Enzyme sensor based on an electrochemically deposited osmium redox polymer

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A redox polymer-modified multilayer biosensor for the determination of glucose was developed. An osmium complex-modified pyrrole derivative with long, flexible spacer chain was synthesized. The highly conductive redox polymer was produced by potential sweep copolymerizaiton (-400 mV E1200 mV vs. Ag/AgCl) of osmium complex-modified pyrrole monomer and glucose oxidase on the top of a Pt electrode. Calibration graphs for measurements of glucose, the effect of pH, temperature and concomitant compounds, the lifetime of the sensor were examined. Under optical conditions, the response of the sensors was linear in the concentration ranges 0.6 mM E30 mM for glucose.