BIOTECHNOLOGY AND BIOSCIENCES SEMINARS

Dipartimento di Biotecnologie e Bioscienze – UNIMIB

martedì 18 ottobre, 2022, ore 16:30, edificio BIOS, aula 2025

Work in Progress seminar

Brain gene regulation in 3D: long-range promoter-enhancer functional interaction networks in mouse brain-derived neural stem cells, and their relevance for neurodevelopmental disease

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Abstract: The transcription factor SOX2 is essential for Neural Stem Cells (NSC) maintenance and brain development and its mutation in humans causes Neurodevelopmental Disease (NDD), with significant brain defects. We showed that SOX2 is critical for the 3D chromatin organization in NSC, by controlling a network of long-range interactions physically associating enhancers to gene promoters. We found that SOX2 is involved in a gene regulatory network with FOS and SOCS3, important for NSC maintenance and differentiation. We identified many putative enhancers conserved in humans, connected to genes responsible for NDD when mutated and overlapping DNA variants associated to NDD. An open question is which enhancers are relevant for the regulation of the connected genes.

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