

Virtual practicals & on-line tutorials

N°43:

Biomolecular interactions using optical and surface methods: Surface Plasmon Resonance (SPR) and BioLayer Interferometry (BLI)

Teachers:

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SPR and BLI are two different optical technics that allow the detection of biomolecules on an illuminated surface (the biosensor). Since they are performed in real time and without any labelling, both methods are applied to the study of the interactions between biological partners and to the quantification of kinetics constants of association and dissociation (k_{on} , k_{off}), affinity constant (KD), thermodynamic constants (ΔH , ΔS) or active concentrations. They are based on biosensors on which a first molecule (the ligand) is immobilized, and the binding of the second partner (the analyte) is measured during contact of the biosensors with liquid samples. They apply to the characterization of the molecular interactions involving small molecules, peptides, polysaccharides, lipids, nucleic acids, proteins and larger particles such as viruses, bacteria and even cells.

The course will be organized as a video-conference of one hour and 45 minutes during which the theoretical introduction on SPR and BLI, practicalities to prepare samples and set up experiments and instrument demonstration will be given.