Giant magnetoresistive biochips for biomarker detection and genotyping: An overview

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Abstract: Giant magnetoresistive biochips based on spin valve sensor arrays and magnetic nanoparticle labels have been successfully applied to the detection of biological events in the form of both protein and DNA assays with great speed, sensitivity, selectivity and economy. The technology is highly scalable to deep multiplex detection of biomarkers in a complex disease, and amenable to integration of microfluidics and CMOS electronics for portable applications. The results suggest that a magneto-nano biochip holds great promises in biomedicine, particularly for point of care molecular diagnostics of cancer, infectious diseases, radiation injury, cardiac and other diseases. © 2008 American Institute of Physics.

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