

Sujet de stage de Master 2 (1 page max.)

Laboratoire : Institute of Structural Biology (IBS)

Directeur : Winfried Weissenhorn

Intitulé de l'équipe : Mass spectrometry laboratory Responsable : Elisabetta Boeri Erba

Nom et Qualité du Responsable du Stage : Elisabetta Boeri Erba HDR oui

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Parcours de Master 2 (*Rayer la/les mention(s) inutile(s)*) :

Chemistry for Life Sciences (CLS)

Polymers for Advanced Technologies (PTA)

Titre du sujet :

Study of DNA-based architectures using mass spectrometry (MS)

Objectifs visés du stage (5 lignes max) :

This project aims to use different mass spectrometers for investigating DNA nanostructures.

Intérêts pédagogiques et compétences visées (5 lignes max) :

The student will revise basic knowledge about MS. For instance, she/he rework concepts related to ion sources and mass analysers. Experimentally, she/he will learn to prepare DNA samples for MS analyses. She/he will acquire many information to master the use of mass spectrometers.

Résumé :

MS can assess the mass of biomolecules with high accuracy, sensitivity and rapidity. The MS lab has 3 different mass spectrometers, which allow us to assess the mass of DNA-based architectures. Using them, the student will characterize oligomeric states of DNA nanostructures. Indeed, she/he will investigate how experimental conditions (such as ionic strength of buffers) can tune assembly and disassembly of DNA-architectures.

Approches & matériels utilisés (5 lignes max) :

The student will analyse DNA nanostructures in different conditions. She/he will use MALDI-TOF/TOF, and ESI-Q-TOF instruments to analyse DNA. She/he will assess the performances of the different instruments in terms of sensitivity and resolution

Domaines de compétences souhaitées du candidat (3 lignes max):

Analytical chemistry and biochemistry

Dates du stage: 06.01.2025-27.06.2025