

invitrogen

IL-17A

IL-6

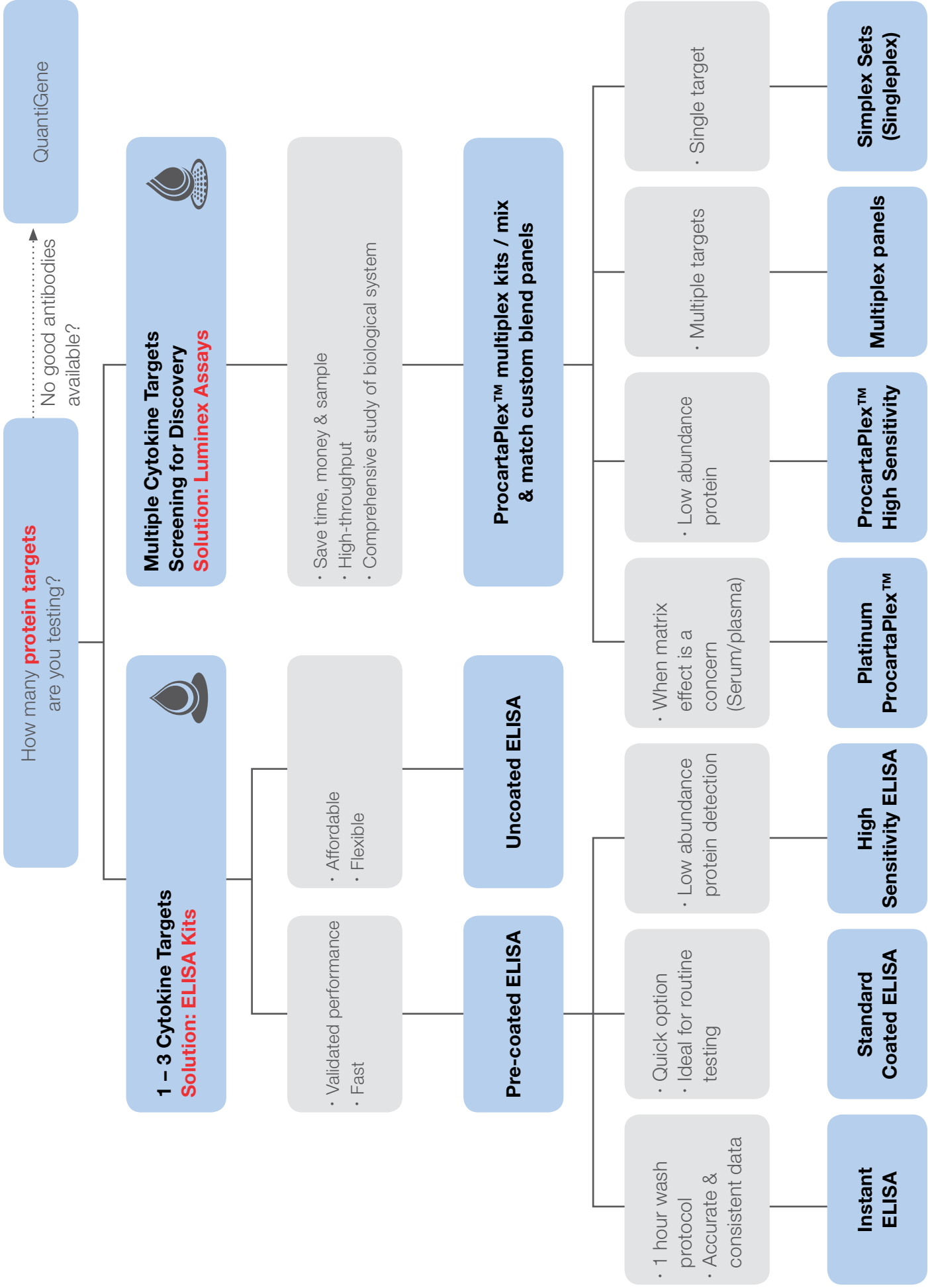
IFN

VEGF

# Immunoassay Selection Guide

Future-proofing your  
Immunoassays

**ThermoFisher**  
SCIENTIFIC





# ELISA Kits

High-quality Invitrogen ELISA kits allow you to measure target-specific proteins with confidence, reliability and consistency.



Platform: Plate readers  
Varioskan™ LUX Multimode Microplate Reader



## Instant ELISA

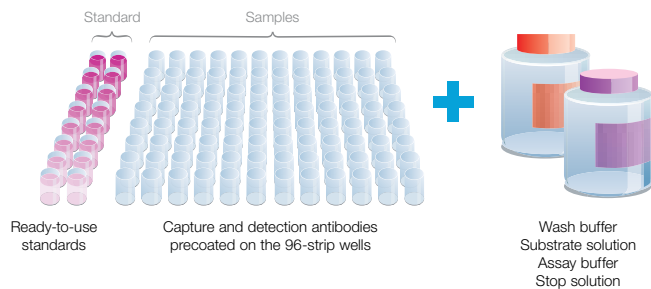
The one-wash ELISA kit

The one-wash ELISA kit requires fewer handling steps. The instant ELISA plate contains all of the necessary components including capture antibody and lyophilized detection antibody, streptavidin-HRP, and sample diluent.

