

**R&D systems™**  
by biotechne

# Meet Ella *Automated Immunoassay System*

for Precise and  
Reproducible Results





# Simple Plex Technology on Ella

## Reproducible Results You Can Trust

Simple Plex™ Technology combines Ella™ Automated Immunoassay System, with ready-to-run Simple Plex™ Assays for unmatched precision and consistency. Together, they deliver fast, hands-free results you can rely on—with the ability to measure up to eight analytes in less than 90 minutes.

### Consistent Results. Superior Performance.

- ✓ Automation minimizes user error
- ✓ Large dynamic range
- ✓ Lot-to-lot consistency
- ✓ Precise, reproducible results
- ✓ Easily transfer across multiple users and sites
- ✓ Built-in standard curves
- ✓ Data you can trust



### CE/IVDR Certification

The Ella Instrument has received CE marking—meeting EU safety, health, and environmental compliance standards. This certification opens the door for clinicians across Europe to integrate Ella into practice, helping advance patient care with faster, more dependable biomarker insights. Simple Plex Assays used on the Ella Instrument are currently available for Research Use Only (RUO) and not for human or animal therapeutic or diagnostic use.



#### Meet Ella

Scan the QR code or visit  
[rndsystems.com/ella](https://rndsystems.com/ella)

## Move Faster, Accomplish More

### Hands-free Automation

The Ella System eliminates the tedious setup and lengthy incubations typical of traditional plate-based immunoassays.

The Simple Plex microfluidic cartridge design minimizes user error while ensuring highly precise and reproducible results.

### Superior Reproducibility

When the time comes to transfer or expand your study to other labs or a contract research organization, the benchtop automation makes it easy.

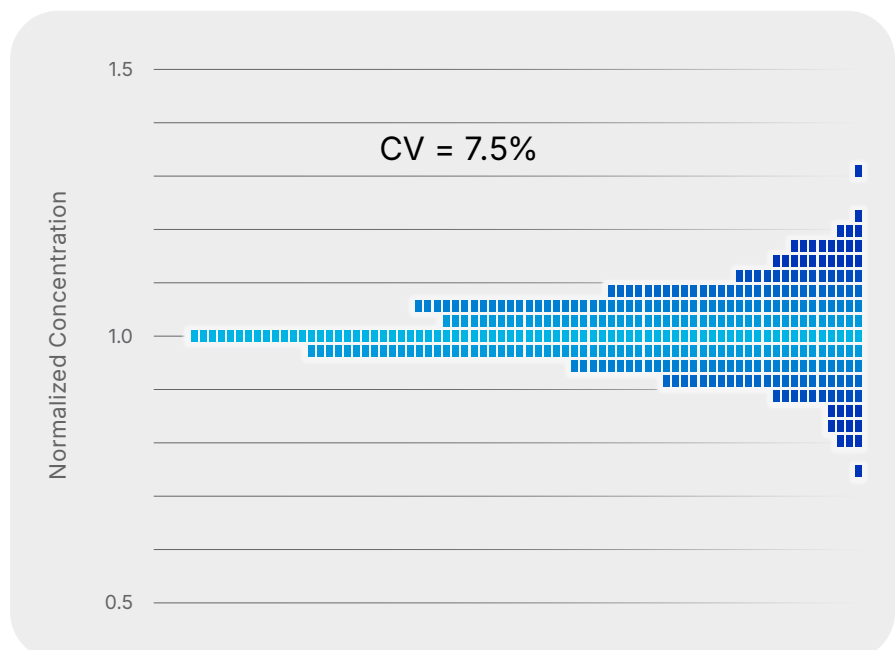
The simple load-and-go workflow, built-in standard curves, and precisely controlled automation help ensure consistent results across multiple users and sites.



## Get Consistent Results with Ella

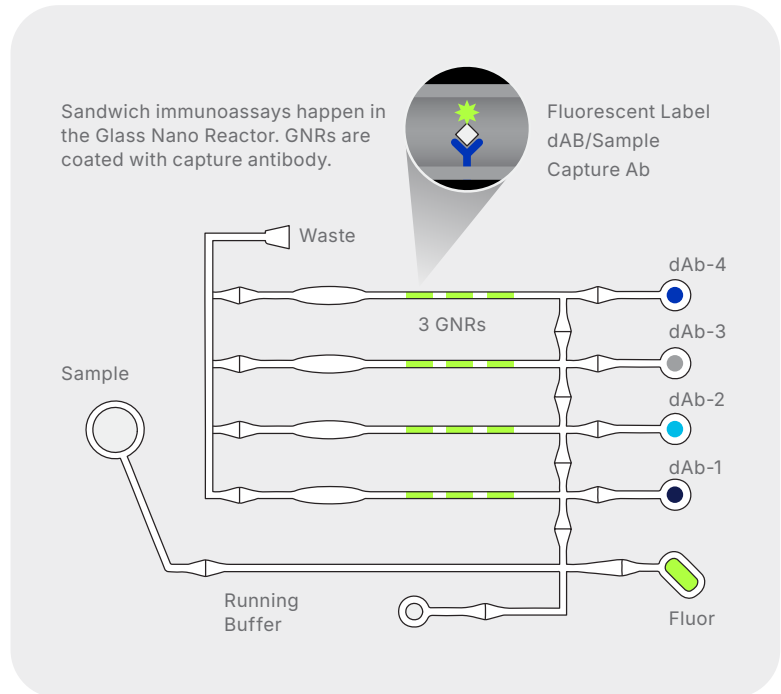
### Multi-Site Testing (all results histogram)

