C. elegans Neurogenetics Lab

Elia Di Schiavi's lab

📍 Location of the laboratory: IBBR, CNR, Via P. Castellino 111, 80131, Naples

☎ Contacts:

E-mail: elia.dischiavi@cnr.it

Telephone: 081-6132365

⏰ Available from spring 2026

🔎 Research lines and main methodologies applied:

We use the nematode *Caenorhabditis elegans* as a model system for understanding the onset of neurodegenerative diseases such as ALS and SMA, and for their treatment.

Techniques of molecular biology (PCR, RT-qPCR), manipulation of a small model organism (genetic crosses, behavioral assays), microscopy (analysis of neuronal morphology in living animals), pharmacological treatments.

Diet, stem cells and cancer group

Sabrina Battista's lab

📍 Location of the laboratory: Complesso di Biotecnologie (3rd floor), Via T. de Amicis 95

☎️ Contacts:

E-mail: sabrina.battista@cnr.it

⏰ Available from November 2025

🔎 Research lines:

- Molecular mechanisms linking diet to cancer
- Targeted cancer therapies
- Drug resistance

🔎 Main methodologies applied:

- Cell biology (in vitro cell cultures and assays; cancer stem cells)
- Molecular biology (gene editing; gene expression analysis; promoter activity)
- Knock-out mouse models

APTALab - Development of oligonucleotide aptamers as innovative tools in cancer diagnosis and therapy

Laura Cerchia's lab

📍Location of the laboratory: Institute of Endotypes in Oncology, Metabolism and Immunology "G. Salvatore"- IEOMI-CNR, Complesso di Biotecnologie (3rd floor/room 1), Via T. De Amicis, 95 - 80145 Naples

☎ Contacts:

E-mail: laura.cerchia@cnr.it; cerchia@unina.it
Telephone: 081-5455751

⏰ Available from November 2025

🔎 Research lines and main methodologies applied:

The research group activity is focused on the generation of nuclease-resistant RNA aptamers targeting cancer cells and their preclinical development as theranostics, therapeutics and delivery agents of drug-loaded nanoparticles to human cancers.

- Key methodologies and competences: SELEX technology, aptamer research, biomarker discovery, in vitro 2D and 3D (heterotypic spheroids, patient-derived organoids) tumor cellular models, cell signaling, cell imaging, intracellular trafficking and cell communication.

Microenvironment Molecular Targets

Dr. Stefania Scala's lab

📍Location of the laboratory: Istituto Nazionale Tumori IRCCS G. Pascale, Via M. Semmola, 80131, Naples - Italy

☎ Contacts:

E-mail: s.scala@istitutotumori.na.it

Telephone: 081-17770596

⏰ Available from December 2025

🔎 Research lines and main methodologies applied:

Translational research activities focused on the interactions between neoplastic cells and tumor microenvironment (TME – immune -, stromal-, endothelial cells, cyto-chemokines, soluble factors) in solid tumors. Research program focuses on intense multidisciplinary collaboration with Surgical, Medical and Diagnostic Units

- In vitro study of mechanisms responsible for tumor progression and invasion
- Study of mechanism of immunoresistance. Development of prognostic and predictive biomarkers
- Development of new theranostic biomarker and new diagnostic probe targeting tumor microenvironment
- New approach for Circulating Tumor cell detection
- In vivo studies on tumor progression and metastatis development (pre and metastatic niche) ,
- Main methodologies applied includes Cellular biology, flow cytometry, protein chemistry (Western blot, co-IP), Confocal/fluorescent Microscopy, molecular biology (qPCR, digitalPCR), Immunohistochemistry, animal studies and clinical trials

Prof. Daniela Sorriento's lab

📍 Location of the laboratory: AOU Federico II, Via Sergio Pansini 5, Building 20 (ground floor)

☎️ Contacts:
Telephone: 081-7462220

⏰ Available immediately

🔎 Research lines:

- Cardiovascular disease, Cardiotoxicity, cancer

🔎 Main methodologies applied:

- Mouse-derived cells (endothelial cells and cardiomyocytes)
- Mouse models of disease
- Molecular and cellular biology
- Immunohistochemistry
- Confocal microscopy
- Mitochondrial function at Seahorse
- Endothelial function

Tina Di Palma's lab

📍 Location of the laboratory: IEOMI-CNR; Building 19, Corpi Bassi Sud, Via Sergio Pansini, 5

☎️ Contacts:

E-mail: tina.dipalma@cnr.it
Telephone: 081-5465530

⏰ Available from 10.00 - 17.00

🔎 Research lines: Our goal is to identify candidate genes and pathways regulated by the transcription factor PAX8 that could be targets for the therapy of different pathologies (i.e. ovarian and endometrial cancer; glioblastoma).
Molecular mechanism: cell proliferation and survival; apoptosis and ferroptosis; EMT; stemness and anoikis resistance.