The strip wells containing the standards for the standard curve are provided separately. They are ready-to-use, saving both time and wells.



### Pre-mixed components and standards reduce hands-on time and error.



**Instant ELISA kit (1 x 96-well plate) includes all reagents necessary to perform the assay.** Two separately packed, double-standard curves come with the kits, which enables the use of all 96 wells for your samples.

### Steps for conventional ELISA vs. Instant ELISA kits.

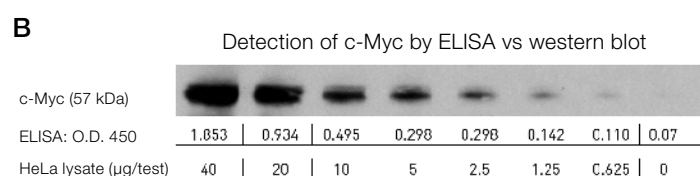
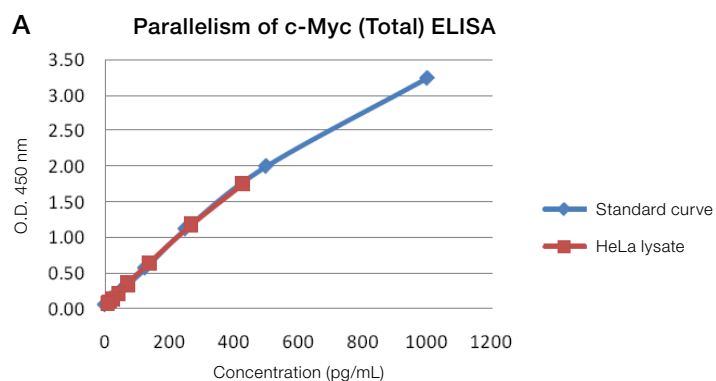
17 steps for conventional ELISA	7 steps for Instant ELISA kits
1 Washing of coated plate	Time Saved
2 Reconstitution of standard protein	
3 Addition of sample diluent to standard wells	
4 Titration of standard curve	
5 Addition of sample diluent	1 Rehydration of plate
6 Sample addition	2 Sample addition
7 Dilution of biotin conjugate	3 Incubation
8 Addition of biotin conjugate	Time Saved
9 Incubation	
10 Preparation of streptavidin-HRP conjugate	
11 Washing step	
12 Addition of streptavidin-HRP conjugate	
13 Incubation	
14 Washing step	
15 Addition of TMB substrate	4 Washing step
16 Addition of stop solution	5 Addition of TMB substrate
17 Calculation of results	6 Addition of stop solution
	7 Calculation of results

# Application Spotlight

## Cell Signalling

Invitrogen™ phosphospecific ELISA kits are available for measurement of total, and phosphorylated, modified, or cleavage site-specific proteins.

- **Specificity**—two antibodies directed against the analyte provide better specificity than western blotting
- **Sensitivity**—more sensitive than western blotting
- **Quantitation**—get quantitative data in contrast to western blots (Figure 2)
- **Medium throughput**—96-well format, results in 4 hours, no densitometry analysis needed



**Figure 1. Confirmation of western blotting data with quantitative results by phosphospecific ELISA assay.** (A) Quantitative sample parallelism data obtained using the Invitrogen™ c-Myc (Total) Human Phospho-ELISA Kit (Cat. No. KHO2041). (B) Western blotting results using an Invitrogen™ NuPAGE™ gel (Cat. No. NP0321). Assays were performed in parallel.

## InstantOne ELISA kits

Cat. No.	Name
85-86112-11	STAT5 alpha/beta (Phospho) [pY694/pY699] Multispecies InstantOne ELISA Kit
85-86012-11	ERK1/ERK2 (Phospho) [pT202/pY204]/[pT185/pY187] Multispecies InstantOne ELISA Kit
85-86083-11	NFκB p65 (Total/Phospho) Multispecies InstantOne ELISA Kit
85-86042-11	AKT (Phospho) [pS473] Multispecies InstantOne ELISA Kit
85-86103-11	STAT3 (Total/Phospho) Multispecies InstantOne ELISA Kit
85-86192-11	SMAD3 (Phospho) [pS423/pS425] Multispecies InstantOne ELISA Kit
85-86013-11	ERK1/ERK2 (Total/Phospho) Multispecies InstantOne ELISA Kit
85-86092-11	STAT1 (Phospho) [pY701] Multispecies InstantOne ELISA Kit
85-86102-11	STAT3 (Phospho) [pY705] Multispecies InstantOne ELISA Kit
85-86011-11	STAT3 (Phospho) [pY705] Multispecies InstantOne ELISA Kit

