dotLab®
mX SYSTEM

Multiplex immunoassays are *quick and easy* with the *dotLab mX System!*

The newly upgraded dotLab® mX System from Axela provides researchers a low cost platform that produces highly informative immunoassays in a very short time and with little effort. Using its proprietary diffractive optics technology, it will help serve a growing need for routine multiplex assays in clinical research and protein production.

axela

Bringing New Dimensions to Multiplex Biomarker Testing

For research use only

Biomarker Research

On a single instrument, develop new assays for protein biomarkers and then perform them routinely on crude biological samples—quickly and almost effortlessly! With its customizable panels, broad dynamic range and low costs per assay, the dotLab® mX System addresses the need to translate the latest proteomic discoveries from expensive and complicated discovery platforms into routine biomarker tests used in personalized medicine.

panelPlus™ Sensors	Multiplex Assays	Broad Dynamic Range
Provides researchers the flexibility to customize their own biomarker panels (Figure 1)	Perform simultaneous assays on multiplex biomarkers in real time	Broad dynamic range (picomolar to micromolar concentrations, Figure 2)
Specially designed for multiplex assays at a low cost per assay	Compatible with crude biological samples	Can detect both high and low abundance analytes within a single sample dilution
Sensor surface can be regenerated for continuous re-use	Reduces assay times to as low as a few minutes	

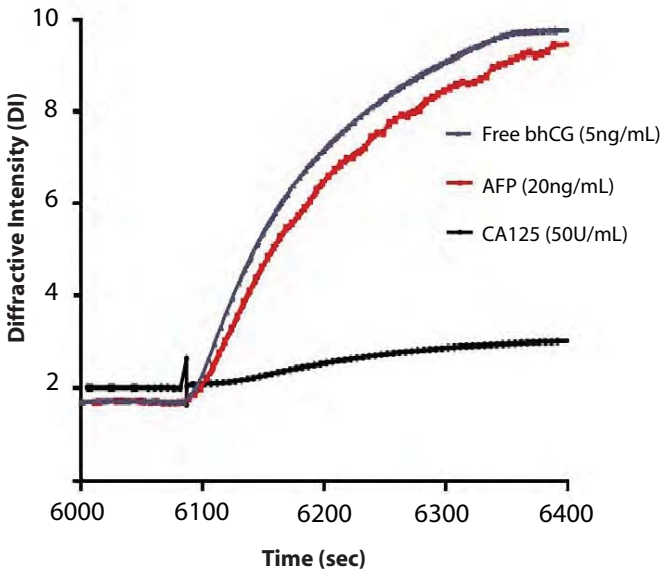


Figure 1 —Triplex assay for ovarian cancer biomarkers on panelPlus™ Sensors.[1]

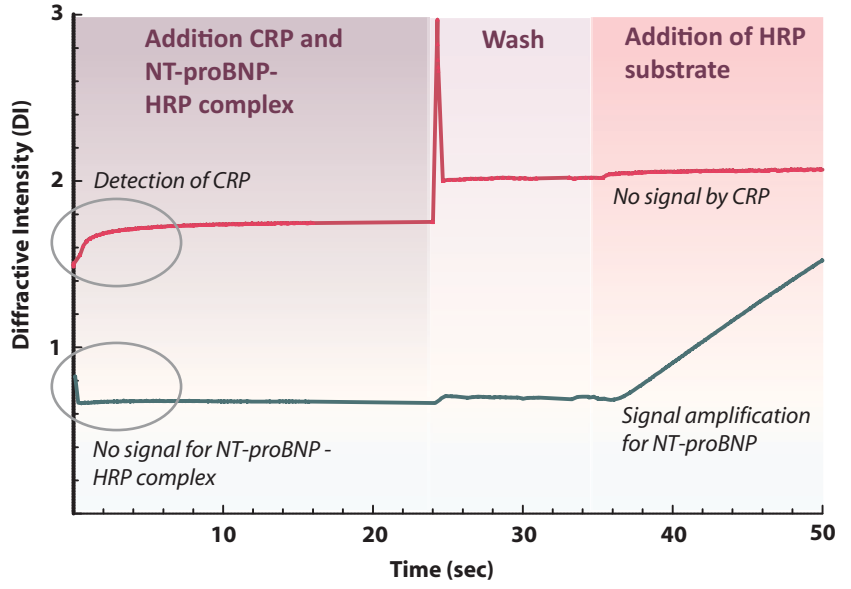


Figure 2—Rapid duplex assay demonstrating a 6-fold dynamic range for cardiac markers CRP (25µg/mL) and NT-proBNP (25pg/ml).[1]

Biomarker Validation • Proteomics Research • Multiplex Assays

Serology & Infectious Diseases

The dotLab® mX System's flow-thru technology enables a fast and efficient way of performing traditional immunoassays for infectious disease research. On a single platform researchers can perform rapid serological tests, including antibody avidity and titer assays, or detect pathogens directly in crude biological samples – from bodily fluids to food and environmental samples – without laborious sample preparation and the need for specialized personnel.