Testing across 3 sites, 11 users and 9 Ella instruments. 4 different assays were processed for CCL2, IL-6, TNF alpha, and VEGF-A. Eight unique serum samples with 2 controls for a total of 704 data points.

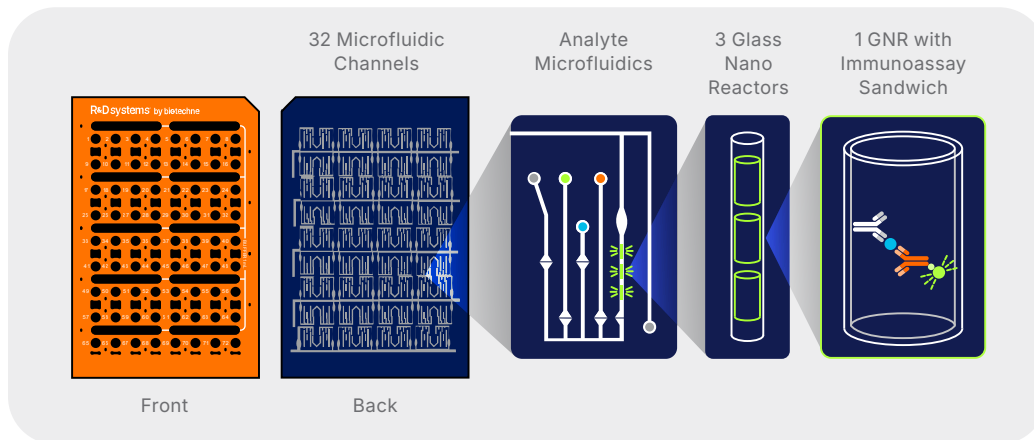


## How Simple Plex Technology Works

1. Sample is routed through microfluidic channels
2. Capture antibody captures target analyte
3. Stringent wash removes unbound analyte
4. Detection antibody migrates through microfluidic channel
5. Stringent wash removes unbound detection antibody
6. Scan GNRs



## Simple Plex Cartridge Using Microfluidic Technology



Ella interfaces pneumatically with the Simple Plex Assay Cartridge to automate reagent additions, wash steps, and incubations under precisely controlled conditions.

The sample flows through a microfluidic channel where the target protein binds to a capture surface. Unbound analytes are washed away, and a detection reagent is added. Each channel contains three Glass Nano Reactors (GNRs) coated with capture antibodies, providing triplicate measurements for every sample. Results are generated using a factory-calibrated standard curve included with each cartridge.

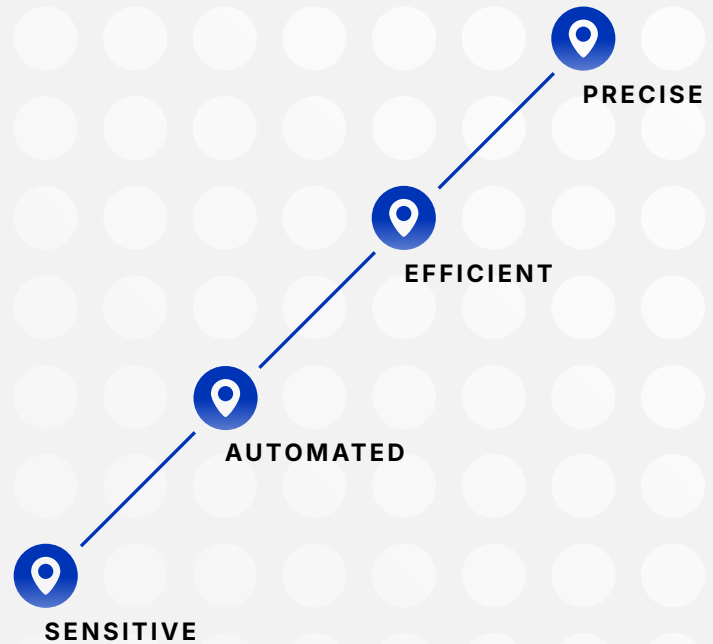
Simple Plex Cartridges are pneumatically operated, pumping liquids from different reservoirs throughout the assay run and leverage valves to allow for analysis of 4 separate analytes at one time.



