

# CRISPR Gene Editing – Concepts, Techniques, and Applications

This advanced, intensive course provides an in-depth exploration of CRISPR gene editing technology applied to induced pluripotent stem cells (iPSCs). Participants will gain foundational knowledge in CRISPR-Cas systems and hands-on laboratory experience with guide RNA design, clonal selection, sequencing analysis, and quality control. The course culminates with lectures on clinical applications and ethical considerations of CRISPR.

5 Days: Monday – Friday | 9 AM – 5 PM , Lunch: 12:30 – 2 PM  
UCI Stem Cell Research Center, Gross Hall, CRISPR Core RM 1401

# Stem Cell Research Center

## CIRM Short Course: Imaging Mass Cytometry

This course will cover the fundamentals of imaging mass cytometry, including its comparison with fluorescence-based spatial imaging, data dimensionality, experimental design, panel building, and sample preparation techniques like tissue processing and fixation. Participants will also learn about metal antibody conjugation protocols, titration, optimization, and data analysis using neural networks, segmentation, and dimensionality reduction. Students will work on antibody conjugation, sample preparation, and running samples.

**6 Days | 3 Virtual | 3 In-Person & Hands On**  
**UCI Stem Cell Research Center, Gross Hall**

# Stem Cell Research Center

## CIRM Short Course: Mass Cytometry

This course focuses on foundational concepts, with lectures covering technical aspects of mass cytometry, its comparison to fluorescence-based cytometry, experimental design, data dimensionality, and panel building. Participants will learn about sample preparation techniques for surface and intracellular targets, as well as metal antibody conjugation protocols, titration, validation, and optimization. Students will engage in practical experience, followed by basic data analysis using tools like Cell Profiler, HistoCat, and advanced free software packages.

**6 Days - 3 Virtual | 14 Hours In-Person | 24 Hours Hands-On**

**UCI Stem Cell Research Center, Gross Hall**

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## CIRM Short Course: 3D Bioprinting

The course will include didactic lectures, research talks demonstrating the applications of the techniques covered and hands-on experimental components/demos. The equipment to be covered include Digital Light Processing (DLP), Bioprinting, and PRIMO-based micropatterning.

**3 Day Course | Aug 11-13, 2025**

**UCI Stem Cell Research Center, Gross Hall**