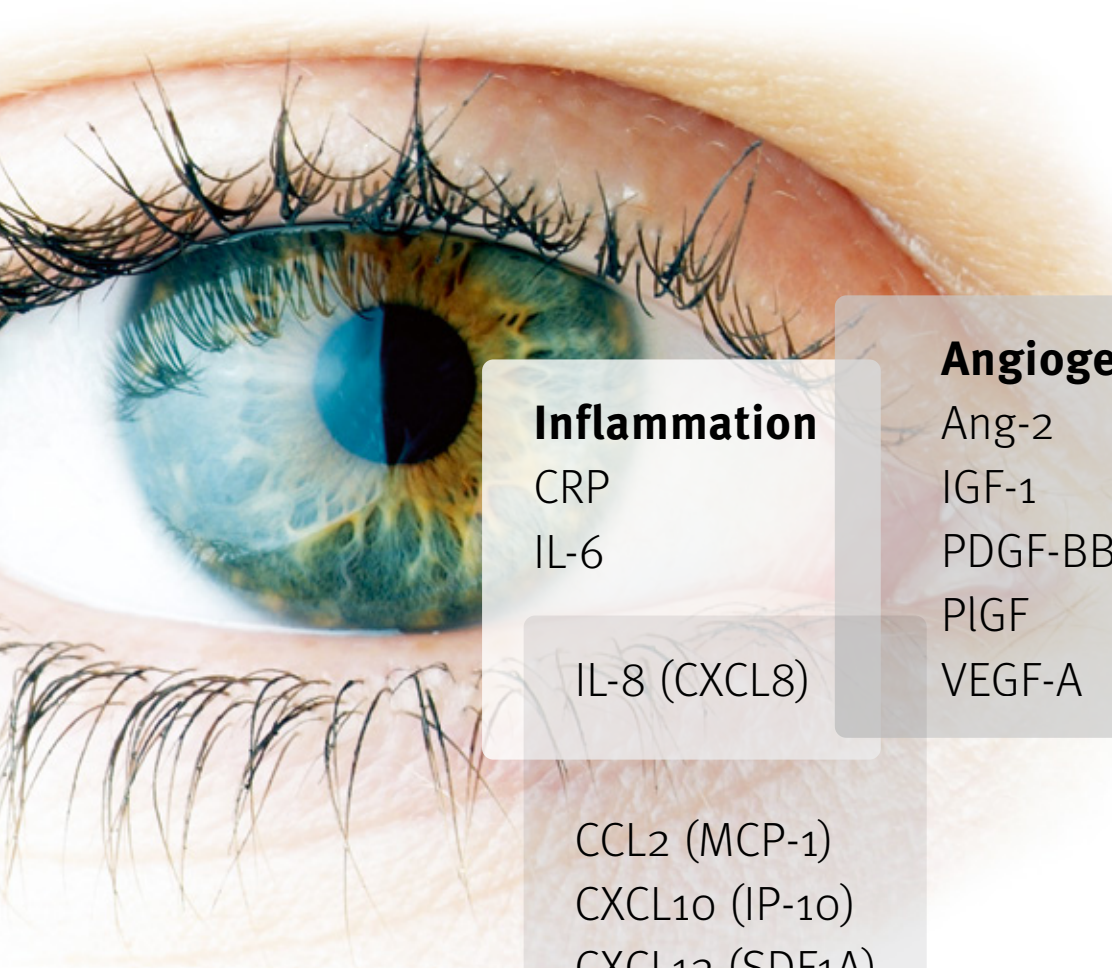


OPHTHALMOLOGY

One Step Ahead In Ophthalmology 

## LUNARIS™ Ophthalmology Kits



### Inflammation

CRP

IL-6

IL-8 (CXCL8)

CCL2 (MCP-1)

CXCL10 (IP-10)

CXCL12 (SDF1A)

