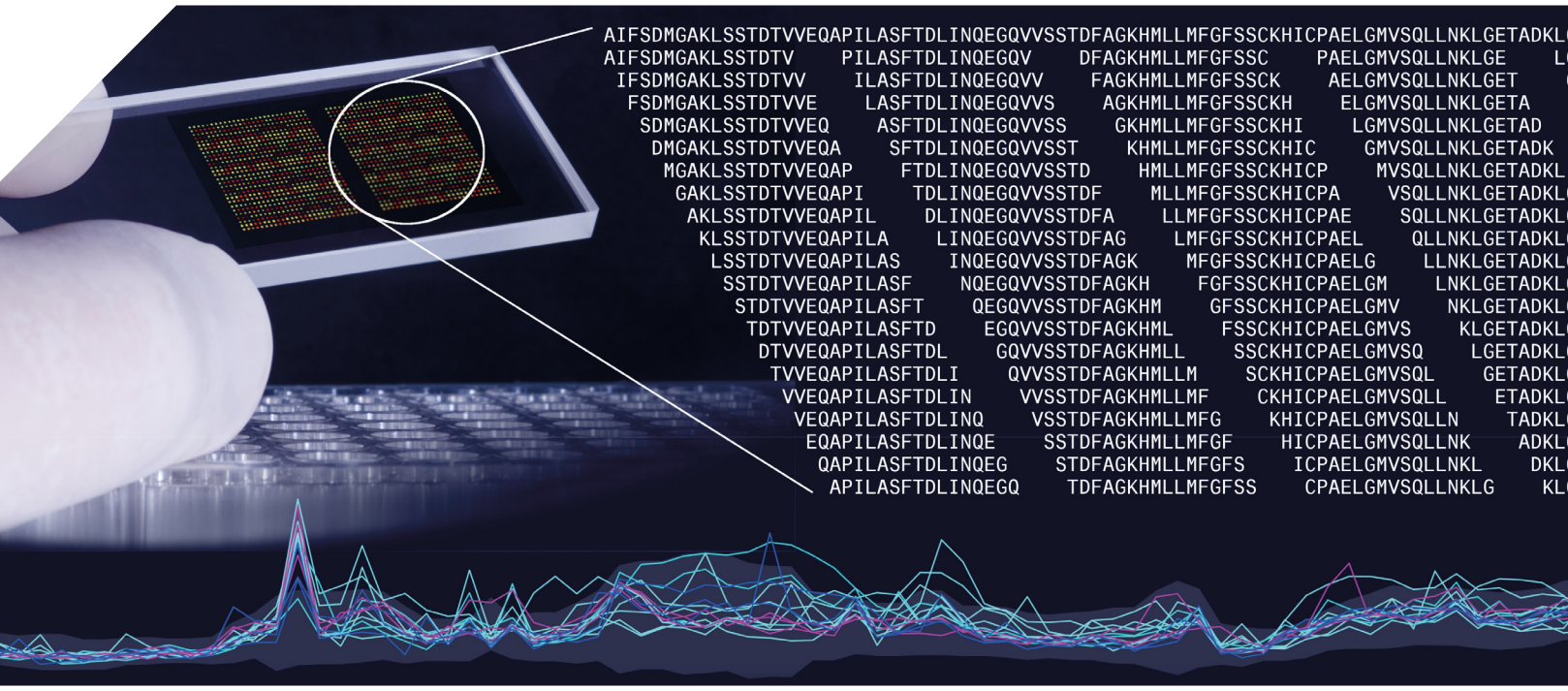

IMMUNOMICS
PROTEIN & PEPTIDE ARRAY SERVICES

INTRODUCTION

We offer innovative high throughput technologies using protein and peptide microarrays, multiplex protein analyses (using bead arrays and microtiter plate based assays) and ELISA, as pre-defined and customized analysis services and assay development services. Including bioinformatics assistance in data analysis we support our partners and customers in the ultimate goal of defining immunoassays and biomarkers for improving research and diagnostics. Immunoglobulins in serum, plasma and other body fluids, like saliva, are known as potential biomarkers for autoimmune and systemic complex diseases, like inflammatory, ageing related and cancerous diseases. It is also well known that changes in immunoglobulin profiles against a broad variety of proteins (e.g. autoantigens, tumor-autoantigens, etc.) are an early event in diseases and would be useful as diagnostic biomarkers. AIT has developed antibody profiling using high density protein and peptide array technologies for discovery and provides custom solutions for validation.

