

Environmental Science: Atmospheres

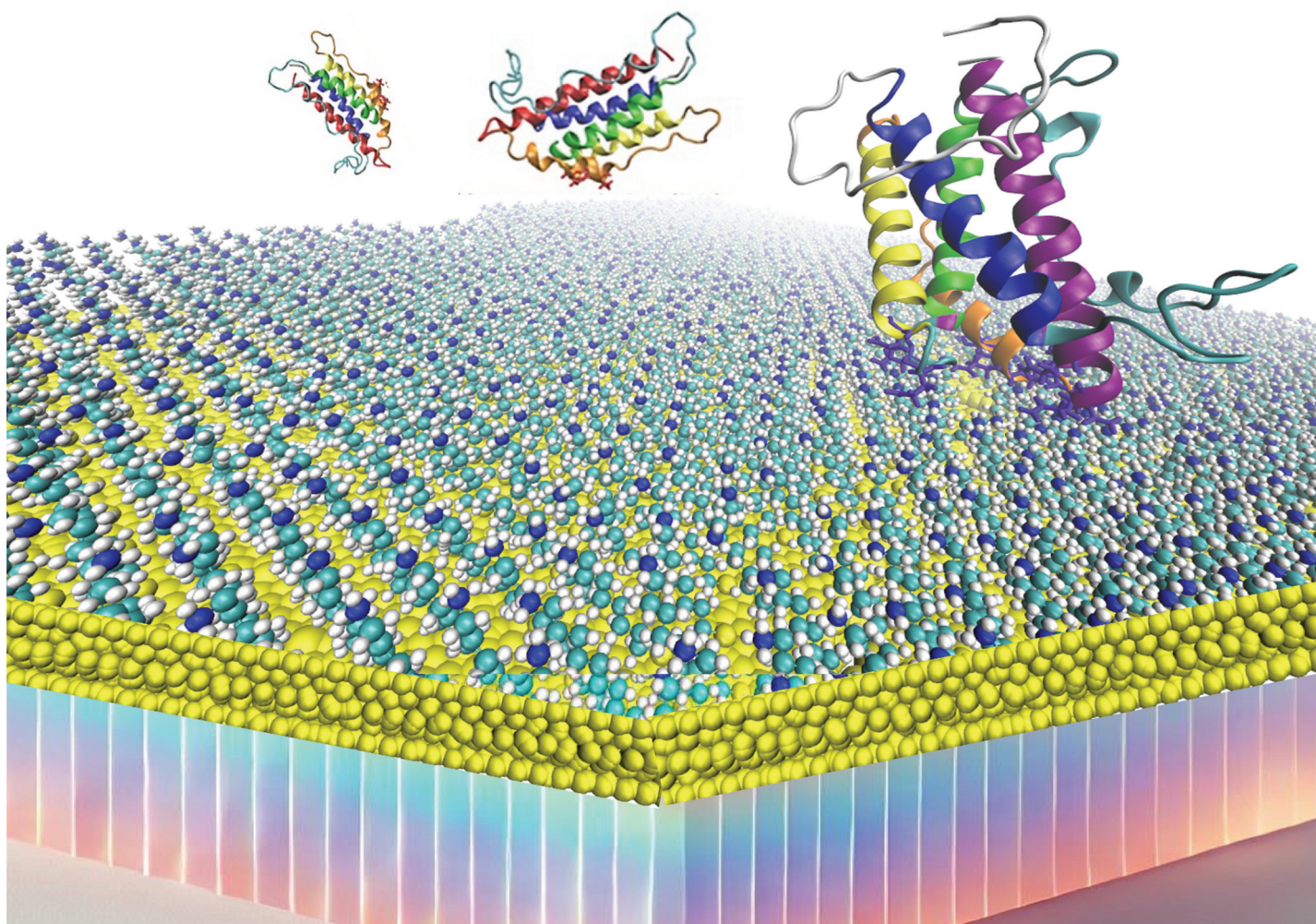
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Fundamental questions
Elemental answers



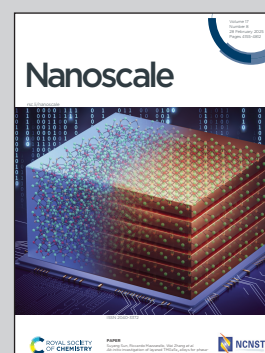


Showcasing research from Dott. Giorgia Brancolini's group, Institute Nanoscience, CNR-NANO, Modena, Italy and Profs. Marco Frasconi & Stefano Corni at Department of Chemistry, University of Padova, Italy.

Protein-surface interactions in nano-scale biosensors for IL-6 detection using functional monolayers

The study presents a multiscale framework that integrates Classical Molecular Dynamics, Brownian Dynamics, and SPR experiments to investigate the interactions of Interleukin-6 (IL-6), a key cancer biomarker, with self-assembled monolayers (SAMs). Mixed-component SAMs (M-SAMs) demonstrate superior, reversible binding - ideal for reusable biosensors - whereas single-component SAMs exhibit irreversible interactions. This work highlights combined computational and experimental approaches to explore biomolecule-surface interactions, paving the way for developing advanced biosensing platforms for cancer diagnostics.

As featured in:



See Giorgia Brancolini, Marco Frasconi, Stefano Corni *et al.*, *Nanoscale*, 2025, 17, 4389.