

# SMCxPRO<sup>®</sup> Immunoassay System

Sensitivity You  
Can Count On



The Life Science business  
of Merck operates as  
MilliporeSigma in the  
U.S. and Canada.

**Millipore<sup>®</sup>**

Preparation, Separation,  
Filtration & Monitoring Products




# Fit for your purpose

## Protein detection at every level.

Your research demands flexibility to move from platform to platform and assay to assay. Using Single Molecule Counting (SMC<sup>®</sup>) technology, we offer you the ability to take the analysis of your protein of interest down to femtogram/mL levels using the ultrasensitive protein detection SMCxPRO<sup>®</sup> platform. This improved level of sensitivity allows for previously undetectable proteins to be quantified, including endogenous levels.

Our fit-for-purpose portfolio of immunoassay platform solutions includes simple-to-run ELISAs, rich multiplex profiling data using Luminex<sup>®</sup> xMAP<sup>®</sup> technology, and enhanced sensitivity using the SMCxPRO<sup>®</sup> platform. You can count on our full range of platform options for unparalleled assay verification and improved insights into novel biological mechanisms.

### Flexibility and Sensitivity: Our Platforms Fit Your Purpose

Protein Detection Platforms	Fit for Purpose	Quantitative	Sensitivity	Sample Volume	Dynamic Range	Multiplex Capability	Custom Assay Support
<b>Luminex<sup>®</sup> Platform</b>							
	Multiplex detection Flexible platform	Yes	pg/mL	~25 µL	•••	✓	✓
<b>SMCxPRO<sup>®</sup> System</b>							
	Ultrasensitive High performance	Yes	fg/mL	5–100 µL	•••	–	✓
<b>ELISA</b>							
	Plate reader compatibility Most widely cited	Yes	pg/mL	50–100 µL	•	–	✓

• Good Performance    •• Strong Performance    ••• Superior Performance

# Discovery Depends on Detection

When the success of your research requires identifying and quantifying low-level proteins, you need technology you can rely on to detect your target.

With the SMCxPRO® platform you can detect extremely low levels of established disease biomarkers and, as a result, monitor small changes in protein concentrations to accurately measure biomarkers associated with disease progression for research purposes. In addition, the small sample volume requirements allow you to conserve valuable samples, reduce program costs, and improve productivity. This affordable, fast, and compact benchtop instrument allows research labs, including ones on a budget, to access reliable protein detection and expand the quest for drug discovery and development.

## SMCxPRO® Platform Benefits

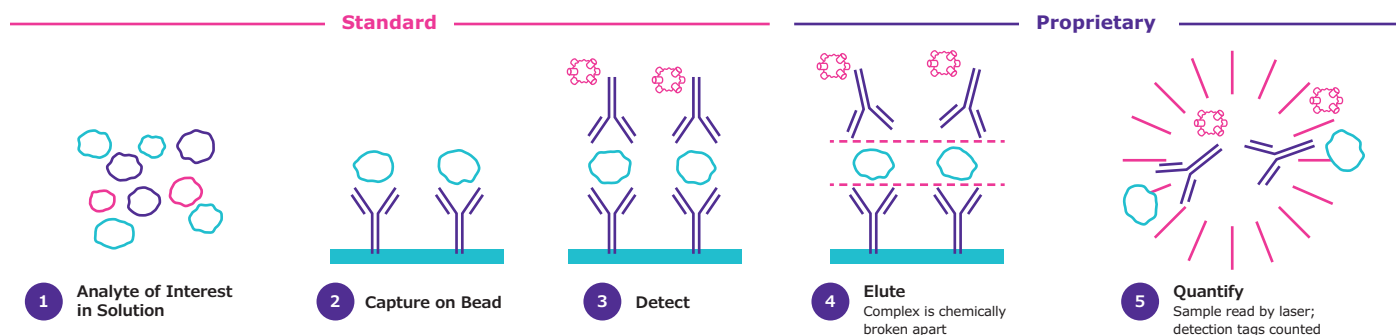
- High sensitivity (femtogram/mL) quantification
- Analysis in <1 hour
- Minimal bench space: 14" W x 16" H x 17.5" D
- Bead-based kits
- Fluidics-free system



# SMC<sup>®</sup> Technology

## Reduced Background. Increased Signal.

Quickly detect low levels of protein and expand your research to the next level, all within a benchtop device.