CXCL13

### Chemotaxis

### Angiogenesis

Ang-2

IGF-1

PDGF-BB

PlGF

VEGF-A

## LUNARIS™ Human & Mouse Ophthalmology Kits

### Robust, precise, sensitive

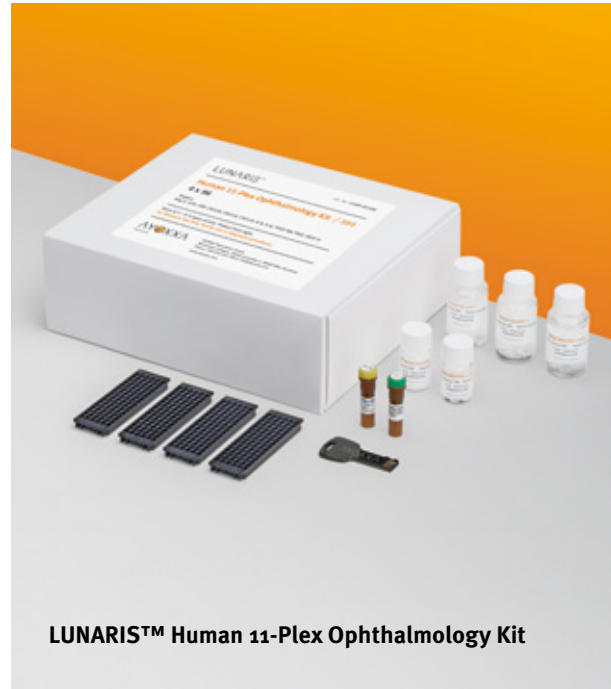
- > Test minute amounts of vitreous or aqueous humor and retina homogenates down to sample volumes of 3 µL
- > Enables quantitative analysis of soluble cytokines, chemokines and angiogenesis markers
- > Kits cover vascular endothelial growth factor (VEGF-A), which has been identified as a critical mediator of ocular neovascularization in retinal angiogenic disease (RAD)

#### LUNARIS™ Human 11-Plex Ophthalmology Kit

Quantifies Ang-2, CCL2 (MCP-1), CRP, CXCL10 (IP-10), CXCL12 (SDF1A), CXCL13, IL-6, IL-8 (CXCL8), PDGF-BB, PIGF and VEGF-A in vitreous or aqueous humor, and in plasma.

#### LUNARIS™ Mouse 4-Plex Ophthalmology Kit

Quantifies CCL2 (MCP-1), IGF-1, PDGF-BB and VEGF-A in vitreous or aqueous humor, serum and cell culture supernatant.



For Research Use Only. Not for use in diagnostic procedures.

## Ophthalmology

### Molecular biomarkers for translational research

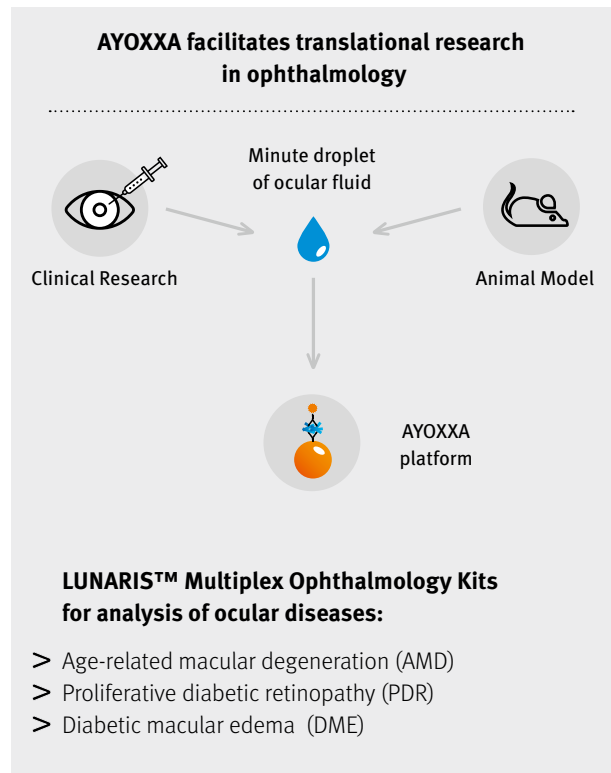
Retinal angiogenic diseases (RAD) such as proliferative diabetic retinopathy (PDR), diabetic macular edema (DME) and age-related macular degeneration (AMD) are the leading causes of blindness worldwide.

In addition to the central role of VEGF-A in pathogenesis, several angiogenic and inflammatory factors such as Angiopoietin-2, CCL2 (MCP-1), CXCL10 (IP-10), CXCL12 (SDF-1), CXCL13, IL-8 (CXCL8), PIGF, and PDGF-BB likely play a significant role.

Investigating the mechanisms underlying diseases of the eye, researchers face the challenge that ocular samples from clinical interventions or mouse models are rare, of very low volume and may be highly viscous.

Offering optimized preparation protocols for ocular fluids (vitreous and aqueous humor) that require only 3 µL sample, AYOXXA's robust and precise LUNARIS™ Multiplex Ophthalmology Kits enable researchers to get the maximum information out of their precious samples.

