



Icahn School
of Medicine at
**Mount
Sinai**

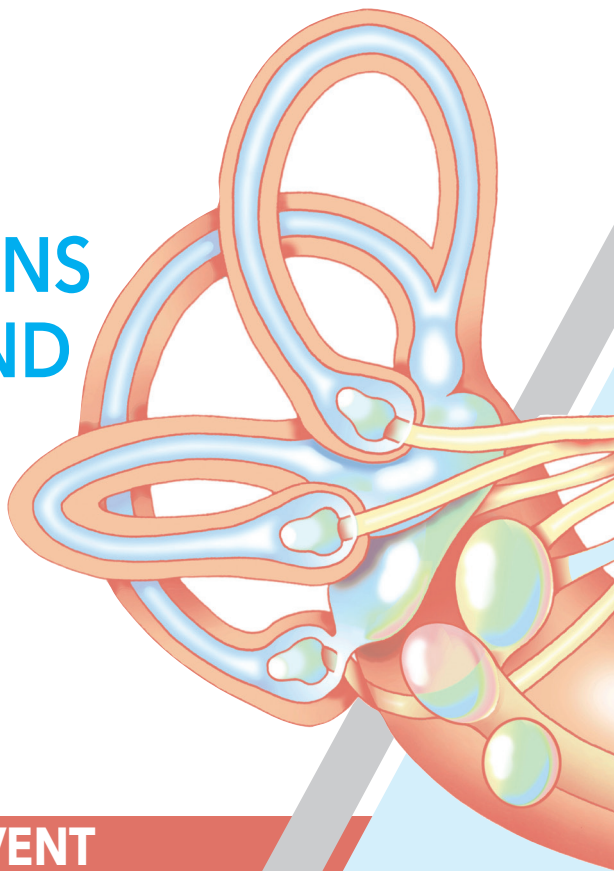
VESTIBULAR CONTRIBUTIONS TO HEALTH AND DISEASE

Friday and Saturday,
October 25-26, 2019



frontiers
SPOTLIGHT

EVENT



Course Director

BERNARD COHEN, MD

Professor Emeritus

Department of Neurology

Icahn School of Medicine at Mount Sinai

Course Co-Directors

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Harvard Medical School

Boston, MA

**JOSE ANTONIO LOPEZ-ESCAMEZ,
MD, PhD**

University of Granada

Granada, Spain

Annual YAHR LECTURE

Meeting Location

Stern Auditorium

Icahn School of Medicine at Mount Sinai

1468 Madison Avenue

New York, NY

Jointly provided by:

Department of Neurology at the Icahn School
of Medicine at Mount Sinai and *Frontiers*

COURSE DESCRIPTION

The early development of the vestibular apparatus in fish, frogs, and other primordial vertebrates has persisted largely unchanged from fish to man. This system controls spatial orientation, perception of gravity and the spatial vertical, and locomotion in three-dimensional space. It also controls breathing, heart rate, and blood pressure, as well as other aspects of autonomic function. Because the control of these functions takes place largely out of consciousness, their actions can be frightening to those who experience their dysfunction and cause substantial difficulty to physicians trying to calm or modulate their activity. Although the basic structure of the semicircular canals and otolith organs is known, it is still not entirely clear how and where the perception is controlled in the brainstem, the cerebellum and the cerebral cortex.

This two-day CME live activity is divided into four parts each devoted to an important component of vestibular, vestibular autonomic, and vestibulo-cerebellar function. *Frontiers*, the open-access publisher based in Lausanne, Switzerland, has provided a generous grant to support this meeting as part of its annual Spotlight Conference Series. The grant was awarded to the scientific organizing committee on the basis of the success of their *Frontiers* Research Topic entitled *Vestibular Contributions to Health and Disease* (www.frontiersin.org/research-topics/4868/). The collection of articles was published as a freely downloadable e-book in June 2018 in the *Neuro-Otology* section of *Frontiers in Neurology*.

An international faculty of experts will share new and established data from experimental vestibular studies, including up-to-date appraisal of clinical and experimental studies of the Mal de Debarquement Syndrome, and studies of the neural basis for positional nystagmus and balance. The program will include the annual Mount Sinai Yahr Lecture which will be delivered by Charles Della Santina, MD, PhD, on the development of electrical activation of semicircular canal nerves to restore three-dimensional spatial orientation.

