# Driving nanozymes towards stereochemical recognition: application to biomolecules of interest in health


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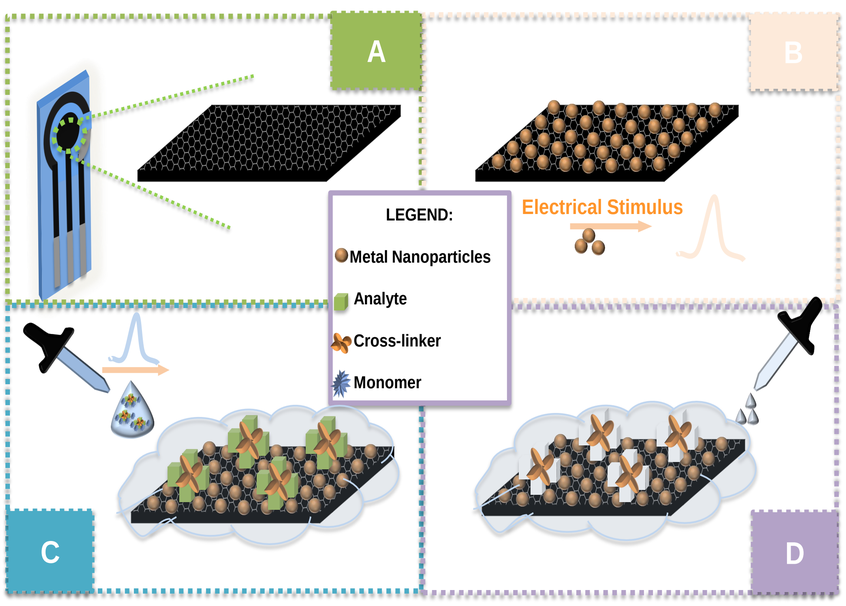
## Introduction

Enzymes are used in many biotechnological approaches due to their excellent catalytic properties and their ability to recognize a specific target compound within a complex matrix. As an alternative, artificial catalytic systems have emerged to replace natural enzymes. However, these systems use nanostructured materials that can catalyze a reaction but lack the necessary stereochemical recognition capability. Herein, catalytic materials with molecularly imprinted materials (MIP) emerge to make these artificially catalyzed reactions a spatial recognition event. A very important system that uses enzymes is the glucose meter, the first line of glucose control in diabetic patients. An innovative enzyme-free glucose biosensor is developed here by using nanozymes and MIPs. Considering the current pandemics, the proposed technical approach has been extended to detect human antibodies against SARS-CoV-2.

## Methodology and Results



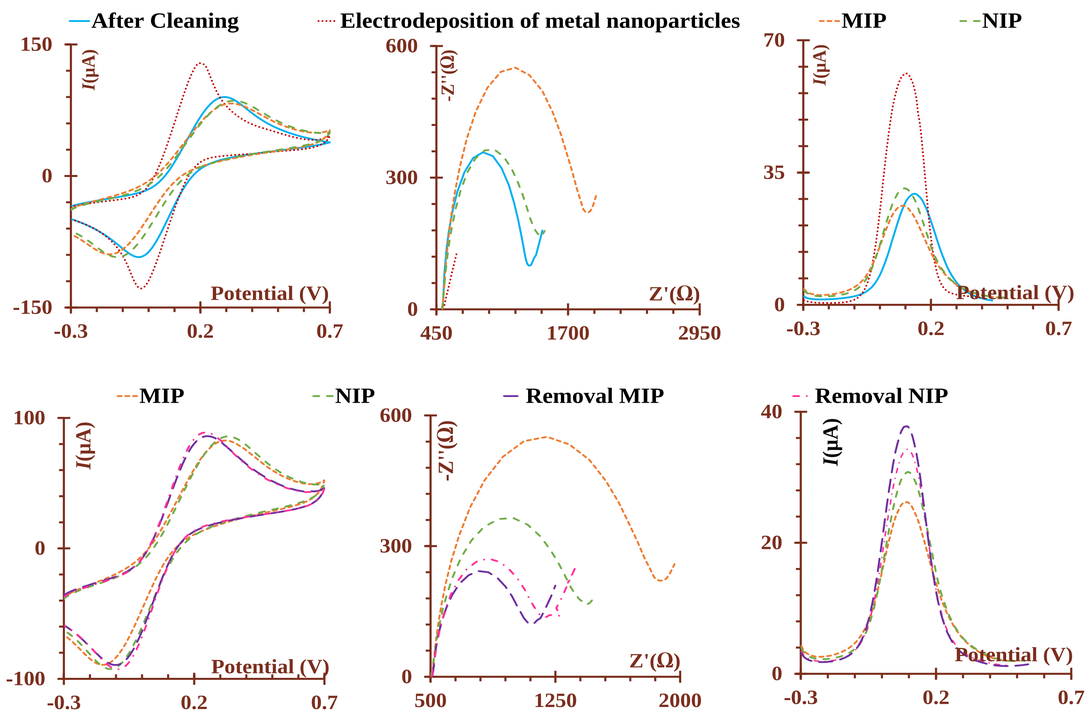

(A) Use carbon supports made of 3-electrodes printed on a substrate

(B) Have metal nanoparticles on the sensing layer

(C) Have suitable monomers and cross-linkers to have MIPs prepared

(D) Remove the target analyte and check the response

**Electrochemical Measurements to follow each step of the assembly**




## Main Goals

**(i)** Targeting Glucose and antibodies against SARS-CoV-2, by means of:

- preparing an artificial material acting like an enzyme;
- applying it to prepare a suitable electrochemical sensor (to produce analytical features that may compete with current commercially available devices);
- enabling a colour read-out system by employing suitable nanostuctured materials.

**(ii)** Analysing real samples and validating results against the currently certified methods of analysis.

## Publication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