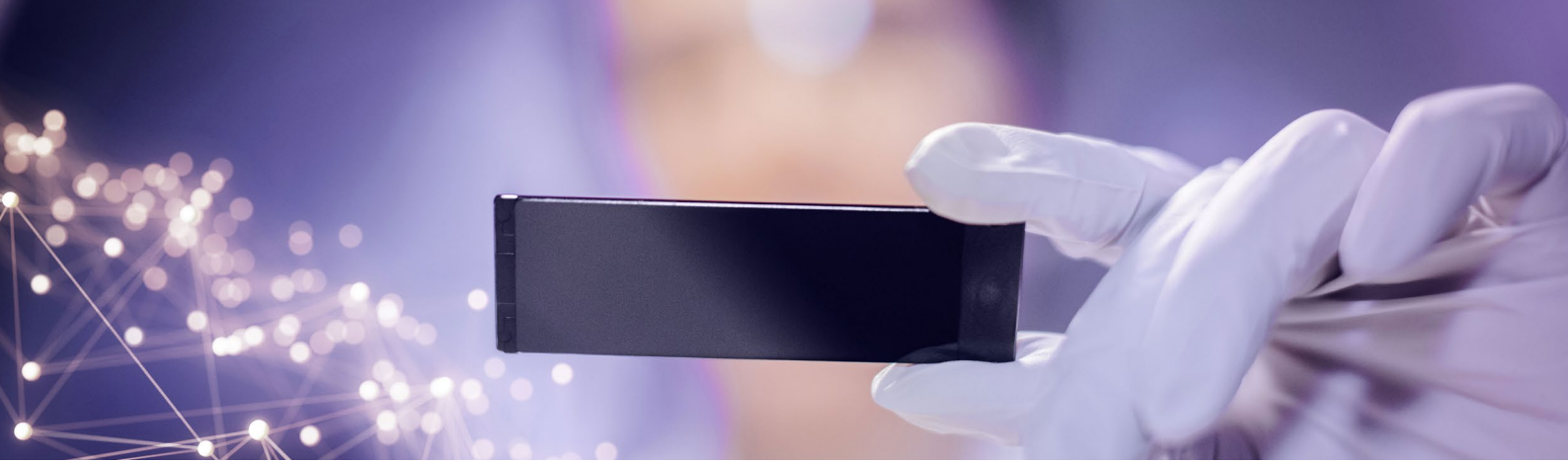

# IMMRAY™ - YOUR POWERFUL NEW KEY TO IMPROVED PATIENT SELECTION AND MONITORING

Immunovia's innovative biomarker multiplexing technology, called the IMMray™ platform, uses a single drop of serum and a disease indication specific bio-algorithm to provide diagnostic-, prognostic- and predictive claims within cancer and autoimmune diseases.

## Technology

IMMray™ is a versatile and robust microarray platform for performing clinical serum proteomics and developing diagnostic and predictive products. The microarrays are developed from a proprietary set (currently 970) of a new generation recombinant single-chain fragment variable (scFv) antibodies from our own phage-display libraries and are able to detect changes in immuno-regulatory factors, cytokines, enzymes, complement proteins, innate factors, and disease associated proteins.
Biomarker algorithms, also known as condensed signatures, for patient sample classification are designed in-house through biostatistical data analysis including the use of SVM (Support Vector Machine) learning and BE (Backward Elimination) feature selection principles.

## Technology Advantages

- High accuracies and hence a very strong dichotomizing power of the IMMray™ tests, as shown in *Fig. 1.*
- Ability to work with serum samples as opposed to biopsies.
- Innovative microarray platform with in-house designed scFv (single-chain fragment variable) antibodies developed with the purpose of high on-chip stability.
- IMMray™ measures the patient serum proteome and assesses the actual current state of the disease/treatment response, which is in contrast to genomics microarray technologies (e.g. NGS-based) that measure the potential risk of a future disease/drug (Rx) response.

