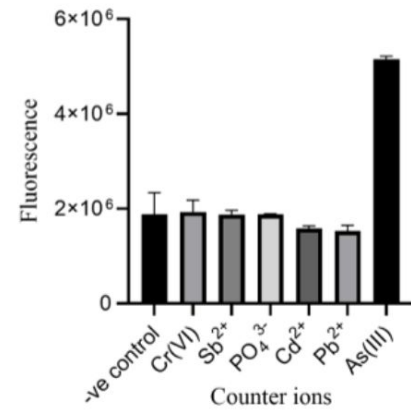




PENDING

(IN202311048776)

An arsenic-binding aptamer and method of preparing the same



NEED

Over 140 million people in India are exposed to arsenic-contaminated water. Current test kits often fail to detect levels below 10 ppb, risking cancer and developmental delays. But what if toxic arsenic could be detected at ultra-low levels—using just a drop of water?

TECHNOLOGY OVERVIEW

This technology introduces a high-affinity DNA aptamer biosensor for detecting arsenic down to 0.65 ppb. Developed using GO-SELEX, it binds arsenic with 8.15 nM affinity and integrates into portable biosensors or nanoparticle assay kits for quick, programmable detection—even via smartphones.

TECHNOLOGY KEY FEATURES

Detects arsenic at 0.65 ppb; aptamer with 8.15 nM affinity; GO-SELEX developed; smartphone-interfaced biosensor; aptamer-nanoparticle assay kit; 85–100% sequence identity; non-enzymatic; graphical UI-enabled; portable design; applicable to field testing in rural or resource-limited areas.

[Read more here](#)

MARKET ANALYSIS

Global water testing market expected to grow at 6.4% CAGR to reach \$6.5B by 2033; Indian biosensor market expanding at 9.5% CAGR. Growth driven by health safety mandates, rural diagnostics, and portable detection tools. (Sources: MarketsandMarkets, IMARC)

Target Industries

, Environmental diagnostics manufacturers; biosensor system integrators for water quality; portable test kit platforms; research groups in drinking water monitoring; rural health tech developers.

AT A GLANCE

- SDG 3 (Good Health and Well-Being), SDG 6 (Clean Water and Sanitation), SDG 9 (Industry, Innovation, and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action)

Technology is available for licensing/ co-development.

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