

ICB PhD public presentations**HIGH-THROUGHPUT AND
MICROFLUIDIC APPROACHES TO
ASSESS AND OPTIMIZE THE
INTERFACIAL STABILITY OF
THERAPEUTIC PROTEINS****Dominik Alexander Zürcher**

ICB/Biochemical Engineering Laboratory

Supervisor: Prof. Dr. Paolo Arosio

Co-examiners: Prof. Dr. Peter Fischer (ETH),
Prof. Dr. Wolfgang Frieß (LMU München) and
Dr. Klaus Wuchner (J&J)



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ETH Hönggerberg, HIT E51 (Siemens Auditorium)

and on Zoom (<https://ethz.zoom.us/j/8380330085?omn=67862704736>)

Project Summary: Therapeutic proteins, such as monoclonal antibodies, are important drugs used to treat severe diseases and have achieved great commercial success. However, their tendency to aggregate at interfaces presents major challenges during development, manufacturing, and delivery, particularly in highly concentrated formulations. Rapid stability assays capable of evaluating interfacial stability are largely lacking. This work focuses on developing high-throughput analytical tools, based also on microfluidics, to assess the interfacial stability of protein drugs. It also includes the time-resolved investigation of aggregation mechanisms at liquid-liquid interfaces of varying polarity and the role of excipients, such as surfactants, in optimizing stability. These new technologies aim to accelerate the rational development and optimization of protein drugs.

CV: Dominik Zürcher graduated from ETH Zurich with a BSc in Chemical Engineering and an MSc in Chemical and Bioengineering. He completed his master's thesis at the University of Cambridge, UK. In 2020, he began his PhD in the group of Prof. Paolo Arosio as part of an industrial collaboration with Johnson & Johnson.