

Supervisor(s):

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Host laboratory:

Lab : Institute of Structural Biology (IBS)

Host group/team:

Mass spectrometry laboratory

Title of the M2 research internship:

Study of DNA-based architectures using mass spectrometry

Project summary:

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 (for example, see NATURE COMMUNICATIONS <https://doi.org/10.1038/s41467-022-31029-5>).

Keywords:

Mass spectrometry, DNA, oligomeric states, Structural biology, three-dimensional structures, nanobiotechnology

Relevant publications of the team:

Boeri Erba E, Pastore A. The Complementarity of Nuclear Magnetic Resonance and Native Mass Spectrometry in Probing Protein-Protein Interactions. Adv Exp Med Biol 2024; 3234:109-123. doi: 10.1007/978-3-031-52193-5_8

Boeri Erba E, Signor L, Petosa C. Exploring the structure and dynamics of macromolecular complexes by native mass spectrometry. J Proteomics 2020; 222:103799. doi: 10.1016/j.jprot.2020.103799

Puglisi R, Boeri Erba E, Pastore A. A Guide to Native Mass Spectrometry to determine complex interactomes of molecular machines. FEBS J 2020; 287(12):2428-2439. doi: 10.1111/febs.15281