Instituto Universitario de Investigación Biocomputación y Física de Sistemas Complejos Universidad Zaragoza

Joaquín Sanz Remón

After obtaining his PhD in Physics in 2014 at the BIFI Institute, focusing on mathematical models for the infection cycle of *Mycobacterium tuberculosis*, he moved to Canada for a postdoc at the Sainte Justine pediatric hospital, where he specialized in immune system genomics. Afterwards, he became a researcher at the University of Chicago and, in 2019, he returned to the BIFI Institute as a Ramón y Cajal researcher. Currently, he leads the line of research in computational genomics and Systems Biomedicine in the area of Biochemistry and Cell Biology at the BIFI Institute.



Researcher profile

He is an R3 researcher and leads a laboratory that develops computational methods to analyze large volumes of biomedical data. His research focuses on three areas: tuberculosis, modeling the interaction between *Mycobacterium tuberculosis* and the human host to evaluate new vaccines; developing tools to analyze single-cell sequencing data to understand the biology of complex tissues; and exploring the genomic basis of the immune system, collaborating with clinical groups to study how genetic and environmental factors influence the immune response.

Importance of his research

His research combines biomedicine and computational sciences, focusing on the



gical application development of tools to study the interaction between pathogens, Evolution Immunology the immune system and the 4// Development environment. In tuberculosis, his systemic approach improves the understanding of the biology of the bacillus and supports the design of more effective vaccines. In addition, he develops bioinformatics tools for the analysis of omics data at the single cell level, with the aim of improving the interpretation of immune function. His goal is to understand how genetic and environmental factors affect the immune response, in order to develop more personalized treatments.