🔎 Main methodologies applied: Cell culture and sphere-forming assays. RNA extraction, qPCR, and ChIP assays, gene silencing and overexpression of candidate genes, anchorage-independent growth assays in soft agar and anoikis resistance assays, cell proliferation, migration, and invasion assays, apoptosis and ferroptosis assays, cell viability assay, Western blotting, immunofluorescence.

Immunoregulatory Lab
Dr. Veronica De Rosa's lab

📍Location of the laboratory: Istituto degli Endotipi in Oncologia, Metabolismo e Immunologia (IEOMI) – Consiglio Nazionale delle Ricerche – Via Sergio Pansini 5, Ed. 18, 4° piano & Via T. De Amicis 95, Biotecnologie

☎ Contacts:
E-mail: veronica.derosa@cnr.it
Telephone: 081-7464671

⏰ Available from November 2025

🔎 Study of the molecular mechanisms regulating immune tolerance in health and immune-related diseases (autoimmunity/immunodeficiency/cancer/inborn errors of immunity);

🔎 Identification of novel druggable targets to revert immunosuppression in human breast/gastric/colon cancer;

🔎 Study of the epigenetic regulation of FOXP3, the master gene of T regulatory cells (Tregs) in multiple sclerosis and cancer patients.

Multiparametric cytofluorimetric analysis, primary human cell culture/functional assays, western blot, IHC, confocal microscopy, human organoids.

Epigenetics and Rett syndrome Laboratory

Dr. Floriana Della Ragione and Dr. Salvatore Fioriniello

📍Location of the laboratory: Institute of Genetics and Biophysics "Adriano Buzzati Traverso", CNR

☎ Contacts:

E-mail: Dr. Floriana Della Ragione (floriana.dellaragione@igb.cnr.it); Dr. Salvatore Fioriniello (salvatore.fioriniello@igb.cnr.it)

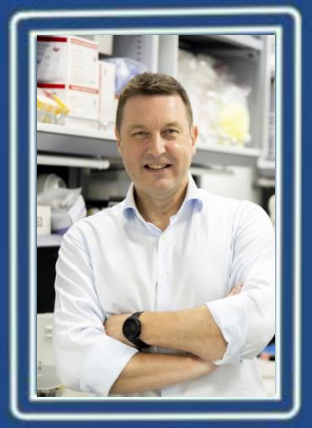
⏰ Available from January 2026

🔎 Research lines:

- Genetic and epigenetic mechanisms deregulated in Rett syndrome, a rare neurodevelopmental disease
- Pharmacological treatments in "in vitro" and "in vivo" models of Rett synrome

🔎 Main methodologies applied:

- Cell culture and neural differentiation
- Pharmacological treatments of mice
- Transcriptomic analyses by RNA-sequencing
- Epigenomic analyses by ChIP-sequencing
- Protein level assays by western blotting
- Cytofluorimetry
- Molecular biology (PCR, qPCR, RT-PCR etc.)



Roman Polishchuk's lab

(www.tigem.it/research/research-faculty/polishchuk)

📍 Location of the laboratory: Telethon Institute of Genetics and Medicine (TIGEM), Pozzuoli (NA)

☎ Contacts:

E-mail: polish@tigem.it

⏰ Available immediately

🔎 Research lines:

- Membrane trafficking and sorting in genetic disorders and cancer
- Copper metabolism in health and disease: Interplay of membrane trafficking, ion transport, cell polarity and signaling

🔎 Main methodologies applied:

- Advanced microscopy both light and electron
- Next Generation Sequencing (bulk and single cell RNA-seq, spatial transcriptomics)
- Proteomics
- Molecular biology (qRT-PCR, FISH)
- Biochemistry (Western blot, IP)
- Experimental models (Cell culture, C.elegans, Mice)

We work to cure genetic diseases!

