

## Biopolar devices in Biosensing

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### Abstract:

Bipolar electrodes (BPEs) are electronic conductors usually set up in microfluidic chips. BPE serves as both anode and cathode in the electrolyte without direct electrical connection via a power supply. Compared with the two-electrode system, the reaction mechanism at the pole of BPE is more complicated since it is not only controlled by the electric field but also influenced from the reaction at the other pole through BPE. Since it is not easy to directly measure the current through BPEs, electrochemiluminescence (ECL) based BPEs has been developed by transforming electrical signal to optical signal. This report reviews the progress of our research group in the application of BPE-ECL in bioanalysis<sup>1-8</sup>.

**Key words:** Bipolar electrode, Electrochemical chemiluminescence, Bioanalysis

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