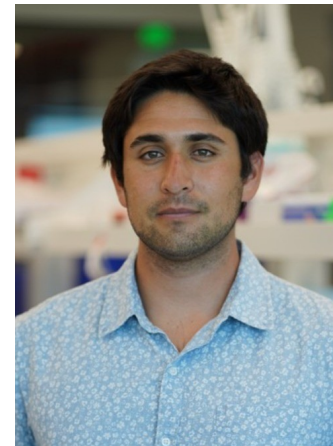


ICB PhD public presentations**CRISPR-CAS DIAGNOSTICS:
SOLUTIONS FOR ENHANCED
ASSAY PERFORMANCE****Jake Lesinski**

ICB / deMello group

Supervisor: Prof. Dr. Andrew deMello

Co-examiner: Prof. Dr. Ciara Kathleen O'Sullivan,
Universitat Rovira and Dr. Daniel Richards**Wednesday, 05/02/2025, 1 pm****ETH Hönggerberg, HCI J 4 and on Zoom****(<https://ethz.zoom.us/j/69461822179>)**

Project Summary: Diagnostic tests play an essential role in monitoring disease spread and provide critical data for informing therapeutic decisions. A plethora of diagnostic technologies exist, each driven by unique (bio)chemistries that confer specific strengths and limitations. CRISPR-Cas technology, well-known for its applications in gene editing, has emerged as a promising tool towards addressing issues of leading chemistries, while retaining their benefits.

Though promising, CRISPR-Cas diagnostic assays are not without their own limitations and we therefore present several methods for remedying these considerations. The mechanisms of one-pot CRISPR assays are investigated and an approach for improved performance is demonstrated. A method for an improved reporter system is described in addition to the integration of statistical and ML methods into the CRISPR-diagnostic sphere, resulting in enhanced classification.

CV. Jake is an experienced engineer with 3+ years in industry and 3+ years in various start-ups. Through his various roles he has co-raised over 1 million CHF in funding, hired and managed several employees for multi-disciplinary teams, led engineering development and translation in highly regulated medical fields with several projects resulting in patents and publications.