**Build Your Panel**

Scan the QR code or visit  
[rndsystems.com/panelbuilder](https://rndsystems.com/panelbuilder)

# Win Your Workflow, Take Back Your Time



## No Curve Prep, No Guesswork

Each Simple Plex Cartridge comes preloaded with factory-calibrated standard curves, so there's no need to manually prepare your own. This not only saves valuable time but also reduces the potential for variability, making your workflow more efficient and cost-effective.

## More Data From Smaller Sample Volumes

Whatever your area of research, getting the most data possible from your samples is critical. Simple Plex Cartridges with up to 8 multiplexed assays are available, offering replicate results all from just 25  $\mu\text{L}$  of sample. Each sample loaded onto the cartridge is assayed in replicate GNRs automatically, eliminating the need to load technical replicates on the cartridge.

## Analytical Precision Made Simple

Simple Plex Assays feature top-quality R&D Systems™ Antibodies and Protein Reagents for consistent and accurate biomarker detection. R&D Systems' rigorous quality standards ensure that proteins, antibodies, and immunoassays are optimized for performance reliability, and consistency.

Whether you're looking for the highest quality immunoassay or are a traditional ELISA user looking to reap the benefits of automation, the Ella system delivers data you can trust from a brand you know.

## Load and Go Simplicity

Running an assay on Ella is as easy as adding diluted samples and wash buffer to the cartridge and placing it in the instrument. With everything pre-kitted and ready to go, Ella delivers fully analyzed data in just 90 minutes—freeing up your time while maintaining analytical rigor.



### Sample

2.5 to 25 $\mu\text{L}$



### Diluted Sample

50 $\mu\text{L}$



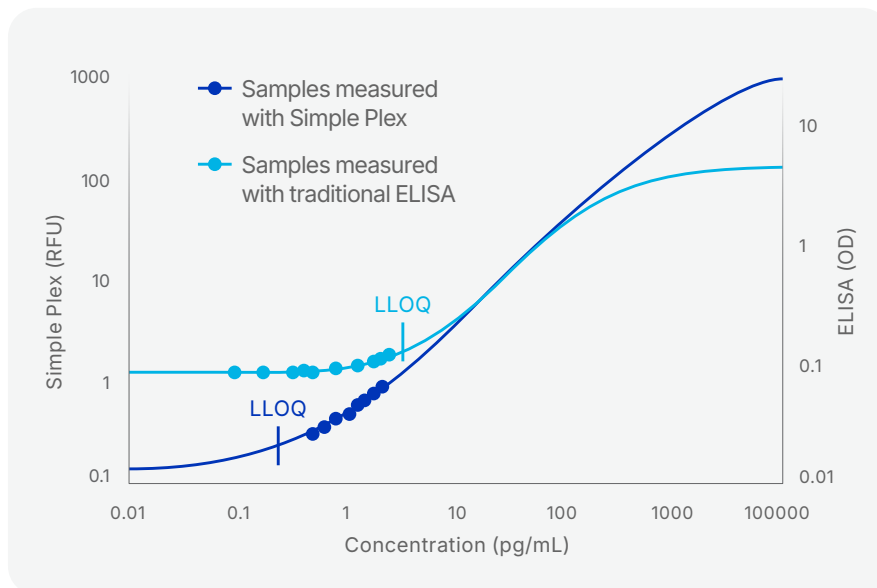
### Results Per Sample

Triplicate (3x)

## High Sensitivity With Sub-picogram Level Detection

Simple Plex Assays performed on Ella use a fluorescent detection system to deliver excellent low-end sensitivity to detect low expressing proteins and provide a broad dynamic range.

This allows samples containing high and low abundance of analyte to be assayed at a common dilution, reducing the need to rerun samples or perform dilution series.



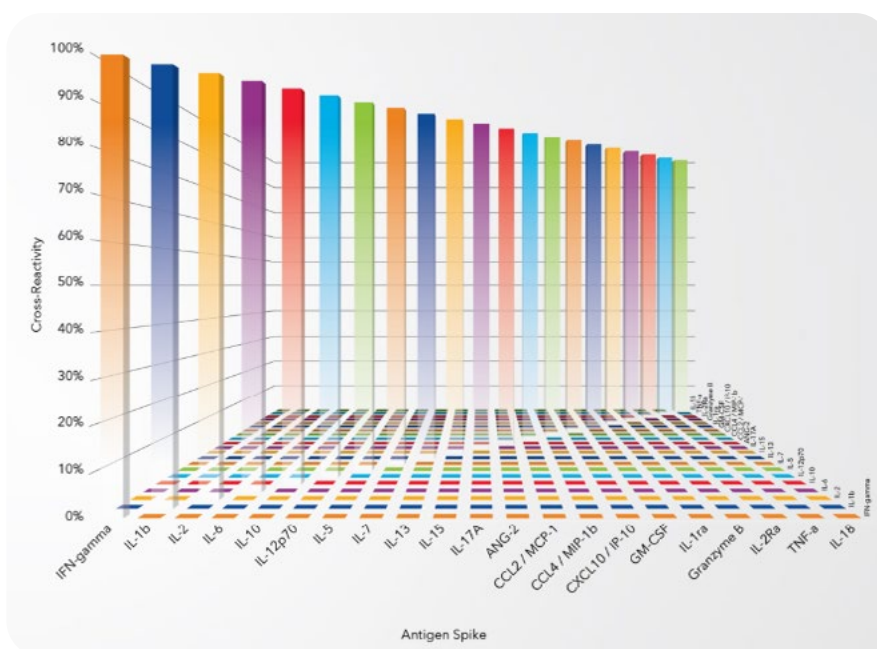
## Multi-analyte Data From a Single Sample

