The Greek Research Infrastructure for Personalised Medicine (pMedGR)

Following recent technological breakthroughs, such as rapid sequencing of the human genome, the concept of personalised medicine/health has become key in understanding, classifying, preventing and treating human disease. Capitalising on top clinical and basic research teams, the pMedGR infrastructure aims to support research towards patient stratification, biomarker development, tailored healthcare interventions and personalised treatment strategies to help bridge the gap between genomic information and clinical practice. pMedGR is particularly significant for the Greek population and neighbouring countries, which represent a genetic pool that differs from Central and Northern European populations, thus offering unique potential for the development of targeted therapies and diagnostic modalities specifically for this population.

The objectives of the new pMedGR infrastructure are to: (a) support research aiming at the transition from traditional symptom-based healthcare models to omics-based approaches for health and disease; (b) allow the in-depth description of individual phenotypes at a systems level by providing access to cutting-edge technological platforms, clinical data and biological specimens; (c) generate technological ICT solutions that facilitate the processing, integration and modeling of the output of several technological platforms; (d) train the next generation of physicians and bioscientists that will develop and implement personalised medicine; and (e) lead industrial innovation towards novel diagnostic and therapeutic modalities and advanced knowledge for personalised healthcare.

pMedGR will have close contacts with BBMRI-GR, the biobanking RI, in order to align activities in providing access to biological specimens and data. The ICT modules of pMedGR, which will be responsible for data analysis, integration and model building, will cooperate closely with ELIXIR-GR, the data storage infrastructure. Key interactions will be pursued also with INFRAFRONTIER-GR/Phenotypos, the mouse archiving and phenotyping infrastructure, which is expected to provide preclinical platforms and proof-of-principle projects for further clinical development. Lastly, pMedGR will cooperate with BioImaging-GR for the development of advanced imaging platforms with clinical applications for personalised medicine. pMedGR will also liaise with the European counterparts of these and other ESFRIs in order to establish an international network of partners that can provide relevant know-how and expertise.

pMedGR will provide a hub for the implementation, coordination and integration of personalised medicine approaches in the region and as part of a pan-European and global network, thus offering centralised information on patient stratification efforts, susceptibility factors and response to treatments for the regional population. This hub will effectively serve as a single entry point for researchers and industry interested in this area. Furthermore, Greece's strategic geopolitical position together with the region's genetic characteristics render pMedGR an ideal paradigm for personalised approaches that target an extended regional area, including southern Italy, the Balkans & Turkey. Through pMedGR, Greece has the potential to become a South-East European Node for Personalised Medicine, linking Europe to emerging markets such as Asia, Africa and the Middle East.