



# METRO FOOD-IT

JOINT RESEARCH UNIT METROFOOD-IT

## The Italian Node of METROFOOD-RI

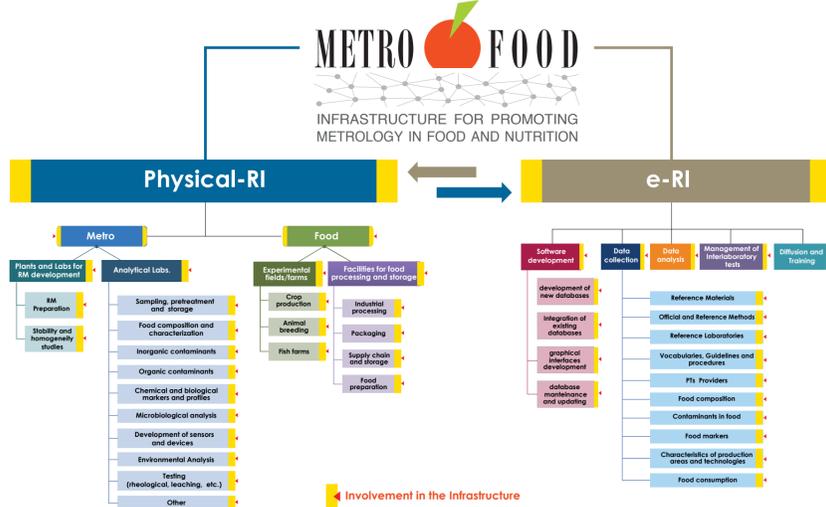
- To enhance quality and reliability of measurement results
- To make available and share data, information and metrological tools
- To enhance scientific excellence in the field of food quality & safety
- To strengthen scientific knowledge, promoting scientific cooperation and integration

