Development of a Novel Electrochemical Monitoring Method of Enzymic Hydrolysis

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In this work, we assessed the electrochemical behaviour of the products of substrates of the enzyme label, alkaline phosphate, ordinarily adopted into the field of electrochemical immunosensors. Cyclic voltammetry (CV) as well as amperometry of such resultants were respectively conducted at glassy carbon (GC) and gold (Au) electrodes. With mouse IgG to be a model, an ALP enzyme-magnified amperometric immunosensor with a sandwich shape came into being. Such immunosensor worked through the electropolymerization of *o*-aminobenzoic acid (*o*-ABA) polymer with conductivity on Au as well as GC electrodes' appearance. Then the anti-mouse IgG adhered to the electrode appearance by covalent bonding between IgG antibody and the carboxyl species from poly(*o*-ABA). When 2-phospho-l-ascorbic acid was adopted to be a substrate, the most optimized signal could be generated through the poly(*o*-ABA)/Au immunosensor, indicating amperometric immunosensors with the basis of a conductive polymer electrode system were of great sensitivity to concentrations of the mouse IgG down to 1 ng/mL.

Keywords: Electrochemistry; Enzymic hydrolysis; Immunosensor; Electrode; Mouse IgG

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