



MSc and PhD positions at the Department of Molecular Life Sciences, University of Zurich

We, at the Pelkmans lab, have open MSc and PhD positions for motivated candidates to join our ongoing efforts in studying **how self-organisation emerges during embryonic development**. We are interested in understanding how an initially unpatterned oocyte/embryo gives rise to an organism, with its cells forming distinct tissues and structures in an orchestrated manner.

We are tackling this question by combining image-based multiplexing technologies with spatiotemporally resolved live imaging microscopy. We have previously developed novel iterative immunofluorescence approaches, achieving up to 90-plex protein staining in the same biological sample (Gut et al., Science 2018; Kramer et al., Science 2022). We are now applying this technology to zebrafish embryos and aim to push the limits of this method in 3D tissues. Moreover, we aim to complement this dataset by applying multiplex in-situ hybridisation technologies (Battich et al., Cell 2015; Berry et al., Cell Systems 2022) on embryos, simultaneously capturing various RNAs and proteins within the same sample. Finally, we utilise computer vision algorithms to combine different imaging modalities, analyse the resulting high-dimensional dataset, and perform data-driven predictive modelling to identify the scale-crossing features controlling cellular decisions.

We are looking for candidates with a background in systems/cell/developmental biology or biophysics and a **strong interest in method development and implementation, light microscopy and image analysis**. Previous coding experience is highly beneficial but not mandatory.

Starting dates are flexible. For further information, feel free to reach out to **Dr. Shayan Shamipour** shayan.shamipour@uzh.ch and check out our lab website: <https://pelkmanslab.org>.

