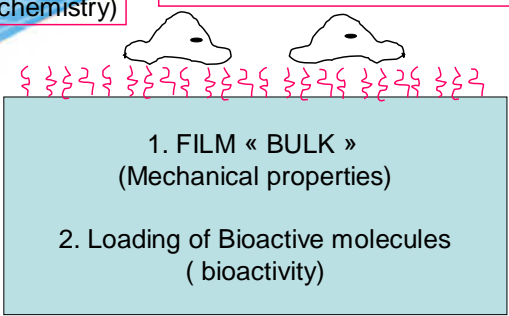
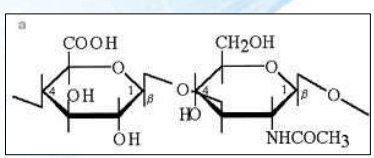
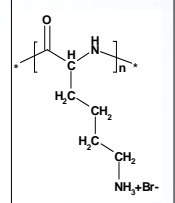
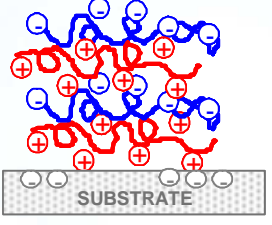


C. Picart (UMR 5235, Dynamique Moléculaire des Interactions Membranaires Normales et Pathologiques, Montpellier)
 K. Glinel (UMR 6522, Polymères, Biopolymères, Membranes, Rouen)
 M. Pucéat (INSERM I-stem, Généthon, Every)

Aims
 - Layer-by-layer (LbL) technique to produce films with designed nanoscale properties
 - Investigation of cell adhesion and differentiation onto such films

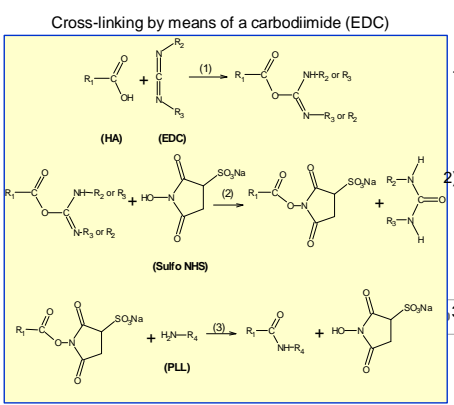
3. Surface properties (chemistry)

Cell adhesion and differentiation

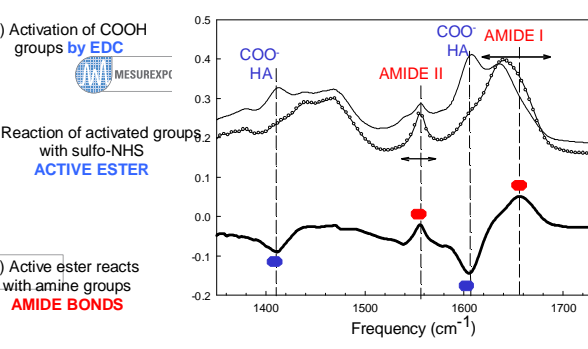


Decher et al, *Thin. Sol. Films*, 1992
 Decher, *Science*, 1997

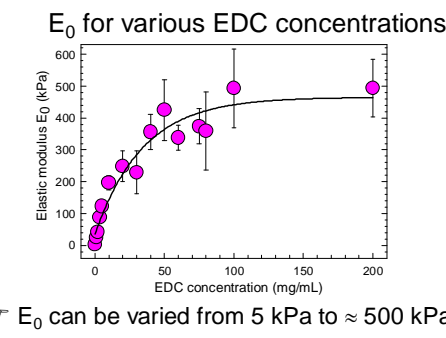
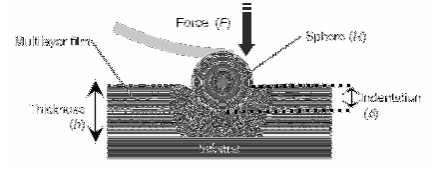
1. Film mechanical properties



