

PhD Scholarships Computational Biology

Available Topics

The team of Jonathan Göke at the Genome Institute of Singapore (GIS) is currently looking for a PhD student in the field of computational genomics. Our group focuses on large-scale data analysis, algorithms development, and machine learning using genomics data. Students will work on their research project at GIS, and they will obtain their degree from the National University of Singapore, ranked among the top 20 universities in the world.

Available Topics include:

- Machine learning approaches to predict cell fate from genomics data
- Single-cell transcriptomics of organoid disease models (collaboration with Huck-Hui Ng)
- Design and analysis of large-scale single cell spatial transcriptomics experiments (collaboration with Kok Hao Chen)
- Modeling of alternative splicing using single cell ultra-long read RNA-Seq data

Requirements: Candidates should hold a degree or graduate before August 2017 (B.Sc. or M.Sc) with major in bioinformatics, computer science, or statistics, good grades, and programming experience. Official language in Singapore is English, so good English communication skills are required.

Contact: Interested candidates can contact Jonathan Göke (gokej@gis.a-star.edu.sg). For additional information about the team and GIS please visit www.jglab.org or www.gis.a-star.edu.sg

Selected Publications

- Jo et al. (2016). Midbrain-like organoids from human pluripotent stem cells contain functional dopaminergic and neuromelanin-producing neurons. *Cell Stem Cell*, 19(2), 248-257.
- Göke, J., & Ng, H. H. (2016). CTRL+ INSERT: retrotransposons and their contribution to regulation and innovation of the transcriptome. *EMBO Reports*, e201642743.
- Chen et al. (2015). Spatially resolved, highly multiplexed RNA profiling in single cells. *Science*, 348 (6233), aaa6090.
- Göke et al. (2015). Dynamic Transcription of Distinct Classes of Endogenous Retroviral Elements Marks Specific Populations of Early Human Embryonic Cells. *Cell Stem Cell*, 16(2), 135-141.
- Lu et al. (2014). The retrovirus HERVH is a long noncoding RNA required for human embryonic stem cell identity. *Nature Structural & Molecular Biology*. 21 (4), 423-425.
- Chan et al. (2013) Induction of a Human Pluripotent State with Distinct Regulatory Circuitry that Resembles Preimplantation Epiblast. *Cell Stem Cell*, 13(6), 663-675.
- Lu et al. (2013) SON connects the splicing-regulatory network with pluripotency in human embryonic stem cells. *Nat Cell Biol*15(10) : 1141-52
- Göke et al. (2013). Genome-wide Kinase-Chromatin Interactions Reveal the Regulatory Network of ERK Signaling in Human Embryonic Stem Cells. *Molecular Cell*, 50(6), 844-855.
- Göke et al. (2012). Estimation of pairwise sequence similarity of mammalian enhancers with word neighbourhood counts. *Bioinformatics*, 28(5), 656-663.
- Göke et al. (2011). Combinatorial binding in human and mouse embryonic stem cells identifies conserved enhancers active in early embryonic development. *PLoS Computational Biology*, 7 (12), e1002304.



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About the Genome Institute of Singapore

The Genome Institute of Singapore (GIS) is the national flagship program for genomic sciences in Singapore. The department of Computational and Systems Biology (CSB) forms an integral part of GIS as data analysis hub and center of excellent computational research. CSB houses 9 dedicated computational research groups that bring together a rich expertise in computer science, statistics, and bioinformatics. The computational teams are supported by state-of-the-art sequencing facilities and high performance computing infrastructure that enables cutting-edge genomics research. PhD Students have the opportunity to directly interact with experimental and clinical research labs at GIS to facilitate truly inter-disciplinary and translational research projects. PhD students will be enrolled at NTU and NUS, consistently ranked among the best Universities in the world. The Computational Biology PhD program at the GIS offers a world-class learning environment and excellent career prospects both for academia and industry.



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The Teams

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About Singapore

Singapore is a city-state with one of the highest standards of living in the world seeking to become an international hub for the biomedical sciences. Singapore is a vibrant, tropical city, with rich Asian heritage and modern style of living, an ideal gateway to explore Asia, providing a unique experience and an excellent quality of life.

Contact

Interested students (Master and Bachelor) with a background in computer science, mathematics, bioinformatics or a related field are welcome to contact the team leaders directly about potential PhD projects.

Please visit www.gis.a-star.edu.sg for additional information and recent publications.

