

Collage de gels (et tissus biologiques) avec des nanoparticules

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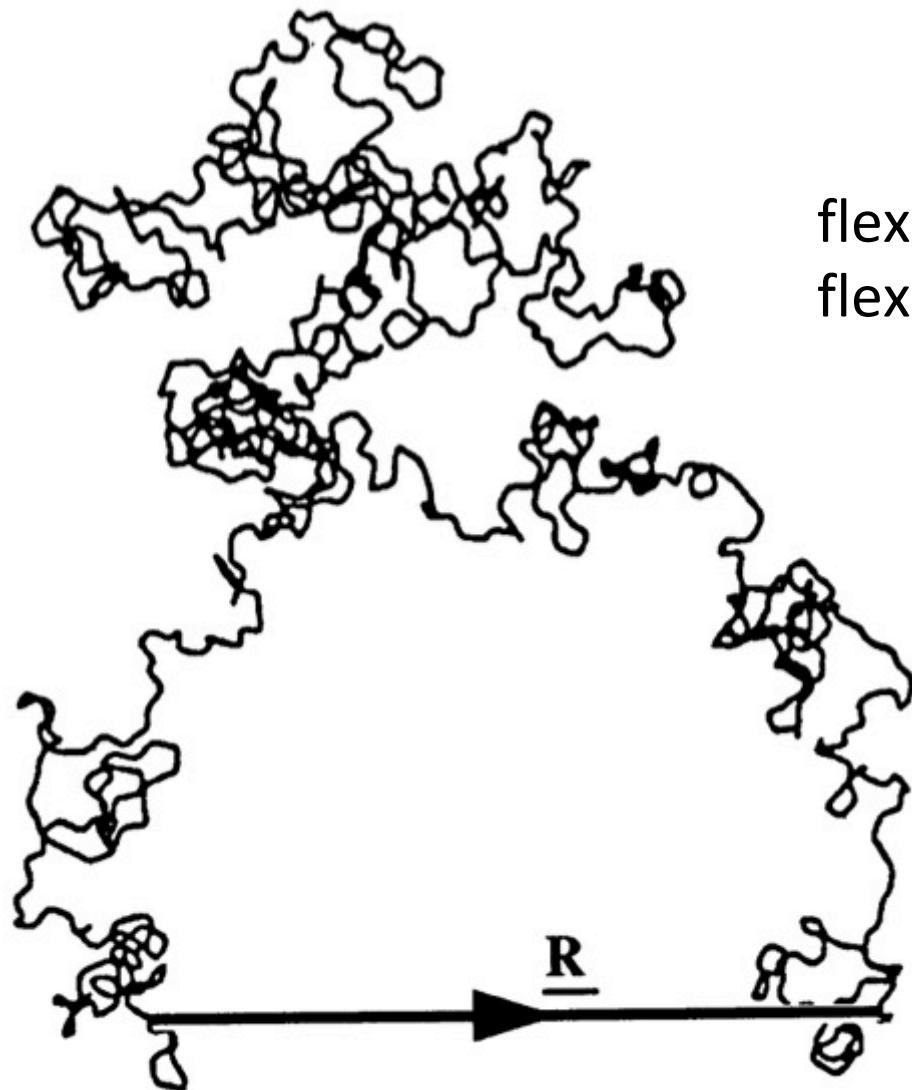
Laboratoire Sciences et Ingénierie de la Matière Molle

Global Station for Soft Matter, Global Institution for Collaborative Research and
Education, Hokkaido University, Japan (2015-2010)