## Pre-coated ELISA

Cat. No.	Name
KHO0481	STAT3 (Phospho) [pY705] Multispecies ELISA Kit
KHB7031	Tau (Phospho) [pS396] Human ELISA Kit
KHO0651	Tau (Phospho) [pS396] Human ELISA Kit
KHO0631	Tau (Phospho) [pT181] Human ELISA Kit
KHO0241	CREB (Phospho) [pS133] Human ELISA Kit
KHR9121	IR (Phospho) [pY1158] Human ELISA Kit
KHO0421	PRAS40 (Phospho) [pT246] Human ELISA Kit
KHO0441	FAK (Phospho) [pY397] Human ELISA Kit
KHO0111	AKT (Phospho) [pS473] Human ELISA Kit
KHO0541	AKT (Phospho) [pS473] Human ELISA Kit

For all other application, please access the links below

Applications		
Adaptive immunity	Aging	Angiogenesis
Apoptosis	Autoimmunity	Blood
Cancer	Connective Tissue Diseases	Dermatology
Development	Diabetes	Immunity
Infection	Inflammation	Metabolism
Neurobiology	Obesity	Stem Cell Biology

For more information, log on to [thermofisher.com/ELISA](http://thermofisher.com/ELISA)

# ProcartaPlex immunoassay kits



Platform: Luminex Instruments  
MAGPIX system

## Profile more biomarkers with less sample

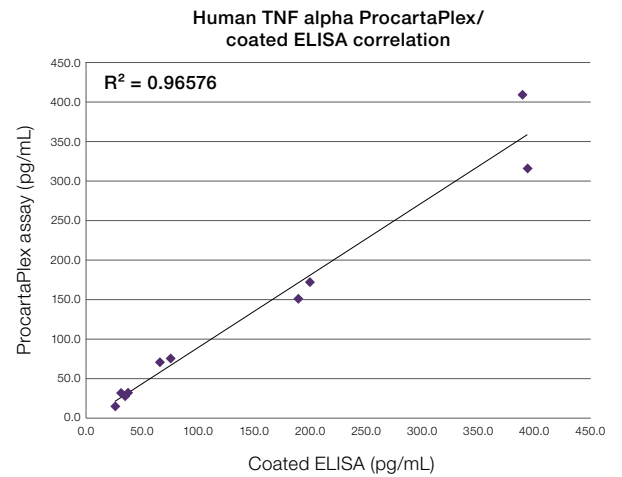
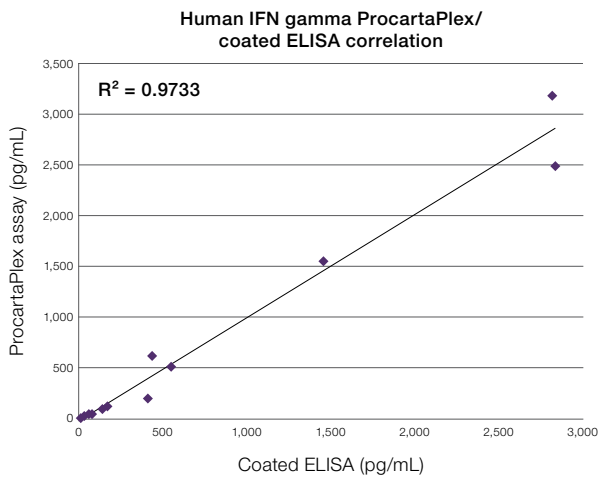
ProcartaPlex immunoassays can profile up to 80 times more analytes using significantly less sample in the same time that it takes to perform a traditional sandwich ELISA. Create your unique panel and enable reproducible results throughout the course of your study.

ProcartaPlex multiplex immunoassays are available in multiple formats across six species. (human, mouse, rat, nonhuman primate, porcine, and canine)

### Key Features

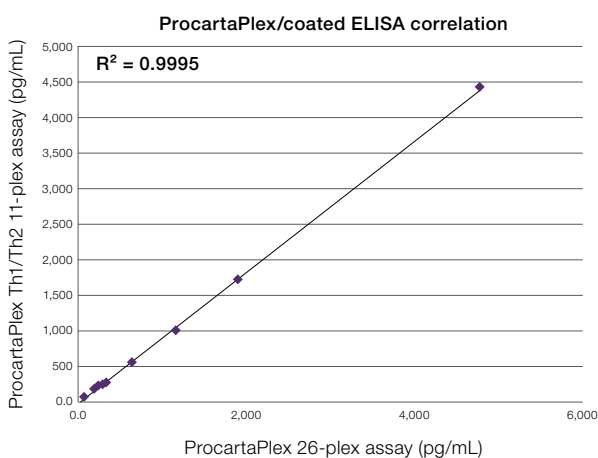
- More than 90% of ProcartaPlex assays can be combined with one another
- High correlation to our coated ELISA assays ( $R^2 > 0.9$ )
- Scalable and reproducible performance regardless of plex size
- Largest multiplex panel on the market for quantitation of up to 65 analytes

