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PRESS RELEASE

The Institute of Applied Biosciences at the Centre for Research and Technology Hellas attended the BEYOND exhibition

The Institute of Applied Biosciences (**INAB**) at the Centre for Research and Technology Hellas (**CERTH**) participated in the BEYOND exhibition held in Athens (4–6 April 2025). Its researcher, **Dr. Fotis Psomopoulos** participated in a panel organized by the Region of Central Macedonia titled **Case Study "AlphaFold" by Google DeepMind**.

AlphaFold is the leading Artificial Intelligence tools in Structural Biology, incorporating the Nobel Prize–winning Chemistry technology of Google DeepMind, and enables the prediction of the three-dimensional structure of protein sequences, with numerous applications in biomedical research and pharmaceuticals.

INAB uses AlphaFold both as a standalone tool and as an intermediate step within the algorithms it develops, particularly for the analysis of single-cell molecular data (single-cell omics). This emerging technology provides extremely detailed yet highly complex information at the singe cell level.

During his speech at BEYOND, Dr. Fotis Psomopoulos, researcher at INAB/ CERTH referenced a recently publication here and emphasized that "*the integration of biological knowledge with neural networks enables modelling of molecular processes with greater accuracy resulting in a deeper understanding of how cells function.*"

He further noted that the availability of major computational infrastructures is essential. According to Dr. Psomopoulos, equally important is familiarity with the use of both the infrastructures themselves and the corresponding machine learning tools.

The INAB representative stated that "In the era of largely democratized Artificial Intelligence, the challenge lies in properly educating both the general public and the scientists in the correct use of these tools, with full awareness of the inherent limitations they possess",

He also referred to the work carried out by INAB/CERTH and to the significant initiatives implemented through its Bioinformatics Laboratory in the field of Machine Learning in Life Sciences. These initiatives focus both on the development and application of artificial intelligence methods for the analysis of large-scale biological data and on standard-setting through active participation in national and international actions such as ELIXIR, RDA, and CAIRNE.

A characteristic example is the DOME standard, which ensures transparency in the evaluation of machine learning models. This work was published in *Nature Methods* in 2021 as a result of an effort coordinated by INAB together with the University of Padua within the framework of ELIXIR, the European bioinformatics infrastructure.

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