High-sensitivity screening of cancer biomarkers in cell lysates using one dimensional photonic crystal based biosensors

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During the last few decades the interest towards photonic crystals and their applications is increased. Dielectric multilayer photonic band-gap structures are exploited for their unique capability of "bending the flow of light" in several fields, one above all optical biosensors. With the goal of realizing a new class of point of care (POC) devices, the detection approach utilized consist of sandwich assay, in which one-dimensional photonic crystals sustaining Bloch surface waves are modified with monoclonal antibodies in order to guarantee high specificity during biological recognition. Combining label free and fluorescence operation mode, low biomarker expressing and non-expressing cell lysates can be successfully discriminated.