

**Instituto de Biología Funcional y Genómica**

# Programa de Seminarios Externos

*"Dionisio Martín Zanca"*

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## **Paul Straight**

Biochemistry & Biophysics, Faculty of Genetics and Genomics  
Texas A&M University. College Station  
Texas, USA

# **Using interspecies interactions to discover how antibiotics direct bacterial metabolism, cell biology, and fitness.**

**Abstract:** To understand how secondary metabolism determines bacterial fitness, our research uses interactions between *Bacillus subtilis* and different species of *Streptomyces*. Interaction patterns reveal functions for antibiotics and other secondary metabolites that expand our knowledge beyond the paradigm of antibiosis. Two examples will be presented to illustrate this point. 1) *Streptomyces venezuelae* produces chloramphenicol, a classic inhibitor of protein synthesis. At subinhibitory concentrations in a competitive interaction, chloramphenicol functions as an inducer of surface mobility for an exposed population of *B. subtilis*. We use this interaction to discover how *B. subtilis* senses the antibiotic and initiates a regulated mobile response. 2) *Streptomyces* sp. Mg1 produces linearmycins, a family of antibiotic and antifungal metabolites related to amphotericins. We found that linearmycins are produced and packaged into extracellular vesicles for delivery. Remarkably, the biogenesis of extracellular vesicles depends upon biosynthesis of linearmycins. We use a cytological approach to understand how antibiotic biosynthesis directs membrane dynamics in this species of bacteria.

Martes **18**<sup>2024</sup>  
Junio **2024**

**Hora:** 12:00 pm

**Lugar:** Salón de actos del IBFG

**Web:** <https://ibfg.usal-csic.es/semext.php>

**Contacto:** Ramón Santamaría ([santa@usal.es](mailto:santa@usal.es))



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