Hospital Universitario Ramón y Cajal

SaludMadrid

INSTITUTO RAMÓN Y CAJAL DE INVESTIGACIÓN SANITARIA IRYCIS

SEMINARIOS IRYCIS 2025

TP53 loss in gastric organoids triggers precancerous reprogramming and antimicrobial defense

Mar Reinés Bennassar

Institute of Biotechnology
Department of Medical Biotechnology (Berlin)

18 SEPTIEMBRE 2025 10:00h

Aula Maxi Lozano (Planta 7 Dcha) y on line (Zoom)

Dr. Mar Reines is a biomedical scientist investigating the earliest cellular events leading to gastric cancer. Her research focuses on how Helicobacter pylori, a cancer-promoting bacterium, interacts with gastric stem cells to drive transformation. Using advanced gastric organoid models, she has uncovered how bacterial effectors, such as CagA, perturb epithelial cell behavior and how specific TP53 mutations alter cell fate, leading to intestinal metaplasia and changes in the gastric microenvironment. Dr. Reines combines CRISPR-based engineering, infection models and patient-derived organoids to unravel the molecular mechanisms of infection-driven cancer initiation and to explore novel therapeutic opportunities.

Dr. Reines carried out most of this work during her postdoctoral training at the Max Planck Institute for Infection Biology (MPIIB) in Berlin, where she established and optimized gastric organoid models and gene-editing tools to study host-pathogen interactions. Currently, at the Technical University (TU) of Berlin, she is expanding these models by incorporating additional cell types, such as immune cells and fibroblasts, to create more complex and physiologically relevant systems that better capture the early mechanisms of gastric carcinogenesis.