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Development of a Conductivity-based Photothermal Absorbance Detection Microchip Using Polyelectrolytic Gel Electrodes

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Highlights

- Polyelectrolytic gel electrodes (PGEs) for a microfluidic conductivity-based photothermal absorbance detection system is developed.
- Both a 3-electrode system with AC voltages and a 2-electrode system with DC voltages were investigated.
- Comparable and superior sensitivity compared with a metal electrode chip can be obtained using a 3-electrode and a 2-electrode PGE microchip, respectively.
- Low detection limit of sub-nM is achieved with clear sample separation.

Abstract

The development and application of polyelectrolytic gel electrodes (PGEs) for a microfluidic photothermal absorbance detection system is described. The PGEs are used to measure changes in conductivity based on heat generation by analytes absorbing light and changing the solution

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