Innovative Immunological Models

Luigi Buonaguro's lab

📍Location of the laboratory: National Cancer Institute «Pascale», Via Mariano Semmola, 52, 80131 Naples

☎️ Contacts:
E-mail: l.buonaguro@istitutotumori.na.it; m.tagliamonte@istitutotumori.na.it
Telephone: 081-6132426/230; 081-17770587

⏰ Available from January 2026

🔎 Research lines and main methodologies applied:

Translational Cancer Immunotherapy
T cell immunity evaluation; preclinical vaccination analysis; Cell culture; in silico bioinformatics analysis

Laboratory of Epigenetics and Human Diseases

Dr. Maria Matarazzo & Dr. Maria Strazzullo's lab

📍Location of the laboratory: Institute of Genetics and Biophysics Adriano Buzzati-Traverso IGB-CNR, Area di Ricerca Napoli 1, Via Pietro Castellino 111, 80131, Napoli

☎ Contacts:

E-mail: maria.matarazzo@igb.cnr.it; maria.strazzullo@igb.cnr.it
Telephone: 081-6132426/230

⏰ Available from January 2026

🔎 Research lines and main methodologies applied:

We study the role of DNA methylation and other epigenetic modifications in the assembly and maintenance of transcriptional and chromatin domains. How they are perturbed in pathological conditions, such as in primary immunodeficiencies caused by epigenetic regulators (e.g. DNMT3B, ZBTB24, KMT2D, KDM6A), is the major issue that we are currently addressing. This group of diseases includes ultra-rare and rare genetic disease, like ICF and Kabuki syndromes (KS).

Our experimental strategy combines classic molecular approaches and gene-specific analysis with large-scale transcriptomic and epigenomic technologies in human cellular models, in particular patient-derived induced pluripotent stem cells (iPSCs) and differentiation derivatives. We apply CRISPR/Cas9 genome editing approaches in patient-iPSCs to correct mutations in disease-causing genes and obtain the rescue of the phenotypes.

Prof. Francesco Miceli's lab

📍Location of the laboratory: Deparment of Neuroscience, Via Sergio Pansini, 5, Biological tower (15th floor)

☎ Contacts:

E-mail: frmiceli@unina.it

Telephone: 081-7463289

⏰ Available from January 2026

🔎 Research lines:

- Functional characterization of variants in ion channels causing epilesy in humans
- Identification of novel drugs for treatment of hyperexcitability disorders such as epilespy and pain
- Role of the ion channels in the blood-brain barrier (BBB) in neurovascular diseases
- Motorneuron disease

🔎 Main methodologies applied:

- Electrophysiology, cellular biology (mammalian cells, induced pluripotent stem cells iPSC), molecular biology (cloning, mutagenesis), animal models of neurological diseases

Dr. Antonella Zannetti's lab

📍Location of the laboratory: Institute of Biostructures and Bioimaging-IBB National Research CouncilCNR, Via T. De Amicis 95 (2nd floor)

☎️ Contacts:
E-mail: antonella.zannetti@cnr.it

⏰ Available from November 2025

🔎 Research lines and main methodologies applied:

Cancer Biology; Development of novel agents for imaging and therapy in cancer; Role of tumor microenvironment in cancer progression. Cellular and Molecular Biology Methods

Gemlab

Prof. Guido Iaccarino's lab

📍 Location of the laboratory: AOU Federico II, Via Sergio Pansini 5, Building 20 (ground floor)

☎️ Contacts:

E-mail: guiaccar@unina.it
Telephone: 081-7462220

⏰ Available immediately

🔎 Research lines:

- Cardiometabolic diseases (Hypertension, Anderson-Fabry disease, Diabetes, Obesity)
- Aging

🔎 Main methodologies applied:

- Patient-derived cells (fibroblasts)
- Mouse-derived cells (cardiomyocytes)
- Transgenic mouse models of disease
- Molecular and cellular biology
- Immunohistochemistry
- Confocal microscopy
- Mitochondrial function at Seahorse

LabENDO

Prof. Claudia Pivonello's lab

📍 Location of the laboratory: II Policlinico AOU Federico II; Building 3, platform C (ground floor)

☎ Contacts:
Lab: 081-7464715
Office: 081-7464737

⏰ Available immediately

🔎 Research lines:

- Epigenetic mechanisms underlying the pathogenesis and pharmacotherapy of neuroendocrine disease
- Impact of circadian rhythm disruption on the pathogenesis and medical therapy of endocrine and neuroendocrine tumours and diseases
- Impact of clock gene regulation on metabolic signalling in skeletal muscle and adipose tissue

🔎 Methodologies applied:

Cell and tissue biology: handling of human and mouse cell lines and primary cultures from biopsies; cell proliferation and viability assays, migration and invasion assays, metabolic assay (Seahorse), IHC, ICC, IF, etc..
Biochemical assays: serum, plasma and cell supernatant ELISA and CLIA assays.
Molecular biology: RT-qPCR, PCR, Genotyping, Western blot, gene and protein array, gene knockout by CRISPR/Cas9 technology, gene knockdown by siRNA, plasmid transfection.