LEARNING OBJECTIVES

- Discuss the relationship between the vestibular, ocular motor, and cerebellar systems and neurological conditions and how they may facilitate differential diagnosis and management.
- Explain the impact of the vestibular system on sympathetic function.
- Describe a management plan for the patient with Mal de Debarquement Syndrome (MdDS) and/or motion sickness.

WHO SHOULD ATTEND?

This CME activity is designed for neurologists, neuro-otologists, neuro-ophthalmologists, otolaryngologists, and cardiologists, including residents and fellows, and other healthcare professionals (nurses, speech/language therapists, physician assistants, physical and occupational therapists).

ACCREDITATION

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Icahn School of Medicine at Mount Sinai and *Frontiers*. The Icahn School of Medicine at Mount Sinai is accredited by the ACCME to provide continuing medical education for physicians.

CREDIT DESIGNATION

The Icahn School of Medicine at Mount Sinai designates this live activity for a maximum of **14.0 AMA PRA Category 1 Credit(s)**[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

VERIFICATION OF ATTENDANCE

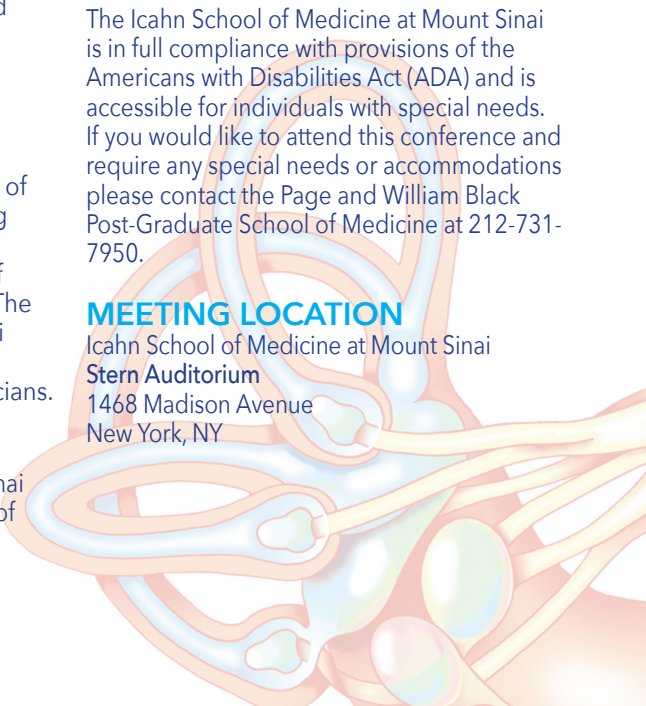
Verification of attendance will be provided to all professionals.

SPECIAL NEEDS

The Icahn School of Medicine at Mount Sinai is in full compliance with provisions of the Americans with Disabilities Act (ADA) and is accessible for individuals with special needs. If you would like to attend this conference and require any special needs or accommodations please contact the Page and William Black Post-Graduate School of Medicine at 212-731-7950.

MEETING LOCATION

Icahn School of Medicine at Mount Sinai
Stern Auditorium
1468 Madison Avenue
New York, NY



PROGRAM

Stern Auditorium, Annenberg Building, 1468 Madison Avenue

Day One: Friday, October 25, 2019

7:00-8:30am

Registration and Breakfast

8:30-8:45

Opening Remarks

Barbara G. Vickrey, MD, MPH

Fred Fenter, *Frontiers*

Session I: GENERAL VESTIBULAR

Moderator: G. Michael Halmagyi, BSC, MBBS, MD

8:45-9:30

Yahr Lecture: Restoring Vestibular Sensation Through Prosthetic Stimulation

Charles C. Della Santina MD, PhD

9:30-9:55

Vestibular System in Fish and Frogs: Effects of Semicircular Canals on Otolith Function

Prof. Hans Straka, PhD

9:55-10:05

Eye Movements from the Semicircular Canals

Bernard Cohen, MD

10:05-10:30

Vestibular Hair Cell Regeneration: Lessons Learnt from Animal Studies

Alan Cheng, MD

10:30-10:50

BREAK

Session II: CLINICAL VESTIBULAR

Moderator: Jose Antonio Lopez-Escamez, MD, PhD

10:50-11:15

Impulsive Testing of Semicircular Canal Function from 1892 to 2019: From Bench to Bedside and Back to Bench

