Electrochemical DNA sensors

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Electrochemistry-based sensors offer sensitivity, selectivity and low cost for the detection of selected DNA sequences or mutated genes associated with human disease. DNA-based electrochemical sensors exploit a range of different chemistries, but all take advantage of nanoscale interactions between the target in solution, the recognition layer and a solid electrode surface. Numerous approaches to electrochemical detection have been developed, including direct electrochemistry of DNA, electrochemistry at polymer-modified electrodes, electrochemistry of DNA-specific redox reporters, electrochemical amplifications with nanoparticles, and electrochemical devices based on DNA-mediated charge transport chemistry.

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