Peptidoglycan remodelling during spore morphogenesis

Centre National de la Recherche Scientifique

NICOLAS BAUDIN
INTERNSHIPS IN FRANCE INITIATIVE

Name of the hosting institution in France	Centre National de la Recherche Scientifique (CNRS)
Name of the host laboratory / research team	Institut de Biologie Structurale
Address	71 avenue des Martyrs - CS 10090 - 38 044 Grenoble Cedex 9
Name of the supervisor	Cecile MORLOT
Function	CRCN CNRS (principal investigator)
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Internship offer

Topic of the internship (title)	Peptidoglycan remodelling during spore morphogenesis			
Proposed dates of the internship	**Start:**	02-09-2019	**End**	20-12-2019

Scientific and academic objectives of the internship (detailed description of the internship content, work expected from the intern and expected outcomes):

Bacterial sporulation is a morphological differentiation process leading to the development of a highly resistant spore. A major stage of spore morphogenesis is the phagocytic-like process called engulfment. During engulfment, the mother cell membrane migrates around the developing spore, generating a cell within a cell. Membrane migration involves cell wall synthesis and remodelling processes that remain incompletely resolved. During this internship, the student will study the role of genes that have recently been involved in the engulfment process and might be associated with cell wall synthesis and/or hydrolysis. The objective of the internship will be to determine whether the genes of interest regulate the activity of a cell-wall degrading complex known to be essential for engulfment. The student will produce and purify all the recombinant proteins of interest. These proteins will be used in enzymatic assays performed on bacterial cell wall also purified by the student. If some proteins are shown to regulate the activity of the cell-wall degrading complex, the student will investigate molecular interactions between the cell wall hydrolases and their regulator(s) using biophysical methods.

Does the project involve a French industry partner?	No
Name of the Australian partner institution	University of Technology Sydney
Name of lab/department/team involved in the collaboration at the Australian partner institution	Faculty of Science / ithree Institute / Rodrigues team
Main contact in the Australian partner institution	Christopher Rodrigues
Function of the main contact in the Australian partner institution	Principal Investigator
Email address of the main contact in the Australian partner institution	Christopher.Rodrigues@uts.edu.au
Outside of this ongoing collaboration, will applications coming from students of other eligible Australian universities be considered by the hosting institution in France?	Yes

Expected profile of applicant

Level of study	PhD student
Discipline	Biology
Required qualities, knowledge and skills	Skills in molecular biology, biochemistry and microbiology would be a plus. We seek for motivated, enthusiastic and pro-active students with good autonomy and communication skills.
Other specific eligibility criteria (such as citizenship requirements, language requirements, …)	Language requirement : English

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