Research Lab of Prof. Raffaela Pero

📍Location of the laboratory: II Policlinico AOU Federico II, Building 4 (3rd floor), Via Sergio Pansini 5, Naples

☎ Contacts:
Telephone: 3394596163

⏰ Available from 10 AM

🔎 Research lines and main methodologies applied:

Raffaela Pero, PhD-MD, **is an Associate Professor (MEDS-03/A – 06/A3: Microbiology and Clinical Microbiology) at the** Department of Molecular Medicine and Medical Biotechnology, University of Naples "Federico II".
Raffaela Pero is an Associate Professor and biomedical researcher with over 40 peer-reviewed publications in international scientific journals. She also serves as Associate Editor for *Frontiers in Microbiology,* section "Microorganisms in Vertebrate Digestive Systems".
Her research studied epigenetic alterations in human epithelial cells following Helicobacter pylori infection and/or LPS treatment. In particular, she evaluated the early onset of chromatin conformational changes in this experimental system and their potential role in human neoplastic transformation following microbiological stimuli.
She has also explored the role of the intestinal microbiota in the onset of various human diseases, as well as the action of human defensins in *Helicobacter pylori* and *Staphylococcus aureus* infections, and the impact of physical activity.

Genome Stability Lab
Luca Palazzo's lab

📍 Location of the laboratory: II Policlinico, Building 19, Corpi Bassi Sud (ground floor)

☎ Contacts:

E-mail: luca.palazzo@unina.it

⏰ Available on Wednesday 10.00 - 13.30

🔎 Research lines and main methodologies applied

1. Investigation of DNA Damage Repair Mechanisms Mediated by Poly(ADP-ribose) Polymerases (PARPs)
2. Understanding the Role of the PARP Network in Cancer Biology and Therapy

Sterile Tissue Culture of cancer cell models; Genetic manipulation techniques (CRISPR-Cas9 genome editing, lentiviral transduction, plasmid transfection), phenotypic assessments (cell survival assays, drug sensitivity and resistance analysis, cell migration and tumorigenicity studies), generation of drug-resistant cancer cells, molecular biology techniques (DNA cloning), biochemical methods (Western blotting, immunoprecipitation, *in vitro* enzymatic assays), confocal microscopy, and other advanced molecular and cellular techniques.

Translation Genomics of Pediatric Cancer

Prof. Mario Capasso's lab

📍 Location of the laboratory: CEINGE Biotecnologie Avanzate Franco Salvatore

☎ Contacts:

E-mail: mario.capasso@unina.it

Telephone: 081-3737889

⏰ Available any Wednesday from 14:30 to 16:30

Please send an email to schedule an appointment

🔎 Research lines and main methodologies applied:

Thesis in Pediatric Cancer Genetics

Two research tracks are available for students to choose from:

1. **Experimental *in vitro* track**

Investigation of epigenomic landscapes and coding/non-coding mutations in pediatric tumors using advanced molecular biology and genomics techniques, including CRISPR-Cas9 genome editing, ATAC-seq, ChIP-seq, cell culture systems, *in vitro* functional assays, western blotting, qPCR, PCR, and next-generation sequencing.

2. **Bioinformatics track**

Multi-omic and single-cell analysis (RNA-seq, long-read sequencing, whole genome sequencing, whole exome sequencing, GWAS, epigenomics) to elucidate the molecular mechanisms driving neuroblastoma progression and discover novel biomarkers.

Research group of Prof. Claudia De Lorenzo

📍 Location of the laboratory: CEINGE

☎️ Contacts:

E-mail: cladelor@unina.it

⏰ Available from December 2025

🔎 Research lines and main methodologies applied:

Generation and Characterization of novel human antibodies or their derivatives for therapeutic and diagnostic applications