Single Molecule Counting (SMC<sup>®</sup>) technology provides maximum immunoassay performance while following a workflow very similar to traditional ELISA technology. By combining a unique assay elution step and robust digital counting, SMC<sup>®</sup> technology achieves improved signal-to-noise ratios over traditional immunoassay technologies, thus providing quantification at both low and high levels of expression on one complete system.



# SMCxPRO<sup>®</sup> Instrument Performance Specifications

The SMCxPRO<sup>®</sup> immunoassay system offers a lower cost solution to meet your high-sensitivity assay requirements. When quantifying low levels of proteins is critical to your research, you need equipment you can rely on to detect your target.

## SMCxPRO<sup>®</sup> Platform Specifications

Metric	Specifications
Slope	>1.2 response/fM
Background	< 3 response
Limit of detection (LOD)	<1 fM
Precision	<10% CV <sup>1</sup>
Dynamic range	>4 logs

<sup>1</sup>DE measurements from 30 fM calibrator, n=20

## Read Plate Format

- 384-well plate

## Network/PC Requirement

- Microsoft Windows<sup>®</sup> 10 Operating Systems
- A static IP address and an FTP server
- xPRO software included

## Power Requirement

- U.S.: 115 VAC, 50-60 Hz (operating range 90-125 V)
- Int.: 230 VAC, 50-60 Hz (operating range 180-250 V)

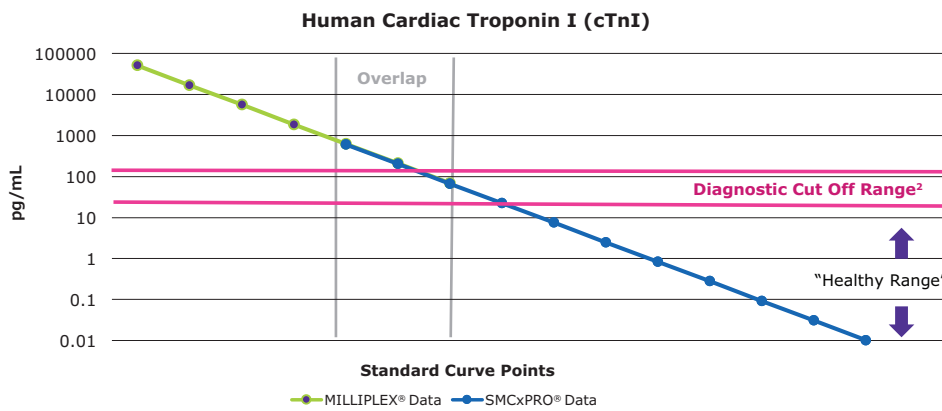


# Meeting Your Changing Needs with a High Sensitivity Option

When your work demands higher sensitivity, it's time to make the move to the SMCxPRO<sup>®</sup> platform. Our best-in-class MILLIPLEx<sup>®</sup> assays allow you to quickly and easily screen multiple markers and the SMCxPRO<sup>®</sup> platform allows you to take this even further, to the femtogram/mL level.

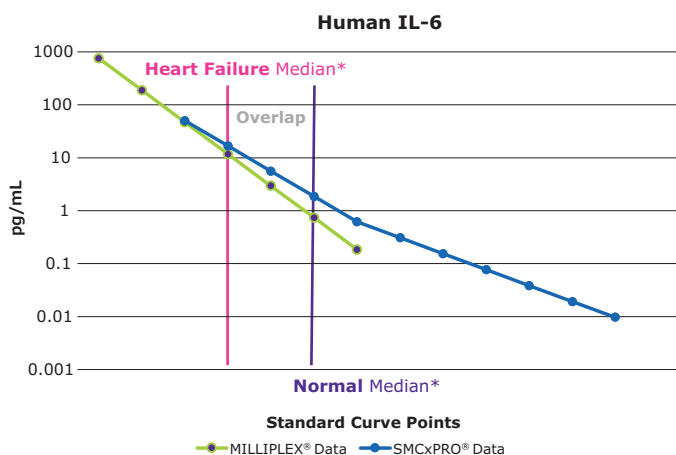
## Taking the next step from MILLIPLEx<sup>®</sup> multiplex assays to the SMCxPRO<sup>®</sup> platform

With MILLIPLEx<sup>®</sup> multiplexing and the SMCxPRO<sup>®</sup> platform, you can now cover the complete quantitative measurement of diseased states for research purposes. This improved sensitivity range allows for early recognition of marker changes which will ultimately improve diagnostic research.



