

## BioPersMed Metabolic and Cardio Cohort

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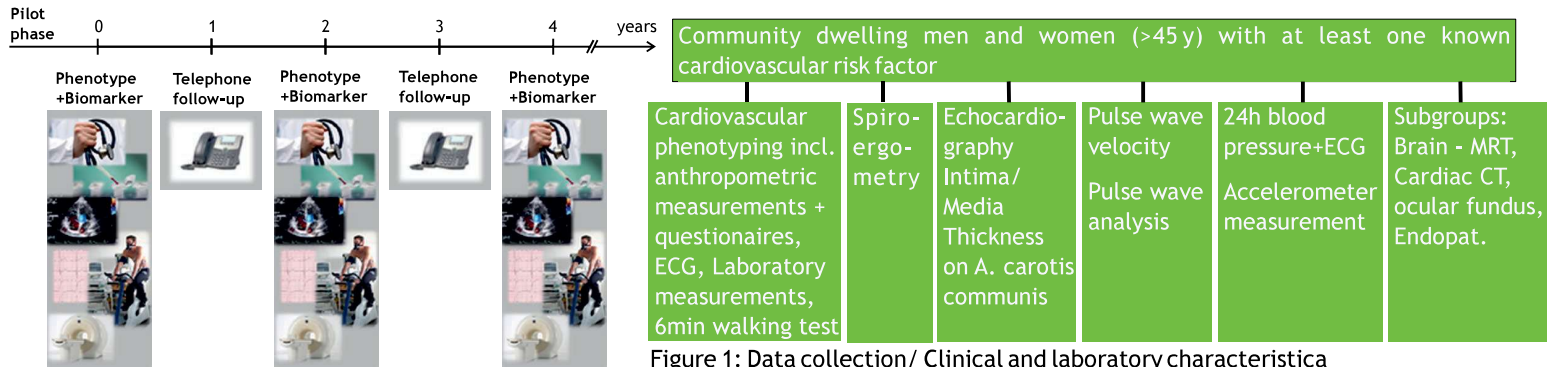


Figure 1: Data collection/ Clinical and laboratory characteristics

### PROBLEM TO BE SOLVED

Integrated biomarker development for early detection, more effective management and targeted treatment of common diseases associated with postindustrial societies is of increasing importance. The main challenges are falling birth rates, ongoing increase in the percentage of elderly citizens, dramatic rise of obesity, major increases in the incidence of cardio-vascular disease, diabetes and liver disease. These factors lead to a reduction in quality of life and economic productivity of millions of people. Thus, biomarkers for personalized medicine are required. This means that globally there is an urgent need for large cohorts, especially for long-term data of untreated persons at risk.

### DESCRIPTION OF THE COHORT

More than 1000 prospective oligo-symptomatic patients with cardiovascular risk factors are included. It consists of a collection of different sample materials of high quality and quantity with a comprehensive clinical phenotyping and long-term observation of persons and a multidisciplinary risk characterization, considering also future issues like eye or muscle changes.

The cohort is based on the quality principles of the Biobank Graz that guarantees highly standardized and quality assured sample handling and storage. The linkage between clinical data and samples allows an exact allocation of clinical factors also for future examinations and treatments.

### Advantages

- Joint characterization in an interdisciplinary team of cardiologists, endocrinologists and hepatologists of the Medical University of Graz in close cooperation with Charité Berlin.
- Different, partially rare biospecimen (blood, saliva, urine) are available.
- A large spectrum of patients with risk factors, healthy and ill persons is included.
- Long-term observation with excellent characterization.

### COMPARISON WITH EXISTING SOLUTIONS

Even if there are numerous cohorts and biomarkers, scarce correlation or transfer from bench to bedside are available.

### MARKET POTENTIAL

Targeted biobanking will be of increasing interest, as personalized medicine is an important trend for the future. The importance of companion diagnostics will increase, as the costs of novel therapies are increasing, but budgets of health care systems are limited and arguments for the necessity of a therapy will be required. Furthermore, unneeded or ineffective therapies of patients, meaning physical stress can be avoided. Developing kits for early diagnostics of diseases enables more effective prevention strategies or treatments.

### DEVELOPMENT STATUS

Recruiting of cohort and data-cleaning is finished. Baseline-dataset allows first cross-sectional analyses for identification and validation of biomarkers and correlation with clinical data, functional and imaging parameters. Data from Genome-wide association study (GWAS) of about 700.000 single-nucleotide polymorphisms (SNPs) are available. Follow-ups with complete clinical phenotyping have started.

### IP STATUS

No patent is filed.

### NEED OF RESOURCES

Financial resources for (joint) research projects

### RISKS AND BOTTLENECKS

- Phenotyping not possible for all diseases
- Specialized diagnostics like FACS analyses available only in special labs
- Currently, no microbiome or tissue samples are available
- Identification and validation of novel biomarkers is a very difficult and long process

### FREEDOM-TO-OPERATE

The Medical University of Graz has exclusive rights of use for the samples. The cohort is available in the framework of cooperation projects.

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