

ELIXIR – GR : Development of an integrated functional network analysis and composite signature derivation pipeline for ncRNAs RNA-seq data

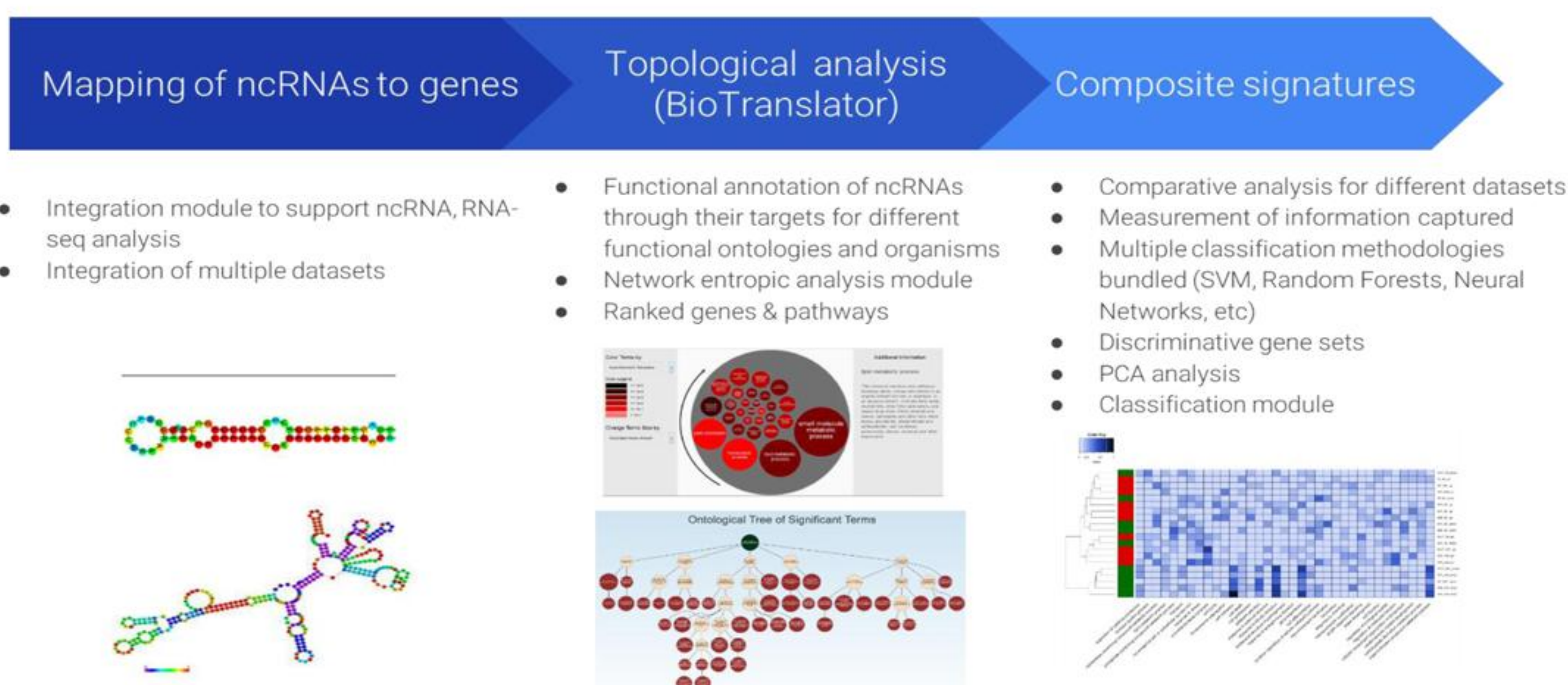


Irene Liampa ^{1,2}, Hector-Xavier de Lastic ^{1,2}, Eleftherios Pilalis ³, Aristotelis Chatziioannou ^{1,3}