A combination of the MILLIPLEx<sup>®</sup> Human cTnI (Cat. No. HCVD1MAG-67K) and SMCxPRO<sup>®</sup> Human cTnI (Cat. No. 03-0092-00) assays provide a 7 log range of detection. This allows for the exploration of patient samples both pre-and post-myocardial infarction.

<sup>2</sup> The Journal of the International Federation of Clinical Chemistry and Laboratory Medicine. Prof. Mauro Panteghini, MD, PhD <http://www.ifcc.org/ifccfiles/docs/1402062003014.pdf>



Both the MILLIPLEx<sup>®</sup> Human IL-6 (Cat. No. HSTCMAG-28SK) and the SMCxPRO<sup>®</sup> Human IL-6 (Cat. No. 03-0089-01) assays provide detection and resolution of the cytokine within a study population. The combination of platforms allows for the detection and exploration of the biomarker on a multiplex platform, with detailed detection and resolution of the underlying changes in the marker by an ultrasensitive technology.

\* As defined in a population of:

- Normal N = 125 40-65 year olds
- Heart Failure N = 32 age matched
- Data generated using the Erenna<sup>®</sup> platform

"Reference range and short- and long-term biological variation of interleukin (IL)-6, IL-17A, and tissue necrosis factor-alpha using high sensitivity assays."<sup>3</sup>

<sup>3</sup>Todd et al, Cytokine, 64, p 600-605, 2013.

# Move from the Erenna® Platform to the SMCxPRO® Platform with Confidence

SMC® technology has utilized the Erenna® instrument for years as a proven, reliable instrument for high-sensitivity protein measurement. The SMCxPRO® platform expands our portfolio to provide a compact affordable option to achieve the same high sensitivity. We provide an extensive offering of highly verified immunoassay kits.

