Graduate Schools
Infection Immunity and Cancer, UniGe & UniL: CUS
Biology & Medicine, CMU

# Seminar in Microbiology

## Monday, 15th May, 2017

## Salle de séminaire, E07.3347.a, CMU

## 11:30 – 12:30


## Prof. Dr. Enrique Flores

Institute of Plant Biochemistry & Photosynthesis (IBVF), Univ. Sevilla, ES


# Multicellularity in filamentous cyanobacteria

Cyanobacteria played a key role in the evolution of life in our planet, and they are also essential for the current operation of the biosphere. Additionally, they are model systems to study oxygenic photosynthesis and the fixation of atmospheric carbon dioxide and dinitrogen. Some cyanobacteria are simple multicellular organisms that make filaments of cells in which some cells carry out specialized functions. The Flores lab explores the biology of cyanobacterial heterocyst-containing filaments, in which cells devoted to nitrogen fixation (the heterocysts) provide the photosynthetic vegetative cells of the filament with fixed nitrogen. His team studies how a vegetative cell differentiates into a heterocyst, a process involving a specific program of gene expression, and how intercellular communication takes place in the filament. Recent research on heterocyst-forming cyanobacteria has unraveled the presence of structures and mechanisms for intercellular molecular transfer that were previously unknown in bacteria and are analogous to metazoan gap junctions

**Recent key publications:**


- Specific Glucoside Transporters Influence Septal Structure and Function in the Filamentous, Heterocyst-Forming Cyanobacterium Anabaena sp. Strain PCC 7120. Nieves-Morión et al **J Bacteriol.** 2017
- Molecular Diffusion through Cyanobacterial Septal Junctions. Nieves-Morión et al **MBio**. 2017
- The multicellular nature of filamentous heterocyst-forming cyanobacteria. Herrero et al. **FEMS Microbiol Rev**. 2016
- Overexpression of SepJ alters septal morphology and heterocyst pattern regulated by diffusible signals in Anabaena. Mariscal et al. **Mol Microbiol**. 2016
- Septal Junctions in Filamentous Heterocyst-Forming Cyanobacteria. Flores et al. **Trends Microbiol**. 2016
- The heterocyst differentiation transcriptional regulator HetR of the filamentous cyanobacterium Anabaena forms tetramers and can be regulated by phosphorylation. Valladares et al **Mol Microbiol**. 2016
- Spatial fluctuations in expression of the heterocyst differentiation regulatory gene hetR in Anabaena filaments. Corrales-Guerrero et al **PLoS Genet**. 2015


Contact: P.VIOLLIER & P. LINDER