Laboratorio di Biologia Cellulare ed Applicata

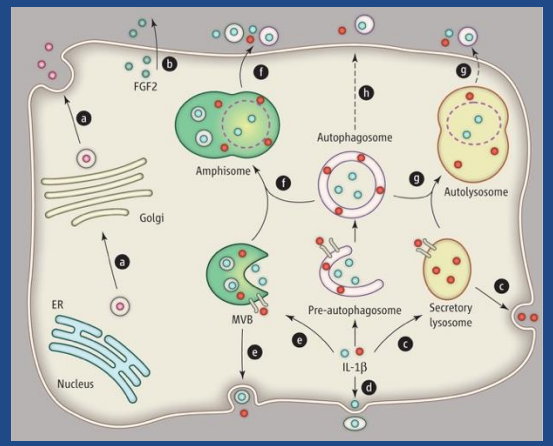
Prof. Maurizio Renna's lab

📍 Location of the laboratory: II Policlinico, Building 19, Corpi Bassi Sud (1st floor)

☎ Contacts:
E-mail: maurizio.renna@unina.it
Office: 081-7463623
Lab: 081-7463626

⏰ Available from March 2026 (1/2 students)

🔎 Research lines and main methodologies applied:



MAIN RESEARCH TOPICS: - *Mechanisms regulating autophagosome biogenesis; - Analysis of the dynamics of transport in the early secretory pathway; - Role of autophagy in neurodegenerative diseases; - Role of autophagy in cell growth control and unconventional secretion; - Pharmacological modulation of autophagy*

METHODOLOGIES:

Molecular Biology and Biochemistry: PCR-based methods, molecular cloning, DNA mutagenesis, Quantitative RT-PCR, reporter assays, Enzymatic activity and reporter assays. SDS-PAGE, W. blot analysis, metabolic labelling, immunoprecipitation (IP/co-IP), biotinylation Assays, GST/pull-down and GFP-TRAP assays.

Cell Biology: eukaryotic cell cultures; transient and stable transfection of DNA into eukaryotic cells; RNA-interference methodologies; CRISPR/CAS9-based knock-out methodologies. Immunofluorescence, confocal microscopy and live imaging analysis; cellular fractionation by gradient density and differential ultracentrifugation. Isolation of exosomes; isolation and purification of lysosomes. Protein complementation (PCA) and proximity ligation (PLA) assays; analysis of autophagosome- and proteasome-dependent protein turn-over; intracellular protein transport and secretion, endocytosis and lysosomal degradation; cell viability and apoptosis; FACS analysis.

Treg Cell Lab

Prof. Giuseppe Matarese's lab

Location of the laboratory: Via Sergio Pansini, 5, Napoli (Building 19A, 2nd floor)

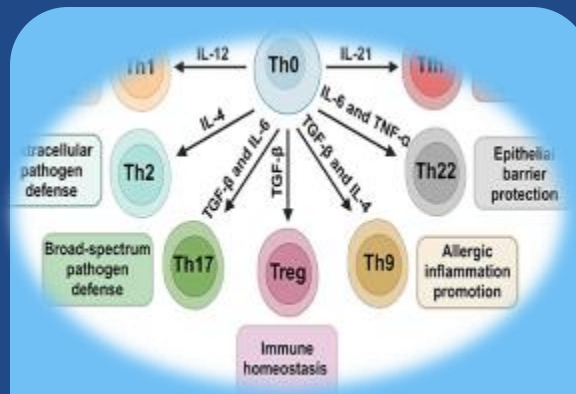
Contacts:

E-mail: alessandra.colamatteo@unina.it

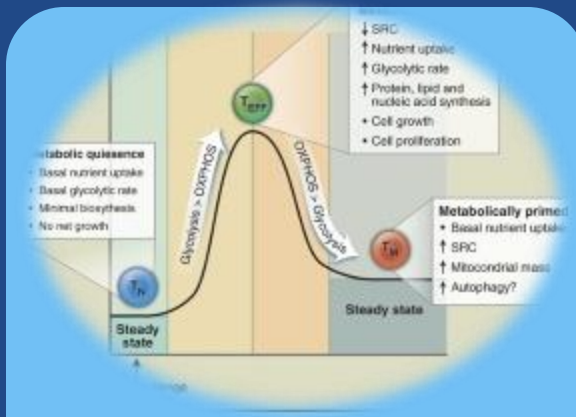
Telephone: 081-7464580/4596

Available from January 2026

Research Areas and Experimental Approaches



Immunophenotyping of T cells by Flow Cytometry



Bioenergetic profile of T cells by Seahorse technology

Animal model of Type I Diabetes and Multiple Sclerosis

Nutritional approaches for therapeutic immunomodulation

MultiOMICS lab

Profs. Marianna Caterino, Michele Costanzo, Armando Cevenini

📍Location of the laboratory: CEINGE, Biotecnologie Avanzate F. Salvatore

☎️ Contacts:

