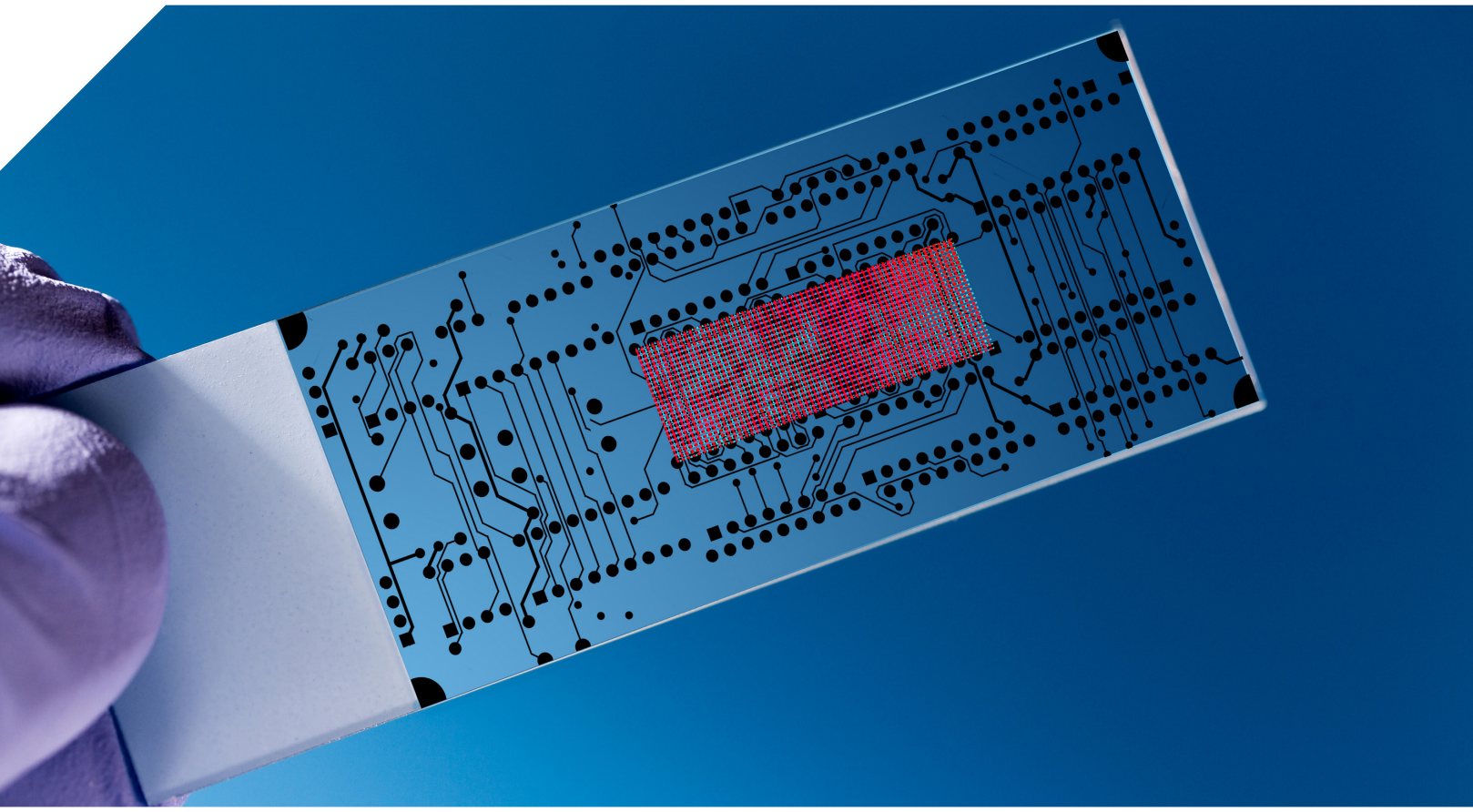
AUSTRIAN INSTITUTE OF TECHNOLOGY



SALIVARY BIOMARKER DEVELOPMENT & DIAGNOSTICS

INTRODUCTION

Saliva is a readily and even within short time intervals repeatedly available body fluid, which can be obtained via non-invasive, painless collection, with no risk of infection. In addition, saliva represents a basically unlimited sample matrix and further offers the advantage of not requiring any special skills for collection. Along these lines saliva is not only most advantageous in clinically challenging situations, such as obtaining samples from children or handicapped/anxious patients but also most suited for scenarios such as home/work place testing or population screening programs.