The LUNARIS™ system has been thoroughly validated in numerous collaborations with scientific partners including the Singapore Eye Research Institute (SERI; <http://www.seri.com.sg/>), one of the leading eye research institutes worldwide, and the European biomedical consortium EYE-RISK (<http://www.eyerisk.eu/>).



## Excellent Data Quality

# Validation of the LUNARIS™ Human 11-Plex Ophthalmology Kit

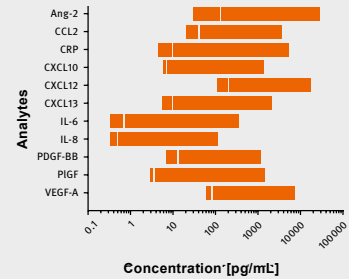
**Table 1: Performance**

Median assay parameters determined for a twelve point standard curve in more than ten experiments. Limit of detection (LoD), lower limit of quantification (LLOQ), and upper limit of quantification (ULOQ) given in pg/mL; dynamic range (DR) on a log scale.

Analyte	LoD	LLOQ	ULOQ	DR
Ang-2	26.7	131	32000	4.5
CCL2	18.2	41.0	4000	3.6
CRP	3.9	9.8	6000	3.8
CXCL10	5.2	6.6	1600	3.2
CXCL12	97.9	204	20000	4.3
CXCL13	4.8	9.8	2400	3.4
IL-6	0.3	0.7	400	2.6
IL-8	0.3	0.5	128	2.1
PDGF-BB	6.1	13.1	1280	3.1
PIGF	2.6	2.6	1600	3.2
VEGF-A	52.7	81.9	8000	3.9

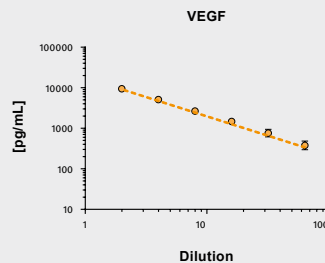
**Figure 1: Performance**

Bar diagram depicting the median assay parameters shown in table 1. The orange bars represent the dynamic range of the assay from LoD (left border) to the ULOQ (right border). The LLOQ is depicted as a white line.



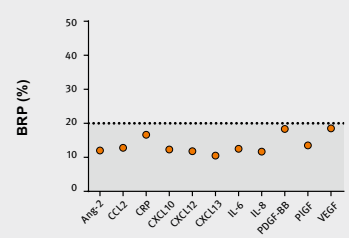
**Figure 2: Dilution linearity**

Graph depicts dilution linearity of spiked vitreous humor samples. VEGF concentrations measured from serially diluted samples are plotted against the dilution factor used.



**Figure 3: Precision**

Between-run precision (BRP) of QC samples spiked into vitreous humor samples. Each data point represents the median between-run precision of three different QC sample concentrations measured in 10 experiments. The targeted precision (<20%) is denoted by the dotted line/grey shaded area.



## LUNARIS™ Technology

### Innovative technology for translational proteomics

- > **Ease of readout and handling**
- > **Fully integrated system**
- > **Flexible scalability from low to high throughput**
- > **Readout of 384 samples in less than one hour**

AYOXXA's proprietary LUNARIS™ platform for multiplex protein analysis is a fully integrated and scalable system. A dedicated reader automates image-based analysis of immunoassay beads in a planar array, so every bead is read and every bead counts.

LUNARIS™ is optimized for sample volumes as low as 3 µL – one-tenth the volume required for similar technologies – yet allows full multiplex testing without compromising data quality or precision from precious samples.

With advantages of superior data quality, workflow flexibility and conservation of precious samples, LUNARIS™ enables reliable quantification of biomarkers from model to man – from lab to clinic – from data to insight.

