

Postdoctoral / engineer position in Bioinformatics / Systems Biology of cell fate decisions (SysFate)

A Postdoctoral / engineer position is available in the team [SysFate](#), driven by [Dr. Marco A. Mendoza](#). SysFate is part of the ISSB laboratory (formerly the Institute of Systems and Synthetic Biology) in the unit "metabolic genomics" UMR-8030, which is part of the Genoscope, [the French National Sequencing Centre](#).

Project background

Temporally and spatially organized cell fate transitions are at the basis of the genesis of multicellular organisms, and alterations from this body plan can generate pathologies. One such process is *neurogenesis, a highly complex process implicating a variety of regulatory signals, which in a multicellular organization context* (about 100 billion neurons interconnected by several trillion of interconnections) *gives rise to one of the most complex organs retrieved in higher organisms: the brain*. Importantly, while major processes underlying mammalian brain development were previously characterized in rodent model systems, their conservation in humans as well as the characterization of further specific processes, explaining human brain complexity, remains still elusive. This last aspect becomes even more relevant for the development of therapeutic solutions dedicated to mental-related illnesses, like Alzheimer's disease (AD). The recent advances in induced-pluripotent stem (iPS) cell technology and in 3-dimensional human cerebral organoid culture- able to reconstitute brain structures in vitro - provide promising new avenues for studying neurodegenerative diseases.

In this context, *our laboratory aims at combining brain organoid 3D-culture strategies with the acquisition of modern functional genomic readouts for extracting molecular characteristics defining basic principles that govern human brain development, but also scrutinize their deregulation under aberrant settings associated for instance to neurodegenerative diseases like AD.*

Candidate profile:

The candidate must hold a master or Ph.D. degree in bioinformatics, computer science, or related. Essential qualifications include excellent programming skills in languages as Java, Python, Perl and/or R. Experience in next-generation sequencing and related functional genomic data analysis (transcriptomics, ChIP-sequencing, etc) is a strong asset. Furthermore, experience in single cell transcriptomics and / or gene regulatory networks reconstruction is a plus for this application.

Postdoctoral position: Experienced candidates aiming to apply for permanent positions in France (CNRS; INSERM positions) will be supported.

Interested applicants should directly contact Marco Antonio Mendoza (mmendoza@genoscope.cns.fr) and provide a CV and any other necessary documents for review (list of relevant publications, letters of support).