Stanford

Leonor García-Bayona

Assistant Professor of Microbiology and Immunology

Bio

BIO

Dr. Leonor García-Bayona is an Assistant Professor in the Department of Microbiology and Immunology at Stanford University. Leonor grew up in Bogota, Colombia, where she completed her undergraduate studies in Chemical Engineering and Microbiology at the University of the Andes. She did her Ph.D. in Microbiology at the Massachusetts Institute of Technology, under the supervision of Dr. Michael Laub, studying the genetics and cell physiology of a new interbacterial antagonism system. She then became a postdoctoral fellow in the lab of Dr. Laurie Comstock, first at Brigham and Women's Hospital/Harvard Medical School and later at the University of Chicago. In the Comstock lab, Leonor trained in intestinal anaerobe microbiology, advanced microscopy and microbiome computational analyses. The García-Bayona lab studies the role of mobile genes in the community interactions of the human intestinal microbiota, and evaluates how this knowledge could be harnessed for targeted therapeutic interventions.

ACADEMIC APPOINTMENTS

- Assistant Professor, Microbiology and Immunology

LINKS

- García-Bayona Lab website: https://www.garciabayonalab.com/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The human microbiome is evolving rapidly (i.e. over our lifetimes) following changes in modern lifestyles, especially in industrialized countries. The García-Bayona lab seeks to understand how horizontal gene transfer shapes interactions within the human intestinal microbiota and what the implications of this widespread phenomenon are for community properties relevant to human health (for example, the ability of the gut community to recover after antibiotic treatment). There is currently only a superficial understanding of the different cellular roles of most exchanged genes, the mechanisms governing their spread and their effect community dynamics. Our lab works on bridging the existing gap between the current systems-level observational studies and a mechanistic understanding through bacterial genetics and physiology. We take a bottom-up approach (from genes to communities), incorporating genetics, metagenomics, population analyses and experimental evolution in tractable bacterial consortia.

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jane Cook

Postdoctoral Faculty Sponsor

Kate Schubert

Doctoral Dissertation Advisor (AC)

Andrea Carroll, Sayde Perry

Publications

PUBLICATIONS

- **A ubiquitous mobile genetic element changes the antagonistic weaponry of a human gut symbiont** *SCIENCE*
  Sheahan, M. L., Flores, K., Coyne, M. J., Garcia-Bayona, L., Chatzidaki-Livanis, M., Holst, A. Q., Smith, R. C., Sundararajan, A., Barquera, B., Comstock, L. E.
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