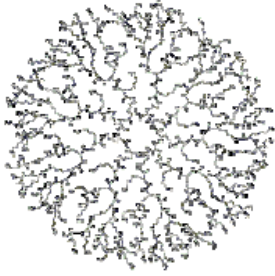


# DGL, an innovative material for biomaterials' functionalization

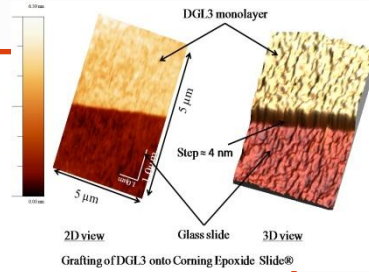


## Characteristics of a DGL

- DGL : Dendri-Graft Poly-Lysine
- Spherical-shaped nanoparticle
- Wide range of sizes (1 to 8 nm radius from G1 to G5)
- 100% composed of essential amino acids (L-Lysine)
- Many amine functions on surface
- 80 % of free volume (flexible tree-like generated structure)

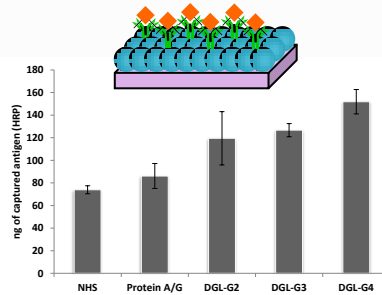
## DGL as an interface

- Immobilization on **different surfaces**: glass, polypropylene, polystyrene, ...
- **Chemistry of immobilization**: Adsorption or Covalent (epoxy, succinic ester, argon plasma)
- **Variable thickness** of the surface (2 to 6,5 nm)
- **Wide range of formats**: lamella, felt, ball, fiber,...
- **Surface easily adaptable**: conversion of your cationic DGL into an anionic, neutral, hydrophilic or hydrophobic molecule
- **Grafting of bioactive molecules**: antimicrobial peptides, antibodies, fatty acids chains, sugars,...

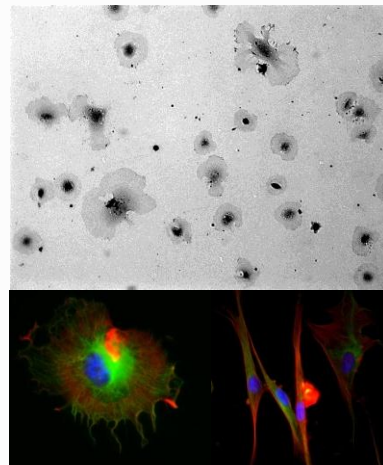


## Applications

- **Immunosurfaces**:
  - ❖ Reduction of support interferences (better signal to noise ratio)
  - ❖ Avoidance of immobilized molecules denaturation (increased resistance to lyophilization)
  - ❖ Increase of signal (up to 200% on G4)
- **Biosurfaces**: immobilization of peptides, sugars, proteins, biotin,...
- **Capture surfaces**: nucleic acids, nucleotides, metals (Cu, Zn, Ag, Co, ...)
- **Biosensors**: detection, analysis
- **Efficient, flexible and functionalizable cellular culture support**:
  - ❖ Identical proliferation to that on PPL (Poly-L-Lysine)
  - ❖ Higher adhesion than on PPL
  - ❖ Mimicry of the matrix environment
  - ❖ Non induction of differentiation in fibroblasts
  - ❖ Implants' functionalization, stimulation of tissue reconstruction, development of new in vitro cellular culture supports
- **Microelectronics** (components' functionalization)



Immobilization of anti-HRP antibodies on different surfaces



Fibroblasts grown on DGL support

