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Biochemical Analysis on Microfluidic Chips

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Highlights

- Biochemical analysis plays a crucial role in understanding mechanism of life activities and giving biological insights into life process.
- Microfluidic chip shows great promise in biochemical analysis field.
- Recent advances in integrated technologies on microfluidic chip for biochemical analysis have been reviewed.
- New paradigms of biochemical analysis on microfluidic platforms have been summarized.

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Abstract

Biochemical analysis is crucial in understanding mechanism of life activities and giving biological insights into life process. With inherent merits in flexible design, microscale of operation, good incorporation with other techniques for manipulation and detection, microfluidic chip has introduced new paradigms in biochemical analysis field. Considering the explosive development of microfluidics over the past decades, in this review, we summarized recent advances in biochemical analysis on microfluidic platforms. Highlight was put on the integrated technologies such as optical, electrical, acoustic and magnetic techniques. Focus also was given on relative applications in biomimetics, drug screening, biomolecular detection, single cell and stem cell analysis.

Keywords: biochemical analysis; microfluidic chip; optical detector; electronic methods; acoustic wave; magnetic operation; chip-MS platform; biomimetics; drug

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