## High correlation to coated ELISA ( $R^2 > 0.9$ )

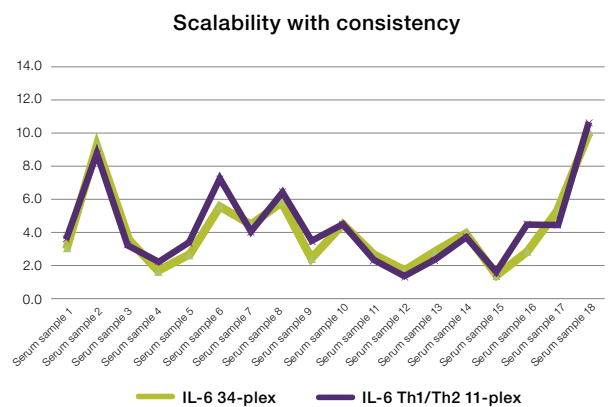


**Figure 2. Results of an experiment measuring IFN gamma and TNF alpha in stimulated human peripheral blood mononuclear cells (PBMCs).** Supernatants were serially diluted two-fold in normal human or serum, to allow for differential cytokine levels in a serum matrix. Additional cytokines for human and mouse analytes were compared, including IL-1 beta and IL-17A, and similar performance was obtained (data not shown).

## Scalability



**Figure 3. Data illustrates the high correlation between large- and small-scale multiplex scaling when using the ProcartaPlex assays.** Regression analysis comparing the Invitrogen™ ProcartaPlex™ Mouse Cytokine & Chemokine Panel 1 (26-plex) and the ProcartaPlex™ Mouse Th1/Th2 Cytokine Panel (11-plex) revealed an  $R^2$  value  $>0.9995$ .



**Figure 4. Scalability of ProcartaPlex multiplex immunoassays.** Human serum samples were run in parallel using both the Invitrogen™ ProcartaPlex™ Human Cytokine & Chemokine Panel 1A (34-plex) and the Human Th1/Th2 Cytokine Panel (11-plex). Experiments demonstrate consistency achieved in both large- and small-scale multiplex panels.





# Type of ProcartaPlex immunoassay kits

**1**

## ProcartaPlex Simplex Kits

Add targets to multiplex kits or produce custom kits

ProcartaPlex Simplex kits are magnetic bead sets used to detect individual analytes. They are designed to enable the addition of targets to multiplex panels or the combination of individual simplex kits to produce custom panels.



**2**

## ProcartaPlex Preconfigured Panels

Pre-designed panels are available for common applications (not limited to the three panels featured below):

### ProcartaPlex human panel for immune monitoring

Immune Monitoring 65-Plex Human ProcartaPlex Panel				
Cat. No. EPX650-10065-901				
Analyte (bead region)				
APRIL (88)	GM-CSF (44)	IL-7 (26)	IL-23 (63)	MIP-1α (12)
BAFF (86)	Gro α (61)	IL-8 (27)	IL-27 (14)	MIP-1β (47)
BLC (29)	HGF (46)	IL-9 (52)	IL-31 (37)	MIP-3α (56)
βNGF (55)	IFN α (48)	IL-10 (28)	IP-10 (22)	MMP-1 (64)
CD30 (84)	IFN γ (43)	IL-12p70 (34)	I-TAC (57)	SCF (39)
CD40L (74)	IL-1α (62)	IL-13 (35)	LIF (15)	SDF-1α (13)
ENA-78 (82)	IL-1β (18)	IL-15 (65)	MCP-1 (51)	TNF-α (45)
Eotaxin (33)	IL-2 (19)	IL-16 (70)	MCP-2 (8)	TNF-β (54)
Eotaxin-2 (30)	IL-2R (9)	IL-17A (36)	MCP-3 (68)	TNF-R2 (85)
Eotaxin-3 (49)	IL-3 (73)	IL-18 (66)	M-CSF (67)	TRAIL (58)
FGF-2 (75)	IL-4 (20)	IL-20 (81)	MDC (87)	TSLP (80)
Fractalkine (59)	IL-5 (21)	IL-21 (72)	MIF (53)	TWEAK (97)
G-CSF (42)	IL-6 (25)	IL-22 (76)	MIG (69)	VEGF-A (78)



