



## CNR-BiOmics: Omics, Bioinformatics for e-Health.<sup>†</sup>

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Recently the MIUR approved the National Bioinformatics Research Centre for the "Omics" sciences CNR-BiOmics PON (PIR01\_00017). This infrastructure coordinated by CNR in collaboration with the Bari University and INFN-section of Bari, will be devoted to support research in Bioinformatics applied to the "Omics" sciences. The "Omics" technologies have applications in many industrial sectors with a significant impact on the health as advanced molecular diagnostics and in predictive and personalized medicine in particular to support the innovation for human health to be able to prevent and diagnose diseases. The bioinformatics in conjunction with the use of Big Data applied to medicine will be the basis to study regenerative, predictive and precision medicine. The genomic diagnostics will be used to study the applications related to the e-health, advanced diagnostics, medical devices. This project will enable the researchers for sequencing human genomes and in the plants genome in agro-food sector that will lead to further developments in precision agriculture of the future. Moreover, the applications of "Omics" and Bioinformatics technologies will allow to further develop the applications related to the traceability and safety of food production and in the development of Nutraceuticals, Nutrigenomics and Functional Foods. The country will benefit from this infrastructure and to be better recognized at international level. The necessary synergy for this important technological initiative will allow a better integration with the industrial sector in accordance with the principles of the INDUSTRY 4.0 plan. In this regard, the EU Infrastructure ELIXIR initiative has already activated a sector dedicated to managing the industrial research with the aim of promoting new initiatives and patents deriving from this synergy. The high added value of the integration of different skills it will leads to the implementation of interdisciplinary projects at national and European Community research initiatives. Interdisciplinary has become a key to understanding the complexity of living in various sectors of life sciences, with important repercussions on human health. In Italy, various research centres are already active in various disciplines, nevertheless, their interoperability are not fully realized at the moment, this is way the creation of this infrastructure will be useful for generating, collecting and processing data in a Cloud. Finally, the PON ELIXIR CNR-BiOmics will aims to create a national infrastructure for genomes, proteome, metabolome single cell data collection, their interpretation, and analysis to be applied to the biomedical, pharmacological and environmental data to serve the national scientific community.

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