EXAZYM

The BOLD Immunoassay Signal Amplifier

Introducing Exazym®

Attomole-level detection of low-abundance biomarkers using standard ELISA workflows

Exazym® is a game-changing innovation in precision health that brings ultra-sensitive detection levels to conventional immunodiagnostic assays.

Our goal with Exazym® is to provide best-in-class sensitivity without propitiatory equipment or commitment to locked-in systems. That's why we have designed Exazym® as an add-on immunoassay reagent kit that requires no additional specialized equipment and can be easily added to existing immunoassay workflows.

Exazym® is based on a new detection method called Binding Oligo Ladder Detection, or BOLD for short. This new amplification technique is ideally suited for detecting low-abundance analytes. It offers up to 100x signal amplification gains and 50x lower limit of detection.

How BOLD Works

At the heart of Exazym® is BOLD (Binding Oligo Ladder Detection), a new detection technology based on well-established science. A primer conjugated to the secondary antibody works with polymerase to create a long ladder of poly BrdU:rA hybrid strand to which tertiary antibodies with reporter molecules selectively bind. This is how BOLD amplifies immunoassay signals by up to 100 times. The technology is broadly applicable for immunoassays and independent of instrument platforms. The amplification step works at ambient temperature or at 37°C.

The BOLD Science Behind Exazym®

Binding Oligo Ladder Detection (BOLD)

Conjugated Reporter Molecules

Tertiary Antibodies

Conjugated Primer

DNA/RNA Hybrid Strand

Polymerase

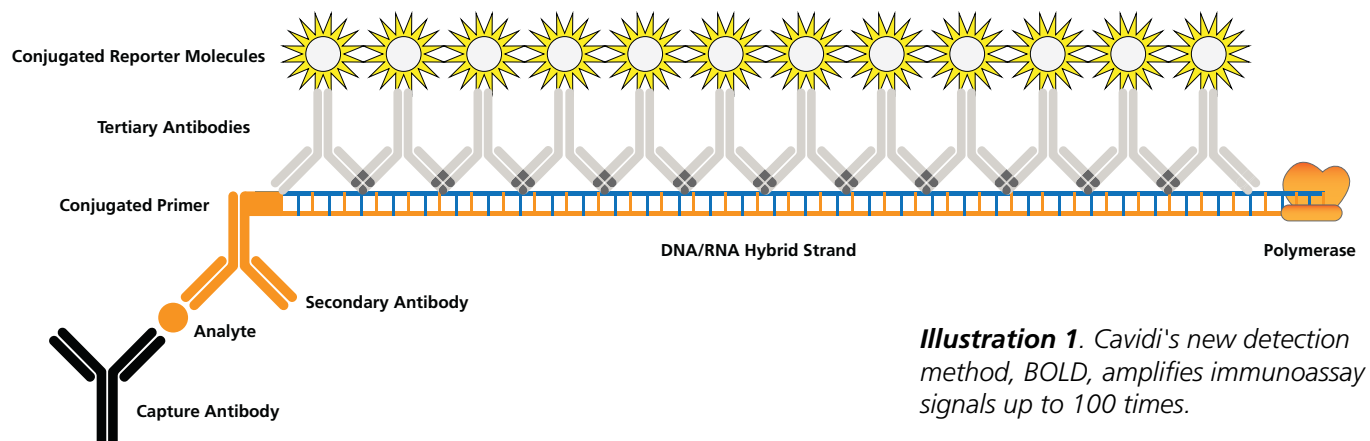Secondary Antibody

Analyte

Capture Antibody

Illustration 1. Cavidi's new detection method, BOLD, amplifies immunoassay signals up to 100 times.

Ideal for Detecting Low-Abundance Biomarkers

- Up to 100x signal amplification and 50x lower limit of detection
- Compatible with standard ELISA equipment and protocols
- Minimal extension of assay time

- Retain validated antibody pairs
- Consistent results across multiple runs and samples
- High sensitivity, specificity, repeatability, and accuracy

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Ultra-Sensitivity that's Ultra-Practical

