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# PRACTICAL SMALL MOLECULE IMMUNOASSAY

## DIAGNOSTICS

Method of detecting an analyte using enhanced harmonic imaging and correlation spectroscopy.

### TECHNOLOGY TYPE

Immunoassay  
Antibody  
Biosensor  
Small Molecule

### STAGE OF DEVELOPMENT

- Demonstrated ability to detect small molecules.

- Ongoing testing to develop a library of the assay's capabilities.

### IP PROTECTION

#### U.S. Utility Patent Pending

Systems and Methods for Label-Free Detection of Analytes  
US20170089908A1

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Reference Number: U-5998

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### TECHNOLOGY SUMMARY

Biomarker assays provide early detection and identification of disease, which enables timely delivery of individualized treatment strategies to patients. These assays also have the potential to track progression, regression, and recurrence of disease. Detection is typically achieved using an enzyme-linked immunosorbent assay platform, but such assays suffer from poor detection limits and a restricted dynamic range.

The *small molecule immunoassay* facilitates label-free analyte detection with antibodies. It utilizes two non-linear methods – enhanced second harmonic correlation spectroscopy and enhanced second harmonic imaging – for detection and identification of small molecules. Surface immobilized antibody arrays detect the small molecules, eliminating the need for a second antibody. The assay can be used for diagnostic testing, environmental screening, and drug screening.

### FEATURES AND BENEFITS

- Facilitates rapid, single-point calibration from a single analyte concentration.
- Improves throughput and quantification abilities.
- Reduces cost by providing label free detection.
- Enhances specialized detection of small organic molecules, such as drugs, metabolites, and peptides.

### RECENT PUBLICATIONS

Tran, R.J., Sly, K.L., Conboy, J.C. (2017). Applications of surface second harmonic generation in biological sensing. *Annual Review of Analytical Chemistry (Palo Alto Calif)*. 10(1): 387-414.  
doi: [10.1146/annurev-anchem-071015-041453](https://doi.org/10.1146/annurev-anchem-071015-041453)

### INVENTOR PROFILE

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