IQVIA LABORATORIES

Protein Biomarkers Test Menu

IQVIA Laboratories Protein Biomarkers combines trusted scientific expertise with scalable, best-in-class platforms to deliver comprehensive biomarker testing services. Our lab delivers high-quality, fit for purpose assays across discovery, translational and clinical development.

We offer a broad menu of internally developed assays, as well as commercial kits across a variety of platforms, including Alamar NULISA®, Olink®, Luminex®, Simoa® and Meso Scale Discovery® (MSD). Our Protein Biomarker Center of Excellence meets rigorous assay development, validation and data reporting standards. Designed to generate actionable biological insight, our solutions help sponsors make confident, data-driven decisions at every stage of drug development.

From a small sample volume, we provide:

Customer-focused solutions

QUALITY
Our processes include in-house developed calibrators and controls. Through continuous quality improvement, customers are satisfied with the products and services they receive.

INNOVATION
Our automated liquid handlers enable high throughput to meet your study needs. And our proprietary blockers eliminate the complex matrix interference issues often associated with immunoassays. We also offer cost-effective assay development programs.

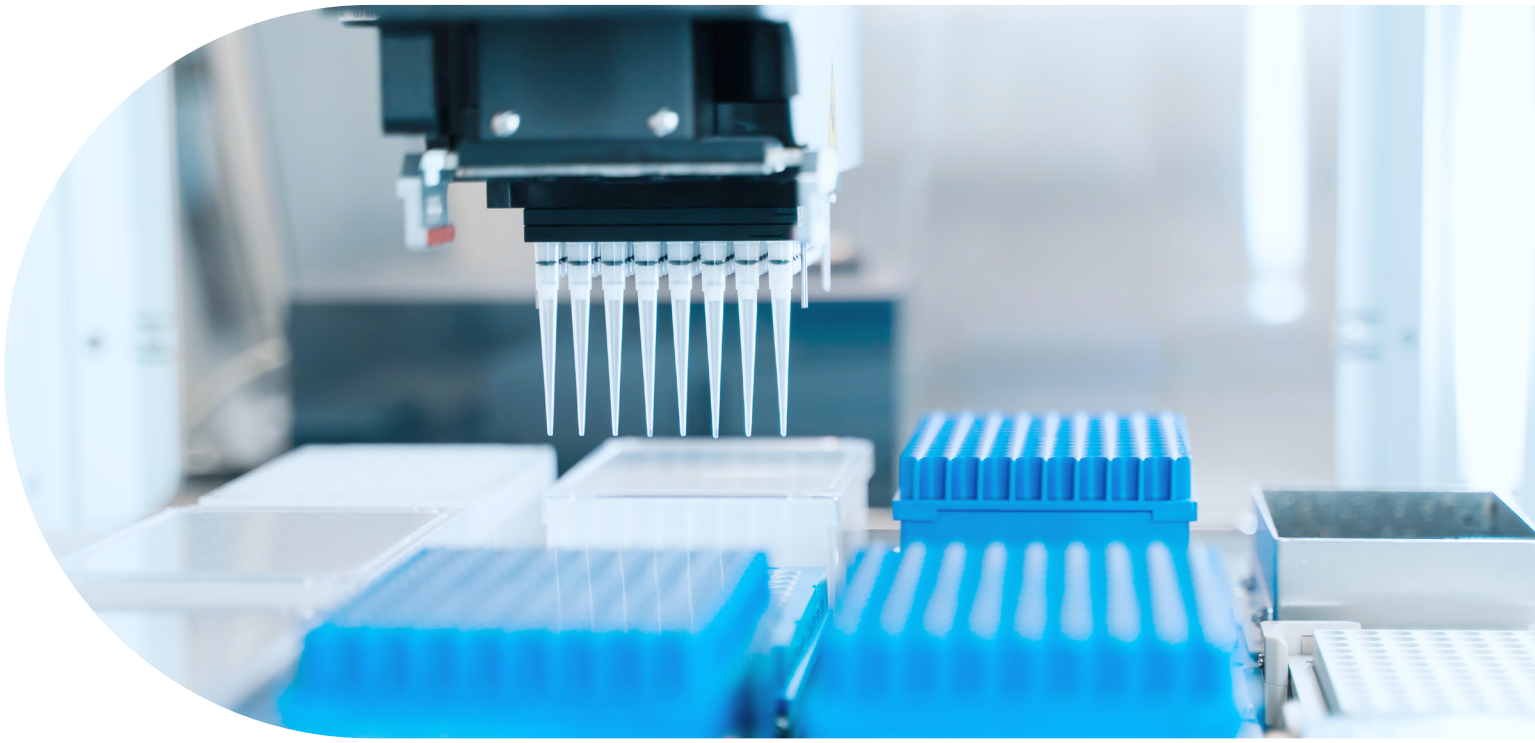
PROJECT MANAGEMENT
All testing services are accompanied by documented oversight of study project requirements, timelines and specifications by a dedicated project manager liaising between clients, sponsors, and central labs.

