

biotechne®

Neurological Inflammation
Simple Plex, Luminex, and ELISA

Immunoassays for

Neurodegenerative Diseases & Neuroinflammation

Empowering Neurodegenerative Disease and Neuroinflammatory Research with Precision Immunoassays

Bio-Techne, backed by the trusted R&D Systems™, offers a comprehensive selection of immunoassays designed specifically for neurodegenerative disease and neuroinflammation research.

Our solutions are optimized for accurate neuro biomarker quantification, providing the sensitivity and specificity required to drive groundbreaking discoveries in the study of diseases including:

- Alzheimer's Disease and Other Dementias
- Amyotrophic Lateral Sclerosis (ALS)
- Multiple Sclerosis (MS)
- Parkinson's disease
- Traumatic Brain Injury

Immunoassay Product Lines



	Simple Plex	ELISA	Luminex
Summary	Sensitive 90 minute automated biomarker detection	Researchers most trusted and cited ELISA	High plexing biomarker discovery
Format	Cartridge	96-well plate	Bead
Suggested Application	Single or multiplex	96-well plate	Multiplex detection
Instrument	Ella	Plate reader	Luminex
Sample Volume	2.5-25 µL	50-200 µL	25 µL
Analytes per Sample	Up to 8 analytes	1 analyte	Up to 50 analytes
Menu	350+ analytes across 4 species	1600+ analytes across 15 species	490+ analytes across 5 species

Tailored Immunoassays for Neuroscience

Our Simple Plex™ assays, ELISA kits, and Luminex® panels offer a highly sensitive and reproducible method of neuro biomarker detection. Whether you need a rapid and automated workflow, the proven reliability of the most cited ELISA on the market, or the ability to measure up to 50 analytes simultaneously, Bio-Techne's neuroscience assays have been extensively validated, demonstrating exceptional sensitivity and precision for detecting low abundance proteins.

As the field of neuroscience advances, we evolve with it, meeting the increasing demand for precise and reproducible neuro biomarker data. Our commitment to innovation provides you with cutting-edge tools for investigating ATX(N) biomarkers and more, ensuring your experiments stay aligned with the latest developments in neurodegenerative disease and neuroinflammatory research.



Throughout this guide the neuron symbol highlights key product hyperlinks.



Neuroscience Immunoassay Products

TABLE // 01

Neuro Related Products Offered by Bio-Techne

✓ = Available Now

Neuro Biomarker	Simple Plex	ELISA	Luminex
Alpha 2-macroglobulin	✓	✓	✓
α-Synuclein	✓	✓	✓
Amyloid β 1-40	✓	✓	
Amyloid β 1-42	✓	✓	
BDNF	✓	✓	✓
β-Synuclein	✓		
CCL2/MCP-1	✓	✓	✓
CCL20/MIP-3 α	✓	✓	✓
CCL3/MIP-1 α	✓	✓	✓
CCL4/MIP-1 β	✓	✓	✓
CCL5/RANTES	✓	✓	✓
CHI3L1/YKL-40	✓	✓	✓
CRP	✓	✓	✓
NSE/Enolase 2	Coming Soon	✓	✓
GFAP	✓	✓	✓
ICAM-1/CD54	✓	✓	✓
MBP		✓	✓
Neurogranin	✓		
NFH	✓		
NFL	✓		
NGF β	✓	✓	✓
PARK7	✓	✓	✓
Phospho Tau (217)	✓		
S100B	✓	✓	✓
Syndecan-4	✓	✓	✓
TREM-2	✓	✓	
Total Tau	✓		✓
UCH-L1	✓	✓	✓
VEGF-A	✓	✓	✓

PRODUCT MENU QUICK-LINKS



Full Simple Plex Menu
bio-techne.com/SimplePlexMenu



Full ELISA Kit Menu
bio-techne.com/ELISA



Full Luminex Menu
bio-techne.com/luminex-assays

Simple Plex Assays

Automated Biomarker Quantification With Ella™ Platform

The ultra-sensitive Ella platform delivers reproducible data for neuro biomarkers while also automating the assay for you. Utilizing a unique microfluidic cartridge design combined with the automation of the Ella platform reduces user error, increases assay sensitivity, and provides data in less than 90 minutes.