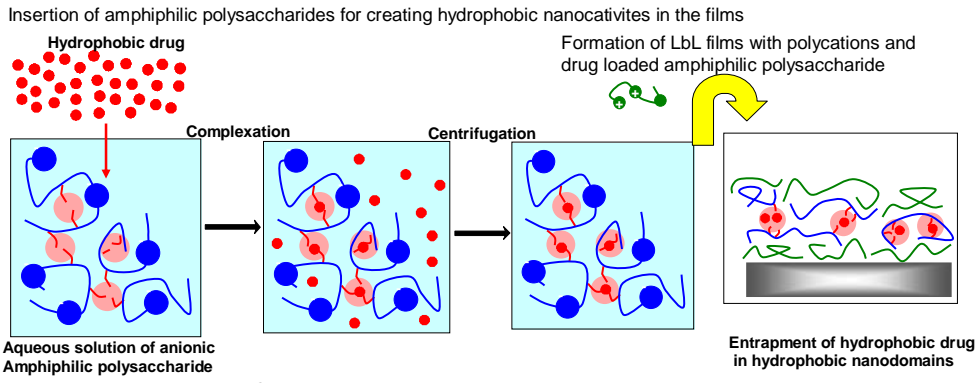
Reaction of cross-linking followed by ATR-FTIR : formation of covalent amide bonds



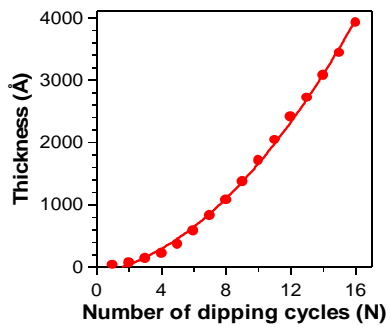
Mesurement of Young's modulus E_0 By AFM nano-indentations



2. Film bioactivity



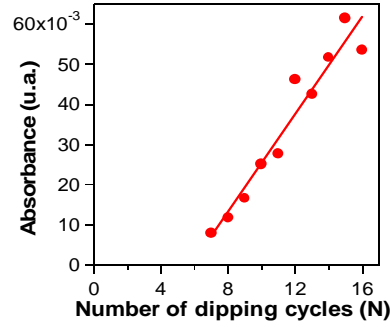
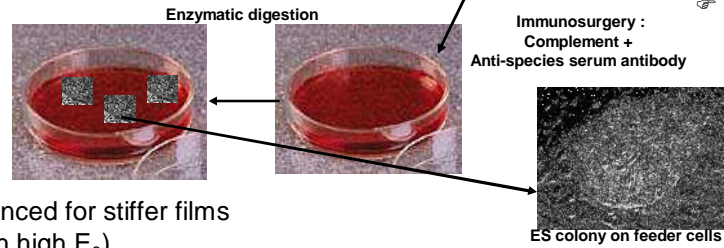
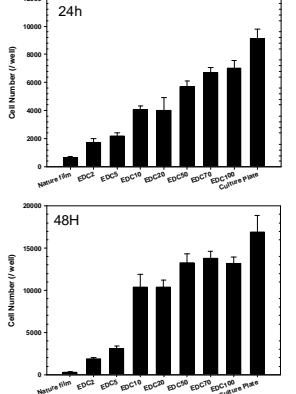
Incorporation of a dye (model drug) into LbL



Cell adhesion and differentiation

Two models : C2C12 myoblasts (an established cell line) and mouse Embryonic Stem Cells (ES cells)

C2C12 adhesion at 24h and 48h



Continuous incorporation of the dye with multilayer growth

ES deposited on LbL films of various stiffness
 - Quantitative analyse by RT-PCR
 - Immuno-staining of proteins from the cytoskeleton

Adhesion is enhanced for stiffer films (films with high E_0)

Contact : Catherine.picart@univ-montp2.fr