



## 2017 IGBMC Summer Internship

### Structural Dynamics of Nuclear Receptors

Laboratory of Pr Annick Dejaegere

The goal of this summer internship is to carry out the computational analysis of nuclear hormone receptors (NR) in order to better understand structure-function relationships. NRs form an important class of transcription factors implicated in many different aspects of physiology and disease. The training period will cover: analysis of the relevant literature on the structure and function of the particular receptor studied, analysis of existing experimental structural information, setting up and running of molecular simulations, analyzing the data and writing a summary report. Our studies currently focus on the impact of pathogenic mutations, of dimer formation and of DNA recognition on the structural dynamics. We currently study a number of different receptors (RAR, RXR, VDR, PPAR) and we aim to understand the molecular basis for activity that is analyzed in collaboration with experimental teams.

The trainee will gain knowledge in the field of molecular dynamics simulations of biological macromolecules.

She/he will work in a team consisting of researchers at the post-doc, phd and master levels, as well as senior researchers and engineers. This will be a good opportunity for the trainee to develop oral and written communication in English and/or French, as well as more specific scientific communication skills (oral and written presentation of results, summaries of relevant scientific literature). The nature of the work (computational biology) will also reinforce practical skills in Unix operating systems, software and programming skills. We maintain extensive collaborations with experimental teams and the student will also learn interdisciplinary communication in joint theory/experimental work.

(keywords: molecular dynamics, transcription regulation, molecular modelling, protein-ligand interactions)