Simple Plex assays on Ella will transform your research by providing the same specificity of single plex ELISAs, but with picogram/mL detection limits, up to 5 logs of dynamic range, and CVs within 10%.

Ultra-Sensitive Biomarker Detection

Simple Plex assays are optimized for sub-picogram level sensitivity and can achieve up to 5 logs of dynamic range. This allows detection of low endogenous values for common neuro biomarkers such as NFL, NFH, GFAP, Amyloid β 40 & 42, Total Tau, and phospho-Tau (217) in CSF as well as serum and plasma samples in less than 90 minutes.

Unrivaled Performance

Through extensive assay validation, built in standard curves, and a rigorous quality control process the automated instrument, Ella, provides unrivaled precision and reproducibility. Across sites, users, instruments, and lots, Simple Plex assays provide consistent results over time enabling decentralization and increasing access to vital biomarker data.

FIGURE // 01
NF-L Levels In Serum Samples

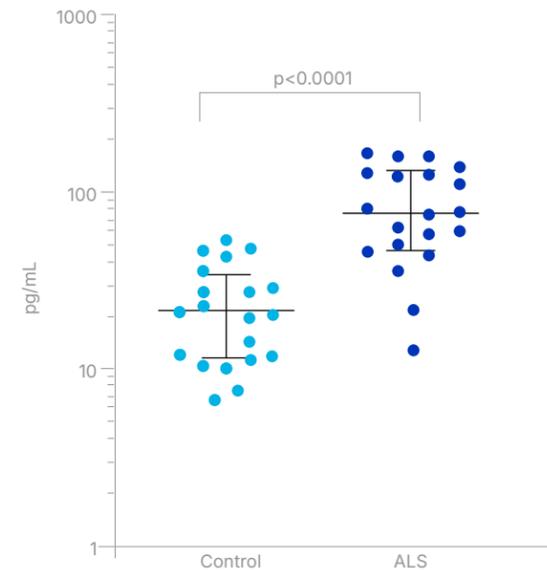
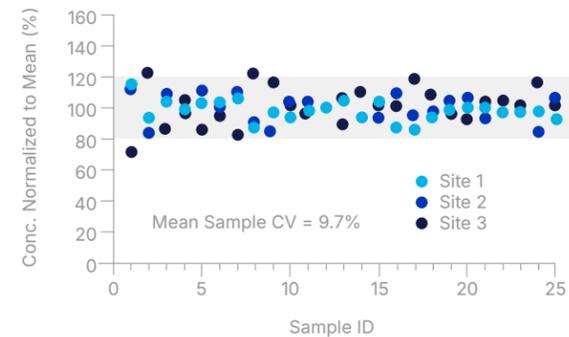


FIGURE // 02
Precision Across Multiple Sites



Simple Plex Biomarkers

Amyloid β 1-40	Neurogranin	Total Tau
Amyloid β 1-42	NFH	UCH-L1
β -Synuclein	NFL	YKL-40/CHI3L1
GFAP	S100B	Phospho-Tau (217)

COMING SOON

Explore the Full Simple Plex Menu Online: bio-techne.com/SimplePlexMenu



FIGURE // 03
Microfluidic Simple Plex Assay Cartridge

How the Ella Platform Works



Utilizing a unique microfluidic cartridge design, the Ella platform's Simple Plex™ assays are hands-free, reproducible, and available for plexing up to 8 analytes.