E-mail: marianna.caterino@unina.it; michele.costanzo@unina.it; armando.cevenini@unina.it

⏰ Available from January 2026

🔎 Research lines and main methodologies applied:

Unraveling Pathogenic Mechanisms in Rare Metabolic Disorders via Integrated Multiomics

High-throughput 'omics' approaches support the identification of altered pathways, signaling networks, and interactomes in disease models

1. **Proteomics**: quantification of proteins, peptides, and post-translational modifications in cells or tissues
2. **Metabolomics** and **lipidomics**: detection of metabolites and lipids to identify biomarkers and metabolic signatures of disease
3. **Bioinformatics** tools enable integration of multi-layer data, linking mitochondrial, lysosomal, and metabolic dysfunctions

Immuno oncology laboratory

Prof. Simona Romano's lab

📍 Location of the laboratory: Via S. Pansini, 5, Napoli (Building 19, Corpi bassi sud, 1st floor)

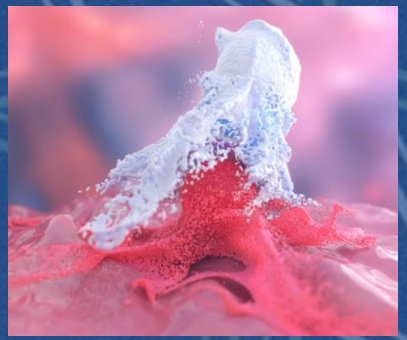
☎ Contacts:

E-mail: simona.romano@unina.it
Telephone: 081-7463125-23

⏰ Available: immediately

🔎 Research lines:

- Understand how different immune cell types behave within the tumor microenvironment (TME), with a particular focus on Tumor-Associated Macrophages (TAMs) and their role in sustaining tumor growth and promoting therapy resistance.
- Identify the molecular mechanisms driving macrophage polarization from a tumor-fighting to a tumor-supporting state.
- Develop innovative strategies to reprogram or remodel the TME, enhancing the effectiveness of immunotherapy.



🔎 Methodologies applied:

Cellular and Functional Assays: handling of human and murine cell lines; activation and differentiation of primary monocytes/macrophages and T lymphocytes, suppression and cytotoxicity assays to evaluate immune responses, secretome analysis to study cytokine and mediator release.
Biochemistry and Molecular Biology: protein and DNA/RNA extraction, RT-PCR, qPCR, bacterial transformation, immunoblotting, IP and co-IP; CRISPR/Cas9 gene editing and RNA interference (shRNA/siRNA) to investigate gene function in immune and tumor cells.
Flow Cytometry: multiparametric fluorescence analysis for immunophenotyping, cell cycle, proliferation, and cell death assays, mitochondrial fitness evaluation and small-molecule efficacy testing through high-throughput screening.

Antonella Izzo's lab

📍 Location of the laboratory: TORRE BIOLOGICA Building 19 (3rd floor)

☎️ Contacts:

E-mail: antonella.izzo@unina.it
Telephone: 081-7463237

⏰ Available from November 2025

🔎 Research lines and main methodologies applied:

Modeling and Correcting Hsa21 Gene Dosage in Trisomic iPSCs to Identify Key Regulators of Neurodevelopmental Defects in Down Syndrome

Development and application of a high-resolution experimental platform based on human induced pluripotent stem cells (iPSCs) trisomic for chromosome 21 and engineered to express Cas9 under the control of an inducible promoter. This platform allows for precise, temporally controlled genome editing to investigate the function of genes and gene regions on chromosome 21, which, when present in three copies, are responsible for the phenotypes associated with Down syndrome (DS).

Methodologies: iPSC culture and differentiation in neural progenitors and neurons; Cas9-based gene editing; high resolution confocal microscopy fluorescence; gene and protein expression techniques.

Research group of Mariarosaria De Falco and Mariarita De Felice

📍 Location of the laboratory: CNR – Via Pietro Castellino, 111

☎️ Contacts: mariarosaria.defalco@cnr.it; mariarita.defelice@cnr.it

⏰ Available from November 2025

🔎 Research lines and main methodologies applied:

Study of extremophilic replication enzymes, in order to realize a diagnostic device designed for the identification of pathogens directly from biological fluids.

Methodologies : PCR, Gel electrophoresis, Protein purification, FPLC, enzymatic assays, Band-shift, bacterial growth, spectrophotometric analysis.