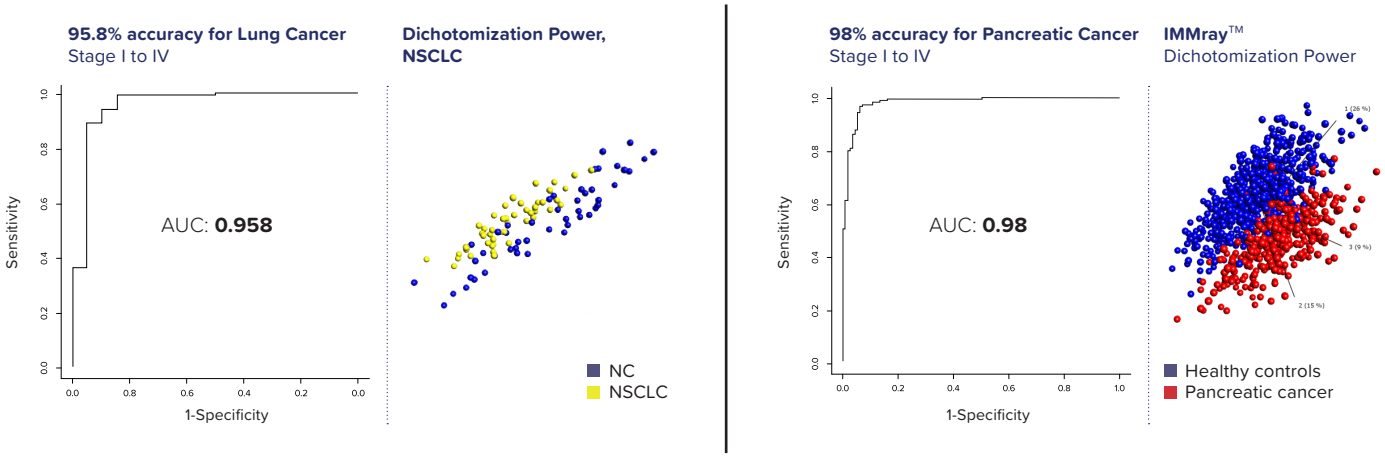


***Fig 1.*** *IMMray™ accuracies for Lung Cancer and Pancreatic Cancer*

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## Diagnostic workflow

IMMray™ is optimized for routine diagnostic lab workflows with three days turn-around time (TAT) from patient sample receival to test report, as shown in *Fig 2.*

### IMMray™ Dx Laboratory analysis

**Day 1-2** | **Day 3**


| Paitient serum labelled and applied to IMMray™ microarray | Scanning IMMray™ microarray | Bioinformatics IMMray™ Dichotomization power | Actionable result for clinician about the patient status |
|---|---|---|---|
| • Standard serum sample, <100 µl<br>• Biotinylation pretreatment of serum<br>• Apply serum to IMMray™ microarray | • IMMray™ microarray scanned with standard fluorescent scanner<br>• Signal intensity from each spot corresponds to analyte concentration | • Immunovia advanced bio-informatics algorithm, IMMray™ Evaluation Software Dx (IES Dx), translate scanned image to a snapshot of the patients immune response the patients immune response | • Yes/no answer about the patient status<br>• Actionable result for clinician |

***Fig 2.*** *IMMray™ analysis*

## Disease areas

IMMray™ has shown its applicability within two main disease areas – cancer (pancreatic and NSCLC) and autoimmune diseases (Rheumatoid Arthritis, Systemic Lupus Erythematosus, Vasculitis and Sjögren's Syndrome).

## Pharma Offerings

For our pharma partners, we design Customized Discovery Microarrays and IMMray™ CDx Test solutions for patient cohort dichotomization. After an initial survey of typical 400+ serum biomarkers, we use our proprietary bioinformatics tools to derive a specific condensed signature/algorithm of 10-35 proteins capable of differentiating patients into sub-cohorts. This enables patient selection with sensitivities and specificities above 90%, as illustrated in *Fig 1.*

## About Immunovia

Immunovia has been a listed company since 2015, with shares (as IMMNOV) traded on Nasdaq Stockholm main-list. The company has 45+ employees, is headquartered in Lund, Sweden and has reference laboratories in both Lund, Sweden and Boston, USA. Initially, IMMray™ testing will be performed through our reference laboratories in Lund, Sweden and Boston, USA.

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