### PARTNERS

- ENEA** - The Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) is the second major Italian research organization, with around 2700 staff employees distributed in its 9 research centers all over the national territory. ENEA performs scientific research and technological development and provides agency services in support to public administrations, public and private enterprises, and citizens. ENEA operates in several fields by making use of cross-disciplinary skills and advanced plants and instrumental infrastructures. Depts involved: Sustainable Development Department - SSPT (6 Divisions); Energy Technologies Department - DTE (2 Divisions); Fusion and Technology for Nuclear Safety Department - FSN (3 Divisions). Ref: claudia.zoani@enea.it; chiara.nobili@enea.it; www.enea.it
- CNR** - The National Research Council (CNR) is the largest public research institution in Italy with more than 8200 permanent employees, 7 Departments covering most scientific areas and 100+ Institutes distributed over the national territory. Dept. Involved: DISPA, with the Inst. of Sciences of Food Production (CNR-ISPA), Inst. of Food Sciences (CNR-ISAF), Inst. for the Animal Production System in the Mediterranean Environment (CNR-ISPA/AM), Inst. of Agricultural Biology and Biotechnology (CNR-IBBA), Ref: francesca.lorenzetti@cnr.it; andrea.soloni@cnr.it; www.cnr.it
- ISS** - The Italian National Institute of Health, is the major Italian institution devoted to scientific research in public health and the leading teaching and scientific body of the Italian National Health Service with 6 Departments and 18 national and reference centers and a total of >2000 staff members Dept. Involved: Dept. of Food Safety, Nutrition and Veterinary Public Health (DFSN/PH), Ref: francesca.cubadda@iss.it; carlo.brenesi@iss.it
- INRIM** - INRIM is a public research centre acting as Italy's national metrology institute (NMI). INRIM realizes, maintains and develops the national reference standards of the measurement units of the International System (SI), consisting of seven base units - metre, kilogram, second, ampere, kelvin, mole and candela - and of derived units. Ref: a.rossi@inrim.it; fdurbiano@inrim.it; www.inrim.it
- CREA** - The Council for Agricultural Research and Economics (CREA) is the leading Italian Research Organization dedicated to the agri-food sector with 12 Research Centres distributed across the Country to meet the needs of the territories. Research Centres involved: RC for Food and Nutrition (CREA-AN), RC for Cereals and Industrial crops (CREA-CH), RC for Genomics and Bioinformatics (CREA-CGI), RC for Engineering and Agro-Food processing (CREA-IT), Ref: aida.turini@crea.gov.it; maurizio.maschi@crea.gov.it; www.crea.gov.it
- FEM** - Edmund mach Foundation (FEM) is leading Italian institution active in education, research, technology, and technology transfer related to the agri-food sector. FEM comprises a Research and Innovation Center, a Training and Education Center, and a Technology Transfer Center, all carrying out activities in the fields of agri-food and sustainable development. Units involved: Traceability Unit, Computational Biology Unit, Ref: federica.camin@mach.it; luana.bortempoli@mach.it; www.femach.it
- ICQRF** - ICQRF is the Law Enforcement Body of the MIPAAF (Italian Ministry of Agriculture, Foodstuff and Forestry Policies), responsible for preventing and repressing any breach of European and Italian laws relating to agri-foodstuffs productions and farm supply products. ICQRF Department consists of two Directorates General with 10 decentralized inspection offices and 19 local units networked. Labs involved: Central Laboratory in Rome, Network of Labs. Ref: a.marziale@politicheagricole.it; mpiangeli@politicheagricole.it; www.politicheagricole.it
- IEO** - The European Institute of Oncology (IEO) is one of Italy's 49 research hospitals and treatment centres, with research laboratories and clinical services in the area of cancer prevention, early diagnosis and effective treatment. The Division of Epidemiology and Biostatistics is responsible for the Food Composition Database for Epidemiological Studies in Italy (BDI). Divisions involved: Division of Epidemiology and Biostatistics. Ref: patrizia.gnagnoli@ieo.it; www.ieo.it
- UNIBES** - The University of Brescia (Unibes) offers a wide range of educational programs with Bachelor and Master of Science (MSc) degrees, postgraduate technical courses, specialization schools and PhD programs. Depts. involved: Department of Mechanical and Industrial Engineering. Ref: laura.deperio@unibs.it; laura.borgesio@unibs.it; www.unibs.it
- UNINAFEDII** - The University of Naples Federico II (UninaFedii) was established in 1224 through an Imperial Charter of Frederick II Hohenstaufen, King of Sicily and Holy Roman Emperor. It was the first publicly funded university in the world. Nowadays the university offers courses in essentially all academic disciplines, leading to one hundred fifty-five graduate level degrees. Depts. and Centres involved: Dept. of Agriculture Sciences (DAS); Dept. of Chemical Sciences (DSCS); Dept. of Clinical Medicine and Surgery (DCMS); Dept. of Veterinary Medicine and Animal Production (DMVPA); Advanced Metrology Service Centre (CaSMA); Interdepartmental RCon Magnetic Resonance for the Environment, Agro-Food and New Materials (CERMANU); Technology Transfer Centre (CaSMA). Ref: francesco.pennacchio@unina.it; mtrifoglio@unina.it; www.unina.it
- UNIPARMA** - The University of Parma is a State University officially founded in 1412 A.D. has now about 1,800 scientific and administrative staff and 25,000 students. Its rich course catalogue is made up of 39 First Cycle Degree Courses, 39 Second Cycle Degree Courses (4 of which entirely held in English) and 6 Single Cycle Degree Courses organized into 9 departments. Depts. and Centres involved: Dept. of Food and Drug; Dept. of Chemistry, Life Sciences and Environmental; Centre for Food Safety and Technology Innovation (SITEI); Research Center for Packaging (CIPACK). Ref: maria.carelli@unipr.it; furia.briganti@unipr.it; www.unipr.it
- UNIUD** - University of Udine (UniUD) is an Italian Public University founded in 1978, has now about 16,000 students and 1500 scientific and administrative staff. Currently offers 36 first cycle degree courses and 36 second cycle degree courses, specialization schools (31), university master (15) and doctorate (15) degrees. Scientific research is performed by 4 Departments and 3 Research centers. Depts. involved: Dept. of Medicine; Dept. of Agro-Food, Environmental and Animal Sciences. Ref: maria.parpini@uniud.it; sabrina.moreti@uniud.it; www.uniud.it

Involved in the National Joint Research Unit METROFOOD-IT

- Sapienza University of Rome (UniriM1)** - Ref: cesare.mantelli@uniroma1.it; alfredo.michellichi@uniroma1.it
- University of Bologna (Unibo)** - Ref: tullio.gallinatosi@unibo.it; patrizia.brigidi@unibo.it

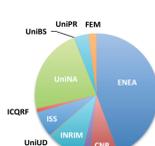


### MINISTERIAL SUPPORT

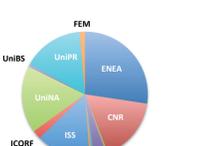
- Ministry of Research (MIUR)
- Ministry of Health (MinSal)
- Ministry of Agricultural (MIPAAF)
- Ministry of Environment (MATTM)
- Ministry of Economic Development (MISE)
- Ministry of Foreign Affairs (MAECI)

The six Ministries participate to the IT Interministerial Group and the representative from MIUR is involved in the EU-IMG.

Overall Pre-existing value: 132260 k€ (at METROFOOD-RI disposal)



Overall Staff Involved: 672 units (64 FTE)



