

TOPIC 3 : BIOMATERIALS AND SELF-ASSEMBLIES FOR HEALTH

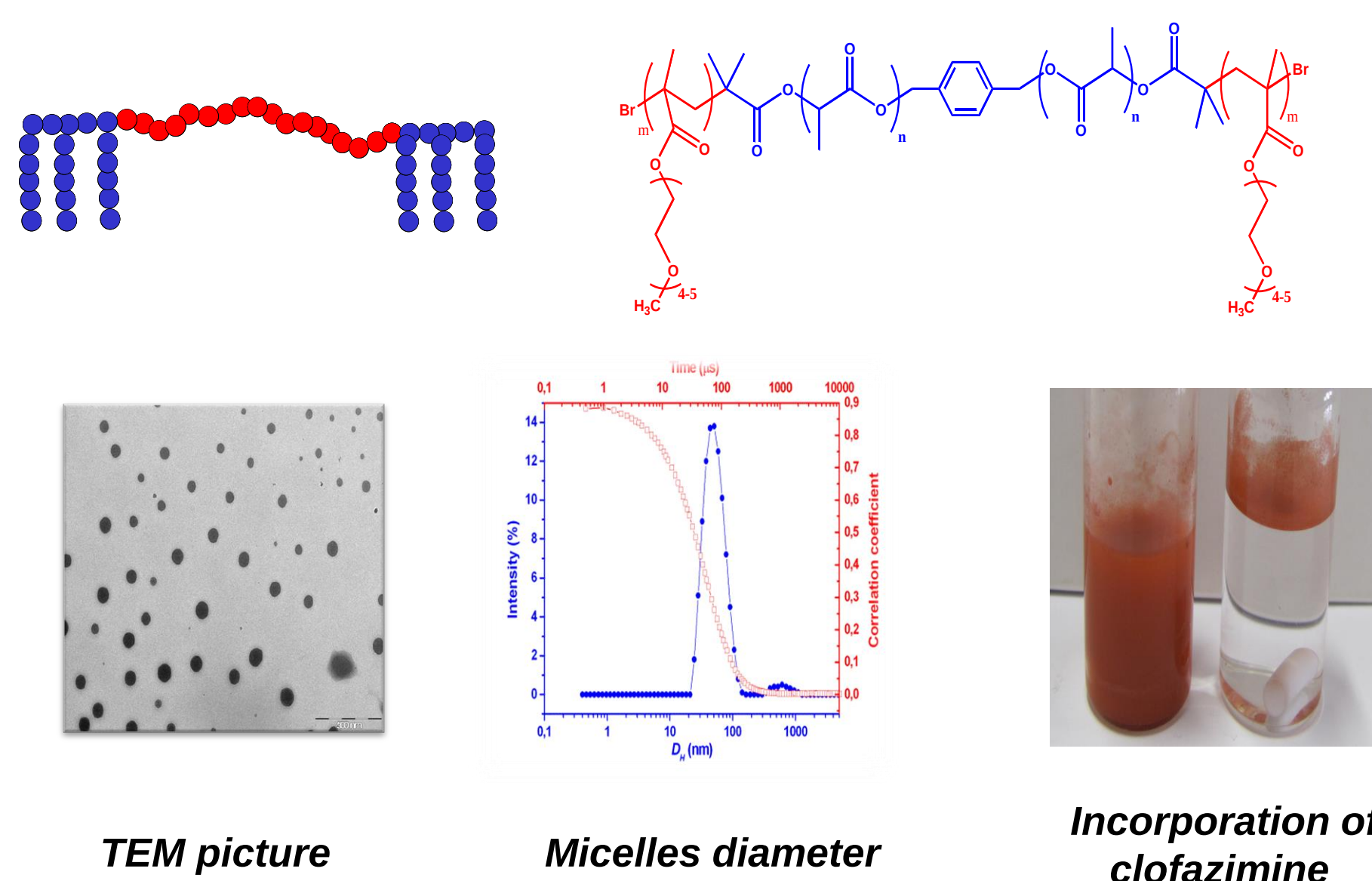
HYDROPHOBICITY $\nearrow$ SOLUBLE $\longrightarrow$ MICELLES $\longrightarrow$ HYDROGELS $\longrightarrow$ MICRO & NANO PARTICLES $\longrightarrow$ IMPLANTABLE BIOMATERIALS

