

MINOTECH- POST-GENOMICS UNIT ANALYSIS

The Post-Genomics Facility (PGF) of the Institute of Molecular Biology and Biotechnology (IMBB) of the Foundation for Research and Technology Hellas (FORTH) has been recently reinforced with a new high throughput next generation DNA sequencing platform. With this new equipment and the consistent continuous research on post-genomic analysis, IMBB becomes the main scientific institution in the country that gathers the most modern equipment in DNA analysis and the necessary expertise to its development.

The reinforcement of the infrastructure is a consequence of the continuous participation of the IMBB in all major research programs in genomic research since the late 1980s (yeast, drosophila, mosquito, human genomes, etc.). Over the last four years, three platforms for DNA sequencing, worth of more than half a million Euros, have been added to its infrastructure.

With the current development of IMBB infrastructure, the entire human genome can be sequenced over a period of several days at a cost of a few thousand Euros, thus making DNA sequencing fast, economic and therefore widely accessible. The contribution of genomics is expected to bring revolutionary changes in basic research and will introduce a new era in medical diagnosis and therapy.

Specifically for IMBB, the development of this state-of-the-art technology gives an advantage in claiming international competitive programs and contributes in saving considerable resources which would escape abroad.

With its existing infrastructure, the Post-Genomic Facility analysis of IMBB has the capability of simultaneous analysis of all of ~ 20,000 human genes or even the simultaneous analysis of hundreds of genes related to different categories of diseases having genetic etiology. Currently, detecting changes in the DNA that are responsible for the diversity between people, can explain the predisposition of individuals to different diseases or different response to the same drug. The new DNA sequencing technologies provide the tools that could lead to the enrichment of medical records with genomic information thus moving towards individualized medical care.

The extended DNA sequencing capabilities of the Facility will help developing a methodology that ensures the quality and reliability of analyses of the newly established Laboratory of ancient DNA Analysis of IMBB. The analysis of biological findings in Greece and especially in Crete will provide answers to questions such as the origin and movements of population, nutrition habits, diseases etc. Already, the Facility cooperates with universities, hospitals and research agencies in the country, in the areas of agricultural and health domains through environmental and clinical studies using genetic diagnosis. In parallel, IMBB has established Bioinformatics Support Group for data analysis and the development of new tools for management of the results.