### Multiplex Without Cross-reactivity

Traditional multiplex assays can be prone to cross-reactivity and interference resulting in sub-par or erroneous data.

Simple Plex Assays eliminate these issues by separating targets into four parallel channels for a maximum of only two assays being carried out in a common environment.

Create your own multiplex panel of up to 8 analytes from a validated list of 350+ targets with flexible cartridge options.



# Simple Plex Assays

## Powered by R&D Systems

Simple Plex Assays deliver greater precision with minimal training. An automated hands-free workflow helps ensure consistent, reproducible results no matter the lab, instrument, or operator. Quantify up to 8 target analytes in duplicate, or up to 4 target analytes in triplicate. Or maximize throughput for a single analyte with the 72-sample cartridge.

- ✓ Broad analyte coverage with a growing menu of biomarkers.
- ✓ Results in 90 minutes on the Ella System, eliminating manual steps.
- ✓ Get reliable data from cell culture supernates, serum, and plasma.

## Broad Range of Validated Targets

The Simple Plex Assay menu of 350+ validated targets span application areas for pre-clinical, clinical research, trials, monitoring to bio-therapeutic manufacturing.

- ✓ Cell and Gene Therapy
- ✓ Bioprocessing
- ✓ Neuroscience
- ✓ Cancer
- ✓ Immunology

## Available Assays

Three type of Simple Plex Assays are available, Ultra-Sensitive through Discovery. These assays are intended to help you tailor assay selection to your individual lab needs.



# Simple Plex Ultra-Sensitive Assays

## Setting a New Gold Standard in Neuro Biomarker Detection

Simple Plex Ultra-Sensitive Assays represent an advanced enhancement of the Simple Plex technology, designed to deliver robust and reproducible measurements of low-abundant proteins in complex biological samples. These innovative assays enable highly reliable detection of endogenous biomarkers at femtogram levels, making them ideal for plasma and serum samples, particularly for key biomarkers in neurology research. This cutting-edge sensitivity provides precise quantification and consistent performance, offering powerful support for early discovery and clinical research applications, driving advancements in biomarker analysis and disease understanding.

### Key Benefits

- Femtogram-level sensitivity with high precision and consistency
- Detectability in healthy endogenous plasma samples allows for early-stage monitoring
- Automated workflow and quick time to results (2:50 hours) ensures higher throughput and minimizes error
- Low sample volume (<40  $\mu$ L) helps preserving precious samples
- Multi-analyte plexing options maximize the information obtained from a single sample



High detectability of neurodegenerative biomarkers in healthy plasma at ultra-low concentrations. Simple Plex Ultra Sensitive Assays demonstrate femtogram-level analytical sensitivity, enabling robust detection of neurodegenerative biomarkers in healthy adults even at ultra low physiological concentrations. In this study, plasma GFAP, NFL, pTau 217, and Amyloid  $\beta$ (1 42) were measured in healthy donors aged 55+ using Simple Plex Ultra Sensitive Assays. All biomarkers showed full detectability and near complete quantifiability across assays<sup>†</sup>.

\*fLLOQ: functional Lower Limit Quantification  
(=analytical LLOQ x dilution factor)

\*\*fLOD: functional Limits of Detection  
(=analytical LOD x dilution factor)

<sup>†</sup>pTau 217 levels in healthy adults can be especially low, and detectability and quantifiability may vary across studies, sample cohorts, and demographics.

# Simple Plex Discovery Assays

## Fast, Accurate, Consistent

Simple Plex Discovery Assays provide the flexibility you need to explore new biomarkers and accelerate translational research.

Designed for early-stage research and preclinical studies, these assays offer a broad menu of biomarkers, rapid results, and a streamlined workflow to help you generate reliable data faster.

## Request a Custom Assay

Accelerate your research with support from our custom development team.

Our scientific experts will collaborate with you to design Simple Plex Assays or panels tailored to your specific analytes and required scale.

You'll have a dedicated project manager and receive ongoing support from kickoff through delivery.

