ABSTRACT

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The present invention describes a method for the binding of pathogenic microorganisms and their toxic proteins with ligands that have been covalently tethered at some distance from the surface of a substrate: distances of at least fifteen Å are required for microorganism binding ligand tethers and at least six Å are required for protein binding ligand tethers. The ligands described herein include heme compounds, siderophores, polysaccharides, and peptides specific for toxic proteins, outer membrane proteins and conjugated lipids. Non-binding components of the solution to be analyzed are separated from the bound fraction and binding is confirmed by detection of the analyte via microscopy, fluorescence, epifluorescence, luminescence, phosphorescence, radioactivity, or optical absorbance. By patterning numerous ligands in an array on a substrate surface it is possible to taxonomically identify the microorganism by analysis of the binding pattern of the sample to the array.

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