Joint postdoc position between Ohad Medalia (UZH) and Shivashankar (ETHZ/PSI) Groups:

Cells sense the extracellular mechano-chemical environment and transduce these signals to regulate gene expression programs. However the nuclear mechanotransduction mechanisms controlling the ultrastructure of perinuclear cytoskeletal and chromatin organization to regulate modular gene expression are poorly understood. The goal of the project is to explore the functional nuclear and chromatin organization in cells subjected to mechanical constraints, by cryo-electron tomography (cryo-ET) combined with light microscopy. We will grow cells on micropatterned substrates to engineer extracellular mechano-chemical environments and use cryo-ET to study the functional alterations in perinuclear cytoskeletal and 3D chromosome organization. The cellular structures will be analyzed by both fluorescent based approaches as well as cryo-ET. Ohad Medalia group has pioneered cryo-electron tomography of cellular architecture and the Shivashankar group has made significant contributions to our understanding of the coupling between cell mechanics, chromosome organization and gene expression. The current position is an unique opportunity for a talented postdoctoral candidate with a strong background in electron tomography of cellular architecture and/or with strong background in quantitative mechanobiology.

Please contact (omedalia@bioc.uzh.ch, gshivasha@ethz.ch) if you are interested in this position.

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