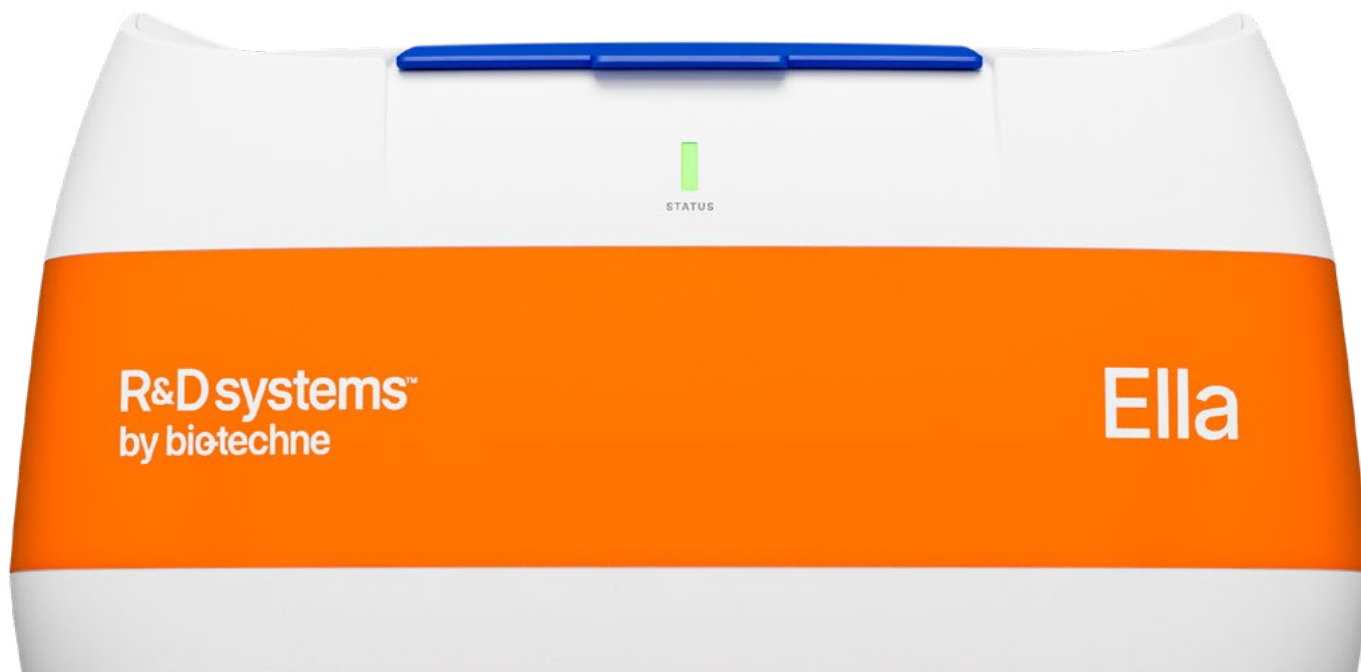
## Research Advantages

- ✓ **Comprehensive**  
Broad analyte coverage with a growing menu of biomarkers.
- ✓ **Speed**  
Results in 90 minutes on the Ella system, eliminating manual steps.
- ✓ **Reliable**  
Get reliable data from cell culture supernates, serum, and plasma.
- ✓ **Customizable**  
New assay development in a fraction of the time with custom services.



### Tell Us About Your Custom Assay Needs

Scan the QR code or visit  
[rndsystems.com/simple-plex-custom](https://rndsystems.com/simple-plex-custom)



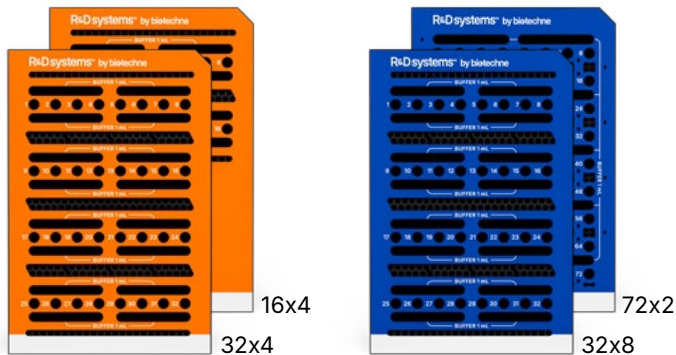
# Exploring Simple Plex Discovery to Ultra-Sensitive Assays

