Nanoparticle-Polymer "Chemical Nose" Sensors

A team at the University of Massachusetts Amherst has created a sensor array to detect, identify, and quantify protein targets. The polymer fluorescence is quenched by gold nanoparticles: the presence of proteins disrupts the nanoparticle-polymer interaction, producing distinct fluorescence response patterns. These patterns are highly repeatable and are characteristic for individual proteins at nanoscale concentrations. Quantitative analysis was used to identify 52 unknown proteins with an accuracy of 94%, demonstrating that nanomaterial-based protein detectors are potentially feasible for "chemical nose" applications in medical diagnostics.

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