Mass General Brigham

Neurology Grand Rounds

May 21, 2025

Penney Memorial Lecture

The Ticking DNA Clock: How Lifelong Somatic Expansion of a DNA Repeat Leads to the Neurodegeneration in Huntington's Disease

Steven A. McCarroll, Ph.D.

- Dorothy and Milton Flier Professor of Biomedical Science and Genetics

Department of Genetics, Blavatnik Institute, Harvard Medical School

- Director of Genomic Neurobiology

Stanley Center for Psychiatric Research, Broad Institute of MIT and Harvard

- Investigator, the Howard Hughes Medical Institute

Steve McCarroll and the scientists in his lab are working to reveal the causes of brain illness and the biology underlying variation in healthy function in the human brain, in part by inventing new technology and analysis methods for analyzing brain cells and using this together with human genetics.

Steve's lab invented droplet-based single-cell genomics (originally Drop-seq), a technology for studying genome-wide gene expression in thousands of individual cells, and worked to make the technology widely available.

Steve's lab has also discovered many surprising ways in which genes and alleles shape human biology; for example, they discovered "clonal hematopoiesis", a common, precancerous state that arises from clonal expansion of cells with somatic mutations.

Steve earned his Ph.D. in neuroscience at the University of California, San Francisco in the lab of Cori Bargmann. He did a postdoctoral fellowship in the lab of David Altshuler at MGH, studying human genome variation and the genetic basis of common disease.

He is a Howard Hughes Medical Institute investigator, an Institute Member of the Broad Institute, and the Flier Professor of Genetics and Biomedical Science at Harvard Medical School.

Learn more about the Penney Memorial Lecture

Date: Wednesday, May 21, 2025
Time: 12:00–1:00 PM
Location: **Bigelow Theater** (White 4-418)
Directions:

- From the MGH main lobby, walk down the hallway and turn left at the first elevator bank (White Building).
- Take the elevator to the 4th floor and turn right.
- The Bigelow Theater is at the end of the hallway.

Zoom: https://partners.zoom.us/j/84006500450?pwd=dtythBsubTYW4CKe9zWY2Doj88tSDG.1
Passcode: 052125

CME Credit: 1 AMA PRA Category 1 Credit™

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Save the Dates: May

May 28
BWH Campus
Topic: Biomarkers and Treatments for Post-Traumatic Epilepsy
Speaker: Aristea S. Galanopoulou MD, PhD (Albert Einstein College of Medicine)

Grand Rounds Recordings

Recordings are available on the following sites:

- MGH Website
- BWH Website

ACCREDITATION

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Credit Designation Statements

AMA PRA Category 1 Credit™

Mass General Brigham designates this live activity for a maximum of 1 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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