### Physical Facilities

#### Analytical Labs

| ANALYTICAL CAPACITIES   | ANALYTICAL CAPACITIES   | ANALYTICAL CAPACITIES   |
|---|---|---|
| MATERIALS   | AGROFOOD SYSTEM   | NUTRITION   |
| <ul style="list-style-type: none"> <li>UNIBS: Chemistry for Technologies Laboratory, Tracability Unit</li> <li>ICQRF: Central Laboratory of Rome</li> <li>CNR: Genomic Platform Laboratory, FOOD-FED/CREA Lab: molecular genetics, Food Composition Laboratory, Pesticides Laboratory, Food Profiling Laboratory, Proteomics Laboratory, Analytical Laboratory, Genomic Research Laboratory, Microbiology Laboratory, Proteomics &amp; Metabolomics Laboratory, OMICS Laboratory - Proteomics, OMICS Laboratory - Metabolomics, OMICS Laboratory - Bioreactors, NMR Laboratory (NMR Instruments), Analytical Laboratory</li> <li>UninaFedii: Agricultural Sciences Dept., Chemical Sciences Dept., Clinical Sciences Dept., Clinical Medicine and Surgery Dept., Veterinary Medicine and Animal Production Dept.</li> </ul> | <ul style="list-style-type: none"> <li>CREA: Diagnostic and metrology lab (FSN), Reference lab (FSN), Laboratory of Microbiology (SSPT), Technology lab (SSPT), Environmental analytical chemistry (SSPT), NAM platform (SSPT), Characterization of Biomaterials (SSPT), Organic Chemistry Analysis (SSPT), Proteomics and Genomics Analysis (SSPT), Elemental, isotopic and nanoparticle analysis (SSPT), Characterization of aquatic ecosystems (SSPT), Teosopio lab (FSN), Fiber and sensory analysis (SSPT), New alternative analysis (SSPT), Lab of few cytogenomics and cytogenetics (SSPT), Structural Spectroscopy Lab (FSN), Nanotechnology and Devices Laboratory (SSPT), Microstructural characterization of materials (SSPT), Atmospheric pollutants online and offline measurements (SSPT), Smart Sensors Systems Characterization &amp; Development Lab. (SSPT)</li> <li>ISS: GAO and Myosin Lab, Analytical Chemistry and bioanalytical laboratory, Vitecola Lab, European Reference Laboratory for E. coli, Tissue Energy Laboratory and Nutritional Characterization Facility, Chemical Contaminants Lab, National Reference Laboratory for Heavy Metals in Food, Plant Unit, Food Chemistry Unit, National Reference Laboratory for Heavy Metals in Food, Food Chemistry Lab, High resolution NMR lab NMR and Coriolis Microscopy Area, Proteomics Area, Mass Spectrometry Unit</li> <li>UniUD: Department of Agro-Food, Environmental and Animal Sciences</li> <li>Uniparma: Analytical Chemistry Lab, Food Chemistry Lab, Food Chemistry Lab, STESA Interdepartmental Center</li> </ul> | <ul style="list-style-type: none"> <li>INRIM: Lab Class II: Bacteria, Genomics Lab, Lab of Neutron Activation Analysis, Lab of electrochemical measurements, Lab BioMetrology, Lab of Food Metrology, Nanofactory Piemonte</li> </ul> |

#### Food

- Primary production (terrestrial)**: Open fields (ENEA, CNR, FEM, UniNaFedii), Olive Trees Collection (ENEA), Greenhouses (ENEA, CNR, FEM, UniNaFedii), Experimental animal husbandry farm (UniNaFedii)
- Growth Chambers (ENEA, CNR, FEM)**: Mesocosms and aquaria, Marine experimental farms (ENEA)
- FOOD PROCESSING**: Food processing, storage, by-product and waste treatment (ENEA, CNR, CREA), Centre of Food Innovation (UniNaFedii), Materials and technology for Food packaging (ENEA), Facilities for Packaging of Fruit and Vegetables (CNR), Food Packaging Lab. (UniNaFedii)
- FOOD PACKAGING**: Materials and technologies for Food packaging (ENEA), Facilities for Packaging of Fruit and Vegetables (CNR), Food Packaging Lab. (UniNaFedii)

#### Electronic Facilities

- Hardware (ENEA)**: High Performance Computing infrastructure ENEAGRID/CRESCO
- Software**: Databases (Microbiome, Food Innovation, Scientific Publication, TDS, Archive Food Controls, SIAN, Food Consumption, Food Composition, Food Labelling, Genetic Data Collection, Biological Sample Cataloguing, Metabolomics and Proteomics MS Data, Microbial Agri-food culture collection database, Reference Materials and Methods, Epidemiology, Posidonia oceanica, Climatological atlas, ABFT data, Marine malacofauna, Underwater marine image), Modelling (Climatic projections and simulations, Scenarios and simulations of air quality, Software for food quality and optimization of production cycles, Software for indirect traceability, Software for LCA and similar, Information systems about fluxes of resources, Risk Analysis (Profiling)), Calculation (IBM SPSS® Statistics Academic Software; MATLAB® (MathWorks), Solid Works 2012 Premium University Research, NEI Works Advanced finite element structural analysis, FEM High Performance Computing, Genomic, Multitomic MS and Bioinformatic tools, NMR Computing Platform)
- Web-GIS and Web Platforms for data sharing**: Data Base, Data Calculation, Calculation / Data Processing, Modeling / Data Integration, E-learning platforms, Other facilities

#### RM Plants

- Agrifood Reference Material Integrated Platform (ENEA)
- Primary measurement standards for ionizing radiation (ENEA)
- Agrofood RM Plant c/o Tisla Research Center

