

ICB PhD public presentations**EXPANSION PROCESS
DEVELOPMENT FOR CELL-
BASED THERAPIES****Ernesto Scibona**

ICB Morbidelli Group

Supervisor: Prof. Dr. Massimo Morbidelli

Co-examiner: Prof. Dr. Paolo Arosio

**ETH Hönggerberg, 27/02/2019****HCI J 4, 13.00 h**

Project Summary: Living cells are emerging as therapeutic entities for the treatment of patients affected with severe and chronic diseases where conventional drugs only achieve a delay in disease progression or in the occurrence of complications. On the other hand, the complexity of cells poses several challenges for their manufacturing as drug product at commercial-scale. For this reason, the expansion of cells in clinical applications is mostly performed in small-scale systems, operated batch-wise in combination with serial passaging procedures. The focus of my thesis was the development of robust, scalable and cost-effective processes for the expansion of therapeutic cells. First, I will demonstrate the development of a platform for the continuous expansion of human induced pluripotent stem cells (iPSC) in suspension with shear-driven control of iPSC aggregate size. Secondly, I will present a bioprocess optimization framework for the generation of large number of T lymphocytes with early memory phenotype.

CV. Ernesto Scibona obtained his BSc in Bioengineering from Università' di Bologna in 2012 and his MSc in the same field from Politecnico di Milano in 2014. He performed his master's thesis at ETH Zurich under the supervision of Prof. Massimo Morbidelli. In 2015, he joined the Morbidelli Group as PhD student.