Enhanced Sensitivity Explosives Sensors (Yissum)

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Highly sensitive electrochemical and optical sensors for explosives

Categories	Homeland Security, Explosives Detection
Development Stage	Proof of concept for TNT and RDX; ongoing work with other explosives
• **Patent Status**	United States patent application filed
Market Size	Estimated annual U.S. market for explosives sensors almost $50 million

Highlights

- Most sensitive sensors available to date – considerably more sensitive than dogs
- Sensitivity of 10-15 molar achieved
- Readout signal for sensing is electrochemical (current) or optical (surface plasmon resonance)
- Available readers will need adaptation for field work
- Analysis of TNT and RDX

Our Innovation

- Highly sensitive explosives detectors based on the molecular imprinting of recognition sites for various explosives in a 3-dimensional network of metallic nano-particles associated with surfaces.
- The explosives particles are collected and dissolved in water droplets that are then analyzed.

Key Features

- Method is specific for the target explosive
- Enables parallel analysis of several explosives
- Very high sensitivity

Development Milestones

- Ready for commercialization – seeking partner with expertise in explosive particle collection systems

The Opportunity

- Detection of explosives used in humanitarian mine clearing, remediation of explosives waste sites, homeland security and forensics
- Detection of TNT particularly important for mine detection
- Detection of RDX, an explosive with low vapour pressure

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