



PRINCIPE FELIPE

CENTRO DE INVESTIGACION

## Doctoral Thesis

### Development of bioinformatics resources for the integrative analysis of Next Generation omics data

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**Abstract:** In recent years Systems Biology has established itself as a multidisciplinary area of research which tries to model the dynamic behavior of biological systems by holistically studying the interactions between the different types of molecules that are essential for life, including DNA, RNA, proteins, and metabolites. Systems Biology is an interdisciplinary area that requires biologists, mathematicians, biochemists, and other researchers to work closely together, and in which computer sciences plays a fundamental role because of the volume and complexity of the data handled.

This thesis addresses the problem of data management, integration, and analysis in multi-omics studies. More specifically, this research focused on two of the most characteristic computational challenges in Systems Biology: the development of integrated databases and the problem of integrative visualization.

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