

**M1-Molecular and Cellular Biology (MCB)
Internship Proposal Form
Chemistry-Biology Department**

(Deadline Friday 1st November 2018)

Laboratory Address and Affiliation:

Institut de Biologie Structurale CNRS(UMR5075)/CEA/UGA - Pneumococcus group
71, avenue des Martyrs
CS10090
38044 Grenoble Cedex 9, France

Laboratory/Team Research area (Keyword)

Institut de Biologie Structurale - Pneumococcus group (Headed by T. Vernet)
Bacterial division and morphogenesis. Fluorescence microscopy (including super-resolution microscopy). Structural biology. Biochemistry. Molecular biology.

Summary of the Proposed Internship Project (10 lines)

Title: Structural studies of proteins involved in bacterial sporulation

DESCRIPTION:

Bacterial sporulation is a morphological differentiation process leading to the development of a spore that is resistant to extreme environments (temperature, dehydration, irradiation, ...). Our project focuses on the SpoIIIA-SpoIIQ multiprotein membrane complex that is essential for spore development. This complex displays similarities to endotoxin secretion systems and has been hypothesized to serve as a channel for molecular transport between the mother cell and the developing spore. Recently, we showed that it contains an oligomeric ring with architecture and dimensions similar to those found in type III secretion systems, providing direct evidence for a conduit connecting the mother cell and the developing spore. We propose an internship project aiming at continuing the structural study of the SpoIIIA-SpoIIQ complex (membrane form, sub-complexes, ...).

Methodologies and/or Techniques to be used

Biochemistry. Protein-protein interaction assays. X-ray crystallography. Electron microscopy

Person to contact:

Name: Cecile Morlot
Phone: 04 57 42 86 55 / 06 24 59 20 37
E-mail: cecile.morlot@ibs.fr

Additional information