

Functionalized conducting polymer as an aptamer immobilizing substrate for
alpha-synuclein sensor

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Parkinson's disease (PD) is one of the most common neurodegenerative disorders of later life. Alpha-synuclein (α -Syn) has been found to be one of the principal components of the Lewy-body that is thought to be the pathologic hallmark of PD. A highly sensitive electrochemical impedance sensor for α -Syn monitoring was fabricated using an aptamer immobilized on functionalized conducting polymers substrates: aptamer linked with poly (thiophene-3-acetic acid) (PTAA) or poly(pyrrole-carboxylate) [PPy-COOH]. The conducting polymers were employed for providing high electrical conductivity and linking agents. The sensing performance was investigated in terms of sensitivity and detection range. The fabricated sensor exhibited extremely low detection limit at a nano molar level. The developed α -Syn sensor could be utilized for the early diagnosis of PD.