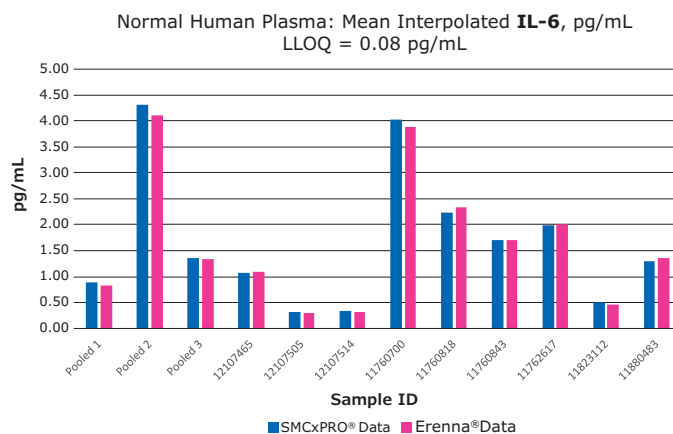
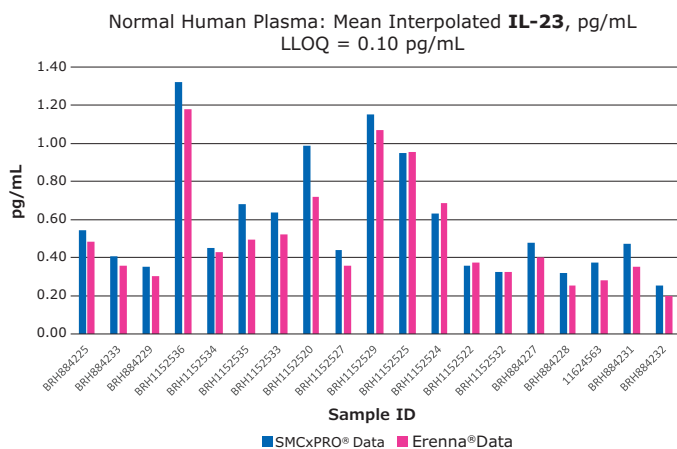
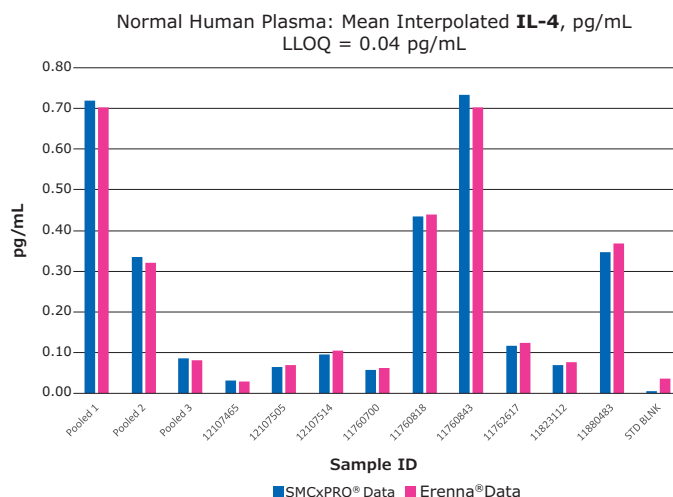
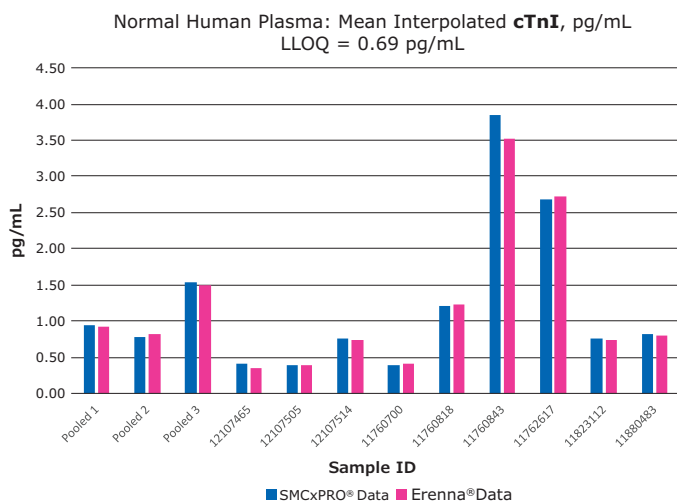
For a full listing of assays for the SMCxPRO® platform visit [SigmaAldrich.com/smc](https://www.sigmaaldrich.com/smc)

## SMCxPRO® Platform vs. Erenna® Platform Comparison

Individual and pooled plasma samples from four SMC® immunoassay kits were analyzed on both the SMCxPRO® and Erenna® platforms. For all four analytes measured, the mean interpolated concentration of each sample ( $R^2$ ) was nearly identical between the two instruments:

- Human cTnI (Cat. No. 03-0092-00),  $R^2=0.9944$
- Human IL-6 (Cat. No. 03-0089-01),  $R^2=0.9972$
- Human IL-4 (Cat. No. 03-0052-00),  $R^2=0.9976$
- Human IL-23 (Cat. No. 03-0112-00)  $R^2=0.9413$

These results demonstrate that the SMCxPRO® instrument gives similar sample results to those from the Erenna® system and you can confidently move from one platform to the other.



# Service Support Programs

The SMCxPRO® system provides a highly sensitive, affordable, and easy-to-use protein quantification solution for your research. This instrument is backed by expert technical support and advanced processes to ensure smooth operation, reliability, and consistency.

## Instrument Service Plans

Get the most out of your SMCxPRO® platform. Choose one of our best-in-class service plans and be confident that your system is always in excellent condition and able to meet your needs.

We offer a wide range of service agreements and preventative maintenance plans that are supported by highly-trained service professionals and technical support representatives.

As part of our complete solution, our service agreements are structured, yet flexible, allowing you to select the level of support that you prefer.