MICELLES / MICRO & NANOPARTICLES

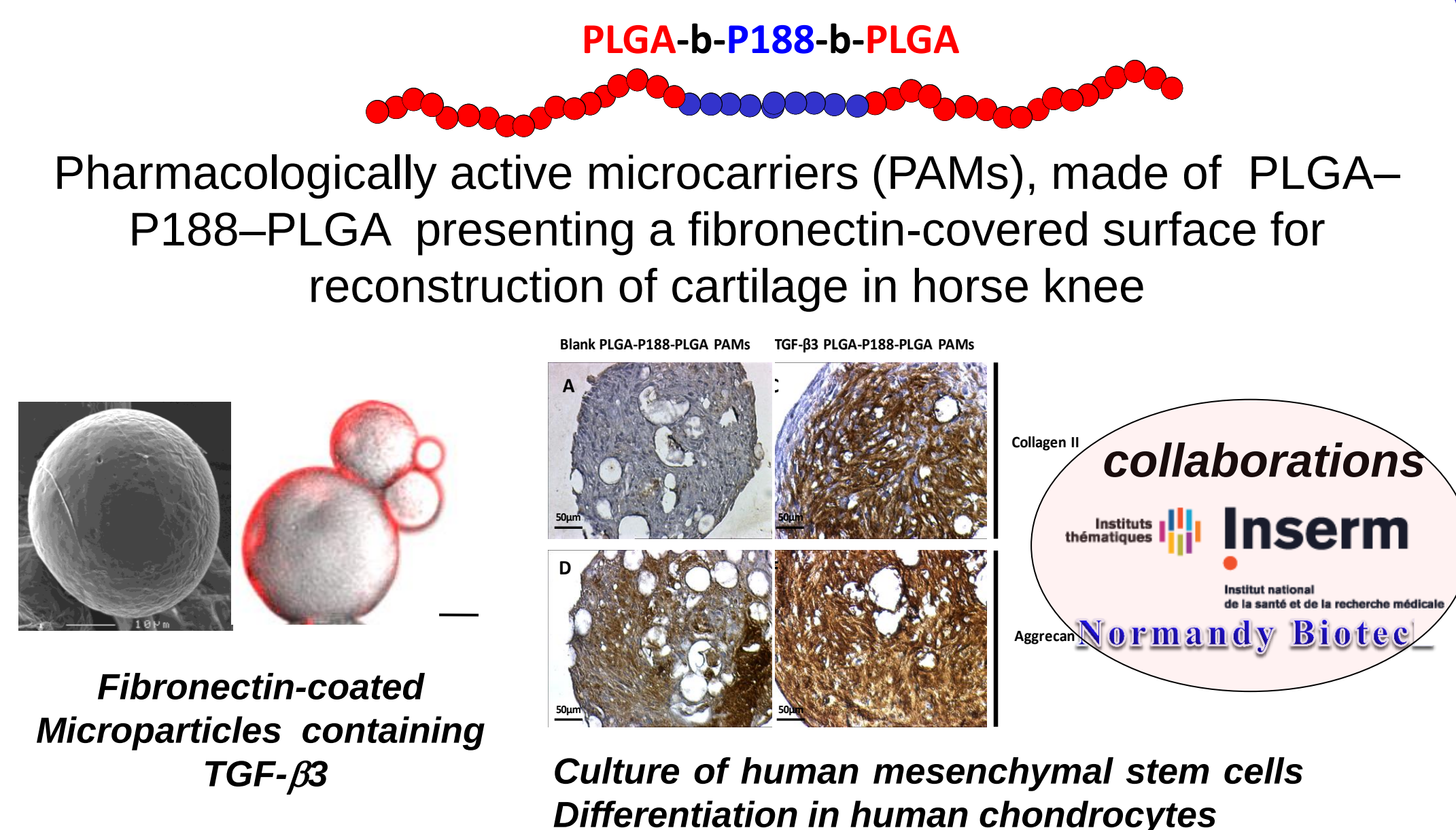
Aim: to propose degradable cargos for insoluble and/or toxic drugs or IRM visualization

