

NANOSENSOR DETECTS MERCURY IN WATER

J.-S. Lee, M. S. Han, C. A. Mirkin, "Colorimetric Detection of Mercuric Ion (Hg^{2+}) in Aqueous Media using DNA-Functionalized Gold Nanoparticles," *Angewandte Chemie International Edition*, **2007**, 46, 4093–4096.
Northwestern University Nanoscale Science & Engineering Center
EEC – 0647560

Mercuric ion (Hg^{2+}) is one of the most stable inorganic forms of mercury. It is also a caustic and carcinogenic material with high cellular toxicity. The ability to routinely detect Hg^{2+} in wells, rivers, and other bodies of water is critical to evaluating the safety of drinking water and of fish.

NU-NSEC researchers have developed a highly selective and sensitive colorimetric detection method for Hg^{2+} , which relies on coordination chemistry and the unique chemical and physical properties of DNA-functionalized gold nanoparticles. In view of the environmental toxicity of Hg^{2+} , the development of this assay and the establishment of a new colorimetric sensitivity record (LOD of 100 nM) are extremely important advances.