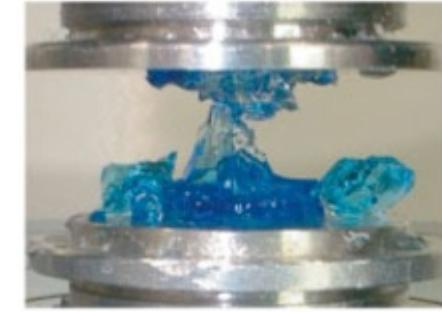
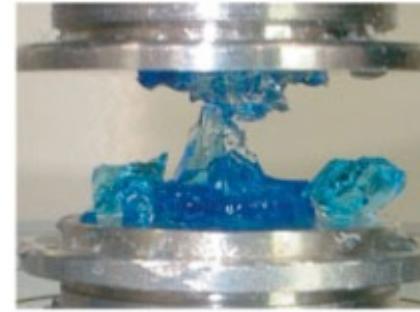
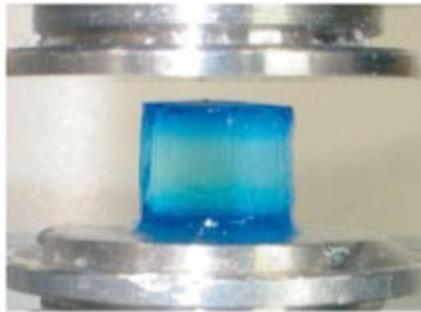
youtube.com/leprojetlutetium



Une longue chaîne de polymère

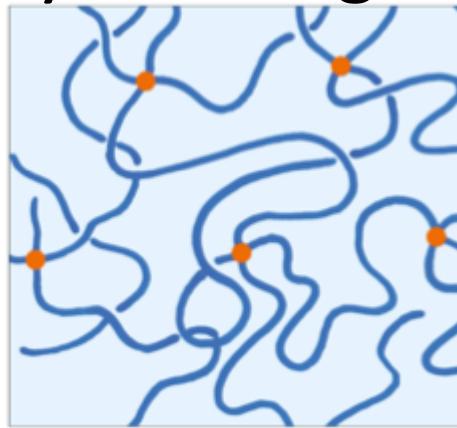


Debye, Flory, De Gennes ...



d'après Gong, et al. Adv. Mater. 2003

synthetic gels



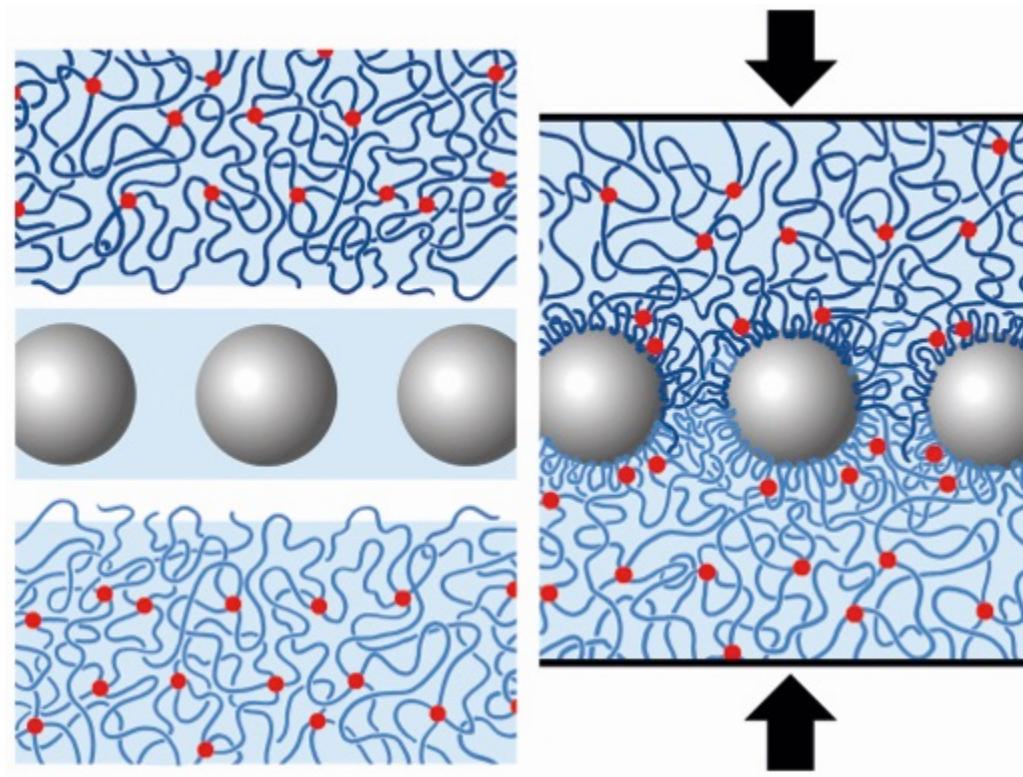
weak self-adhesion
 $G_{\text{adh}} \approx 0.1 \text{ J.m}^{-2}$