Internally developed Luminex assays

Our multiplexed biomarkers are offered in predefined, therapeutically focused multi-analyte profiles (MAPs) or as custom profiles, with more than 60 validated multiplex panels to choose from. Please contact your business development representative for available analyte configurations.

1	6Ckine (CCL21)
2	Adiponectin
3	Alpha-1-Antitrypsin
4	Alpha-2-Macroglobulin
5	Alpha-Fetoprotein
6	Amphiregulin
7	Angiogenin
8	Angiopoietin-1
9	Angiopoietin-2
10	Angiotensin-Converting Enzyme
11	Antithrombin-III
12	Apolipoprotein(a)
13	AXL Receptor Tyrosine Kinase
14	B cell-activating factor
15	B-cell maturation antigen (BCMA)
16	Beta-2-Microglobulin
17	Betacellulin
18	Brain-Derived Neurotrophic Factor
19	C-Reactive Protein
20	Calbindin
21	Cancer Antigen 125
22	Cancer Antigen 15-3
23	Cancer Antigen 19-9
24	Carbonic anhydrase 9
25	Carcinoembryonic Antigen
26	Cartilage Oligomeric Matrix Protein
27	Cathepsin D
28	CD 40 antigen
29	CD163
30	CD27 antigen
31	CD40 Ligand
32	Chemokine CC-4 (HCC-4)
33	Ciliary Neurotrophic Factor
34	Clusterin
35	Collagen IV
36	Complement C3
37	Complement C3a (C3a)
38	Complement C5a (C5a)
39	CYFRA 21-1
40	Cystatin-C
41	Decorin
42	Dickkopf-related protein 1
43	E-Selectin
44	Elafin
45	EN-RAGE
46	Eotaxin-1 (CCL11)
47	Eotaxin-2 (CCL24)
48	Eotaxin-3 (CCL26)
49	Epidermal Growth Factor
50	Epidermal Growth Factor Receptor
51	Epiregulin
52	Epithelial-Derived Neutrophil-Activating Protein 78 (CXCL5)
53	Erythropoietin
54	Factor VII
55	Fas Ligand
56	FASLG Receptor
57	Fatty Acid-Binding Protein, adipocyte
58	Fatty Acid-Binding Protein, heart
59	Fatty Acid-Binding Protein, liver
60	Ferritin
61	Fibrinogen
62	Fibroblast Growth Factor 21
63	Fibroblast Growth Factor 23
64	Ficolin-3
65	Follicle-Stimulating Hormone
66	Galectin-3
67	Glucagon-like Peptide 1, total
68	Glycoprotein non-metastatic melanoma protein B (GPNMB)
69	Granulocyte Colony-Stimulating Factor
70	Granulocyte-Macrophage Colony-Stimulating Factor
71	Growth Hormone
72	Growth/differentiation factor 15
73	Growth-Regulated alpha protein (CXCL1)
74	Haptoglobin
75	Heparin-Binding EGF-Like Growth Factor
76	Hepatocyte Growth Factor
77	Hepatocyte Growth Factor receptor
78	Hepsin
79	Human Chorionic Gonadotropin beta
80	Human Epidermal Growth Factor Receptor 2
81	Intercellular Adhesion Molecule 1 (ICAM-1)
82	Immunoglobulin A
83	Immunoglobulin E
84	Immunoglobulin M
85	Insulin
86	Insulin-like Growth Factor-Binding Protein 1
87	Insulin-like Growth Factor-Binding Protein 2
88	Intercellular Adhesion Molecule 1
89	Interferon alpha
90	Interferon gamma
91	Interferon gamma Induced Protein 10 (CXCL10)
92	Interferon-inducible T-cell alpha chemoattractant
93	Interleukin-1 alpha
94	Interleukin-1 beta
95	Interleukin-1 receptor antagonist
96	Interleukin-1 receptor type 1
97	Interleukin-1 receptor type 2
98	Interleukin-2
99	Interleukin-2 receptor alpha
100	Interleukin-3
101	Interleukin-4
102	Interleukin-5
103	Interleukin-6
104	Interleukin-6 receptor
105	Interleukin-6 receptor subunit beta
106	Interleukin-7
107	Interleukin-8
108	Interleukin-10
109	Interleukin-12 Subunit p40
110	Interleukin-12 Subunit p70
111	Interleukin-13
112	Interleukin-15
113	Interleukin-16
114	Interleukin-17