G. Michael Halmagyi, BSC, MBBS, MD

11:15-11:40

Vestibular Responses to Sound and Vibration: Basic Results and Clinical Application

Ian Curthoys, PhD

11:40-12:05pm

Superior Canal Dehiscence

John Carey, MD

12:05-12:30

Genetics of Meniere's Disease

Jose Antonio Lopez-Escamez, MD, PhD

12:30-12:55

Pharmacotherapy of Vestibular Disorders: A Quick Update

Michael Strupp, MD, FRCP, FANA, FEAN

12:55-1:40

LUNCH

Session III: AUTONOMIC VESTIBULAR

Moderators: Gay Holstein, PhD and Vaughan Macefield, BSC (HONS I), PhD, DSC, FAAS

1:40-2:05

Learning Vestibulo-autonomic Transformation: Model Based and Machine Learning Approaches

Ted Raphan, PhD

2:05-2:30

Vestibular Changes in Microgravity

Laurence Retman Young, SCD

2:30-2:55

Neurotransmitters, Modulators, and Pathways Supporting Vestibular Influences on Heart Rate and Blood Pressure

Gay Holstein, PhD

2:55-3:20

Multisensory and Cognitive Control of Blood Pressure

Bill Yates, PhD

3:20-3:35

BREAK

3:35-4:00

Vestibular Modulation of Sympathetic Outflow to Muscle and Skin in Humans

Vaughan Macefield, BSC (HONS I), PhD, DSC, FAAS

4:00-4:25

Alternative Treatment of Orthostatic Intolerance

André Diedrich, MD, PhD

4:25-4:50

The Vestibular Cortex and Bodily Self-Consciousness

Christophe Lopez, PhD

4:50-5:00

Closing Remarks

Bernard Cohen, MD

5:00pm

Adjourn

PROGRAM

Day Two: Saturday, October 26, 2019

7:15-8:45am

Registration and Breakfast

8:45-9:00

Opening Remarks

Dedication to Mingjia Dai, PhD

Bernard Cohen, MD

Session IV: MAL DE DEBARQUEMENT SYNDROME (MdDS)

Moderator: Richard F. Lewis, MD

9:00-9:25

Sensation of Gravitational Pull in MdDS Patients

Sergei Yakushin, PhD

9:25-9:50

Sham Control Study of the OKN Therapy for MdDS

Viviana Mucci, PhD, MSC, BSC HONS

9:50-10:15

Neuroimaging Markers of MdDS

Yoon-Hee Cha, MD

10:15-10:30

BREAK

10:30-10:55

The Physical Signs of MdDS

Richard F. Lewis, MD

10:55-11:20

Corticospinal Excitability and MdDS

Brian Clark, PhD

11:20-11:55

Chronic Stimulation of Visual and Vestibular Cerebellar Climbing Fiber Pathways Modifies the Discharge of Purkinje Cells for Minutes and Hours, Changes Purkinje Cell Protein Expression for Hours, and Possibly Accounts for MdDS

Neil H. Barmack, PhD

11:55-12:45pm **LUNCH**

Session V: VESTIBULAR CEREBELLAR

Moderators: Catherine Cho, MD and James Lackner, PhD

12:45-1:10

Vestibular Readaptation in Motion Sickness and the Mal de Debarquement Syndrome

Catherine Cho, MD

1:10-1:35

Ataxia and Cerebellar Genetics

Joanna Jen, MD, PhD

1:35-2:00

Vestibular Cerebellum Correlates for Perception and Gaze

David Dickman, PhD

2:00-2:25

Vestibulocerebellar Nystagmus

Giovanni Bertolini, PhD

2:25-2:40

BREAK

2:40-3:05

Dynamic Balancing with and without Gravity-Dependent Position Cues

James Lackner, PhD

3:05-3:30

Quantifying the Links between Age, Vestibular Function, and Balance

Daniel Merfeld, PhD

3:30-3:55

Postural Instability and Motion Sickness Induced by Visual Motion Stimuli in Patients with Vestibular Migraine