Expertise: degradable and hydrophobic block systems based on PLA, PLGA, PCL and hydrophilic PEG, Pluronic, Polysaccharides etc.

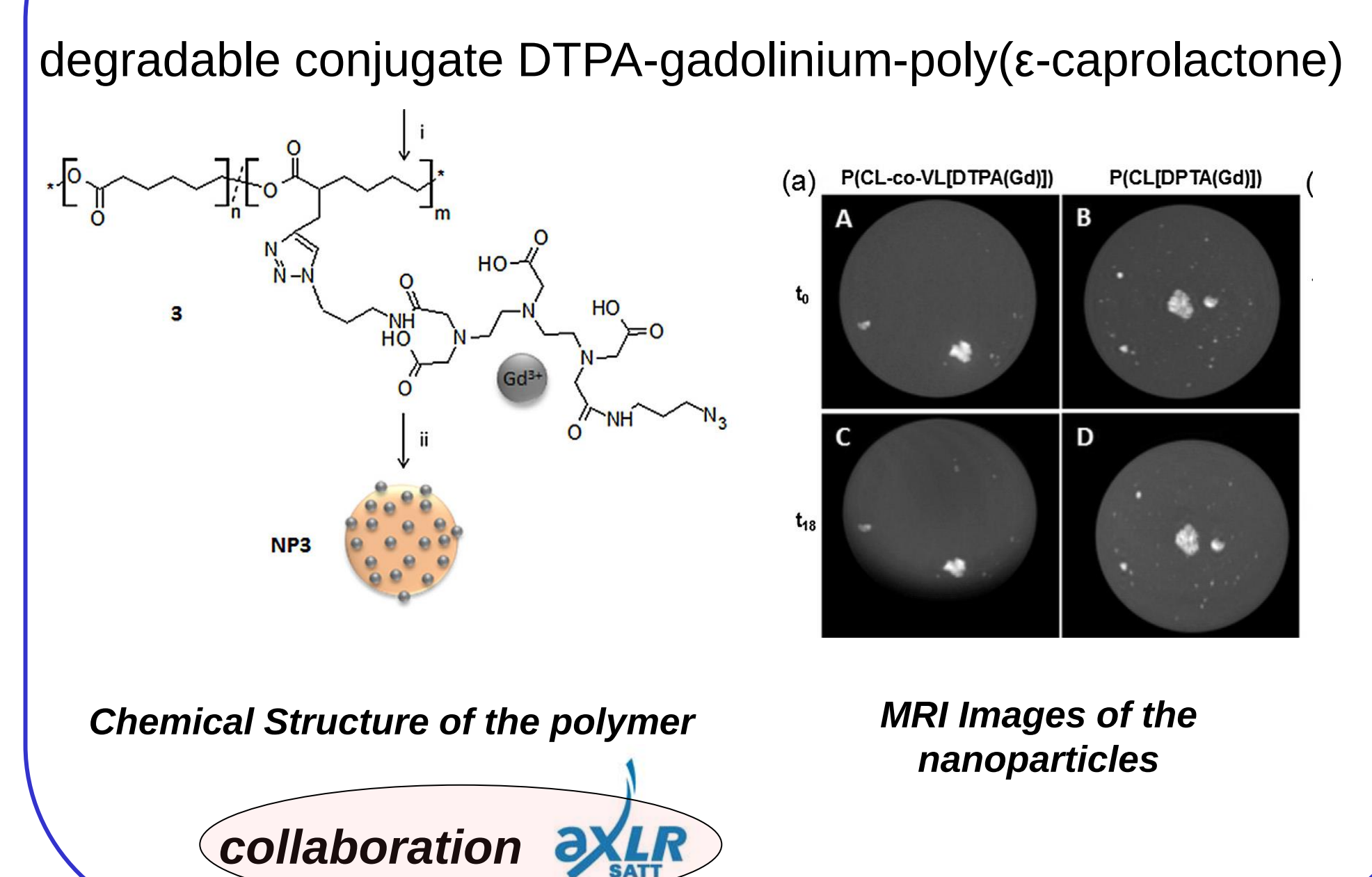
Amphiphilic micelles for drug encapsulation¹