**Most Popular**

**Application:  
Immune Monitoring**

### ProcartaPlex human panel for immuno-oncology

Immuno-Oncology Checkpoint 14-Plex Human ProcartaPlex Panel 1			
Cat. No. EPX14A-15803-901			
BTLA	LAG-3	TIM-3	CD27
GITR	PD1	CD28	CD152 (CTLA4)
HVEM	PD-L1	CD80	
IDO	PD-L2	4-1BB (CD137)	

Immuno-Oncology Checkpoint 14-Plex Human ProcartaPlex Panel 2			
Cat. No. EPX140-15815-901			
MICA	Perforin	ULBP-1,	Arginase-1
MICB	PVR	ULBP-3	ULBP-4
Nectin-2	Siglec-7	Tactile	
NT5E	Siglec-9	E-Cadherin	

**Application:  
Immuno-oncology**

For the complete list of preconfigured panels of all applications and animal targets, log on to [thermofisher.com/procartaplex](https://www.thermofisher.com/procartaplex)

**3**

### **ProcartaPlex High-sensitivity Kits**

Quantitation of key cytokines below the detection limit of conventional Luminex assays

High-sensitivity multiplex assays are ideal when sample input (human/ mouse) is limited, and protein expression is in the low pg/mL range.

Accurate quantification below conventional limits is achieved through a proprietary signal amplification technology.

**4**

### **ProcartaPlex Platinum Kits**

Overcome matrix effects

Serum and plasma samples are complex matrices with many components. This complexity can cause the “matrix effect”, which can impact the readout of many cytokines (low spike and dilution recovery).

We developed matrix type-specific diluents to overcome these matrix and multiplex effects, assuring high-performance specifications comparable to those of traditional ELISAs.

**5**

### **Custom assay development service**

Create your own custom panel

More than 90% of our ProcartaPlex assays can be combined with one another. Build the panel of your choice with our online Invitrogen™ ProcartaPlex™ Panel Configurator.

To design your own custom assay blend, go to [thermofisher.com/customluminex](https://www.thermofisher.com/customluminex)



#### **Unsure of which kit to use?**

We offer complimentary in-person consulting through our field application scientists (FAS). Our team of specialists will answer your technical questions, help you choose an assay or configure a panel, troubleshoot and more — face to face or on the phone, at no cost.

Contact us at [Ryan.Lim@thermofisher.com](mailto:Ryan.Lim@thermofisher.com) for personalized assistance.