## LUNARIS™ Services

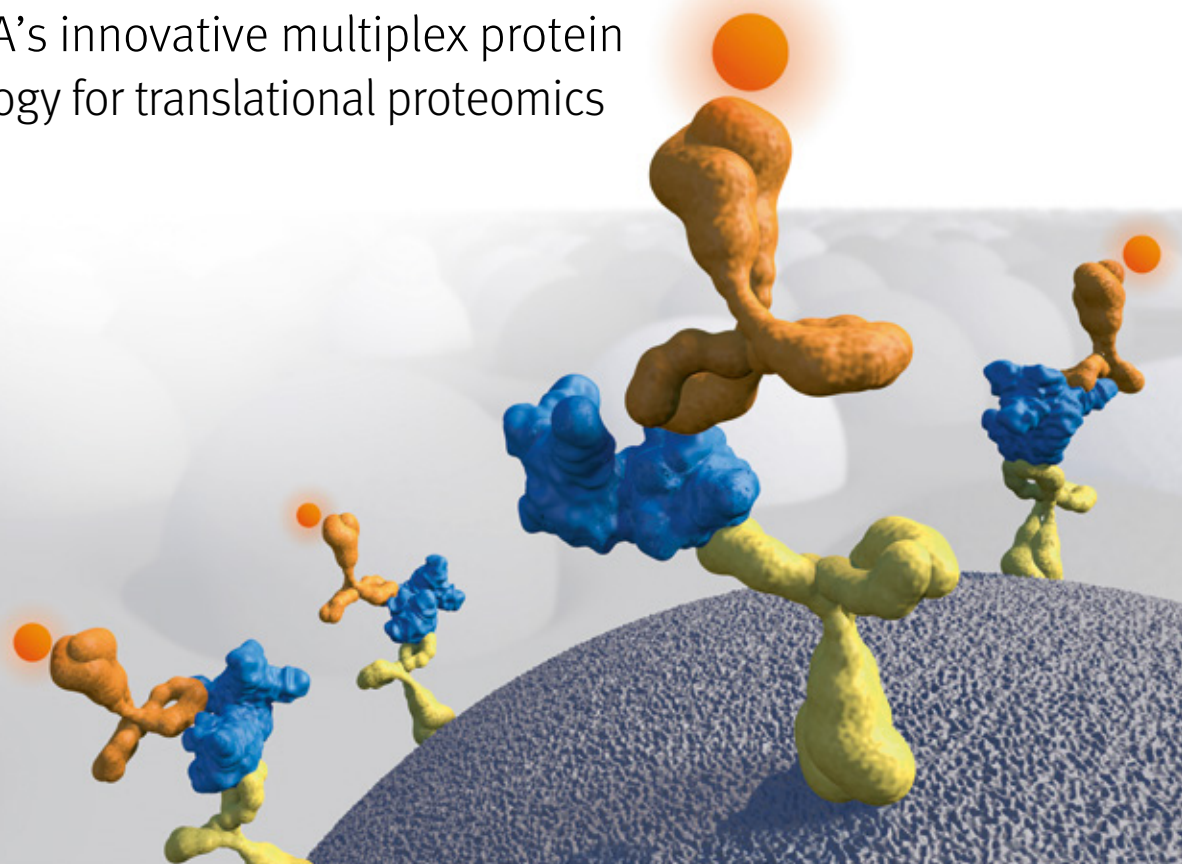
### Multiple options to access the advantages of LUNARIS™

- > **Complete testing and readout services**
- > **Send in samples for testing and receive a complete analysis report**
- > **Perform assays in your lab, then send in completed assay plates for readout**
- > **Innovative panel development**
- > **Custom panel configuration**
- > **Custom multiplex assay development**



# LUNARIS™ Technology

AYOXXA's innovative multiplex protein technology for translational proteomics



## Ordering information

LUNARIS™ Kits	No. of BioChips	Cat. No.	No. of samples*
Human 11-Plex Ophthalmology Kit	1 × 96	LHOP-20110S	40
	4 × 96	LHOP-20110F	160
Mouse 4-Plex Ophthalmology Kit	1 × 96	LMOP-20040S	40
	4 × 96	LMOP-20040F	160

\* Measured in duplicate

**AYOXXA Biosystems** is dedicated to the vision of enabling success in translational research.

Building upon an innovative technology platform, our mission is to develop robust assay panels for translational research applications. Our LUNARIS™ multiplex protein analysis platform is optimized for translating knowledge from basic to clinical research. With its advantages in terms of quality, flexibility and efficiency, LUNARIS™ enables reliable quantification of biomarkers from model to man – from lab to clinic – from data to insight.

Be one step ahead in ophthalmology

**Call the experts:**

**+49 (0)221-222 529-0**

[ophthalmology@ayoxxa.com](mailto:ophthalmology@ayoxxa.com)

[www.ayoxxa.com](http://www.ayoxxa.com)

### HEADQUARTERS GERMANY

AYOXXA Biosystems GmbH  
BioCampus Cologne  
Nattermannallee 1  
50829 Köln, Germany  
Phone: +49 (0) 221 222 529-0  
E-Mail: [sales@ayoxxa.com](mailto:sales@ayoxxa.com)

### USA

AYOXXA Biosystems Inc.  
c/o Platinum CFO  
2600 Tower Oaks Blvd., Suite 220  
Rockville, MD 20852  
USA  
E-Mail: [sales@ayoxxa.com](mailto:sales@ayoxxa.com)