Amphiphilic Microparticles for TGF β 3 release²



Nanoparticles for Imaging³



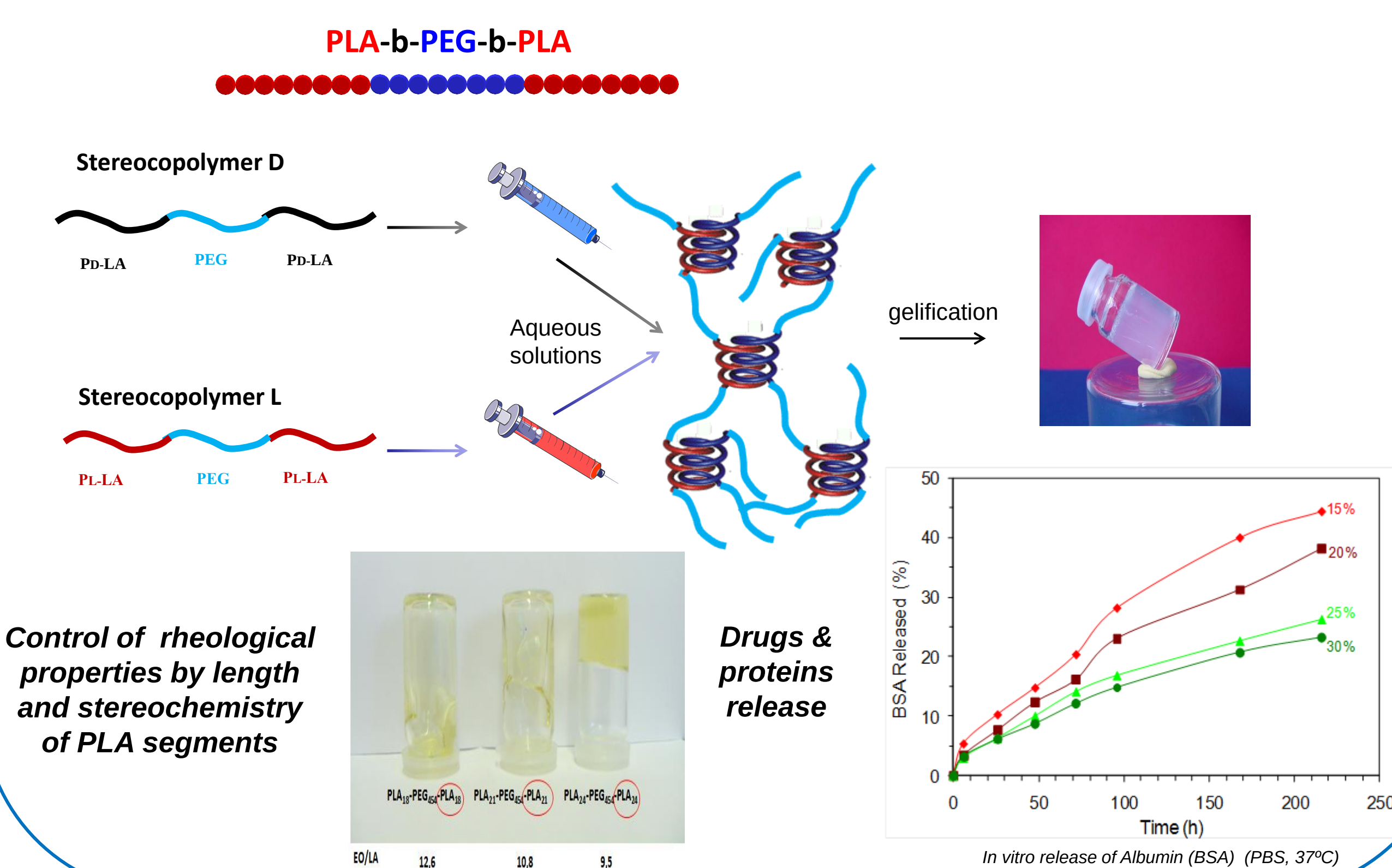
HYDROGELS

Aim: to propose hydrogels based on