	<b>Simple Plex Discovery Assays</b>	<b>Simple Plex Assays</b>	<b>Simple Plex Ultra-Sensitive Assays</b>
<b>Recommended When</b>	<i>EARLY RESEARCH TESTING</i>  Less stringent assay specifications for discovery and early research	<i>HIGHLY VALIDATED KITS</i>  Precise and accurate results with tight performance specifications for regulated environments	<i>HIGHLY VALIDATED KITS FOR ULTRA-SENSITIVE DETECTION</i>  Sensitive and accurate results for detection of low-abundant proteins at healthy endogenous levels
<b>Sensitivity</b>	sub pg/ml	sub pg/ml	fg/ml
<b>Assay Run Time</b>	75 min	75 min	155 min
<b>Required Sample Volume</b>	≤25 µL	≤25 µL	≤40 µL
<b>Species (currently available)</b>	Human, Mouse, Rat	Human, Mouse, Rat, Non-Human Primate	Human
<b>Multiplex</b>	Up to 8	Up to 8	Up to 4 (limited by available analytes)
<b>Precision</b>	Intra-assay: ≤12% Inter-assay: ≤12%  Verified across 2 manufactured lots	Intra-assay: ≤10% Inter-assay: ≤12%  Validated across 3+ manufactured lots. Extensively tested throughout manufacture and validated to ensure long-term consistency	Intra-assay: ≤10% Inter-assay: ≤12%  Validated across 3+ manufactured lots. Extensively tested throughout manufacture and validated to ensure long-term consistency
<b>Linearity</b>	Range 75-125%  Verified across 2 manufactured lots	Range 80-120%  Validated across 3+ manufactured lots	Range 70-130%  Validated across 3+ manufactured lots
<b>Recovery</b>	Range 75-125%  Verified across 2 manufactured lots	Range 80-120%  Validated across 3+ manufactured lots	Range 70-130%  Validated across 3+ manufactured lots
<b>Assay Validation</b>	Verified with recombinant proteins	Verified recombinant proteins and natural samples	Verified recombinant proteins and natural samples

# Flexible Formats to Fit Your Workflow

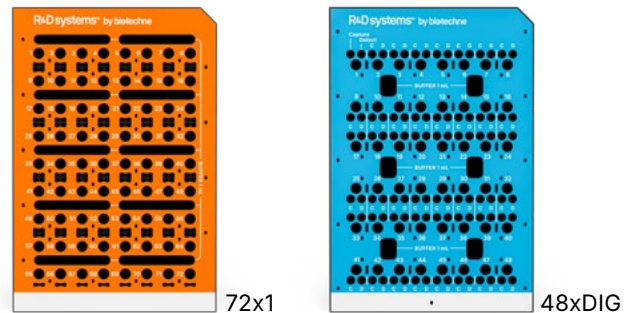
## Scaling Throughput With Precision

Multianalyte cartridges let you measure 2, 3, or 4 target analytes in parallel, with each analyte quantified in triplicate for robust, reproducible data. Choose from 16- or 32-sample configurations to scale throughput with ease.



## Amplified Profiling Precision

For broader profiling, multiplex cartridges allow simultaneous quantification of 5 to 8 analytes per sample. Each channel features two spatially separated capture antibodies, delivering duplicate measurements for every target and enabling up to 256 reportable results per run.



### Multi-Analyte

Up to 4 assays in separate channels

- Up to 32 samples
- 4 Assays
- 3 Replicates

### Multiplex

Up to 8 assays for higher plexing

- Up to 72 samples
- 8 Assays
- 2 Replicates

### Single Plex

Fast + scalable

- Up to 72 samples
- 1 Assay
- 3 Replicates

### Design Your Own

Use your own reagents

- Up to 48 samples
- 1 Assay
- 3 Replicates

## Need Complete Control?

The open cartridge format lets you build your own immunoassay using your selected reagents. Screen up to 48 antibody pairs as you customize and optimize your assay—ideal for development workflows requiring flexibility and precision.

## Available Assays



### Explore Available Assays

Scan the QR code or visit  
[rndsystems.com/assaymenu](https://rndsystems.com/assaymenu)

### Impurity Testing

CHO-HCP 3G-1

Endonuclease

Green Fluorescent Protein (GFP)

HEK 293 HCP 3G

Protein A

### Viral Titer Quantification

AAV1

AAV2

AAV3

AAV6

AAV8

AAV9

HIV-1 Gag p24

### Human Analytes

Adiponectin/Acrp30, total

AFP

Alpha 2-Macroglobulin

alpha-Synuclein

Amphiregulin

Amyloid Beta aa1-40

Amyloid Beta aa1-42,  
**Ultra-Sensitive**

Angiogenin

Angiopoietin-1

Angiopoietin-2

Angiopoietin-like 3 (ANGPTL3)

Angiopoietin-like 4 (ANGPTL4)

Angiopoietin-like Protein 7/  
 ANGPTL7 **Discovery**

ASC

Axl

BAFF

BCMA/TNFRSF17

BDNF, free

beta-Defensin 2 **Discovery**

beta-Synuclein

BLC/BCA-1/CXCL13

BMP-2

BMP-9

C-Reactive Protein (CRP)

