

Brief Description of the XXXIX cycle PhD call

The PhD will be developed within the Doctoral School of the University of Turin and, in particular, in the PhD course in [Molecular Medicine](#) hosted at the Department of Molecular Biotechnology and Health Sciences, awarded as Department of Excellence for the four-year period 2023-27.

The main focus of the research will be the application and development of bioinformatics approaches and machine learning techniques on biological source data.

In particular, we would like to improve the integration of data belonging to different *-omics* (genomics, transcriptomics, epigenomics, and proteomics) to analyze the fundamental mechanisms of gene expression and gene regulation, both at the transcriptional and post-transcriptional levels, with the possibility of also integrating data from metagenomics and metatranscriptomics. Specific attention will be paid to the construction of biological networks and their analysis as a conceptual framework for modeling and understanding the complex interactions between different components of a biological system.

The research activity will be carried out in collaboration between the Department of Molecular Biotechnology and Health Sciences and the Department of Veterinary Sciences, both at the University of Turin, together with other several partners.

The research will also rely on specific wet biology expertises, thanks to Professors:

- Prof. Paola Defilippi
- Prof. Valeria Poli
- Prof. Daniela Taverna

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