphatic-like Membrane, and Neurovascular Applications	Daniel Raper, MD
8:40	Medical Therapies for Intracranial Vascular Lesions	Daniel Cooke, MD
9:00	Pediatric Arteriovenous Shunts	Darren Orbach, MD, PhD
9:20	Liquid Embolic Agents – Similarities, Differences, and Application	Kazim Narsinh, MD
9:40	<i>Coffee Break</i>	
10:00	Complications of Embolization of Arteriovenous Shunts and How to Avoid Them	Seon-Kyu Lee, MD, PhD
10:20	Fetal Treatment for Vein of Galen Malformations	Darren Orbach, MD, PhD
10:40	Hereditary Hemorrhagic Telangiectasia: a Genetic Syndrome of Multi-Organ Arteriovenous Shunting and Non-Shunting Lesions	Steven Hetts, MD
11:00	Panel Discussion and Round Table: Challenging Arteriovenous Fistulas with Cases	
11:30	Final Wrap-Up and Course Evaluation / Post-Test	
11:40 am	<i>Adjourn</i>	

GENERAL INFORMATION

Advanced registration closes one (1) business day prior to start of course. Onsite registration fees, if applicable, will be applied after this date

HOW TO ENROLL

	Early Bird By 12/31/23	Regular Fee After 12/31/23	On Site Fee After 3/14/24
Physicians	\$525	\$600	\$650
Advanced Practice Professionals/ Nurses	\$425	\$500	\$550
Resident/Fellows	\$375	\$450	\$500

Payment can be made by check, Visa, MasterCard, or AmEx.

REGISTER VIA:

Online: cme.ucsf.edu

Mail: Complete course registration form and send with payment to:
UCSF Office of Continuing Medical Education
Box 0742 • 490 Illinois Street, Floor 8
San Francisco, CA 94143

Phone: To register by phone or to inquire about registration status, please email UCSF's CME Registration Office at RegEmail@ucsf.edu

Please check our website for up-to-date information on the course: cme.ucsf.edu

On-Site Registration: Generally we are able to accommodate on-site registration at our courses however pre-registration is preferred to ensure that we have adequate course materials.

SYLLABUS

We're saving paper! The syllabus will be available electronically approximately 1 week prior to the course.

REFUND POLICY

Cancellations received in writing before by **March 12, 2024** will be refunded, less a **\$100** administrative fee. No refunds will be made on cancellations received after that date.

CONFERENCE LOCATION

Lake Tahoe is the largest alpine lake in North America with water so clear that in some places, objects can be seen in depths of over 70 feet. Nestled in the Sierra Nevada Mountains, Incline Village is named for the Great Incline Tramway built by loggers in 1878. Today, Incline is home to some of Lake Tahoe's most stunning mountain retreats. Discover an alpine paradise at **Hyatt Regency Lake Tahoe Resort, Spa, and Casino**. The stunning locale of this AAA Four Diamond hotel is a luxury lakeside setting for year-round pampering.

A block of guestrooms has been reserved at the special UCSF conference rate of **\$259/night** plus **\$30** nightly resort fee. You are urged to make your reservations early. The cut off date is **February 20, 2024**, or until the group room block is filled. After this date, rooms will be provided on a space-available basis only. To make hotel reservations on-line, go to cme.ucsf.edu and click on the hotel link in the Travel & Lodging section of the course webpage.

By staying at the host hotel, you help UCSF meet its contractual obligations and keep registration fees reasonable.

UNITED AIRLINES

UCSF has negotiated special fares with United Airlines for our course attendees. Please visit the TRAVEL AND LODGING section on the course webpage at cme.ucsf.edu for more information the link to make reservations.