CA125/MUC16

Carbonic Anhydrase IX/ CA9

Caspase-1

CCL2/MCP-1

CCL4/MIP-1 beta

CCL3/MIP-1 alpha

CCL5/RANTES

CCL7/MCP-3

CCL8/MCP-2

CCL11/Eotaxin **Discovery**

**Human Analytes (continued)**

CCL13/MCP-4 <b>Discovery</b>	CX3CL1/Fractalkine	Fas/TNFRSF6
CCL16/HCC-4	CXCL5/ENA-78	Fas Ligand/TNFSF6
CCL17/TARC	CXCL9/MIG	Ferritin
CCL18/PARC	CXCL10/IP-10	FGF-19
CCL19/MIP-3 beta	CXCL12/SDF-1 alpha	FGF-21
CCL20/MIP-3 alpha	CXCL13/BLC/BCA-1	FGF-23
CCL22/MDC	Cyr61 (CCN1)	FGF-7/KGF
CCL26/Eotaxin-3	Cystatin C	Fibronectin
CD14	Cytokeratin 18	Flt-3 Ligand
CD21	D-Dimer	Follistatin
CD23/Fc epsilon RII <b>Discovery</b>	DcR3/TNFSF6B	Fractalkine/CX3CL1
CD25/IL-2 R alpha	DKK-1	G-CSF
CD27	DLL1 <b>Discovery</b>	Galectin-1 <b>Discovery</b>
CD28 <b>Discovery</b>	Dopa Decarboxylase/DDC	Galectin-3
CD40 Ligand	DPPIV/CD26 <b>Discovery</b>	Galectin-3BP/MAC-2BP <b>Discovery</b>
CD40/TNFRSF5	E-Cadherin	Galectin-9 <b>Discovery</b>
CD155/PVR <b>Discovery</b>	E-Selectin	GAS6
CD163	EGF	GDF-8
CG beta <b>Discovery</b>	ENA-78/CXCL5	GDF-15
Chitinase 3-like 1/YKL-40	Endoglin/CD105	GDNF <b>Discovery</b>
Clusterin	Endothelin-1	GFAP, <b>Ultra-Sensitive</b>
COMP/Thrombospondin-5	ENPP-2	GM-CSF
Complement Factor D <b>Discovery</b>	Eotaxin-3/CCL26	gp130
Coagulation Factor III / Tissue Factor <b>Discovery</b>	EPO	Granzyme A
CTGF/CCN2	ErbB2	Granzyme B
CTLA-4	FABP2/I-FABP	Growth Hormone (hGH)
CXCL1	FAP	HE4/WFDC2

Hepcidin	IL-12-p70	MICA
HGF	IL-13	MIF
HGF R/c-MET	IL-15	MIP-1 alpha/CCL3
HIV-1 p24	IL-16 <b>Discovery</b>	MIP-1 beta/CCL4
HVEM	IL-17A	MIP-3 alpha/CCL20
ICAM-1	IL-18	MMP-7
IFN-alpha (multi-subtype)	IL-18 BPa	MMP-8
IFN-alpha 2	IL-19	MMP-9
IFN-beta	IL-21	Myeloperoxidase (MPO)
IFN-gamma	IL-22	Nectin-2
IGFBP-1	IL-33	Nectin-4 <b>Discovery</b>
IGFBP-2	I-TAC	Neprilysin/CD10
IGFBP-rp1/IGFBP-7	Insulin	Neurofilament Light (NF-L), <b>Ultra-Sensitive</b>
IgG Pan	LAG-3	Neurofilament Heavy (NF-H) <b>Discovery</b>
IL-1-alpha	LBP	Neurogranin
IL-1-beta	LDLR <b>Discovery</b>	Neutrophil Elastase/ELA2
IL-1ra/IL-1F3	Leptin	NGF R/TNFRSF16
IL-2	LIGHT	NGF-beta
IL-3 <b>Discovery</b>	Lipocalin-2/NGAL	Osteopontin (OPN)
IL-4	M-CSF	Osteoprotegrin/OPG
IL-5	M-CSF R <b>Discovery</b>	OX40/TNFRSF4 <b>Discovery</b>
IL-6	MAdCAM-1	OX40 Ligand/TNFSF4 <b>Discovery</b>
IL-6 R-alpha	MBL <b>Discovery</b>	Pancreatic Polypeptide/PP <b>Discovery</b>
IL-7	MCP-2/CCL8	Park 7 <b>Discovery</b>
IL-8/CXCL8	MCP-3/CCL7	Proprotein Convertase 9/PCSK9
IL-10	MDC/CCL22	PD-1 <b>Discovery</b>
IL-11	Mesothelin	

