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BIOPROT FACILITY

The BioProt platform offers equipment to enable researchers to perform biochemical and biophysical studies on their projects. We offer services in the field of production and purification of recombinant proteins and antibodies.

INTRODUCTION

The Main mission :

We aim to create a modern and technically advanced platform that provides :

- ✓ Access to a wide range of instruments and technologies.
- ✓ Expertise and guidance to conduct and design experiments.
- ✓ Services in biochemistry and biophysics.

Fields of expertise :

- ✓ Design of recombinant protein (Identification of protein domain by bioinformatics and 3D structures analysis, bioinformatics protein creation, plasmid design) .
- ✓ Purification of Protein (protein production, recombinant protein, antibody, antigenic protein, ...)
- ✓ Biophysical analysis of proteins and of protein-protein interactions
- ✓ Training users on devices and helping users with their projects

SERVICES

1. Equipment used for services

Plasmid Design and Transformation

Protein production in *E.coli*. Adjustable temperature from allowing the culture in auto-induction.

Protein purification chromatography system (Akta Pure) with affinity, size exclusion as well as other type of columns.

Protein concentration

Measurement of protein concentration by UV on NanoDrop One spectrometer or by infra-red on Direct Detect spectrometer.

Two BioRad detection systems for gel and western blot analysis by colorimetry, fluorescence, and chemi-luminescence and associated analytical software for quantification.

Purified protein



Lysing cells by grinding cells, Polytron and FastPrep 24. Grinding animal and plant cells, tissues and bacteria.

Separation by gel electrophoresis Western Blots and Coomassie

Visualization with Cix scanner of fluorescence on membranes and plates.

2. Other equipment available

Three multimodal plate readers for : **UV absorption analysis, fluorescence intensity, fluorescence lifetime, fluorescence polarization, luminescence** and **Alphascreen** and **AlphaLisa** technology. Applications include the quantification of nucleic acids and proteins, ELISA, FRET, enzyme activity assays and enzyme kinetics.

Zetasizer μ V allows the determination of the **size and molecular weight** of purified proteins by DLS/SLS.

MAGPIX for ELISA tests that runs on magnetic beads that **can identify and quantify 50 target molecules** per well of 96-well plate or 4800 tests in total. Many kits are available but you can design your own.

Study of protein-protein interaction by isothermal titration calorimetry (ITC) allows the study of biomolecular interactions by the determination of the affinity constant, thermodynamic parameters and stoichiometry.

Five ultracentrifuges are available with tubes of 1 ml (600 000 g) to 26 ml (300 000 g) and rotor adapted for each experiment.

The qNano (Ozyme) allows the **determination of the size of particle and vesicle** in solution.



Ingenuity Pathway Analysis (Qiagen®) allow to **model and analyse** complex biological systems from experimental data.

Tycho NT.6 performs fast, precise thermal stability measurements for **checking the quality of proteins**.

3. Some examples of projects for which our platform can help you

Antibody

Production and purification of a protein or piece of protein to produce an antibody



Identification of protein

in lysate cell, tissue or supernatant by mass spectrometry with

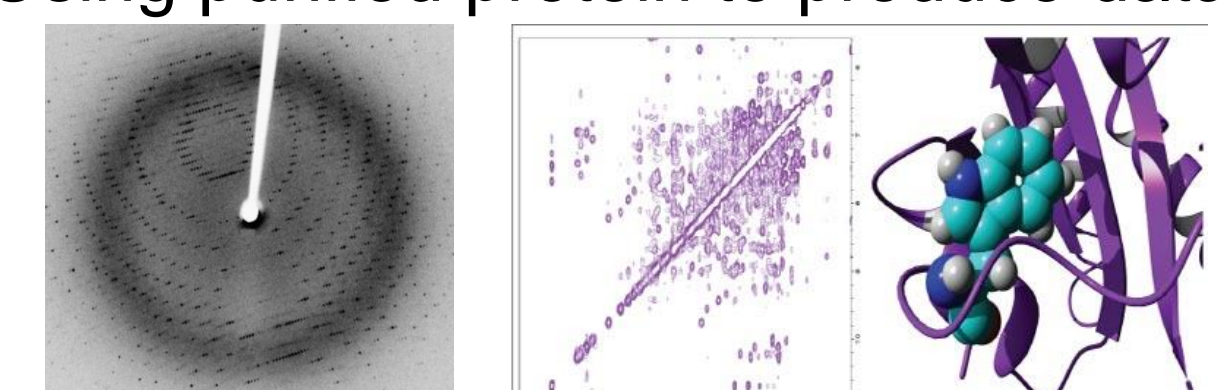


Protein-protein interaction

of a purified protein of interest (Pulldown, ...)

Structural Studies

Using purified protein to produce datas



PARTENAIRES