115	Interleukin-18
116	Interleukin-18-binding protein
117	Interleukin-22
118	Kallikrein 5
119	Kallikrein-7
120	Kidney Injury Molecule-1
121	Krebs von den Lungen-6, Mucin 1 (KL-6)
122	Latency-Associated Peptide of Transforming
123	Lectin-Like Oxidized LDL Receptor 1
124	Leptin
125	Leucine-rich alpha-2-glycoprotein
126	Macrophage Colony-Stimulating Factor 1
127	Macrophage Inflammatory Protein-1 alpha
128	Macrophage Inflammatory Protein-1 beta (CCL4)
129	Macrophage Inflammatory Protein-3 alpha (CCL20)
130	Macrophage Migration Inhibitory Factor
131	Macrophage inflammatory protein 3 beta (CCL19)
132	Macrophage-Derived Chemokine (CCL22)
133	Maspin
134	Matrix Metalloproteinase-1
135	Matrix Metalloproteinase-2
136	Matrix Metalloproteinase-3
137	Matrix Metalloproteinase-7
138	Matrix Metalloproteinase-9
139	Glycoprotein non-metastatic melanoma protein B (GPNMB)
140	MHC class I chain-related protein A
141	Monocyte Chemotactic Protein 1 (CCL2)
142	Monocyte Chemotactic Protein 2 (CCL8)
143	Monocyte Chemotactic Protein 3 (CCL7)
144	Monocyte Chemotactic Protein 4 (CCL13)
145	Monokine Induced by Gamma Interferon
146	Mucosal addressin cell adhesion molecule 1 (MAdCAM-1)
147	Myeloid Progenitor Inhibitory Factor 1
148	Myeloperoxidase
149	Myoglobin
150	N-terminal prohormone of brain natriuretic peptide
151	Neuron-Specific Enolase
152	Neuropilin-1
153	Neutrophil Activating Peptide 2 (CXCL7)
154	Neutrophil Gelatinase-Associated Lipocalin
155	Osteocalcin
156	Osteopontin
157	Osteoprotegerin
158	P-Selectin
159	Pancreatic Polypeptide
160	Pepsinogen I
161	Periostin
162	Pigment Epithelium Derived Factor
163	Placenta Growth Factor
164	Plasminogen Activator Inhibitor 1
165	Platelet endothelial cell adhesion molecule
166	Platelet-Derived Growth Factor BB
167	Procollagen type III N-terminal peptide (PIIINP)
168	Progranulin
169	Prolactin
170	Prostasin
171	Prostate-Specific Antigen, Free
172	Pulmonary and Activation-Regulated chemokine
173	Pulmonary surfactant-associated protein D
174	Resistin
175	Serum Amyloid A Protein
176	Serum Amyloid P-Component
177	Sex Hormone-Binding Globulin
178	ST2
179	Stromal cell-derived factor-1 (CXCL12)
180	T-Cell-Specific Protein RANTES (CCL5)
181	Tenascin-C
182	Thrombin-Activatable Fibrinolysis Inhibitor
183	Thrombomodulin
184	Thrombospondin-1
185	Thymus and activation-regulated chemokine (CCL17)
186	Thymus-Expressed Chemokine (CCL25)
187	Thyroglobulin
188	Thyroid-Stimulating Hormone
189	Thyroxine-Binding Globulin
190	Tissue Inhibitor of Metalloproteinases 1
191	Tissue Inhibitor of Metalloproteinases 3
192	TNF-Related Apoptosis-Inducing Ligand Receptor 3
193	Trefoil Factor 3
194	Tumor Necrosis Factor alpha
195	Tumor Necrosis Factor beta
196	Tumor necrosis factor ligand superfamily member 12
197	Tumor necrosis factor ligand superfamily member 13
198	Tumor Necrosis Factor Receptor I
199	Tumor necrosis factor receptor 2
200	Tyrosine kinase with Ig and EGF homology domains 2
201	Urokinase-type plasminogen activator receptor
202	Vascular Cell Adhesion Molecule-1
203	Vascular Endothelial Growth Factor
204	Vascular endothelial growth factor D
205	Vascular Endothelial Growth Factor Receptor 1
206	Vascular Endothelial Growth Factor Receptor 2
207	Vascular endothelial growth factor receptor 3
208	Vitamin D-Binding Protein
209	Vitronectin
210	von Willebrand Factor
211	YKL-40



