

Christopher Davidson Forum

Keynote Speakers:



Joseph Costello, PhD

Dr. Costello is a Professor of Neurosurgery at the University of California, San Francisco and holds the Karen Osney Brownstein Endowed Chair in Neuro-oncology. He is the Director of the NIH-supported Training Program in Translational Brain Tumor Research at UCSF.

Dr. Costello recently served as the Director of the UCSF-based NIH Roadmap Epigenome Mapping Center, and is an Associate Member of the British Columbia Genome Sciences Centre.

His lab is composed of molecular and computational biologists working alongside clinician-scientists. Dr. Costello's research focuses on the role of genetic and epigenetic alterations in the formation of sporadic cancers, including brain tumors. His goal is to understand the full evolutionary history of human brain tumors, from the first mutation and epimutation through clonal selection and tumor recurrence. A perennial leader in the field of cancer epigenetics, Dr. Costello has made seminal contributions to the fields of DNA methylation, glioma evolution, and non-coding mutations in human cancers.

The Costello Lab includes molecular and cell biologists, bioinformaticians, and clinicians, using next-generation sequencing to discover patterns and interdependencies of genetic mutations, epigenetic alterations and gene expression. They also investigate the influence of selective pressures such as temozolomide on tumor evolution.

Recent discoveries include identification of a TERT promoter mutation that is the most common point mutation in GBM and oligodendroglioma, and the third most common mutation overall in human cancer. Understanding how the TERT promoter mutation drives tumorigenesis and tumor cell immortality offers insight into potential therapies.