Rapid & Sensitive Serological Assays	IgG Titer & Avidity Determination	Pathogen Detection
Obtain results in less than 30 minutes	Obtain real time titer and avidity information from a single assay in less than 1 hour	Rapid and easy to use detection platform for bacteria and viruses (Figure 3)
Small sample requirements (3.5 µL of serum)	Measure multiple avidities during a single multiplex assay	No sample pre-processing or pre-culturing required
Perform multiplex assays for infectious disease screening with Axela's panelPlus™ Sensors	Suitable for infectious disease, autoimmune and vaccine research	Screen multiple pathogen strains on Axela's panelPlus Sensors

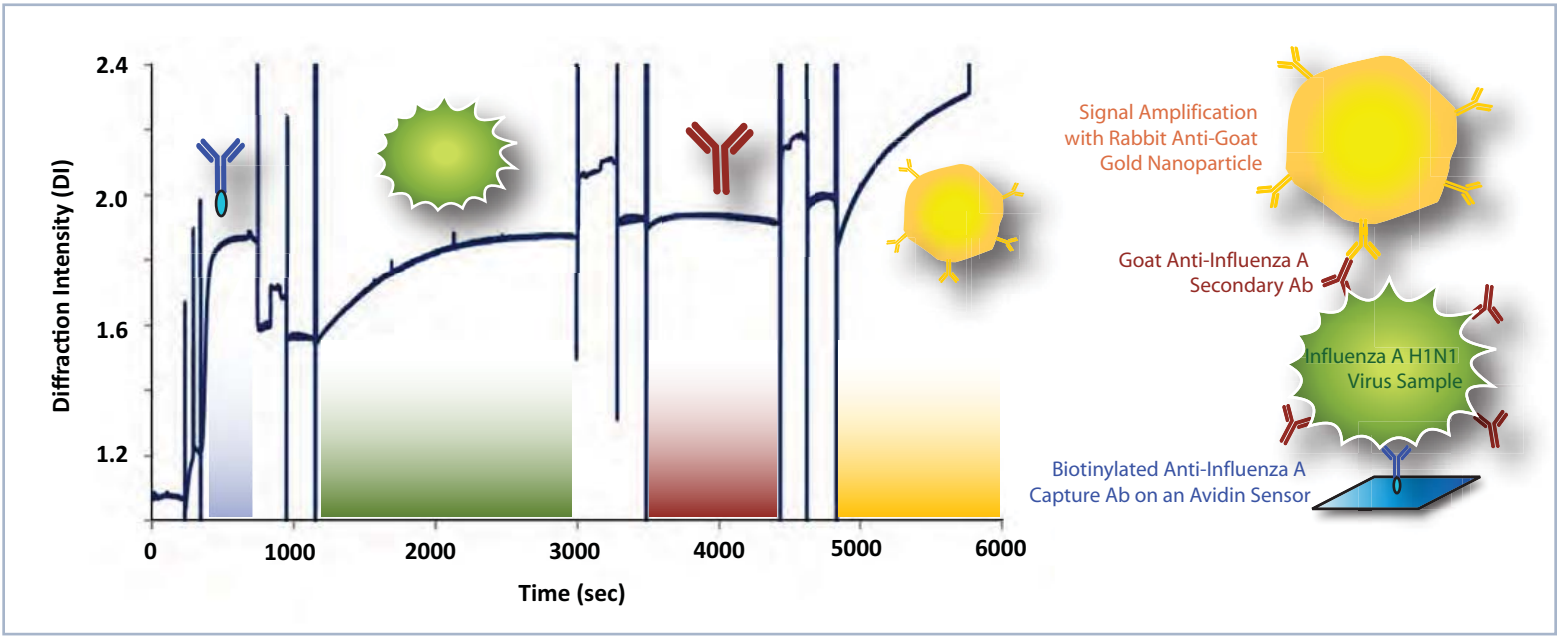
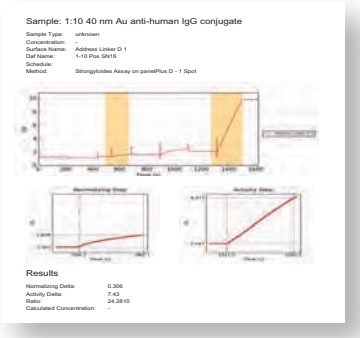