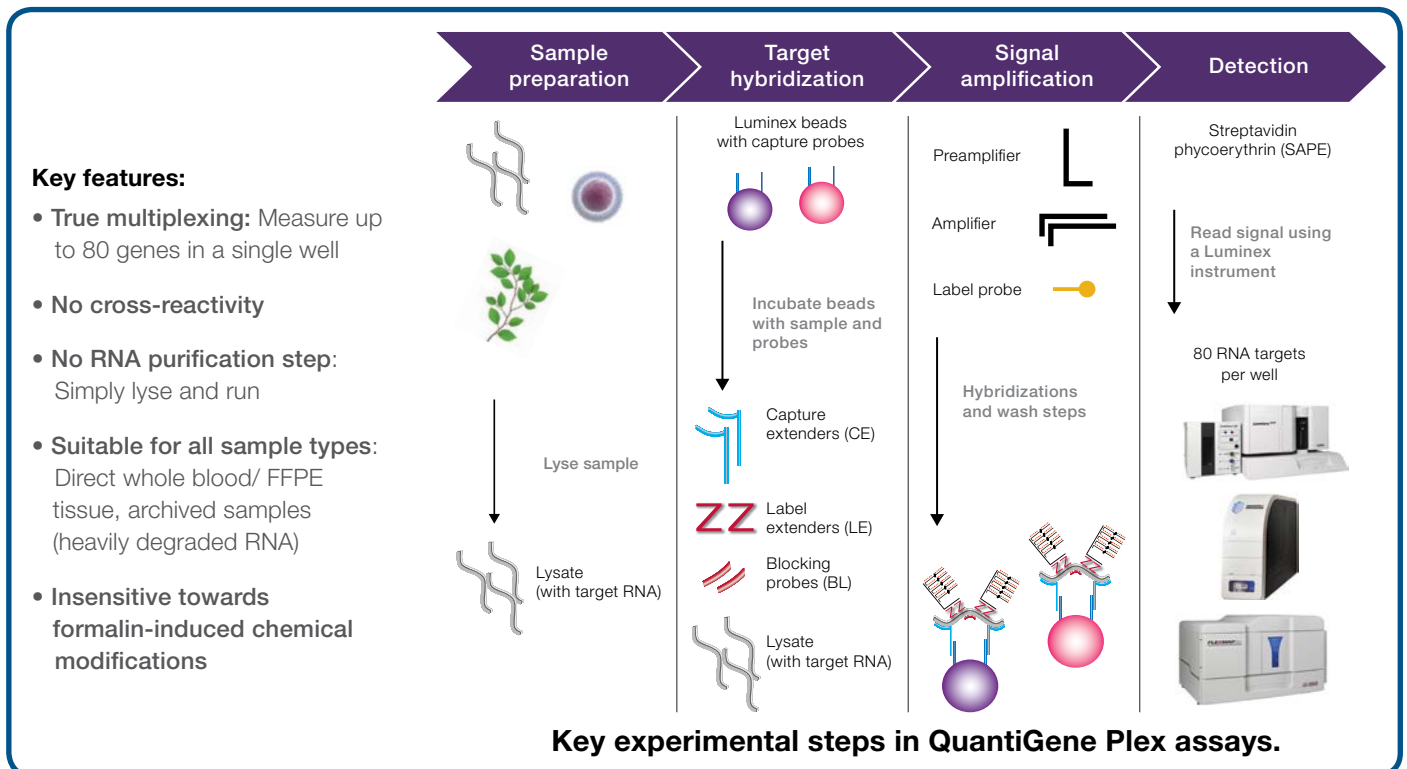
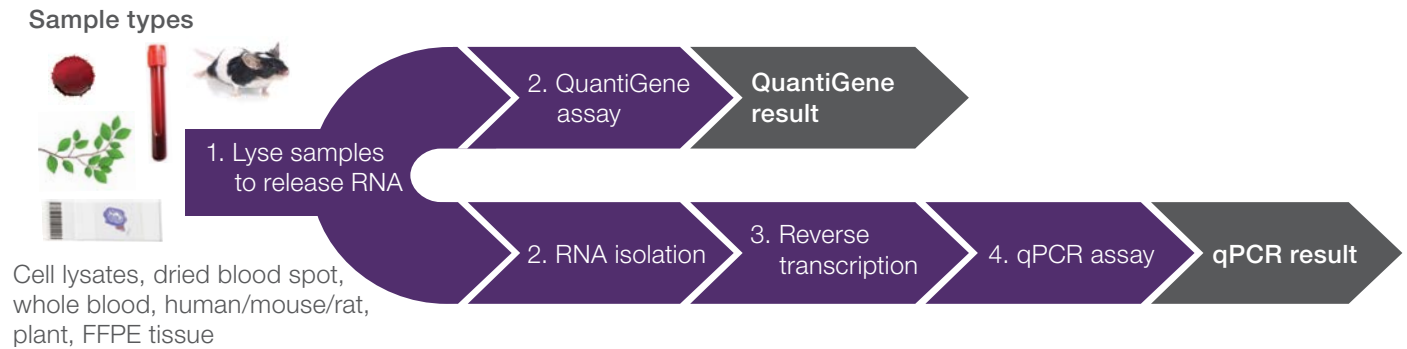
# QuantiGene: Multiplexing Gene Expression assays

QuantiGene Plex assays provide a fast and high-throughput solution for multiplexed gene expression quantitation. It is hybridization-based and incorporates branched DNA technology, which uses signal amplification rather than target amplification for direct measurement of RNA or DNA transcripts. This removes enzyme manipulation and give a more accurate picture.

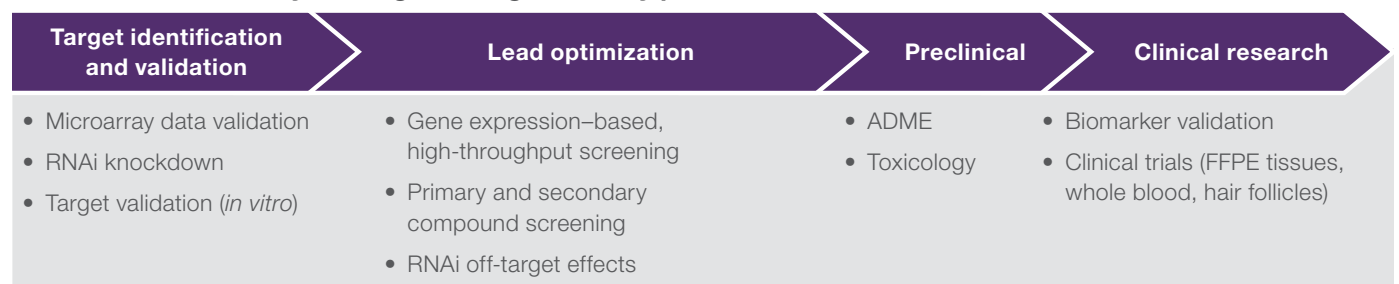


Platform: Luminex Instruments  
MAGPIX System

## QuantiGene vs. qPCR workflow comparison



## QuantiGene Plex assays during the drug discovery process



Note: ADME = Absorption, distribution, metabolism, and excretion





# ProQuantum high-sensitivity immunoassay



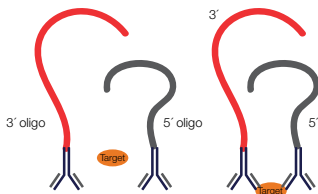
Platform: qPCR Instrument  
QuantStudio 5 Real-Time PCR System

An easy-to-run, high-performance assay with no proprietary instrument to purchase. The protein quantitation assay utilizes the proximity ligation assay (PLA) technology, which combines high-affinity antibody–antigen binding specificity with the signal detection and amplification capabilities of real-time PCR.

