



University of
Zurich^{UZH}

Institute for Regenerative
Medicine (IREM)



Colloquium

Clinical Colloquium Regenerative Medicine

**Monday, Oct 26 2020 at 1–2pm,
Institute for Regenerative Medicine (IREM)**

Zoom-meeting:

<https://uzh.zoom.us/j/91952820778?pwd=Yk9DTVZGbUdyY25VQVVwUVBIQ20wQT09>

Meeting-ID: 919 5282 0778; Kenncode: 180696

Prof. Martin Jinek

Department of Biochemistry; University of Zurich (UZH)

Understanding and engineering CRISPR-Cas genome editors

In bacteria, the CRISPR-Cas system functions as an adaptive system to provide resistance against molecular parasites such as viruses and other mobile genetic elements. RNA-guided effector nucleases associated with CRISPR-Cas systems have been repurposed as powerful tools for precision genome editing in eukaryotic cells and organisms. My prior work demonstrated that the CRISPR-associated protein Cas9 functions as a programmable DNA-cutting enzyme whose sequence specificity is determined by a short guide RNA molecule, and subsequently demonstrated that the enzyme can be programmed to induce double-strand DNA breaks in cultured human cells, paving the way for CRISPR-based genetic engineering. In my research group at the University of Zurich, our current work focuses on studying the molecular mechanisms of Cas9 and other CRISPR-associated nucleases such as Cas12a. Using a combination of structural, biochemical and biophysical approaches. Collectively, our studies provide a mechanistic foundation for understanding the molecular function of CRISPR-based genome editors and for the on-going development of CRISPR-Cas genetic engineering for biotechnological and therapeutic applications.

Organiser: Prof. Dr. Dr. Simon P. Hoerstrup / Prof. Dr. Roger M. Nitsch

Execution/Chair: Dr. Steffen M. Zeisberger / Dr. Christian Tackenberg

IREM, University of Zurich

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