Biomolecular diagnostics by a magnetic lab-on-a-chip

Bruckl H., Eggeling M., Heer R., Nohammer C., Schotter J.
ARC Seibersdorf Research GmbH, Nano-System-Technologies, Donau-City-Strasse 1, 1220 Vienna, Austria; ARC Seibersdorf Research GmbH, Life Sciences, 2444 Seibersdorf, Austria

Abstract: Compared to the established fluorescent labeling method, the use of magnetic markers in biochip sensors has important advantages with respect to the detection of biomolecules at low concentrations. The direct availability of an electronic signal allows the design of inexpensive integrated detection units. In addition, the magnetic beads can be used as carriers for biomolecules. They can be manipulated on-chip via currents running through specially designed line patterns on a chip platform. An obvious benefit is a much shorter incubation time of the marker binding in biochip applications. Therefore, magnetic markers in combination with magnetoresistive sensors are a promising choice for future integrated "magnetic lab-on-a-chip" systems.
Author Keywords: Bead; Biochip; Magnetoresistance; Sensor

Year: 2006
Source title: 2006 NSTI Nanotechnology Conference and Trade Show - NSTI Nanotech 2006 Technical Proceedings
Volume: 2
Page : 267-270
Link: Scorpus Link
Document Type: Conference Paper
Source: Scopus
Authors with affiliations:

1. Brückl, H., ARC Seibersdorf Research GmbH, Nano-System-Technologies, Donau-City-Strasse 1, 1220 Vienna, Austria
2. Eggeling, M., ARC Seibersdorf Research GmbH, Nano-System-Technologies, Donau-City-Strasse 1, 1220 Vienna, Austria
3. Heer, R., ARC Seibersdorf Research GmbH, Nano-System-Technologies, Donau-City-Strasse 1, 1220 Vienna, Austria
4. Nöhammer, C., ARC Seibersdorf Research GmbH, Life Sciences, 2444 Seibersdorf, Austria
5. Schotter, J., ARC Seibersdorf Research GmbH, Nano-System-Technologies, Donau-City-Strasse 1, 1220 Vienna, Austria