## Here's how it works

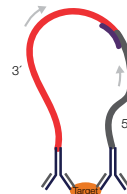
The ProQuantum immunoassays utilize a matched pair of target specific antibodies each conjugated to a DNA oligonucleotide.

1

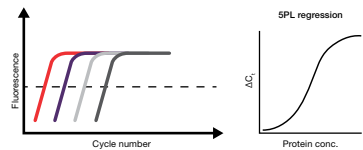


During antibody–analyte binding, the two DNA oligos are brought into close proximity.

2



This allows for ligation of the two strands and creation of a template strand for amplification.



## Product Features

- **High-sensitivity**—detect low levels of proteins with greater sensitivity than traditional methods
- **Broad dynamic range**— $\geq 5$  logarithmic units, minimizing sample dilutions to help ensure they fall within the range
- **Small sample consumption**—use 2–5  $\mu\text{L}$  of sample (for example, 2  $\mu\text{L}$  vs. 75  $\mu\text{L}$  for triplicate wells with other methods)
- **Fast, easy workflow**—2 hr from sample to answer, no wash steps, and single 1 hr incubation
- **No proprietary instrument to purchase**—runs on any real-time PCR instrument

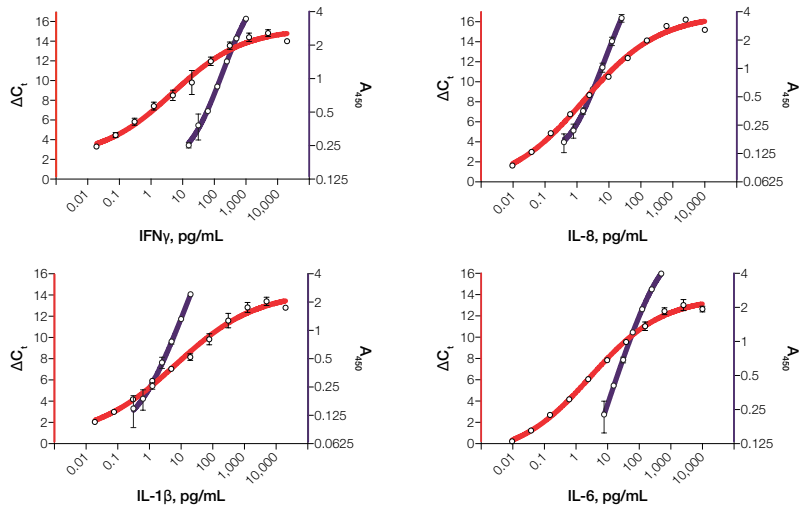


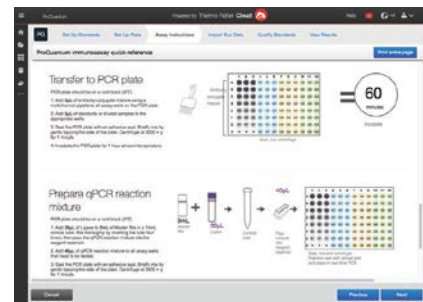
Figure 5. Standard curves for Invitrogen™ ProQuantum™ High-Sensitivity Human IFN $\gamma$ , IL-1 $\beta$ , IL-8, and IL-6 immunoassay kits (red) show larger dynamic range and improved separation at the low end of the curve for greater sensitivity than normal and ultrasensitive ELISAs (purple).

## Easy Experiment Planning with ProQuantum Software

1. Simple plate set-up including protein standard dilution
2. Customised lab instructions
3. Easy data analysis, auto plotting of 5PL curves and calculations to pg/ml
4. Direct export to Graphpad prism file

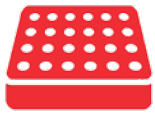
Access for free at apps.

[thermofisher.com/apps/proquantum](https://thermofisher.com/apps/proquantum)



Customized lab instructions for experiment accountability

To find out more, log on to [thermofisher.com/ProQuantum](https://thermofisher.com/ProQuantum)



# Microplate Solutions



## Microplate Readers

Thermo Scientific™ microplate readers provide flexibility, performance, and ease of use. Be it absorbance, fluorescence or luminescence assays, we offer a microplate reader solution to meet the needs of your specific workflow.



