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The Detection of Mercury Ion Using DNA as Sensors Based on Fluorescence Resonance Energy Transfer

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Abstract

Mercury ion (Hg^{2+}) is a heavy metal that can cause serious water pollution. With the accumulation of large quantities in lakes, rivers, freshwater and aquatic life, Hg^{2+} can pass through the food chain, entering the human body and endangering health. Hg^{2+} detection has therefore become important thereby attracting extensive interests. Currently, several DNA-based sensors have been used for Hg^{2+} detection because they are not easy to degrade and are very stable. This paper summarizes the application of some DNA-based sensors based on fluorescence resonance energy transfer (FRET), analyzes their characteristic, and compares their sensitivity. Future perspectives and possible challenges in this area are also outlined.

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