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ENHANCING ANTIBODY SERODIAGNOSIS ON PEPTIDE MICROARRAYS USING A CONTROLLED MULTIPRESENTATION STRATEGY

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Here we present a workflow enabling the rapid delivery of efficient immunoassays for different diagnostics contexts which expands the current limits of peptide-based serodiagnosis on microarrays. Our strategy starts from the use of computational tools for accurate immune-reactive peptide design; exploit chemo-selective strategies for optimal probes presentation on sensing surfaces using clickable polymeric coatings and finally generate peptide chips for fluorescence microarrays and SPR imaging. We will show how the rigorous control of probe design, orientation and surface density enabled by our platform positively impacts the diagnostic accuracy of antibody detection in serum of *Burkholderia* infected patients. Furthermore, we will compare different strategies of peptide multiple presentation to increase immunoreactivity in the context of allergy screening and for functional mimicking of discontinuous epitopes of NS1 protein for Zika virus diagnosis.

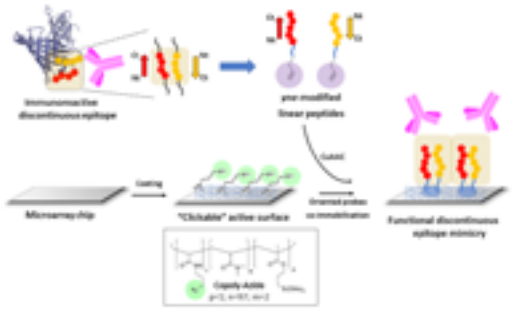

Fig.1
Strategy to enhance immunoreactivity by spatially controlled co-presentation of peptidic probes on microarray surfaces through “click” reaction of yne-modified peptides on Copoly Azide.

BIOGRAPHY

Marina Cretich has graduated in Biological Science and specialisation in Molecular Biology at University of Milano in 1998. In 2003, she has been appointed as Research Scientist at the Institute of Molecular Recognition Chemistry of the National Research Council of Italy where she is currently working as Project Leader of the protein-based assays division within the analytical microsystems group. She has been responsible of national research contracts and staff scientist in several EC funded projects. Her scientific activity, documented by more than 70 articles on peer reviewed journals, covers the field of protein and peptide microarrays for diagnostics, protein-protein interaction, biomarker discovery/validation; biofunctionalization and bioconjugation methods for micro-analytical systems; system integration for biosensing, microfluidics and point-of-care devices.

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