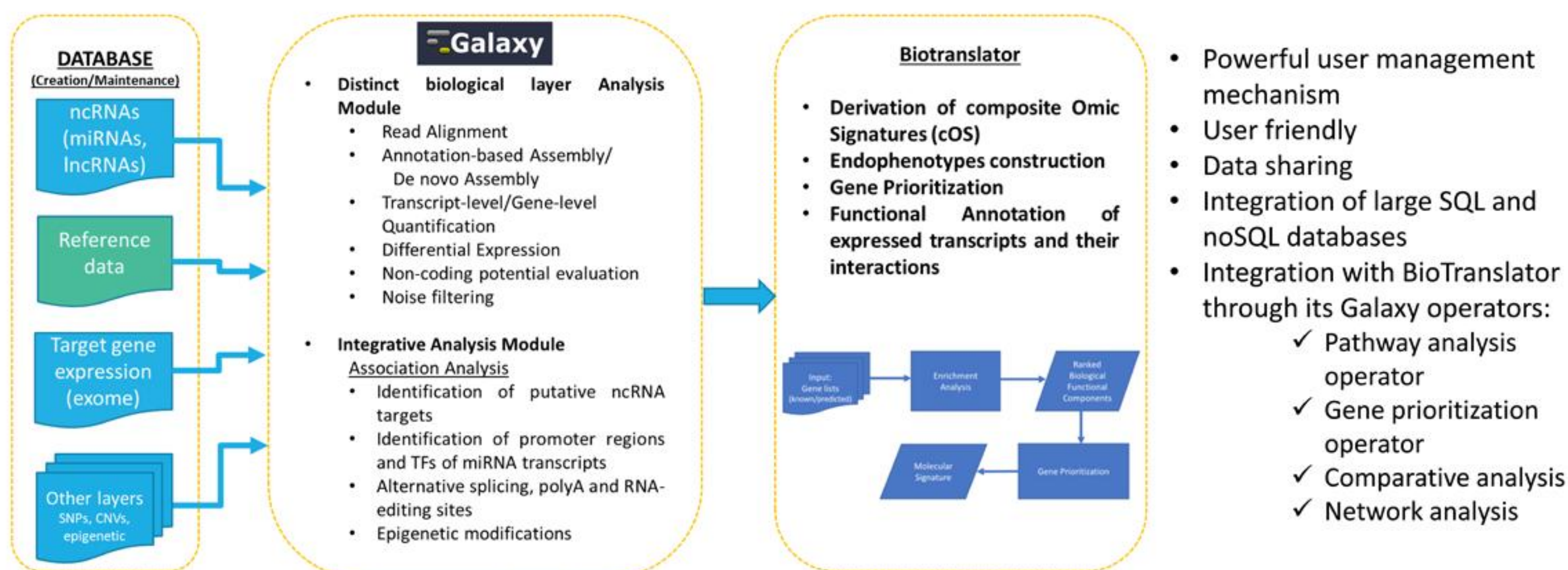
Affiliations:

1. Metabolic Engineering and Bioinformatics Group, Institute of Biology, Medicinal Chemistry and Biotechnology, Hellenic Research Foundation - NHRF, Athens, Greece
2. Department of Molecular Biology and Genetics, Democritus University of Thrace, Dragana, Greece.
3. e-NIOS Applications Private Company, Kallithea-Athens, Greece

The rapidly expanding universe of the Next Generation Sequencing (NGS) applications allow for more sophisticated data analysis techniques, enabling a more in-depth interpretation of the results. Our work aims for a unified solution for the structural and functional analysis of lncRNAs, which hold key biological and regulatory roles. Further interfacing will be implemented with a functional annotation of lncRNAs module through their targets for different functional ontologies and organisms (DIANA), as well as a network entropic analysis module for the comprehensive topological analysis of the mapped reads (Biotranslator). Thus, we aim to extract composite Omic Signatures (cOS), highly biological informative for the phenotype as well as the identification of distinct endophenotypes. This will be furthered through evaluating the information content density of the resultant ontological networks. The highly standardized nature of the platform and tools used allows for containerized implementation on scalable, cloud-based infrastructures prevalent in the big data era. This work is intended to be the pilot action of ELIXIR-GR, the Hellenic node of Elixir.



Galaxy-based node architecture



Contact

Irene Liampa: eliampa@eie.gr
Hector-Xavier de Lastic: hector.xavier.de.lastic@gmail.com
Aristotelis Chatziioannou: achatzi@eie.gr
Eleftherios Pilalis: epilalis@eie.gr

We acknowledge support of this work by the project "ELIXIR-GR: Hellenic Research Infrastructure for the Management and Analysis of Data from the Biological Sciences" (MIS 5002780) which 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).

