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CERMA
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CONFÉRENCE

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Auditorium COPL (salle 1168)
Centre d'optique, photonique et laser, Université Laval

Polymeric beds of nails and the adsorption of immunoglobulins: Physicochemical methods to force them to adsorb in preferred orientations

The main purpose of the investigation is finding conditions where surfaces are precoated by polymers in such a way that later arriving immunoglobulins attach in such a way that they remain biologically active. The research entails a study of the physico-chemical parameters characterizing the adsorption of (mixtures of) macromolecules on solid surfaces. Among these parameters are the nature of the surface, the molecular mass of the polymer and its distribution, the influence of electric double layers at the interface, the lateral interaction between adsorbed immunoglobulins and between immunoglobulins and pre-adsorbed polymers. Reversibility and the time-dependence of these adsorptions are important issues.

Experiments will be described with silica and hydrophobed silica as the adsorbents, synperonics as the polymers, and monoclonic immunoglobulins, interacting with the human pregnancy hormone hCG. The techniques include reflectometry, IR spectroscopy and circular dichroism (to detect conformational changes in the immunoglobulin upon adsorption).

Although the development of immuno-assays was one of the reasons for starting this research, it also taught us very much about several physicochemical principles. So, it served a dual purpose.

(Work carried out in co-operation with Monique Bremer and Willem Norde)

Cordiale bienvenue à toutes et à tous!