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# Microfluidic Device for High-Sensitivity Coulometric Detection of Proteins

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## Research highlights

- Electrochemical microdevice for the detection of proteins was developed.
- Immunoassay was conducted and H<sub>2</sub>O<sub>2</sub> produced by an enzymatic reaction was detected by coulometry coupled with silver metallization.
- Sample and reagent solutions were processed in the form of solution plugs separated by air.
- The detection limit was 0.4 ng/mL for alpha-1-fetoprotein.

## ABSTRACT

The sensitivity of a coulometric sensing device was enhanced by combining it with metallization and used for the detection of proteins. Alpha-1-fetoprotein (AFP) was used as a model analyte. Microfabricated flow channels were used to process solutions. Hydrogen peroxide produced

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