soft and fragile

$E \approx 1-10 \text{ kPa}$

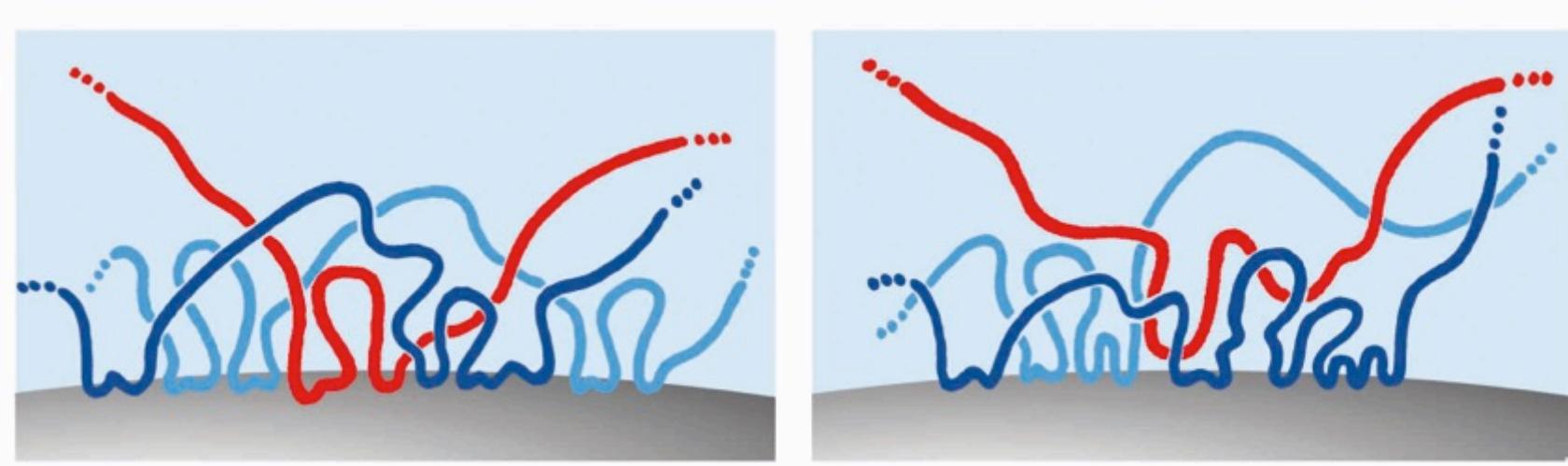
$G_c \approx 1-10 \text{ J.m}^{-2}$
non-operating viscoelastic losses