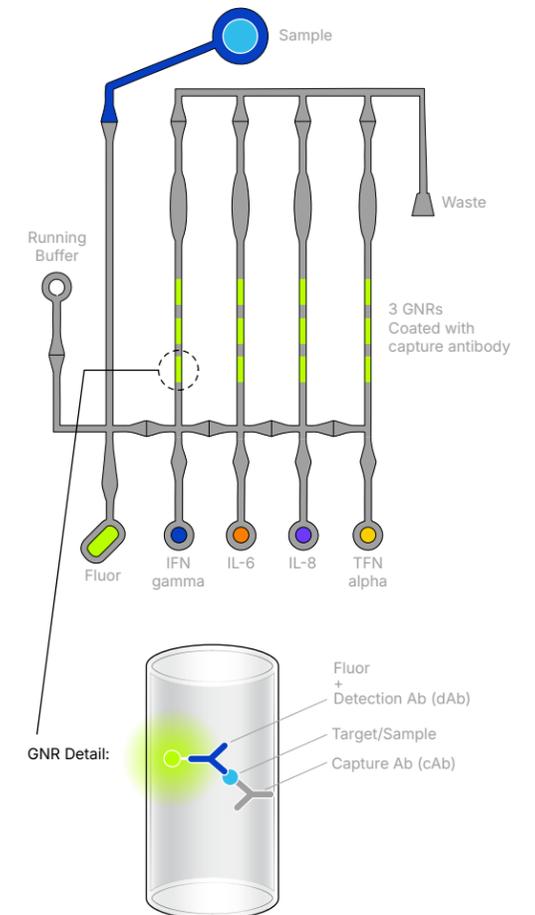
With preloaded factory-calibrated standard curves, fully analyzed data is available in less than 90 minutes.

Cartridge-based Microfluidic Technology

Ella performs immunoassays inside a consumable microfluidic Simple Plex assay cartridge. Similar to a pre-kitted ELISA, all reagents are pre-loaded onto a cartridge for ease of use.

No standard curve preparation is needed. Running an assay simply requires adding diluted samples and wash buffer to the cartridge before placing the cartridge inside the Ella instrument.

Inside each fluidic channel are multiple glass nanoreactors (GNRs) coated with capture antibody, providing built-in replicate measurements for each analyte.



ELISA Kits

Ready-to-Use Kits, and Developmental ELISA Reagents

ELISA kits from R&D Systems provide accurate and sensitive results for key neuro targets and inflammatory cytokines. Each kit is manufactured in-house and utilizes our own proteins and antibodies allowing extensive quality and validation testing at each step. From our ready to use Quantikine ELISA kits to our DuoSet Development ELISA kits, results will be accurate, precise, sensitive, and specific, which keeps them as the gold standard of the immunoassay industry.

- **Highly Specific + Sensitive**

Every ELISA kit is rigorously tested to ensure no cross-reactivity or interference against related molecules and common interfering substances. High Sensitivity options are available allowing detectability in low abundance targets.

- **Premium Accuracy**

In-house scientists screen and utilize the most optimized reagents and diluents to ensure accuracy remains consistent lot to lot.

- **Unmatched Reputation**

With over three decades of experience, R&D Systems is the leader in ELISA development and the most cited in the market.

FIGURE // 04

CCL20/MIP-3 α Expression During Acute Pneumococcal Meningitis

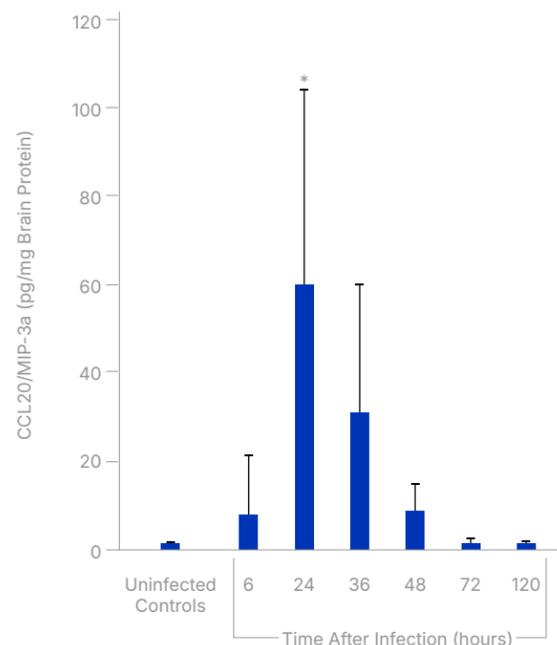


Figure 02. CCL20/MIP-3 α levels were measured in brain homogenates of C57BL/6 mice infected with Streptococcus pneumoniae type D39 at various time points after infection using the Mouse CCL20/MIP-3 α Quantikine™ ELISA Kit (R&D Systems, Catalog # MCC200). Graph from Klein, M. et al. (2014) PLoS One 9:e93057.

