



Principal Investigator Grant

Project

«A quantitative single cell approach to measure protein turnover perturbations in human neurons»

Granted amount	CHF 287'800
Starting date	1.6.2022
Duration	36 months



Main applicant

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Gaining new insights in protein turnover

Protein turnover control is central to normal cellular physiology and its alteration is involved in many aging-related conditions. In the brain, perturbations of protein turnover can directly lead to neurodegenerative diseases. Therefore, understanding how alterations of protein turnover emerge over the course of these diseases is of paramount importance. Here we propose to develop a strategy allowing to quantify protein turnover of individual human neurons in both healthy and neuropathological contexts.

We will engineer human pluripotent stem cells to express a fluorescent protein turnover sensor that we recently developed and differentiate these cells towards various types of neurons. This will allow to address the two different aims of this project:

- i) Understand how causal features of Alzheimer's and Parkinson's diseases impact protein turnover.
- ii) Establish a high-throughput imaging platform allowing to screen for modulators of protein turnover.