Coller avec des nanoparticules



Rose, Prevoteau, Elzière, Hourdet,
Marcellan, Leibler, *Nature*, 2014

La clé : physique de l'adsorption du polymère sur la surface solide

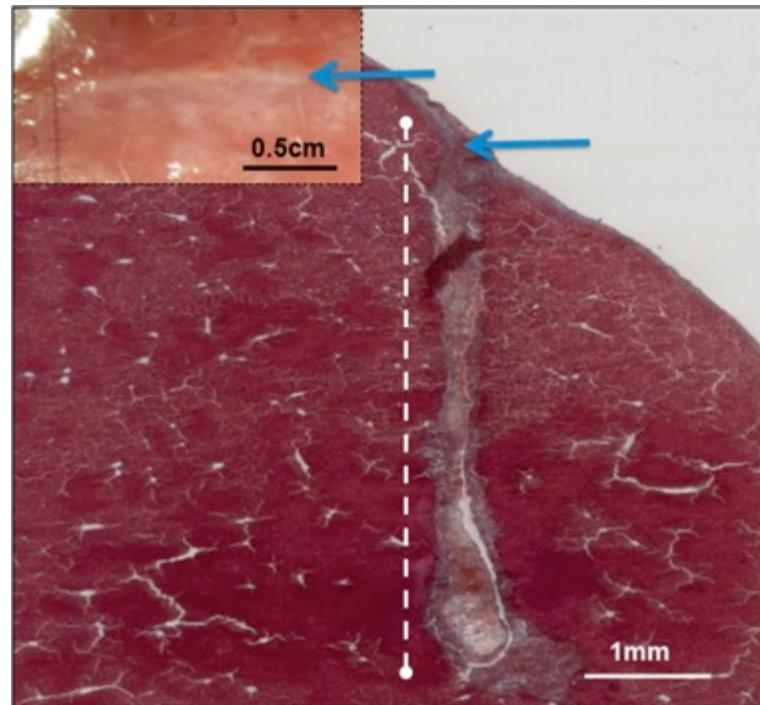


perspectives *in vivo*

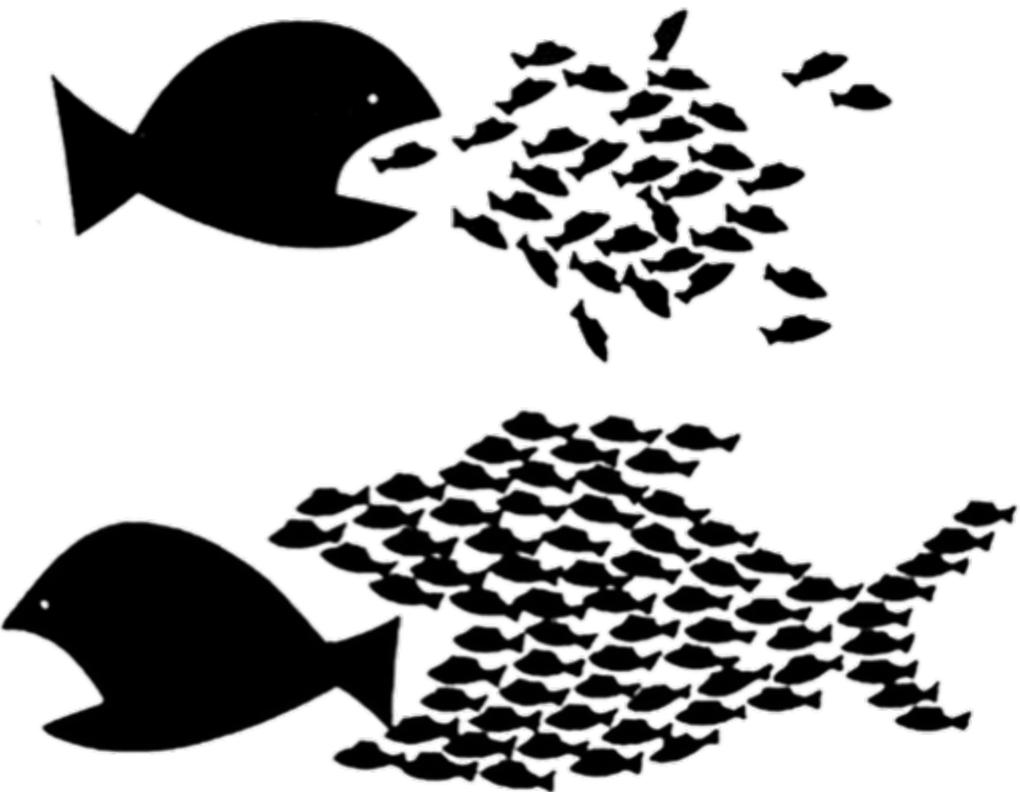