BIOMARKER DEVELOPMENT & DIAGNOSTICS FROM SALIVA

Saliva diagnostics is an emerging field of molecular diagnostics that offers major advantages over traditional blood or tissue-based approaches. Saliva contains a broad range of relevant molecule classes, such as DNA, messenger RNA, micro RNA, lipids, proteins and antibodies, which all can be used as potential disease/health biomarkers. Driven by ever more sensitive detection technologies, recent scientific findings increasingly show that measuring and quantifying these biomolecules in saliva can be used not only to detect local diseases of mouth and throat but also to diagnose systemic diseases. As a result, the use of saliva as a diagnostic medium will specifically increase in fields such as screening for chronic and age-related diseases, point-of-care tests at the doctor's office, as well as in the area of therapy- and home monitoring of chronic diseases. Targeted assays are designed and used for marker validation to develop minimal-invasive diagnostics.

We assist clinical and industrial partners in project planning and act as technology provider and assay developer. Together we set up appropriate projects to answer diagnostically relevant questions and to meet the challenges of translational research.

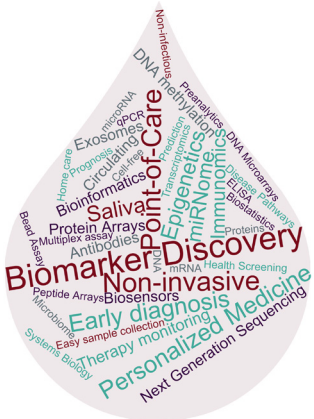
CORE COMPETENCES & TECHNOLOGIES

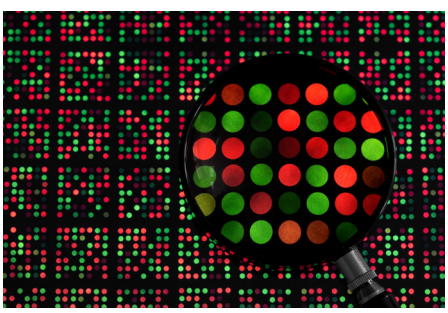
Our research activities in developing saliva-based diagnostic assays and integrated point of care devices are based on many years of experience in minimally-invasive (blood)-based biomarker - and biosensor development for molecular diagnostics. Our saliva-specific biomarker expertise comprises sample preanalytics, the isolation of distinct types of biomolecules as well as omics-based biomarker discovery and validation applying high throughput technologies such as Illumina EPIC DNA methylation arrays, next generation sequencing, 16k protein microarrays, high density peptide arrays, microfluidic qPCR, Luminex bead arrays, OLINK Proseek protein panel assays and automated ELISA assays.

Together with our academic and clinical partners and in cooperation with industrial customers, our interdisciplinary team of molecular biologists, bioinformaticians, chemists, physicists and electrical engineers moves the exciting new field of Saliva Diagnostics forward by delivering solutions that perfectly meet our customers' application needs.

Due to our saliva-specific expertise we provide the following services to our partners and customers:

- Identification and validation of salivary biomarkers for early disease screening applications, monitoring of chronic diseases, therapy monitoring and many other applications
- Application-dependent assay development for salivary samples, including preanalytical and analytical procedures
- Bioinformatics expertise for data handling, data management and data evaluation of saliva-based molecular diagnostic systems
- Identification and development of customized sensor elements and prototypes for saliva diagnostic solutions based on optical, magnetic or electrochemical detection principles
- System integration of customer assays and detection systems with AIT saliva biomarkers and vice versa; development of customized point-of-care system prototypes for saliva diagnostics





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