

BIOMARKER DISCOVERY, BIOINFORMATICS, AND BIOSENSOR DEVELOPMENT

AIT - Austrian Institute of Technology

Technology
Experience

Low-Emission
Transport

Energy

**Health &
Bioresources**

Vision, Autom. &
Control

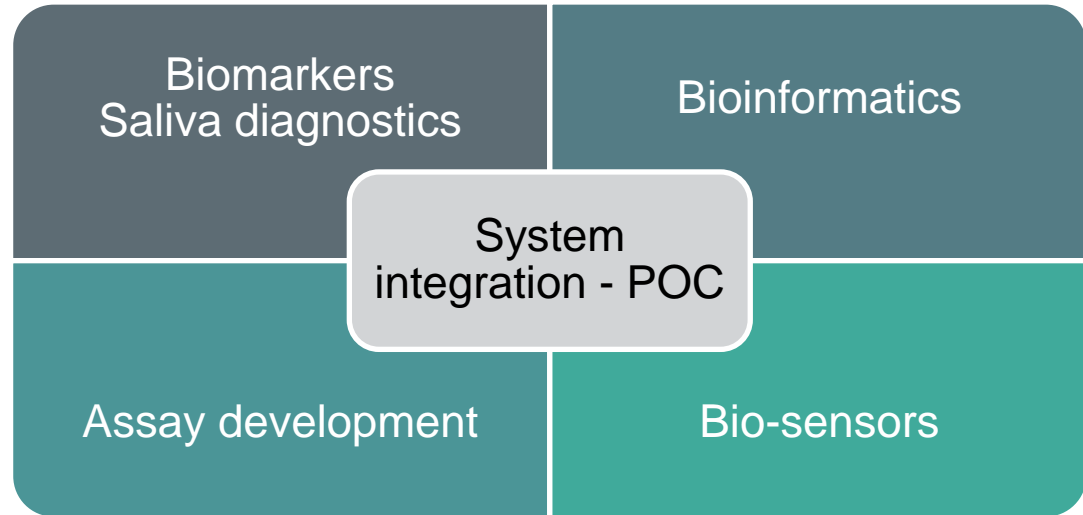
Mobility Systems

Digital Safety &
Security

Innov. Systems
& Policy

Health & Bioresources

- Bioresources
- **Molecular Diagnostics**
- Biomedical Systems
- Digital Health Information Systems



SC1-BHC-01-2019: Understanding causative mechanisms in co- and multimorbidities

- Molecular screening, biomarker development, bioinformatics
e.g., Immunomics using 50 μ l of serum/plasma (protein chips, peptide chips, Luminex)
- Blood-brain-barrier models

SC1-BHC-28-2019: The Human Exposome Project: a toolbox for assessing and addressing ...

- High-throughput molecular biology methods (e.g. Epigenetics, Immunomics)
e.g., Methylation profiling (48-96 plex) using small (1-2 ml DNA) amounts (liquid biopsy)
- Biosensor development & Bioinformatics
- In vitro models

SC1-BHC-19-2019: Implementation research for maternal and child health

- Saliva diagnostics – minimal invasive
- Olink panels (protein markers) using 1 μ l of serum/plasma

SC1-BHC-30-2019: Towards risk-based screening strategies in non-communicable diseases

- Biomarker development, molecular screening, bioinformatics

SC1-BHC-14-2019: Stratified host-directed approaches to improve prevention, treatment and/or cure of infectious diseases

- Experience with DNA Origami
- POC knowledge

SC1-BHC-10-2019: Innovation Procurement: Next generation sequencing (NGS) for routine diagnosis

- Bioinformatics

ERA-Net PerMed: Research projects on personalised medicine – Smart combination of Pre-clinical and clinical research with data and ICT solutions

- Bioinformatics

Biomarkers

- Patents for breast, lung, colorectal, prostate, thyroid cancer (methylation or protein based)
- Huge experience with processing samples from various sources

Bioinformatics

- Software tools
- New methods

Assays

- Patent for multiplex pathogen and antibiotic resistance detection
- Novel technologies (DNA Origami, ...)

Our current H2020 projects:

- FAPIC – fast & cheap diagnosis of diseases
- DIAGORAS - PoC microbiological diagnostic device
- GREENSENSE - nanocellulose biosensing platform
- OCTCHIP - novel OCT system
- ChipScope - optical microscopes with super-resolution capabilities
- MARA - Molecular Analytical Robotics Assays
- ULTRAPLACAD - plasmonic devices for cancer DX
- IMPETUS - paper-based biosensors
- PLASMOfab - CMOS compatible plasmonics

PARTNERS WANTED

Clinical

- Ideally with access to large, well-annotated sample cohorts

SMEs

- Drug-drug interactions
- Systems biology
- IT and/or kit development

Exploitation partners

- For bringing newly discovered biomarkers and detection methods to the market

Research groups

- Complement our portfolio and know-how (e.g. metabolomics, human microbiome, systems biology, specialized medical expertise, molecular pathology)

AIT BIOMARKER / BIOINFORMATICS EXPERTISE

Molecular Data

- Genomics
- Epigenomics
- Transcription
- Immunology
- Proteomics

Domain Knowledge

- NGS
- Microarrays
- HT-qPCR
- Luminescence
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Disease / model characterization

Whole genome analysis
Data integration

Biostatistics / Diagnostics

Feature Selection and
Classification under

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www.ait.ac.at/en/research-fields/bioinformatics/

www.ait.ac.at/en/research-fields/saliva-and-blood-biomarkers/biomarker-discovery-validation/

development

Other available expertise: assay development, biosensors, systems integration