### Multiskan™ Sky Microplate Spectrophotometer

UV/Vis microplate reader designed to be exceptionally convenient and easy to use for virtually any photometric research application, especially protein analysis.



### Varioskan™ LUX multimode microplate reader

Varioskan™ LUX multimode reader offers up to five measurement technologies – Absorbance, Fluorescence Intensity, Luminescence, AlphaScreen and Time-Resolved Fluorescence.



## Microplate Washers

Wash 96-well plates securely with the Thermo Scientific™ Wellwash™ and Wellwash™ Versa Microplate Washer. Both equipment are easy-to-use, reliable microplate-strip washers for routine ELISA applications.



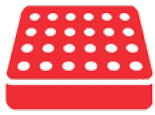
### Wellwash™ Microplate Washer

The basic model for washing 96-well plates. Wellwash™ Microplate Washer is intended for running a few similar assays routinely.



### Wellwash™ Versa Microplate Washer

The advanced model for washing both 96-well and 384-well plates. Wellwash™ Versa Microplate Washer offers enhanced flexibility needed for research use.



# Microplate Accessories



## Skant Software for Microplate Readers

Powerful, intuitive Thermo Scientific Skant Software is a user-friendly, productivity-boosting, error-preventing platform that drives Thermo Scientific microplate readers. Skant Software Research Edition is free with purchase of a Thermo Scientific plate reader.

### Key Features:

- Ready-to-use Protocols
- Real-time data shown during measurement
- Automatic loading of measurement data into a predefined Excel template file



For more information, log on to [thermofisher.com/SkantIt](http://thermofisher.com/SkantIt)



### Thermo Scientific™ Nunc™ cell culture plates

Choose from a wide selection of surface modifications and formats for a variety of 2D and 3D cell-based assays.

### Nunc™ black and white polystyrene plates

Get optimal performance with minimal background and crosstalk between wells for maximal signal detection.

### Nunc™ Edge™ plates

Minimize evaporation concerns for live cell assays with long incubations.

To find the Nunc plate that best suits your needs, go to [thermofisher.com/cellcultureplates](http://thermofisher.com/cellcultureplates)

### μDrop™ Plate

Analyze up to 16 microliter-scale samples simultaneously with the Thermo Scientific™ μDrop™ Plate, a quick and easy tool for DNA and RNA assays using photometric measurement and sample volumes down to 2μL.

The fixed light path of the μDrop Plate allows direct calculation of the nucleic acid concentrations of the samples.



Samples are easy to pipette onto the plate with a single- or an eight-channel pipette.

For more information, log on to [thermofisher.com/uDrop](http://thermofisher.com/uDrop)



# A one-stop solution for your microplate needs



Trade in your old microplate readers & receive up to 30% in discounts for a new one!

\*Contact your sales representative for more information

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\*Offer valid for end-user customers in Singapore only. Determination of eligibility is at the sole discretion of Thermo Fisher Scientific. Trade in a qualifying microplate reader for a discount on the list price of a new Thermo Scientific microplate reader. Qualifying microplate reader trade-in's only apply to Varioskan. Discount will apply to the list price in effect at the time the order is received by Thermo Fisher or its affiliates. Discount will vary based on the type of instrument traded in. Thermo Fisher or its affiliates must receive your purchase order no later than December 31, 2019. Thermo Fisher may withdraw this promotion prior to December 31, 2020, at its sole discretion. Trade-in and purchased instruments must be submitted on a one-to-one, trade-to-purchase basis. Customer must request a trade-in at the time the order for the new instrument is placed. The trade-in instrument must be returned to Thermo Fisher within 30 days following installation of the new instrument and in compliance with reasonable instructions by Thermo Fisher. Please include contact details with your order so as Thermo Fisher Scientific to send you instructions regarding the pickup and disposal of your old system. Thermo Fisher will coordinate disposal costs (if any) and shipping charges. Where necessary, customer agrees to allow a field service representative to de-install the trade-in unit from their facilities, and charges for such de-installation will be paid for by Thermo Fisher. Prior to return, the customer will fully clean the customer's trade-in unit and decontaminate it of radioactive, biological, toxic, and other dangerous or hazardous materials or substances, and, if requested by Thermo Fisher, customer agrees to complete and return a Certificate of Decontamination to Thermo Fisher before instrument can be removed from site. Cannot be combined with other discounts or promotions. Offer void where prohibited, licensed, or restricted by federal, state, provincial, or local laws or regulation or agency/institutional policy. Other restrictions may apply. See representative for additional information. Please note that the value of the specific offers the customer may receive from the manufacturer under this program can be considered as a gift or an advantage, and as a result pursuant to applicable local law, it could give rise to declaration, notification, publication or reporting. The customer also warrants it will comply with any local law relating to transparency, as the case may be. Contact your local sales representative for full trade-up details.

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