Figure 3 —Direct detection of influenza A H1N1 virus in nasal swab samples on a dot-Avidin Sensor.[1]

Rapid Serology • Antibody Avidity & Titer • Pathogen Detection

Protein Production & Characterization

Real time monitoring and the ability to sequentially probe an analyte come together on the dotLab® mX System to provide scientists valuable information about their proteins from an easy to use platform. Its high sensitivity, broad dynamic range, and user-friendly calibration software also permit it to perform quantitative analysis on a variety of protein samples. And for users in a FDA regulated environment, the dotLab® mX System is now 21 CFR Part 11 compliant.



Protein Characterization

Sequential probing for protein structure characterization (Figure 4)

Suitable for antibody isotype determination and hybridoma screening

Protein Quantitation

Flexible and easy to use quantitation software

Extended dynamic range for measuring both products and contaminants during protein production

Capable of online processing of single samples (Figure 5)

Immunoassay Development

Rapidly identifies optimal antibody pairs and cross reactive reagents

Accelerates the optimization of detergent, buffer and salt conditions

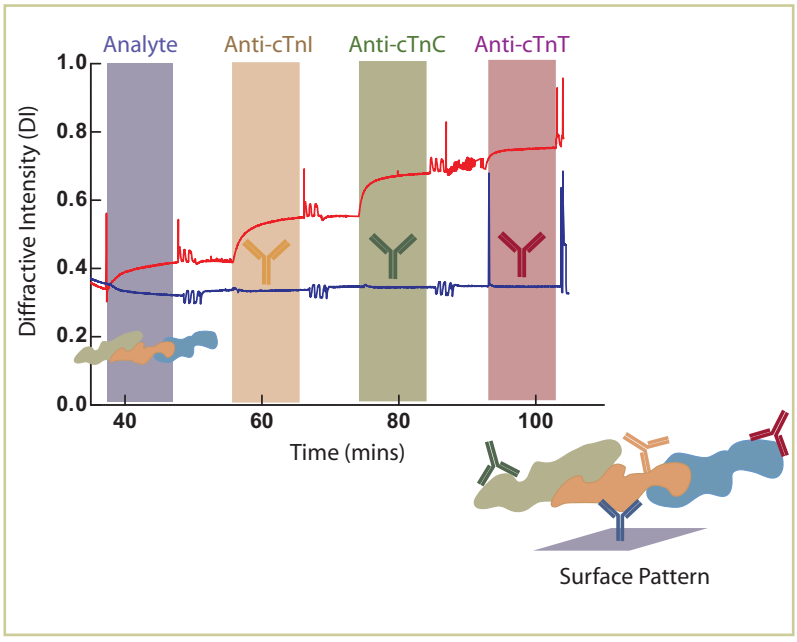


Figure 4 —Characterization of subunit composition of cTn protein complex.[1]

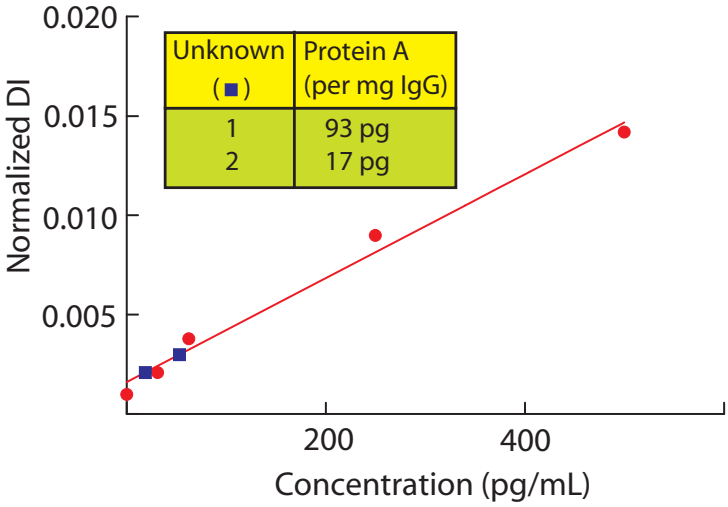
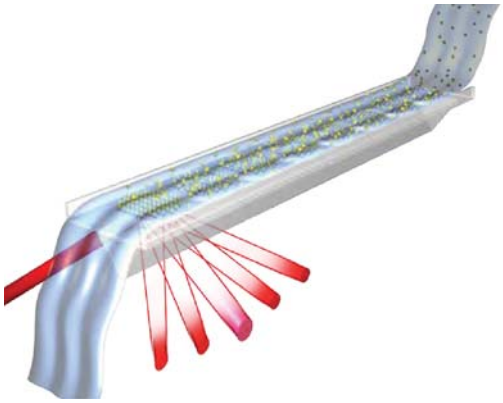


