

Séminaire

Axe « Formulation et analyse du médicament »

Antibody-based micro and nanotechnologies for multiplexed protein and exosome analysis of complex samples



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à l'invitation du professeur Davide Brambilla

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Proteins and exosomes can provide indication on the health status and disease progression. However the analysis of multiple proteins and profiling of the protein composition from exosomes from complex samples such as cell supernatant or blood from animal models and patients remains challenging. Here I will discuss our efforts to develop scalable multiplex protein analysis technologies in microarray format, and later on home-made barcoded beads. The use for quantifying proteins in various samples, including xenograft cancer disease in mouse, and from blood of breast cancer patients and multiple sclerosis patients presented. Recent progress on bead-based analysis, and the potential for very high throughput large scale analysis discussed. Next, microarray-based multiplex exosome analysis technologies to quantify and identify extra-vesicular and intravesicular proteins will be introduced, and early results shown. Exosomes derived from a single cell carry a fingerprint of the cell via the combination of proteins they contain, but this information was lost because exosomes are traditionally analyzed in bulk. The development of a digital-omics single exosome technology, that can uncover the protein make-up of single exosomes, along with preliminary results, will conclude the presentation.