# SELF-ASSEMBLED COMBINATORIAL SURFACES MIMICKING HEPARAN SULFATE BIOACTIVIY: FROM 2D SCREENING TO IFN-γ INHIBITION OR DELIVERY IN CELLULAR CONTEXT

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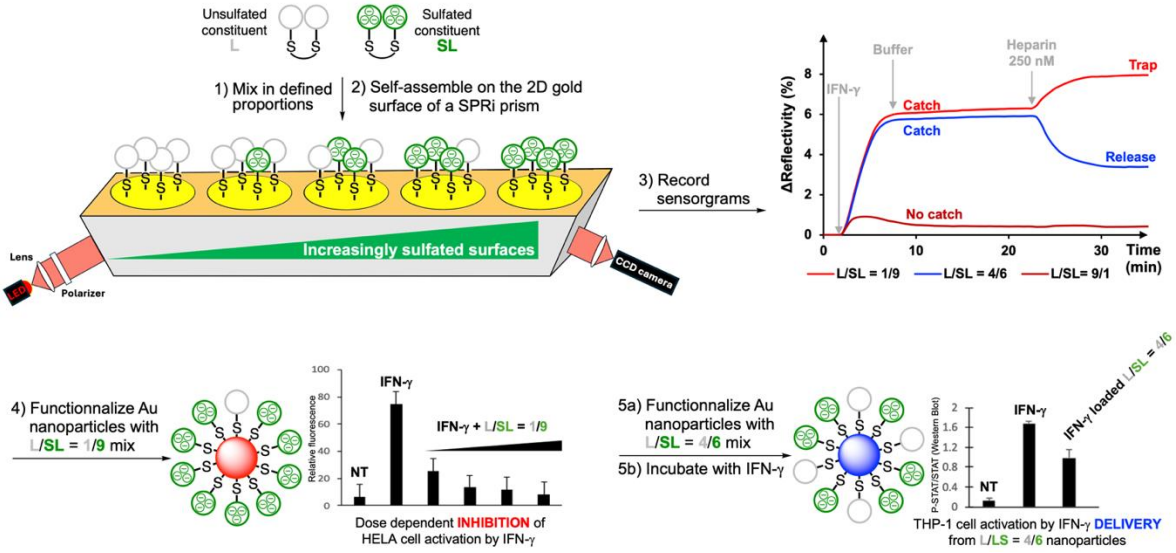
We have previously shown that 2D combinatorial surfaces, prepared by self-assembly on a gold flat (2D) surface of mixtures with controlled composition of sulfated or non-sulfated disulfide building-blocks derived from lactose, were able to mimic some biological properties of heparan sulfate.[1,2] Here we present, taking IFN-γ as model, the achievement of a new milestone by showing that the binding properties of combinatorial 2D surfaces of a given composition can be transferred to soluble 3D nanoparticles. In this way we generated water-stable 3D devices able in cellular context to either inhibit the cytokine, by catching and trapping it, or serve as delivery device, by catching and releasing it, these behaviors being surface composition dependent. We will also disclose a general synthetic methodology for the preparation of disulfide building-blocks suitable for gold nanoparticle functionalization.




This approach offers an easy implementable screening assay that can be used to engineer complex water-stable 3D device harboring distinct properties and pave the way for the discovery of new hybrid glyco-materials with potential for biomedical applications.

**References:**

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