



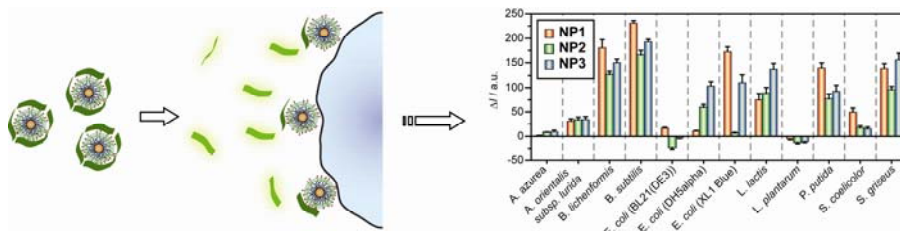
NON-CONFIDENTIAL TECHNOLOGY DISCLOSURE

Rapid and Efficient Detection and Identification of Pathogens and Proteins Using Nanoparticle-Fluorescent Polymer “Chemical Nose” Sensors

Lead Inventor: Vincent M. Rotello, Ph.D.

TECHNOLOGY DESCRIPTION

This technology uses a novel, “chemical nose” approach to the detection and identification of pathogens and proteins. Classes of gold nanoparticle-fluorescent polymer complexes are developed as selective receptors-reporters for pathogen or protein binding. These receptor-reporter constructs function by selective binding to analytes through unique surface interactions between analytes and nanoparticles, producing distinct fluorescence response patterns upon the displacement of the bound fluorescent polymers. These response patterns are quantitatively differentiated by linear discriminant analysis.



ADVANTAGES

- Rapid and efficient analyte detection and identification with minimal sample preparation
- Simple sensor operation and short data processing time
- Low-cost sensor production
- Broad sensor tunability via chemical modification of functionalized gold nanoparticles

APPLICATIONS

- Rapid detection and identification of pathogens in water samples and in biological fluids
- Rapid detection and identification of proteins and biomarkers for research, drug discovery and development, and disease diagnosis

ABOUT THE LEAD INVENTOR



Dr. Vincent M. Rotello is Charles A. Goessmann Professor of Chemistry at the University of Massachusetts Amherst. He is also a professor in the molecular and cell biology program and an adjunct professor in the department of polymer science and engineering. Dr. Rotello has coauthored more than 230 research articles in peer-reviewed journals and received many prestigious honors and awards including the University of Massachusetts Chancellor's Medal in 2006. His research group focuses on achieving a fundamental understanding of supramolecular chemistry and the application of this understanding to issues in biological and materials science.

BUSINESS OPPORTUNITIES: Available for Licensing or Sponsored Research

DOCKETS: UMA 07-43, UMA 08-03

PATENT STATUS: Patent Pending

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