Internally developed (Simoa® assays)

The single molecule array (Simoa) technology by Quanterix provides ultrasensitive measurement of protein biomarkers that exist in extremely low concentrations in serum and plasma, enabling results with orders-of-magnitude greater sensitivity (femtogram/mL) compared to conventional platforms. Our expanding ultrasensitive menu includes the following assays:

1	Alpha-synuclein (A-Syn)
2	B Lymphocyte Chemoattractant (BLC, CXCL13)
3	Beta Amyloid 1-40
4	Beta Amyloid 1-42
5	Gastric inhibitory polypeptide (GIP)
6	Glial Fibrillary Acidic Protein (GFAP)
7	Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF)
8	Granzyme B (GranzymeB)
9	Growth/differentiation factor 11 (GDF-11)
10	Interferon alpha (IFN-alpha)
11	Interferon beta (IFN-beta)
12	Interferon gamma (IFN-gamma)
13	Interleukin-1 beta (IL-1 beta)
14	Interleukin-2 (IL-2)
15	Interleukin-4 (IL-4)
16	Interleukin-5 (IL-5)
17	Interleukin-6 (IL-6)
18	Interleukin-8 (IL-8)

19	Interleukin-10 (IL-10)
20	Interleukin-12 Subunit p40 (IL-12p40)
21	Interleukin-13 (IL-13)
22	Interleukin-15 (IL-15)
23	Interleukin-17A (IL-17A)
24	Interleukin-17C (IL-17C)
25	Interleukin-17F (IL-17F)
26	Interleukin-19 (IL-19)
27	Interleukin-21 (IL-21)
28	Interleukin-22 (IL-22)
29	Interleukin-23 (IL-23)
30	Interleukin-31 (IL-31)
31	Lymphocyte activation gene 3 (LAG-3)
32	Myeloid cell surface antigen CD33 (CD33)
33	Neurofilament heavy polypeptide – phosphorylated
34	Neurofilament Light Chain (NF-L)
35	Phospho-Tau181 (pTau181)

36	Phospho-Tau217 (pTau217)
37	Phospho-Tau231 (pTau231)
38	Receptor Activator of Nuclear Factor Kappa B Ligand (RANKL)
39	Synaptosomal-associated protein 25 (SNAP25)
40	Tau
41	Thymic stromal lymphopoietin (TSLP)
42	Transmembrane activator and CAML interactor (TACI)
43	Triggering Receptor Expressed On Myeloid Cells 2 (TREM1)
44	Triggering Receptor Expressed On Myeloid Cells 2 (TREM2)
45	Tumor Necrosis Factor-alpha (TNF-alpha)

Alamar NULISA

Alamar NULISA™ panels deliver a breakthrough in ultra-sensitive biomarker detection for inflammation and Central Nervous System (CNS) research. NULISA delivers exceptional multiplexing without compromising sensitivity, making it an ideal platform for low abundance biomarkers.

Alamar's nucleic acid-linked immuno-sandwich assay – NULISA — technology provides exceptional performance characteristics*:

- Ultra-high sensitivity to detect low-abundance proteins — attomolar levels (fg / mL) — which can be critical for mechanism-of-action studies
- Scalable multiplexing analyzes hundreds of biomarkers from a single sample input without loss of sensitivity, enabling comprehensive biomarker profiling
- Coefficient of variation (CV) <10% — demonstrating exceptional reproducibility across runs and plates
- ~12 logs dynamic range — appropriate for measuring both low-abundance biomarkers and high-abundance biomarkers in the same panel
- Reliable, reproducible results for clinical and translational research

*performance characteristics determined by Alamar

Available panels include:

- **NULISAseq Inflammation AQ** — detects 250 biomarkers and provides quantitative meansures for 150 inflammatory biomarkers, including cytokines, chemokines and growth factors
- **NULISAseq Inflammation 250** — Broad coverage to detect 250 biomarkers, including a number of low-abundance biomarkers to help provide insights into early disease biosignatures in inflammatory conditions
- **NULISAseq CNS 120** — Detects 120 proteins, including those with utility in discriminating between neurodegenerative conditions

Olink

Olink's proximity extension assay (PEA®) technology delivers high throughput without compromising specificity or scalability. PEA technology employs a dual-recognition approach using antibody pairs labeled with complementary DNA oligonucleotides. When the antibody pair binds to the target protein, the oligonucleotides are brought into proximity and hybridize, creating a unique DNA barcode for each protein. This DNA barcode is then extended and amplified by polymerase chain reaction (PCR) and measured by quantitative PCR (qPCR) or Next-Generation Sequencing (NGS).

