



2-year post-doc position on algal-bacterial interactions

Research Unit: Laboratory of integrative biology of marine models, UMR8227 CNRS Sorbonne Université

Location: Station Biologique de Roscoff (north coast of Brittany, France)

Title: Responses of marine algal holobionts towards environmental changes

Starting date: ideally September 1st 2018

Project:

Host-microbe interactions have a strong impact on host fitness and beneficial interactions are frequently based on metabolic complementarities between the organisms living together. These metabolic complementarities can be predicted in silico via the analysis of genome-scale metabolic models. The successful candidate will be working on a CNRS-funded project with two main objectives. First, to establish a laboratory holobiont model using the brown alga *Ectocarpus* as a host, and to predict mutualistic host-microbiome interactions based on metabolic complementarities and to test these predictions; second, to elucidate the processes that occur when the equilibrium between host and microbiome is disturbed by an increase in temperature. A detailed project description is available on request.

Key tasks:

- Analysis of an existing bacterial culture collection, sequencing of bacterial genomes (cultivation, DNA extraction, sequencing), isolation of new bacterial strains.
- Analysis of bacterial genomes (assembly, automatic annotation, reconstruction metabolic networks, prediction of metabolic complementarities using a pipeline developed by our collaborators at the IRISA Rennes)
- Axenic algal cultures (*Ectocarpus*) and algal-bacterial co-culture experiments. Acclimation experiments to increased temperature.
- Gene expression analysis (metatranscriptomics) for selected co-culture experiments (mapping, read counts, statistical analysis)
- Interpretation and valorization of results (publication(s), conferences)

Competences:

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For application, please send a letter of motivation and a detailed curriculum vita by e-mail before June 15th 2018.