degradable polyesters for drug delivery

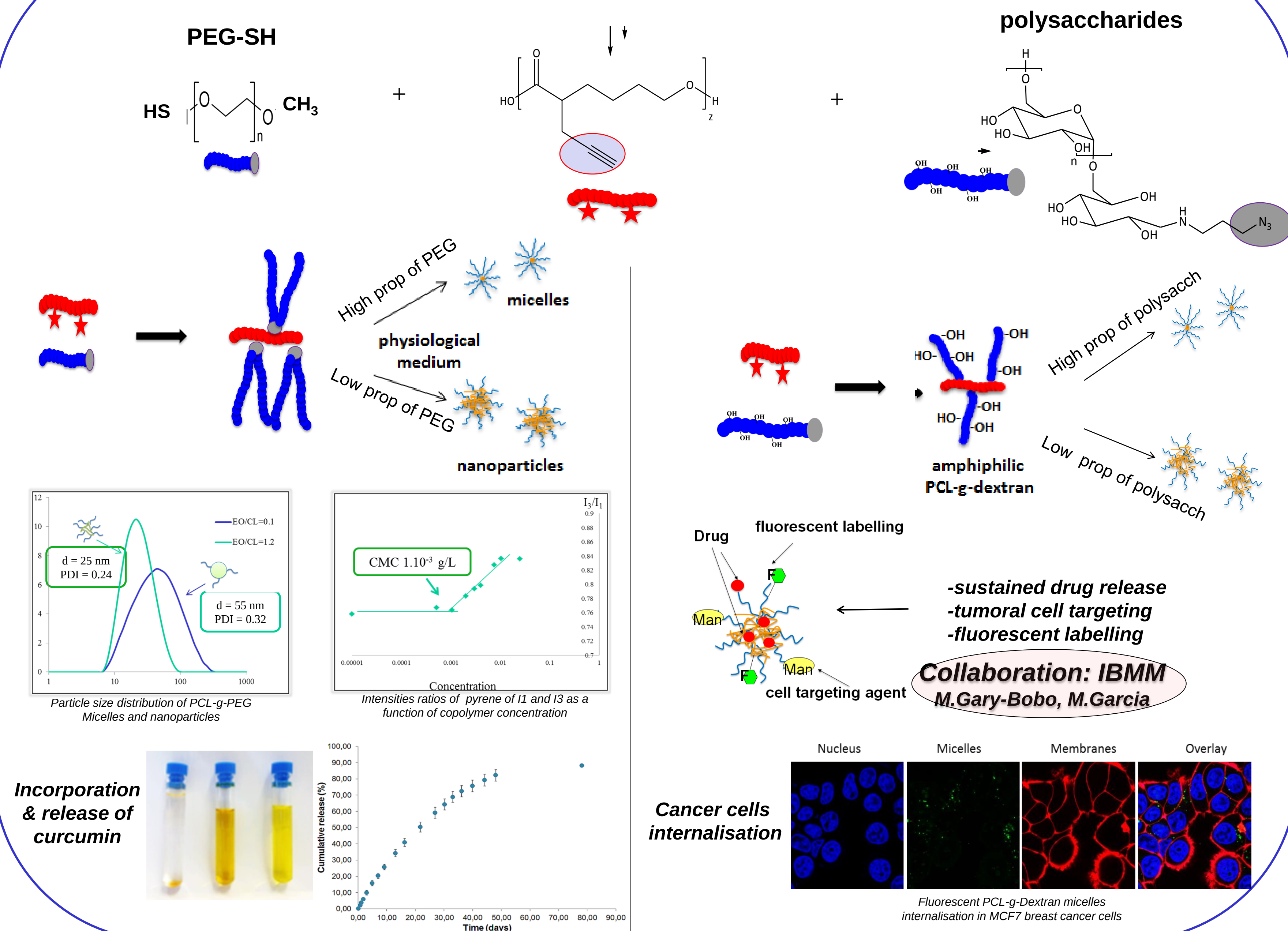
Expertise: Physical hydrogels (stereocomplexes, triblocks and graft amphiphiles etc.)