Figure 5 —Residual protein A assay in the pg/mL range during antibody purification .

Protein Characterization • Quantitative Analysis • 21 CFR Part 11

Diffractive Optics Technology

Diffractive optics technology, or "dot®", brings together two well-understood technologies: grating-based light diffraction and immobilized capture surfaces. This combination produces a sensitive and very simple technique for the detection of molecular binding and dissociation events without the use of fluorescent labels.



Capture molecules, such as antibodies, are immobilized on an ordered pattern of lines that form a diffraction grating on the surface of the prism shaped dotLab® Sensor (Figure 6). The sensor surface forms the base of a low volume flow cell. A series of discrete diffraction beams is generated when the patterned molecules are illuminated with a laser. Binding of biomolecules, such as an antigen, to the patterned capture molecules increases the height of the surface pattern, producing an increased phase shift in the reflected beams, which in turn increases the diffraction signal intensity that is detected in real time by a photodiode detector below the sensor. Dissociation of the interacting species with a competitive reagent conversely leads to a measurable decrease in signal.

Since the illumination occurs through an integrated optical prism, the laser beam does not pass though the bulk solution in the flow channel. This significantly reduces the effects of sample refractive index and color on signal intensity which allows for the direct analysis of crude biological samples. The self-referencing property of the sensor also allows for the use of vigorous mixing or changes in reagent flow during an assay without signal disruption.

