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#### Inventors

# Assembled Enzyme Nanostructure for Heterogeneous Immunoassay

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**Invention Description** 

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Heterogeneous immunoassays are attractive for detecting protein markers due to their high specificity and sensitivity, but the required washing steps are difficult to do on small scales. ELISA assays take time and require expensive equipment and skilled personnel. A need exists for an immunoassay that retains the high specificity and sensitivity, but which is easily performed at low cost near the point of care.

Researchers at the Biodesign Institute of Arizona State University have developed a nanostructure-based enzyme system for a homogeneous sandwich ELISA using the enzyme cascade of glucose oxidase (GOx), horseradish peroxidase (HRP), and catalase (CAT). An immunoassay based on this nanostructure is a simple "A+B" model: A is the assembled nanostructure kit, and B is the antigen sample. Such an immunoassay produces a strong signal in the presence of the target antigen without the need for washing steps.

This technology may be applied to many existing immunoassay systems, allowing such tests to be performed in the point of care setting rather than requiring an analytical laboratory.

# **Potential Applications**

• Can be applied to many current established immunoassay systems, such as for insulin and C-reactive protein

## **Benefits and Advantages**

- Simple two-component immunoassay that does not require wash steps
- Can be used in the point of care setting

Intellectual Property Status:

Provisional Application Filed

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