



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
Εθνικόν και Καποδιστριακόν  
Πανεπιστήμιον Αθηνών

## Centre of New Biotechnologies and Precision Medicine (CNBPM) of the Medical School of the National & Kapodistrian University of Athens (NKUA)

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## Greek Research Infrastructure for Personalised Medicine (pMedGR)

### 1<sup>st</sup> Scientific Workshop

Thursday, February 27<sup>th</sup>2020, 14:00

Auditorium «G. Kotzias», National & Kapodistrian University of Athens Medical School

### Press Release

On February 27<sup>th</sup>, 2020 the 1<sup>st</sup> Scientific Workshop of the Centre of New Biotechnologies and Precision Medicine (CNBPM) of the National & Kapodistrian University of Athens (NKUA) Medical School, as well as of the Greek Research Infrastructure for Personalised Medicine (pMedGR) took place at the School's new Auditorium «G. Kotzias».

The purpose of the workshop was to present the objectives, goals and functions of CNBPM and pMedGR, both of which have been established due to the vision and perseverance of **Professor George Kollias, Member of the Academy of Athens and President of the Scientific Board of CNBPM**, and **Professor Petros Sfikakis, Dean of the Medical School and President of the CNBPM Board of Directors**. The CNBPM and pMedGR position the Medical School at the core of the application of precision medicine in Greece, facilitating future collaborations with other centres in Greece and abroad, acquisition of competitive research programs and development of good practices and procedures that will allow precision medicine to reach Greek patients faster.

The workshop's date coincided with the publication of the Rules of Procedures of CNBPM in the Leaf of the Government Gazette, as announced by the **Rector of NKUA Professor Thanos Dimopoulos** in his opening salutation, thus marking the centre's official establishment.

Prof Dimopoulos also highlighted the importance of the establishment of CNBPM by emphasising that precision medicine is already being implemented in clinical practice and is currently applied in various diseases, and called everybody to embrace and fully support CNBPM's operation.

In her salutation, the **Dean of the School of Health Sciences, Professor Hara Spiliopoulou** highlighted the significant achievements of the Medical School in education, clinical practice and research, such as the 18 Centres of Expertise on Rare and Complex Diseases, whose function has recently been announced. Today's healthcare, as she stated, utilises state of the art research, cutting edge technology and specialised clinical knowledge, towards a human-centred approach, an approach which is also central to CNBPM's operation.



pMedGR



ΕΠΑΝΕΚ 2014-2020  
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ  
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Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Thus concluding that CNBPM must be supported by everyone in order to ensure that both the Medical School's and the Centre's high goals are met.

During his salutation, the **General Secretary of Research & Technology, Professor Athanassios Kyriazis** accredited the great effort raised by NKUA's Medical School for the establishment of CNBPM and acknowledged the initiative to develop the Greek Research Infrastructure for Personalised Medicine, pMedGR. GSRT has funded pMedGR with four million euros, upon recognising the importance of precision medicine in the Greek research development policy and has prioritised it in the national roadmap for Research infrastructures, following an evaluation based on international standards of scientific excellence, smart specialisation criteria, as well as positive socioeconomic implications.

**Professor P. Sfikakis** underlined that CNBPM is an integral part of the future strategic development of the Medical School of NKUA: it aims to become the central junction in the development, coordination, realisation and harmonisation of personalised medicine approaches in various medical specialties. Precision Medicine implementation is important and necessary as it leads to new directions in health management, constitutes a turning point in biomedical innovation and offers new opportunities for high level scientific research. Also, Prof. Sfikakis highlighted that the CNBPM pioneers in an academic and clinical environment in offering research services *gratis* to the members of the Medical School, in proximity to cutting edge technologies supported by highly experienced technical personnel complemented by bioinformatics analysis,

As **Professor G. Kollias** explained, scientific research in precision medicine is particularly important in Greece, since the applications developed and supported would reflect the local and regional genetic and epigenetic diversity which differs from other areas in Northern and Central Europe and the Americas. This diversity defines our susceptibility to specific diseases and the response to therapies, thus requiring the development of specific prognostic, diagnostic and therapeutic interventions. Once precision medicine methods are introduced to the Greek health management system, the Greek population will gain significant benefits, such as better understanding of inherited factors for pathologic or genetic disorders and the amelioration of health care programs. The mapping of the **Greek Genome** is thus a key priority of pMedGR.

pMedGR has been developed due to the vision and the personal efforts of Prof. Kollias, and it forms CNBPM's first project. It has been funded with 4 million euros by the General Secretariat of Research and Technology (GSRT) and is implemented under the Action "Reinforcement of the Research and Innovation Infrastructure", funded by the Operational Programme "Competitiveness, Entrepreneurship and Innovation" (NSRF 2014-2020) and co-financed by Greece and the European Union (European Regional Development Fund).

