



Division of Biotechnology
and Agro-industry



ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES,
ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT



LABORATORY BIOTECHNOLOGY

The Laboratory activities are focused on research, development and technology transfer in the field of advanced biotechnologies mainly oriented to the enhancement, sustainability and competitiveness of agro-food production (green biotech) and pharmaceutical sector (red biotech), exploring the potential of nanotechnology (nano-biotechnology). Research projects are developed through specialized expertise and advanced technologies in Genetics, Cell and Molecular Biology, "Omics" Sciences.

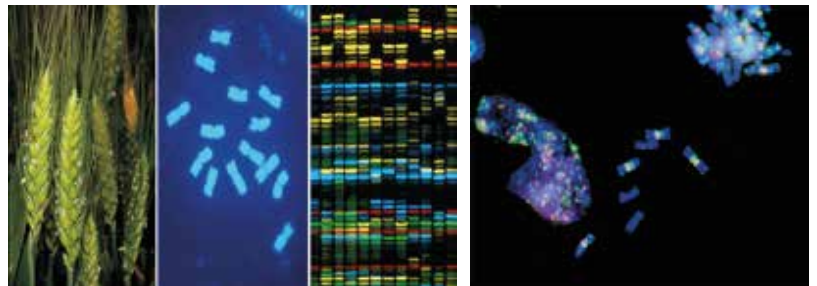


The Laboratory carries on research projects in the field of:

- **Engineering of the plant cell** for the production of high-added value molecules, such as **biopharmaceuticals** (antibodies, vaccines, enzymes and other molecules to be exploited in the nano-biotechnology sector) and **bioactive molecules** (small molecules) such as carotenoids and anthocyanins.



- **Flow-cytometry** as a powerful tool in genomic and medical diagnostics research. In particular, for the separation and identification of chromosomes through specific tracking of single chromosomes in complex genomes.



- **Plant cell and tissue culture**, to obtain natural bioreactors for the production of high-added value molecules while implementing technologies to safeguard and enhance high-value plant germplasm



- **Molecular plant virology**, integrating molecular and genomic approaches to devise plant genotypes endowed with durable resistance.



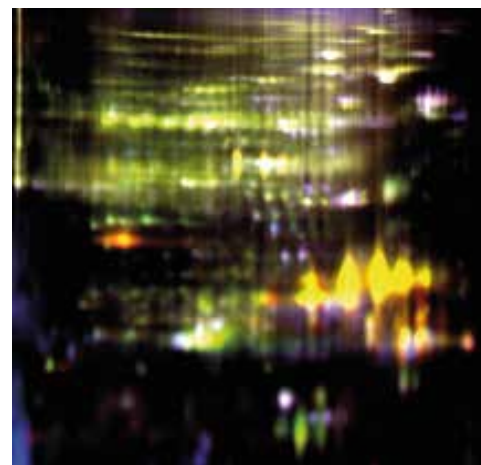
- **Novel cultivation methods** according to 'Good Agricultural Practice' for the production of high quality edible plants in containment greenhouses or structures specifically designed for farming in extreme environments.



Platforms & facilities

Multiple cutting-edge platforms of molecular biology, biochemistry, plant and animal cell biology support ongoing projects. Notably, fully equipped platforms of NGS (next generation sequencing), metabolomics and proteomics. "Omics" sciences are assisted by high performance computing platforms of bioinformatics in a 'system biology' approach, simulating metabolic networks or modelling macromolecules

A contained greenhouse (Biosafety Level 2 Containment) designed to be a complete and compact solution for growing novel plants expressing high value-added products (biopharmaceuticals/nutraceuticals) or endowed with new resistance traits, is available.



Laboratory "Biotechnology"

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