IQVIA Laboratories Protein Biomarkers is an Olink-certified service provider for Flex, Focus, Target and Explore HT.

Our Olink menu includes:

- **Explore HT** — Delivering 5400+ proteins from a single sample for broad biomarker discovery and potential integration with other omics data for a comprehensive analysis
- **Target 48** — Carefully selected biomarkers for key biological activities:
  - » Cytokine
  - » Immune Surveillance
- **Target 96** — Biomarkers targeting specific therapeutic areas
  - » Cardiovascular II, Cardiovascular III
  - » Oncology II, Immuno-Oncology, Immune Response
  - » Neurology, Neuro Exploratory
  - » Inflammation, Metabolism, Mouse Exploratory

Ask about our custom assay development capabilities on NULISA platform.

MSD V-PLEX

The Meso Scale Discovery (MSD) platform provides multiplexing efficiency with up to 10 analytes per well, reproducibility and preconfigured panels groups by biological relevance with validated performance specifications.

Available V-PLEX panels include:

Chemokine Panel 1 (Gen B)
• Eotaxin
• Eotaxin-3
• IP-10
• MCP-1
• MCP-4
• MDC
• MIP-1α
• MIP-1α
• TARC

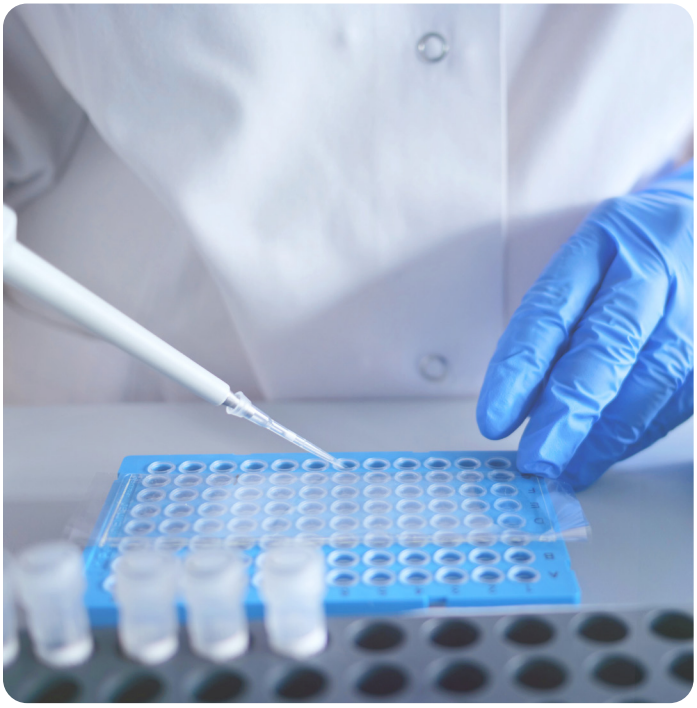
Cytokine Panel 1
• GM-CSF
• IL-1α
• IL-5
• IL-7
• IL-12/IL-23p40
• IL-15
• IL-16
• IL-17A
• TNF-β
• VEGF-A

Proinflammatory Panel 1
• IFN-γ
• IL-1β
• IL-2
• IL-4
• IL-6
• IL-8
• IL-10
• IL-12p70
• IL-13
• TNF-α

Custom assay development capabilities

Our lab brings more than 25 years of expertise in custom assay development. Custom assays are designed around your molecule, target and mechanism of action, rather than a one-size-fits-many approach. Our approach optimizes assay performance for a customer's need, not just analytical convenience. Our lower limits of detection are particularly useful in capturing early pharmacodynamic changes for earlier signal detection in Phase I/II, increased clarity in understanding dose-response relationships, and reduced false positives/negatives that can complicate interpretation.

We offer custom assay development on the Luminex and Simoa platforms. Ask about capabilities on other platforms.



CONTACT US

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