Many potential biomarkers exist at levels below the detection limits of current techniques, posing challenges for research as well as clinical and diagnostic applications across medical specialties. While a number of ultra-sensitive proprietary systems have emerged in recent years, they typically require specialized instrumentation, software, and new protocols. This elevates costs and introduces logistical complexities that hinder adoption on a large scale. Exazym® overcomes these challenges by offering researchers attomole-level detection using standard immunoassay workflows and equipment.
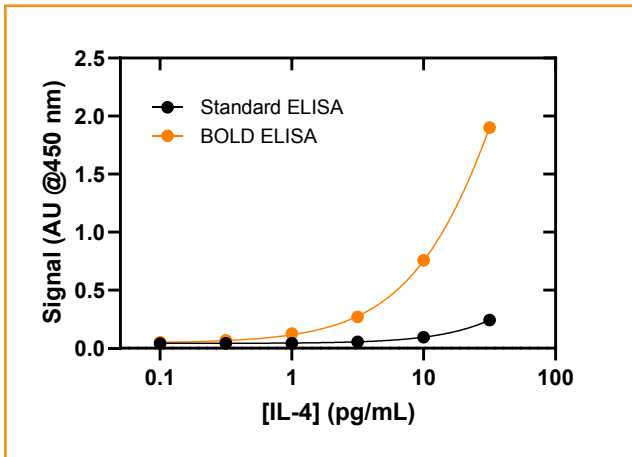
BOLD vs. Standard ELISA

Figure 1. Comparing the results applying BOLD to a standard ELISA. The antigen studied from a family of key inflammatory biomarkers (cytokine) was used to assess the level of ongoing inflammation in a number of disease conditions.
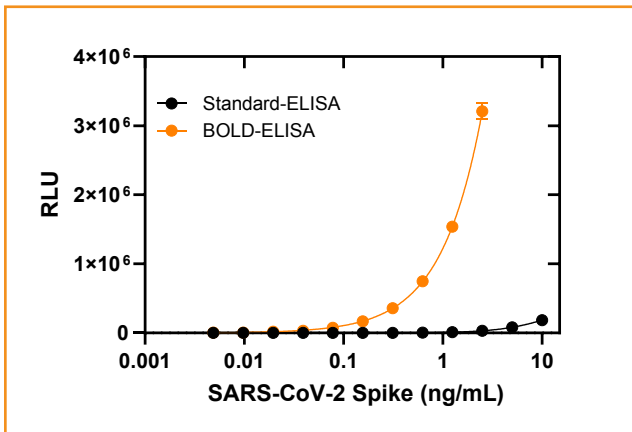
High Sensitivity

Figure 2. Detection of low attomoles of the SARS-CoV-2 spike antigen, demonstrating the extremely high level of sensitivity using BOLD. BOLD ELISA: LoD* = 4 pg/ml Standard ELISA: LoD* = 192 pg/ml (Note: * LoD = LoB + 1.645 × SD from low sample. LOD = Limit of Detection; and LOB = Limit of Blank).
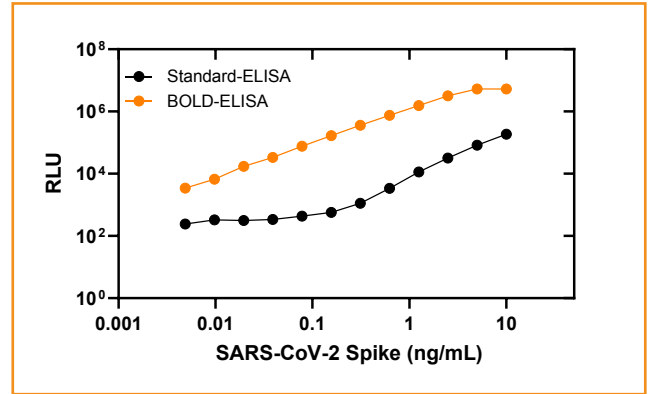
Wide range

Figure 3. Applying BOLD allows detection of SARS-CoV-2 spike antigen over a wide range of concentrations.

A Plug-and-Play Solution for Rapid Implementation

Simply adding Exazym® to existing immunoassay protocols will provide significantly improved sensitivity without compromising accuracy or specificity.

The plug-and-play design makes it quick and easy to get started with Exazym.® Our add-on reagent kits are compatible with previously optimized antibody pairs, standard laboratory equipment, and established testing protocols. Whether you're using common colorimetric, fluorescence, or chemiluminescent detection, Exazym® seamlessly integrates with existing plate readers and analyzers. This ensures rapid implementation "out of the box," without assay modification, extensive revalidation, or new capital equipment.

Plus, Cavidi's experienced Support Team is on hand to assist you with any questions, drawing on over 30 years of expertise in biomarker detection.

Try Exazym® and see what you're missing

- Order your kits online at www.cavidi.se
- Use the QR code to visit our website
- Email us with questions at support@cavidi.se
- Or call us to discuss at +46 18 55 20 40

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