University of California, San Francisco
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 490 Illinois Ave, Floor 8
 San Francisco, CA 94143

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Steven W. Hetts, MD, FACR

Professor of Radiology, Biomedical Imaging, and Neurological Surgery Co-Chief, NeuroEndovascular Surgery Service Line; Chief of Interventional Neuroradiology, Mission Bay Hospitals University of California San Francisco

COURSE FACULTY

Adib Abia, MD

Professor of Neurosurgery University of Miami

Matthew Amans, MD, MSc

Associate Professor of Radiology, Neuro Interventional Radiology, and Diagnostic Neuroradiology University of California San Francisco

Serge Bracard, MD

Département Pathologie Nerveuse et Musculaire, Pathologie Mentale, Handicap et Rééducation University of Lorraine, Nancy, France

Daniel Cooke, MD

Associate Professor of Neuro Interventional Radiology University of California San Francisco

Heather Fullerton, MD, MAS

Professor of Neurology and Pediatrics; Chief, Child Neurology Medical Director, UCSF Benioff Pediatric Brain Center; Director, UCSF Pediatric Stroke Research Center; Kenneth Rainin Chair of Pediatric Stroke Care; University of California San Francisco

Nalin Gupta, MD, PhD

Professor, Departments of Neurological Surgery and Pediatrics Chief, Division of Pediatric Neurosurgery; University of California San Francisco

Helen Kim, PhD, MPH

Professor of Anesthesia University of California San Francisco

Seon-Kyu Lee, MD, PhD

Professor of Radiology and Neurosurgery, Albert Einstein College of Medicine Director, Pediatric Neurointervention, Montefiore; Program Director, Endovascular Neurosurgery/ Interventional Neuroradiology Fellowship Montefiore, Bronx, NY

Yi Li, MD

Assistant Professor of Clinical Radiology; University of California San Francisco

Kazim Narsinh, MD

Assistant Professor of Radiology and Biomedical Imaging University of California San Francisco

Darren Orbach, MD, PhD

Associate Professor of Radiology, Harvard Medical School Chief, Neurointerventional Radiology Co-Director, Cerebrovascular Surgery and Interventions Center Sage Schermerhorn Chair in Image-Guided Therapy Childrens' Hospital Boston

David Raleigh, MD, PhD

Assistant Professor of Radiation Oncology; Robert and Ruth Halperin Endowed Chair in Meningioma Research; Brain Tumor Center Principal Investigator and Preclinical Therapeutics Core Director Departments of Radiation Oncology and Neurological Surgery University of California San Francisco

Georges Rodesch, MD, PhD

Head of the Department of Neuroradiology Hopital Foch, Paris, France

David Saloner, PhD

Professor of Radiology and Biomedical Imaging; Director, Vascular and Cardiac Research Group; University of California San Francisco Director and Founder, Vascular Imaging Research Center, San Francisco Veterans Affairs Medical Center

Luis Savastano MD, PhD

Assistant Professor of Neurological Surgery; University of California San Francisco

Joseph Shieh, MD, PhD

Director, Medical Genetics Training Program Associate Professor Department of Pediatrics Institute for Human Genetics Personalize Genomics and NF/RAS Clinics; University of California San Francisco

Michael Soderman, MD, PhD

Chief Neuroangiography and Stereotaxy, Department of Neuroradiology Karolinska Hospital, Stockholm, Sweden

Michihiro Tanaka, MD

Professor, Department of Endovascular Surgery Kameda Medical Center, Chiba, Japan

Ethan Winkler, MD, PhD

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490 Illinois Street, Floor 8
San Francisco, CA 94143

Online registration: cme.ucsf.edu
Registration Information: (415) 476-5808
Course Information: (415) 476-4251

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LAST NAME FIRST M.I.

DEGREE SPECIALTY

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REGISTRATION FEES:

	Early Bird By 12/31/23	Regular Fee After 12/31/23	On Site Fee After 3/14/24
Physicians	<input type="checkbox"/> \$525	<input type="checkbox"/> \$600	<input type="checkbox"/> \$650
Advanced Practice Professionals/Nurses	<input type="checkbox"/> \$425	<input type="checkbox"/> \$500	<input type="checkbox"/> \$550
Residents/Fellows	<input type="checkbox"/> \$375	<input type="checkbox"/> \$450	<input type="checkbox"/> \$500

On Site Fee After 3/14/24 will be \$50 additional

Make checks **payable to UC Regents**

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Refund Policy: Cancellations received in writing before **March 12, 2024** will be refunded, less a \$100 administrative fee. No refunds will be made on cancellations received after that date.

Please check our website for up-to-date information on the course: cme.ucsf.edu

GREENER MEETING

We're saving paper! The syllabus will be transmitted electronically one week prior to the course.

**Hyatt Regency
Lake Tahoe Resort & Spa**
111 Country Club Dr.
Incline Village, NV 89451
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