Luminex Panels

Discovery Assays and Performance Panels

Luminex assays offer flexible multiplexing solutions by having the ability to detect up to 50 analytes in biological fluids in each run. Our assays utilize the innovative Luminex xMAP® microparticle technology, which allows researchers to tailor their assay selection to their specific requirements.

- **High Throughput Multiplex**

Maximize the use of your valuable samples by simultaneously analyzing up to 50 analytes of your choice with only 25uL of sample volume.

- **Robust Results**

Rigorously developed and validated to give you the most accurate results and to eliminate false positive data.

- **Largest Flexible Assay Menu**

Over 490 targets to design a customized panel suited for your specific targets.

FIGURE // 05

Detection of Alzheimer's Disease Biomarkers

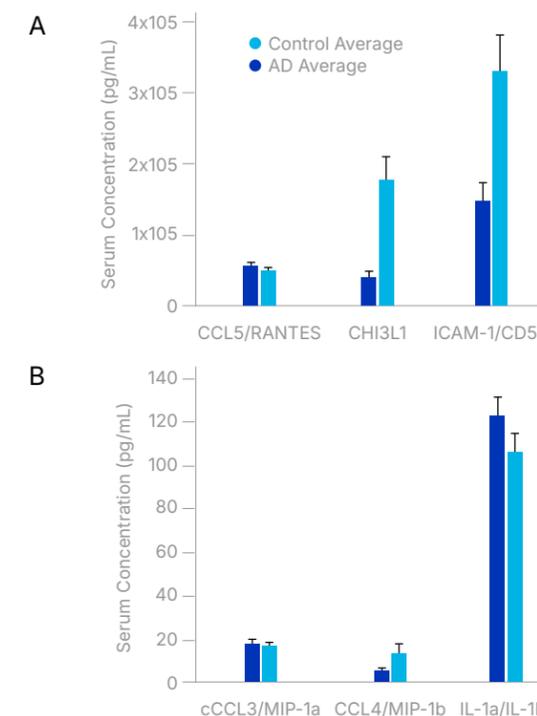


Figure 03. Human Luminex Discovery Assay, Catalog #LXSAHM was used to measure 32 markers in 20 Alzheimer's disease (AD) patients. Serum samples were collected from individuals with AD and from apparently healthy individuals. Histogram profiles for select analytes measured at high (A), and low (B) expression levels.



ELISA Analytes

Amyloid β 1-40

Amyloid β 1-42

BDNF

CCL20/MIP-3 α

NSE/Enolase 2

Park 7

RAGE

α Synuclein

YKL-40/CHI3L1



Luminex Panels

Human, Mouse, Rat, Porcine Discovery Assays

Human XL Cytokine Panel

Mouse XL Cytokine Panel

NHP XL Cytokine Panel

Human High Sensitivity Panel A

Human High Sensitivity Panel B

Explore the Full ELISA Kit Menu Online: [bio-techne.com/ELISA](https://www.bio-techne.com/ELISA)

Explore the Full Luminex Menu Online: [bio-techne.com/luminex-assays](https://www.bio-techne.com/luminex-assays)



biotechne®

Global Developer, Manufacturer, and Supplier of High-Quality Reagents,
Analytical Instruments, and Precision Diagnostics.

INCLUDES R&D Systems™ Novus Biologicals™ Tocris Bioscience™ ProteinSimple™ ACD™ ExosomeDx™ Asuragen® Lunaphore™

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