Block copolymers: Stereocomplexes⁴

formation of hydrogel in situ by stereocomplexation of PLA



Inverse amphiphilic Graft copolymers^{5,6}

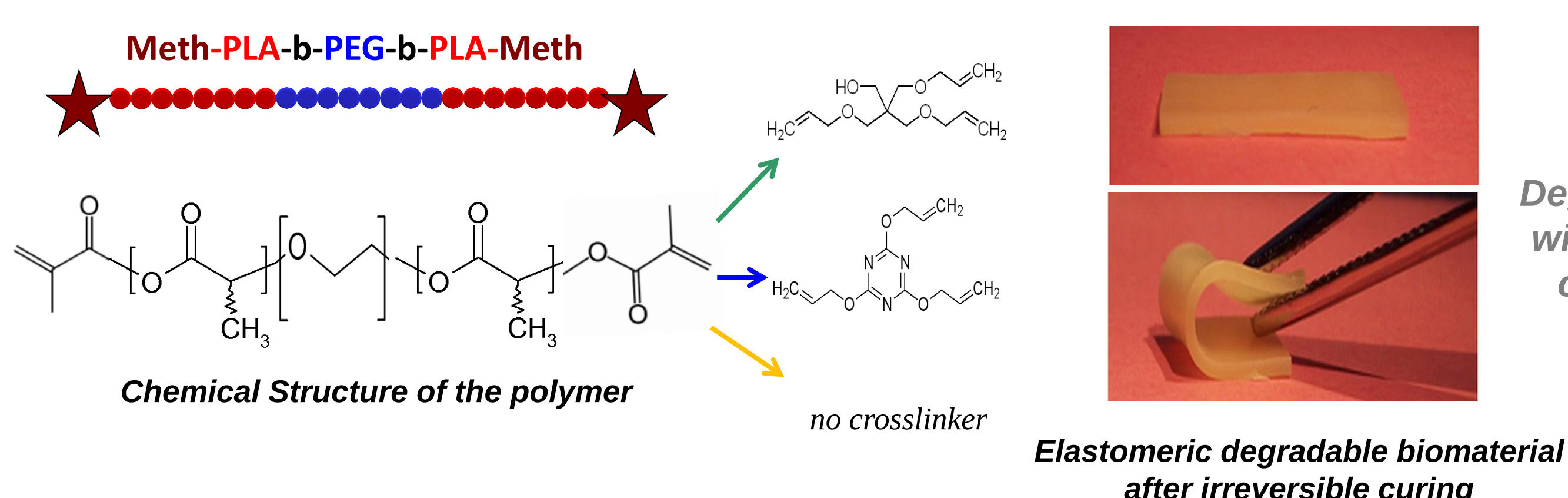


DEGRADABLE ELASTOMERS

Aim: to propose degradable elastomers for temporary implantable medical devices

Expertise: amphiphilic aliphatic polyesters cured via oxydo-reduction or photoradical reactions

Via Acrylates⁷



Degradable biomaterials with tunable properties close to soft tissues