Wistar rat model – dorsal skin injury

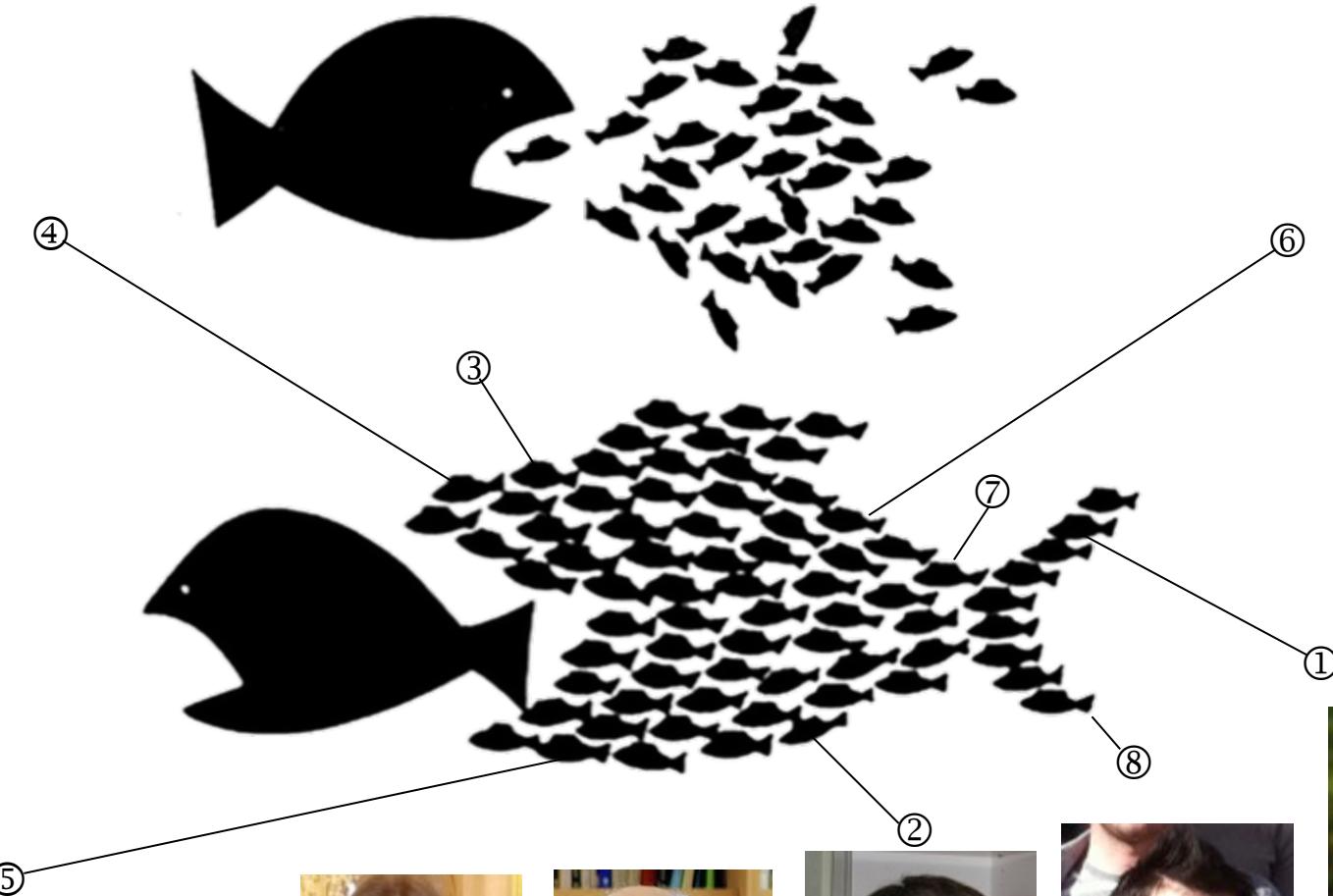


Wistar rat model – liver



Meddahi-Pellé, Legrand, Marcellan, Louedec, Letourneur, Leibler, *Angewandte Chem.*, 2014





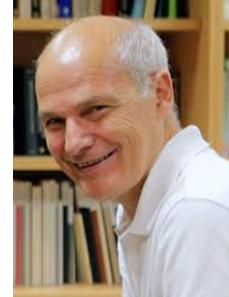
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