

Study of molecules with diagnostic applications

Various molecules are frequently required for diagnostic applications, such as peptides, proteins or aptamers. Once candidate molecules have been identified, whatever its application field, an important work in characterization is needed. The present project will allow the use of various technologies in order to allow the production of molecules, their purification and related approaches to validate the purity, and the methods used to check the biological activity of produced molecules. Application domains can concern human diseases (cancer, Lyme diseases) as well as plant diseases.

Mentor

Dr Séverine Padiolleau is a member of the CNRS UMR 7025 institute and works in the group named "Biomimicry and Biomolecular Diversity". Her research activity focuses on the genesis and exploitation of the molecular diversity for fundamental and applied purposes. In particular, she studies the diversity of the immune repertoire, exploits the antibodies engineering and selects specific ligands against identified target with regulation, detection or quantification applications. More recently, she develops new strategies for Lyme disease diagnostic. She is the author of among 20 international publications and leads or led various research projects.

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Student profile

Master in biomechanical engineering, or final undergraduate in biomechanical engineering

Subjects

Biochemical characterization of proteins for diagnosis of Lyme disease

Characterization of molecular interaction

Determination of Lipase's Kinetic parameters

Evaluation of aptamer-protein complexes