TECHNOLOGY USED

- AIT's protein array service is using a predefined 16k human protein array presenting 7,400 annotated human proteins derived from 15,286 recombinant E. coli expression clones.
- AIT's 170k peptide cancer array represents 172,000 peptides defined by IgG profiling of the big four human cancers (Breast, Colon, Lung and Prostate) including peptides deduced from common somatic mutations in cancer.
- High density tiling peptide arrays can be provided also as customized design, deduced from known protein sequences.
- Entire whole human proteome antigenic profiling is also available. This setup enables an efficient immunological assays also when no expression clones or proteins are available.
- Protein and peptide antigens can be defined by microarray based discovery from e.g. IgG derived from 10 µl to 30 µl of serum or plasma.
- Targeted analyses using bead arrays and microarray in 96-well plates is typically conducted using 10 µl of samples for paralleled analyses of 10 up to 500 proteins or peptides from a single sample. Thus this approach enables the most efficient strategy for analyses of many targets of interest using minimal sample volumes. These analyses enable also the highly paralleled analyses of many samples and targets. We assist also customers in data handling and analyses when required.

PROTEIN/PEPTIDE ARRAY RESEARCH SERVICES - OVERVIEW

Discovery protein arrays

- AITs 16k array (32000 spots, 15286 human cDNA expression clones – presenting 7,400 human proteins)
- Sengenics „native" protein arrays

Custom protein arrays

- Based on proteins/expression clones available provided by customer

Discovery peptide arrays

- Customised peptide design - based on proteins/proteome/ organism of interest
- high density arrays - optimized formats from 10.000-200.000 peptides
- Single and/or dual color option (e.g. detect IgG4 and total IgG or different Ig classes)

Targeted protein and peptide arrays (planar and beads) – 10 plex – 2000 plex

- Depending on customer needs – number of proteins/ peptides and samples - we will define provide most efficient multiplexing and sample analysis solutions

Planar microarray and bead array services

- Sourcing of clones
- High throughput protein production from recombinant clones
- Array spotting (contact free and contact spotting)
- Protein/peptide coupling and immobilization onto different surfaces
- Immunoglobulin purification and standardization from samples
- Sample processing on diverse multiplexing platforms
- Sequence extraction and peptide design
- Assisting in experimental plans/design
- Bioinformatics data analysis
- Statistical and scientific reporting
- Consulting and external advisory services

APPLICATIONS

- Immunomics and antibody profiling
- Biomarker research, epitope mapping, defining peptides form proteins, defining chemically synthesizable linear peptides from protein sequences.
- Testing patient samples upon treatment for their immune response and off-target reactivity in vaccine development.
- Defining peptides for diagnostics and vaccine development applications in many indication areas like infections, allergy, autoimmune and systemic diseases.
- Off-target reactivites/companion diagnostics

OTHER PROTEIN BASED SERVICES

- Analyses services using "catalogue assays" (Luminex and ELISA)
- Custom assay design and development
- Analyses of protein marker panels in 1 µl of serum by using OLINK's – oncology, inflammation, cardiovascular, etc.
- Targeted PROTEOMICS using Olink's Proseek assays – currently 12 panels covering 981 different serum markers are available.

NEW:

SENGENICS NATIVE-PROTEIN ARRAY SERVICE

// Request also for our DNA/RNA services

AIT – AUSTRIAN INSITUTE OF TECHNOLOGY GMBH

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