Today, only two years since the initiation of the project, major accomplishments in the establishment of the infrastructure have been reached: pMedGR is housed in a renovated building in NKUA's Medical School, and provides advanced platforms organised in functional Units offering services that will operate with certified standard operating procedures and managed by experienced and highly qualified personnel.

The aims of pMedGR include research support, by providing open access to advanced technologies, as well as training of the new generation of researchers and physicians. pMedGR aims to serve as a central

point of contact with the industry for the development of innovative diagnostic and therapeutic methods leading to personalised healthcare. pMedGR will also support innovative products and services for: a) **better diagnosis and faster intervention**, b) **more efficient drug discovery and development**, and c) **development of more effective therapies**.

pMedGR is a National infrastructure open to clinical researchers, researchers in biomedicine, physicians, technological scientists as well as to small biotech companies and the pharma industry, creating synergies for the development of frontier research. It focuses on global synergies and aims to be part of international consortia, such as the European Programme for Personalised Medicine SAPHIRE, and the International Network ICperMed.

The **Invited Speaker, Professor Stylianos Antonarakis**, distinguished Professor Emeritus of the University of Geneva Medical School, former and founding Chairman of the Department of Genetic Medicine and Development of University of Geneva Medical School, former and founding Director, iGE3 Institute of Genetics and Genomics of Geneva, President of HUGO 2013-2017 (Human Genome Organization), Member, Swiss Academy for Medical Sciences and President of the Scientific Advisory Board of CNBPM, presented the particularities and potential that is offered by the study of the genome and its expression in genetics and personalised medicine. He highlighted that although genetic diversity among humans is less than 1%, gene expression leads to huge phenotypic differences. This genetic diversity is necessary for evolution and adaptation to environmental changes; however, it may also lead to genetic disease. In his closing remarks, Prof. Antonarakis demonstrated how important information on the function of the genome can be extracted even from a single patient, in the context of a well-designed study.

The technologies and Units of pMedGR were presented at the second part of the Workshop:

- The **Clinical Samples Reception and Processing Unit**, as presented by Mr. Menelaos Manoloukos, MSc, constitutes of the entry point of the clinical samples in pMedGR, where they are processed, evaluated and recorded by specialised personnel following standard high-quality procedures, before their dispatch in respective Units for analysis.
- The **Personalised Genomics and Transcriptomics Unit**, as presented by Dr Pantelis Hatzis, is based on NGS technology and allows, among others, genome sequencing, mutation identification in cancer and other diseases and research on the epigenetic effects caused by mutations, drugs and/or environmental factors on cells and tissues.
- The **Single Cell Analysis Unit**, as presented by Dr Maria Sakkou, is an innovative technology that allows the evaluation of the genetic profile at a single cell level within a tissue, leading to the identification of specific biomarkers and the development of specialised diagnostic and therapeutic approaches.
- The **Bioinformatics Unit**, as presented by Dr George Pavlopoulos, uses information technology to understand biological data, such as gene expression in different conditions, leading to the identification of the biological functions in which they are involved, thus understanding disease complexity.
- The **Proteomics Unit**, as presented by Dr George Panayotou, uses cutting-edge technology on mass spectrometry that can analyse and compare protein samples from patients and healthy subjects with high accuracy, thus discovering biomarkers that will help in disease diagnosis and prognosis.

- The **Mass Cytometry (CyTOF) Unit**, as presented by Dr Kely Vetsika, using the 3<sup>rd</sup> generation Helios cytometer, allows the simultaneous identification of over 150 different parameters at a single cell level, leading to the discovery of new cell types and biomarkers valuable in disease diagnosis, response to therapy and treatment.
- Finally, the technology **Organs-on-Chips**, soon to be included in the pMedGR's technologies, was presented by Dr Maria Tsoumakidou, MD. This innovative technology recreates the natural physiology and mechanical forces experienced within the human body, thus providing a new standard for predicting how a human may respond to medicines, chemicals, and foods — with greater precision and control than today's cell culture or animal-based testing methods.