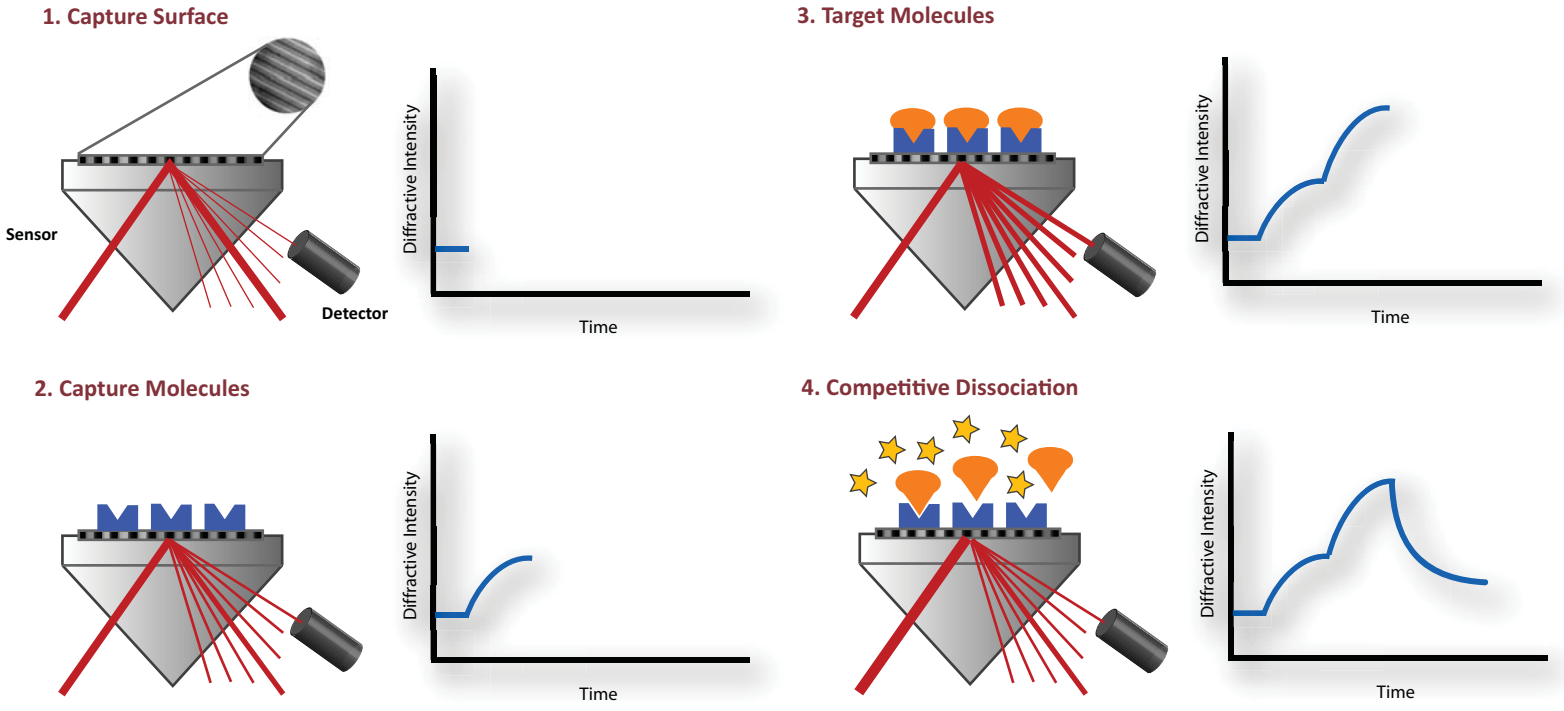


Figure 6 - Illustration of the diffractive optics technology on the dotLab Sensor

Real time • Multiplex • Customizable Panels • Crude Samples

Broad Dynamic Range • Easy to Use • Low Cost • Rapid

Products & Consumables

dotLab mX System	
dotLab System mX, dual pump	M-002747-002
dot® Covalent Products	
dot-Covalent Sensor	BM-000179
Amine Activation Kit	BM-000134
dot-Covalent Starter Kit	BM-000180
dot-Covalent Sensor (4 Pack)	BM-000202
Amine Activation Kit (4 Pack)	BM-000203
Goat Anti-Mouse IgG, 0.1 mL	BM-000086
Coupling (Acetate) Buffer (10x), 100 mL	BM-000065
Deactivating (Ethanolamine) Buffer, 1.8 mL	BM-000082
dot® Avidin Products	
dot-Avidin Sensor (12 pack)	BM-000026
Bt-RAM-Fc (1 mg/mL) in PBS, 0.1 mL	BM-000014
Bt-Protein G (1 mg/mL) in HBS, 0.05 mL	BM-000015
Bt-GAM-Fc (1 mg/mL) in PBS, 0.1 mL	BM-000016
Bt-GAM-Fc, 0.5 mg freeze dried powder	BM-000094
Bt-GAR-Fc, 0.5 mg freeze dried powder	BM-000096
Bt-GAH-Fc, 0.5 mg freeze dried powder	BM-000098
Bt-RAG-Fc, 0.5 mg freeze dried powder	BM-000100
Bt-Protein A, 0.5 mg	BM-000107
Bt-Protein G, 0.5 mg	BM-000116
dot® Ready Products	
PBS Buffer (10X), 100 mL	BM-000022
HBS Buffer (10X), 100 mL	BM-000021
Tween 20 (10% w/v in H20), 20 mL	BM-000023
BSA in PBS (10 mg/mL), 10 mL	BM-000017
BSA in HBS (10 mg/mL), 10 mL	BM-000018
Rabbit IgG (1 mg/mL) in HBS, 0.1 mL	BM-000020
Mouse IgG (1 mg/mL) in PBS, 0.1 mL	BM-000019
panelPlus Sensors (12 pack)	
panelPlus 1-Plex Sensor - A	BM-000280
panelPlus 1-Plex Sensor - B	BM-000223
panelPlus 1-Plex Sensor - C	BM-000224
panelPlus 3-Plex Sensor - ABC	BM-000409
panelPlus Address Kits	
Address A	BM-000277
Address B	BM-000211
Address C	BM-000212

Visit our website for your local distributor or contact us directly

[1] For more details download our literature from www.axela.com

Summary

Real time observations of molecular binding and dissociation reactions

Customizable multiplex panels

Analyte detection over a broad dynamic range

Suitable for crude biological samples

Small sample consumption

Ideal for rapid immunoassays and routine tests

User friendly and intuitive software

Available 21 CFR Part 11 Compliance support

dotLab® *mX* SYSTEM

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BM-000466

50 Ronson Drive, Suite 105
Toronto, Ontario
Canada
M9W 1B3

Ph: 1.866.94.AXELA (toll free)
or +1.416.798.1625
Fax: +1.416.798.8635

www.axela.com
info@axela.com