

SORS: How Gene Positioning Shapes Cell Identity and Oncogenesis

Abstract

The spatial organization of genes within the genome offers insights into their evolutionary history and functional significance. In this talk, I will present our recent findings that essential younger genes cluster near older, essential ones, indicating a non-random arrangement that promotes evolutionary innovation. I will discuss how network-based modeling methods enhance our understanding of the role of chromatin architecture in regulating gene expression through enhancer-promoter interactions. Finally, I will connect these concepts to cancer biology, emphasizing the need for new computational approaches that integrate chromatin data to better interpret how somatic genomic translocations activate oncogenes and contribute to cancer development.



Short Bio

Daniel Rico is a Senior CSIC Group Leader at the Andalusian Molecular Biology and Regenerative Medicine Centre (CABIMER) since 2023, where he leads the Computational Epigenomics and Cell Identity research group. He did his PhD at CNIC, he was Postdoc and Staff Scientist at CNIO and established his own group at Newcastle University (UK) as a Research Fellow in 2016, where he was later tenured and promoted to Senior Lecturer. His research focuses on developing computational approaches to understand the epigenomic mechanisms that generate diverse cell identities and how these processes are altered in cancer and immune-mediated diseases. He has published 54 scientific articles, with key contributions in the fields of chromatin and cancer genomics. Daniel has been actively involved in major international consortia like BLUEPRINT and IHEC, and has a strong commitment to training the next generation of computational biologists and promoting equality, diversity, and inclusion in academia.

Speakers

Speaker: Daniel Rico, PhD and Senior CSIC Group Leader at the Andalusian Molecular Biology and Regenerative Medicine Centre (CABIMER)

Host: Alfonso Valencia, Computational Biology Group Leader, Life Sciences Department, BSC Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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