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Polyphenothiazine modified electrochemical aptasensor for detection of human α -thrombin

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Abstract

QCM aptasensor for detection human thrombin has been developed on the base of polymeric forms of phenothiazine dyes, Methylene Blue and Methylene Green. Electrostatic accumulation of the analyte in the polyphenothiazine layer made it possible to increase the sensitivity of QCM detection of thrombin in comparison with bare gold electrodes coated with avidin or neutravidin. The influence of nonspecific binding of human serum albumin and the optimal composition of the surface layers were determined. The aptasensors developed make it possible to detect 10-100 nM of thrombin. © 2007 Wiley-VCH Verlag GmbH & Co. KGaA.

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Keywords

DNA aptamer, Methylene blue, Methylene green, QCM, Thrombin