**Human Analytes (continued)**

PD-L1/B7-H1	S100B	uPAR
PD-L2 <b>Discovery</b>	TACI/TNFRSF13B	u-Plasminogen/uPA-1
PDGF-AB <b>Discovery</b>	Tau, Phospho 217, <b>Ultra-Sensitive</b>	Uromodulin <b>Discovery</b>
PDGF-BB	Tau, Total	Uteroglobin <b>Discovery</b>
Pentraxin 3/TSG-14	TFF3	VAP-1 <b>Discovery</b>
Perforin	TFPI <b>Discovery</b>	VCAM-1
Periostin/OSF-2	TfR <b>Discovery</b>	VEGF (VEGF-A)
Placenta Growth Factor (PIGF)	TGF-alpha <b>Discovery</b>	VEGF R1/Flt-1
Pro-Collagen I alpha 1 <b>Discovery</b>	TGF-beta 1	VEGF R2/KDR
Pro-Gastrin-releasing Peptide	Thrombomodulin <b>Discovery</b>	VEGF-B
Procalcitonin	Thrombospondin-1 (THBS1)	VEGF-C
P-Selectin/CD62P	Thrombospondin-2 <b>Discovery</b>	VEGF-D
RAGE	Tie-2	Vitamin D BP
Reg-3a	TIM-1/KIM-1/HAVCR	
Relaxin-2 <b>Discovery</b>	TIM-3	
Resistin	TIMP-1	
SCF	TIMP-2	
Serpin A1	TNF alpha	
Serpin A4/Kallistatin	TNF R1	
Serpin E1/PAI-1	TNF RII	
Serpin F1/PEDF <b>Discovery</b>	TRAIL	
Siglec-9	Trappin-2/Elafin	
SP-D	TRANSC/RANK L/TNFSF11 <b>Discovery</b>	
Spinesin <b>Discovery</b>	TREM-1	
ST2/IL-1 R4 (IL-33 R)	TREM-2	
Syndecan-1 <b>Discovery</b>	TSLP <b>Discovery</b>	
Syndecan-4	UCH-L1	

**Rat Analytes**

Angiopoietin-2  
beta-Synuclein  
CD25/IL-2 R alpha  
Chitinase 3-like 1  
Cystatin C  
FGF-21  
Flt-3 Ligand  
GDF-8  
IL-2 R alpha  
Lipocalin 2  
MCP-1/CCL2

M-CSF	CXCL2/MIP-2	MCP-1/CCL2
MMP-9, Total <b>Discovery</b>	CXCL10/IP-10/CRG-2	M-CSF
Neurofilament Light (NF-L)	CXCL13/BLC/BCA-1	MMP-9 Total <b>Discovery</b>
Osteopontin (OPN)	CXCL15	Neurofilament Light (NF-L)
Park 7 <b>Discovery</b>	Cystatin C	Osteopontin (OPN)
RANTES/CCL5	Erythropoietin/EPO	P-Selectin
SP-D	FGF-21	Park 7 <b>Discovery</b>
S100B	Flt-3 Ligand	RANTES/CCL5
TGF-beta 1	G-CSF	SDF-1 alpha/CXCL12
TIM-1	GDF-8	SP-D
TREM-2	GDF-15	ST2/IL-33R/IL-1R4
VCAM-1/CD106	GM-CSF	S100B
VEGF-A	Granzyme B	TGF-beta 1
	IFN-gamma	TIM-1/KIM-1
<b>Mouse Analytes</b>	IL-1-beta	TNF-alpha
Adiponectin	IL-1ra/IL-1F3	TREM-2
Alpha- Fetoprotein/AFP	IL-2	VCAM-1/CD106
Angiopoietin-2	IL-2 R alpha	VEGF-A
Angiopoietin-like 3 (ANGPTL3)	IL-4	
BAFF	IL-5	
beta-Synuclein	IL-6	
CCL3/MIP-alpha	IL-7	
CCL4	IL-12 p70	
CD25/IL-2 R alpha	IL-17	
Chitinase 3-like 1	IL-18	
C-Reactive Protein/CRP	IP-10/CXCL10	
CXCL1/KC	Lipocalin-2/NGAL	

## Non-Human Primate Analytes

Angiopoietin-1	IL-6 R alpha
Angiopoietin-like 3 (ANGPTL3)	IL-8/CXCL8
BDNF, free	IL-10
CCL19/MIP-3 beta	IL-13
CCL2/MCP-1	IL-15
CCL3/MIP-1 alpha	IL-17A
CCL4/MIP-1 beta	IL-18
CCL5/RANTES	Insulin
CD163	Nectin-2/CD112
C-Reactive Protein (CRP)	Neurofilament Light (NF-L)
CTLA-4	PDGF-BB
CXCL10/IP-10	PD-L1/B7-H1
CXCL13/BLC/BCA-1	Perforin
FAS Ligand	P-Selectin/CD62P
Fibronectin	TIMP-2
FLT-3 Ligand	TNF R1
GM-CSF	TNF RII
Granzyme A	TNF-alpha
Granzyme B	uPAR
IFN-alpha	VEGF-A
IFN-gamma	
IGFBP-rp1/IGFBP-7	
IL-1b	
IL-2	
IL-4	
IL-5	
IL-6	



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