

X-Ray Fluorescence Detection for Lateral Flow Immunoassays

ID: 2018-050

Executive Statement:

An innovative technique enhancing the sensitivity of Lateral Flow Immunoassays (LFIs) through X-Ray Fluorescence (XRF) for metal nanoparticle detection.

Technology Overview:

This invention introduces a novel method leveraging X-Ray Fluorescence (XRF) to detect metal nanoparticles in Lateral Flow Immunoassays (LFIs), aiming to significantly lower the detection limits of these assays. By incorporating silver staining on gold nanoparticles (AuNPs) and utilizing portable XRF scanners, the technique offers both enhanced visual detection and precise quantitative analysis. Developed by the Watt lab, this approach promises to improve LFIs' sensitivity, making them more effective for point-of-care diagnostic applications.

Key Advantages:

- Significantly lowers detection limits of LFIs
- Provides quantitative data for more accurate diagnostics
- Improves visual detection through silver staining on Au
- NPs
- Enables point-of-care diagnostics with portable XRF scanners
- Applicable in remote locations lacking access to diagnostic laboratories

Problems Addressed:

- High detection limits of traditional LFIs
- Lack of quantitative data in current LFI diagnostics
- Inaccessibility of sensitive diagnostics in remote or resource-limited settings

Market Applications:

- At-home diagnostic testing for early-stage disease biomarkers
- Field diagnostics in remote locations
- Enhancement of existing LFI equipment with XRF technology
- Research and development in sensitive diagnostic solutions