

Microfluidics-based lab-on-chip systems in DNA-based biosensing: An overview.

ABSTRACT

Microfluidics-based lab-on-chip (LOC) systems are an active research area that is revolutionising high-throughput sequencing for the fast, sensitive and accurate detection of a variety of pathogens. LOCs also serve as portable diagnostic tools. The devices provide optimum control of nanolitre volumes of fluids and integrate various bioassay operations that allow the devices to rapidly sense pathogenic threat agents for environmental monitoring. LOC systems, such as microfluidic biochips, offer advantages compared to conventional identification procedures that are tedious, expensive and time consuming. This paper aims to provide a broad overview of the need for devices that are easy to operate, sensitive, fast, portable and sufficiently reliable to be used as complementary tools for the control of pathogenic agents that damage the environment.

Keyword: Microfluidic; Environment; Lab on chip.