

GEMINA LABORATORIES LTD.

News Release

May 17, 2023

GEMINA LABS ANTIBODY IMMOBILIZATION CHEMISTRY PLATFORM DEMONSTRATES MAJOR LATERAL FLOW ASSAY PERFORMANCE IMPROVEMENT

May 17, 2023, Vancouver, British Columbia: Gemina Laboratories Ltd. (CSE: GLAB) (FRA:8I7) (the “Company” or “Gemina”) is delighted to announce that its patented chemistry for Antibody Immobilization allows for a massive reduction in antibody usage when used in lateral flow assay (“LFA”) diagnostic tests.

This represents the confirmation of a major technical milestone on the LFA format for Gemina. The Antibody Immobilization Platform allows for the reduction of test line antibody requirements by 75% vs. standard physisorption, without impacting limit-of-detection.

Gemina’s Antibody Immobilization Platform creates a bridge (the “Gemina Bridge”) between a sensor surface and the antibodies stuck on that surface for target capture. Use of the Gemina Bridge results in optimized antibody usage and increased target capture activity per unit area of sensor surface. Therefore, use of the Gemina Bridge imparts both significant performance advantages and significant manufacturing advantages with LFA tests.

The industry standard antibody immobilization technique on nitrocellulose used in LFAs - non-specific physisorption, results in only 5-20% of the antibodies deposited on a sensor being “active” or capable of target capture. The Gemina Bridge rescues this lost antibody activity, meaning much less antibody is required to deliver the same test performance. To view a video demonstration, please click [here](#).

Laboratory Study

This massive reduction in antibody requirements was thoroughly demonstrated on the lateral flow assay test line with a COVID-19 rapid antigen test developed by Gemina Labs at the RAPIvD laboratories in Sharnbrook, UK. Instead of striping the antibodies directly onto the nitrocellulose (NC) strip, the Gemina Bridge is first stripped down to form a closely-packed monolayer, onto which the antibodies form a dense secondary layer with four times higher target capture activity than standard antibody-only test lines.

A White Paper highlighting the findings can be accessed [here](#).

Modeling Study

Dr. Robert Davies, an independent surface chemist expert, specializing in lateral flow assay development, was engaged by Gemina Laboratories to model the adsorption of the Gemina Antibody Immobilization Bridge to nitrocellulose, in comparison to optimal close packing of non-specifically adsorbed IgG antibodies. Calculations support the creation of four times more antibody immobilization sites per unit of surface area with the Gemina Bridge, as highlighted in the above-linked white paper.

Summary

In summary, the Gemina Antibody Immobilization Platform acts as a bridge between a sensor surface, in this instance the nitrocellulose test strip in a lateral flow assay, and the antibody used for target capture. Modeling data and internal experimental results indicate that use of the Gemina Bridge increases the density of active antibodies on the test strip by four times versus standard immobilization methods, meaning 75% less antibody is needed with the Gemina Bridge to achieve the same performance as a standard test. This represents a massive savings in antibody consumption during test fabrication.

Robert Greene, Gemina's CTO stated, "In light of the performance we've seen with the Gemina immobilization chemistry, the industry standard for optimal antibody usage on lateral flow assays stands to be significantly revised. We've shown that more can be done with much less, which is a critical step in the creation of affordable, high-quality diagnostics."

"I've been developing lateral flow assays for 35 years, and the Gemina Bridge is the first chemistry that I've worked with that allows for such a marked reduction in antibody requirements while still delivering the quality I demand of the tests we develop at RAPIVD," stated Robert Porter, Gemina's President & CEO of RAPIVD. "This breakthrough is truly a game changer for LFA's and diagnostics."

On Behalf of the Board of Directors

John Davies
Chairman
Gemina Laboratories Ltd.

About Gemina Laboratories Ltd.

Gemina Labs is a biosensor and diagnostic company with a transformative, patented, proprietary chemistry that powers next-generation testing platforms for a wide range of pathogens that affect human health and wellness. Our technology drives testing platforms that are fast, affordable and accurate, and easily self-administered. Our development pipeline includes platforms for the rapid testing of COVID-19, influenza and other viruses. Additional information on the Company can be found at www.geminalabs.com.

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