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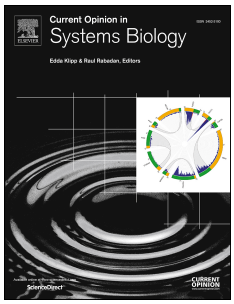

Genomics in the center of biology and biomedicine

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Genomics in the center of biology and biomedicine

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Editor Bios

Tuuli Lappalainen, PhD, is a Core Member at the New York Genome Center and an Assistant Professor at the Department of Systems Biology at Columbia University. She got her PhD from University of Helsinki, and did postdoctoral research at Stanford University and University of Geneva. Her research focuses on functional genetic variation in human populations, and she has pioneered in integrating large-scale genome and transcriptome sequencing data. She has been part of several consortia in human genetics, including Genotype Tissue Expression Project, the 1000 Genomes Project, and the Geuvadis Consortium.

Emmanouil Dermitzakis is currently a Professor of Genetics in the Department of Genetic Medicine and Development of the University of Geneva Medical School. He is a member of the executive board of the Institute of Genetics and Genomics in Geneva (iGE3), a member of the Swiss Institute of Bioinformatics. He obtained his B.Sc. from the University of Crete (Greece) and his PhD from the Pennsylvania State University in the USA. His post-doctoral work was at the University of Geneva. He has participated or co-led projects such as ENCODE, the Mouse Genome Sequencing Consortium, the International HapMap project, the 1000 genomes project the GTEx project.

This issue of *Current Opinions in Systems Biology* focuses on genomic and epigenomic research in humans, which has matured into one of the most active fields in biology and biomedicine during the past ten years. Powerful approaches have emerged to shed light on many core questions of biology: What are the genetic and environmental causes for human diversity? How does the genome get interpreted to give rise to a living cell and a living organism? These questions have been rendered particularly pressing by the possibility to turn these fundamental discoveries into insights for improving human health. Since the underlying cause for physiological pathologies lies in molecular changes at the cellular and tissue level, understanding these processes is key to tackling the core causes of disease. Furthermore, the vast catalogs of genetic variants associated to human diseases and traits provide an important challenge and opportunity to discover the molecular pathways involved in how genetic variation manifests in cells and further in high-level phenotypes. The articles in this issue discuss many recent insights into these questions, and showcase the vast array of approaches that researchers in this field are undertaking in systems biology of genomics and epigenomics.

One of the major drivers of exploration and innovation in functional genomics has been the increasingly comprehensive and diverse toolkit that has enabled