	Three Service Plans to Choose From		
	All Include One Year Onsite Service		
	Total Service Plan	Advanced Service Plan	Essential Service Plan
	<b>Benefits</b>	<b>Benefits</b>	<b>Benefits</b>
Service Visits	Unlimited	1 Floating	-
Coverage	All Parts	-	-
Preventative Maintenance Visit	1 Visit	1 Visit	1 Visit
Preventative Maintenance Kit	1 Kit	1 Kit	1 Kit
Calibrator	One 5-Set	One 5-Set	One 5-Set

## Advantages of Maintaining a Service Plan

- Best-in-class service support maintains optimal performance, enabling high-quality data
- Planned instrument maintenance reduces overall service costs
- Service plans are the best protection for your instrument and its long-term operation

## Product Warranty and Limitation of Liability

The applicable warranty and limitation of liability for the products listed in this publication may be found at [SigmaAldrich.com](http://SigmaAldrich.com) within the “Conditions of Sale” applicable to your purchase transaction.



# Custom Assay / Sample Testing Services

## Offering Scientific Partnership and Support

When time and resources require an expert outsource partner to help accelerate programs from discovery into clinical trials, we offer an experienced scientific team of custom assay professionals that will work with you to develop a customized project work plan unique to your needs.

Throughout the project, you will receive progress updates, with easy access to the team for questions and discussion related to the project. Final study reports may be personalized to meet your specific needs. If your program requires good laboratory practice (GLP) services, we can facilitate the technical method transfer to a contract research organization (CRO) of your choice.

## Custom Services Capabilities:

### Collaborative Biomarker Discovery and Development

- Fit-for-purpose sample testing (non-GLP) – preclinical to early clinical studies
- Immunoassay development
- Biomarker validation (to sponsor requirements)

### Biotherapeutic Discovery

- Pharmacokinetics
- Pharmacodynamics
- Immunogenicity

## Reagent Labeling and Characterization

- Antibody screening and selection
- Antibody labeling
- Assay stability testing

## SMC<sup>®</sup> Assay Kit Development

- Proprietary or commercial SMC<sup>®</sup> assay kit development
- Assay kit verification
- Assay kit manufacturing
- Method transfer to CRO

## Sample Testing

- R&D and prototype assay kit sample testing
- Commercial assay kit sample testing
- To assess potential biological relevance in real samples
- To assess biological anomalies that may occur due to such things as drug interference or matrix effect

Learn more at  
[SigmaAldrich.com/smc-cast](https://www.sigmaaldrich.com/smc-cast)



# Let's Get Started

However you wish to build your experiment, we provide you with experienced technical support to advance your research every step of the way.

## SMCxPRO® Instrument and Installation Services

Description	Cat. No.
SMCxPRO® System	95-0100-00
Standard SMCxPRO® Installation	96-2011-00
SMCxPRO® IQ/OQ Installation	96-2012-00
SMCxPRO® Service	96-2013-00
PQ Kit for SMCxPRO® System	96-2020-00
SMCxPRO® Training—System/Software Only - 1 day	96-2022-00
SMCxPRO® Advanced Training—System/Software and IL-6 Assay - 2 days	96-2023-00
Shipping, Handling, & Logistics Fee	96-2026-00



## Immunoassay Kits

Available kits for the SMCxPRO® system are continuously expanding, so check regularly for updates at [SigmaAldrich.com/smc](https://SigmaAldrich.com/smc)

## Ancillary Equipment for the SMCxPRO® System

Description	Cat. No.
SMC® Automation Optimization	96-0019-00
BioTek® 405® TSUVS Magnetic 96-Well Washer for SMC® Platform	95-0004-05





MERCK

The SMCxPRO® Platform

sensitivity  
YOU CAN  
**COUNT** on

**Go from Zero to  
Femtogram Faster  
Than Ever**

Detect low-abundant proteins  
at the fg/mL level with the  
sensitivity and speed of the  
SMCxPRO® platform. Powerful.  
Compact. Affordably Priced.

Explore more at  
[SigmaAldrich.com/smcxpro](https://SigmaAldrich.com/smcxpro)



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