

Master 2 Internship offer.

Offre de stage.

for a Master 2 student in **biochemistry / molecular biology**.

Period : 2017, typically february – june 2017

Laboratoire Cristallographie Résonance Magnétique et Modélisations
Université de Lorraine. Vandoeuvre les Nancy.

Title : Production, purification & crystallization of recombinant human cytochrome P450.

Tutors : Christian Jelsch (CRM2) & Xavier Manival (IMOPA, BioPôle)

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Cytochrome P450 (CYP) are haem proteins which are involved in the metabolism of xenobiotics such as medicinal compounds, environmental compounds and pollutants. Human CYP450 proteins are the major drug-metabolizing enzymes that contribute to the oxidative metabolism of the vast majority of the drugs in current clinical use

The goal of the project is to perform crystallographic studies to solve structures of human CYP complexes with several drugs that will increase our mechanistic understanding of drug-metabolizing-enzymes.

The internship will start at Biopôle, Vandoeuvre-les-Nancy under the supervision of Xavier Manival for the production of recombinant protein in *E. coli* using a plasmid. The transformation of bacteria and fermentation will be followed by the extraction and purification of milligram quantities of protein.

The protein will then be crystallized at CRM2 laboratory in presence of various drugs. After X-ray diffraction data measurement, the 3D structures will be solved by molecular replacement using the known crystal structure of the protein. The determined structure will allow the understanding of the ligand binding mode and oxidative catalysis.