Sung-Hee Kim, MD, PhD

3:55-4:20

Vestibular Loss and Cognitive Decline in Aging Adults

Yuri Agrawal, MD, MPH

4:20-4:40

Closing Remarks

David Zee, MD

4:40-5:00

Announcements

Bernard Cohen, MD

Fred Fenter, *Frontiers*

5:00pm

Adjourn



**Icahn School
of Medicine at
Mount
Sinai**

FACULTY - ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI

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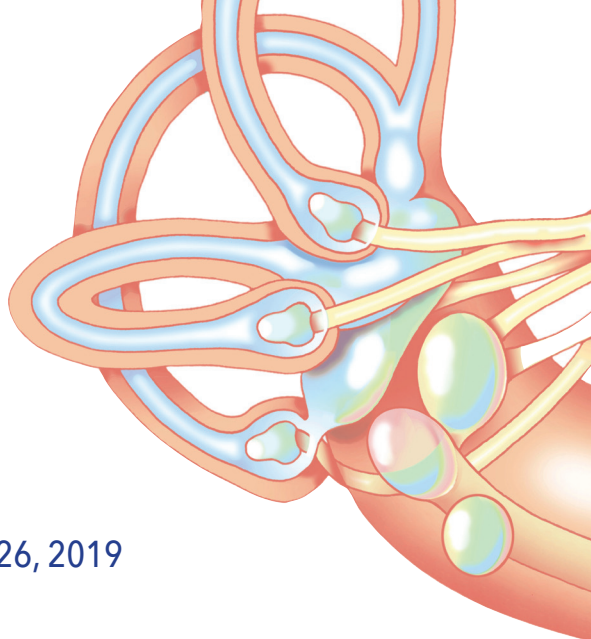
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FACULTY DISCLOSURE

It is the policy of Icahn School of Medicine at Mount Sinai to ensure objectivity, balance, independence, transparency, and scientific rigor in all CME-sponsored educational activities. All faculty participating in the planning or implementation of a sponsored activity are expected to disclose to the audience any relevant financial relationships and to assist in resolving any conflict of interest that may arise from the relationship. Presenters must also make a meaningful disclosure to the audience of their discussions of unlabeled or unapproved drugs or devices. This information will be available as part of the course materials.

VESTIBULAR CONTRIBUTIONS TO HEALTH AND DISEASE



Friday and Saturday, October 25-26, 2019

Two Ways to Register:

Online: <https://mssm.cloud-cme.com>

Mail this form with check to:

Icahn School of Medicine at Mount Sinai
The Page and William Black Post-Graduate School
One Gustave L. Levy Place, Box 1193
New York, NY 10029

I will attend on this/these dates:

Friday, October 25, 2019

Saturday, October 26, 2019

Both Days

Registration Fees:

	One day	Two days
<input type="checkbox"/> Physicians	US\$150	US\$300
<input type="checkbox"/> Mount Sinai Neurology Alumni	US \$85	US\$170
<input type="checkbox"/> Allied Health Professionals	US \$75	US\$150
<input type="checkbox"/> Residents/Fellows	US \$50	US\$100
<input type="checkbox"/> MSHS Residents/Fellows	Complimentary*	

*Complimentary registration for MSHS Residents and Fellows must be done online.

Mount Sinai Health System (MSHS) Residents and Fellows must email cme@mssm.edu with a copy of their hospital ID to receive a Complimentary Online Registration Code. MSHS Residency and Fellowship will be verified.

LAST NAME	FIRST NAME	DEGREE
ADDRESS		
CITY	STATE	ZIP
MOBILE PHONE		
EMAIL		
INSTITUTION/AFFILIATION		SPECIALTY

Cancellation Policy: All cancellation requests must be emailed to the CME Office at cme@mssm.edu by October 6, 2019. Cancellations after this date are not eligible for a refund. An administrative fee of \$50 will be deducted from your refund. No refunds will be issued for registration fees that are equal to or less than \$50. For security purposes, credit card payments cannot be accepted by mail. Please visit <http://mssm.cloud-cme.com> to register and pay by credit card.

For Conference Information:

Email: cme@mssm.edu or call the Office of CME at 212-731-7950



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An anatomical illustration of the human inner ear, showing the three semicircular canals in a light blue color, set against a background of the ear's internal structures in shades of orange and pink.

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Annual Yahr Lecture

October 25-26, 2019