

**Dottorato di ricerca in
Medicina Molecolare e Biotecnologie Mediche**

Linee di ricerca disponibili per le borse per i Dottorandi del ciclo 41° sono:

- a) n. 3 relative alle seguenti Linee di Ricerca qualora finanziate dal programma "Dottorati di ricerca innovativi con caratterizzazione industriale" -PR Campania FSE+ 2021/2027- (qualora non finanziata queste linee confluiranno nel gruppo di cui al punto b)**

Marianna Caterino

Multimics Analysis of Mitochondrial, autophagic, and lysosomal Balance in cbIC methylmalonic Acidemia (MAMBA).

- Rossi A, Ruoppolo M, Fedele R, Pirozzi F, Rosano C, Auricchio R, Melis D, Strisciuglio P, Oosterveer MH, Derks TGJ, Parenti G, Caterino M. A specific serum lipid signature characterizes patients with glycogen storage disease type Ia. *J Lipid Res.* 2024 Oct;65(10):100651.
- Costanzo M, Cevenini A, Kollipara L, Caterino M, Bianco S, Pirozzi F, Scerra G, D'Agostino M, Pavone LM, Sickmann A, Ruoppolo M. Methylmalonic acidemia triggers lysosomal-autophagy dysfunctions. *Cell Biosci.* 2024 May 17;14(1):63.
- Caterino M, Paris D, Torromino G, Costanzo M, Flore G, Tramice A, Golini E, Mandillo S, Cavezza D, Angelini C, Ruoppolo M, Motta A, De Leonibus E, Baldini A, Illingworth E, Lania G. Brain and behavioural anomalies caused by Tbx1 haploinsufficiency are corrected by vitamin B12. *Life Sci Alliance.* 2024 Nov 20;8(2):e202403075.

Lorenzo Chiariotti

Epigenetics and epigenomics of brain cancer: pioneer factors and epigenetic dynamics in brain tumors-derived cells, in cancer stem cells and in mouse models to uncover new therapeutic approaches.

- Cuomo M, Costabile D, Della Monica R, Buonaiuto M, Trio F, De Riso G, Visconti R, Chiariotti L. A specific pluripotency-associated eRNA controls Nanog locus by shaping the epigenetic landscape and stabilizing enhancer-promoter interaction. *Nucleic Acids Res (Oxford).* 2025 Apr 10;53(7):gkaf274.
- Cuomo M, Coretti L, Costabile D, Della Monica R, De Riso G, Buonaiuto M, Trio F, Bravaccio C, Visconti R, Berni Canani R, Chiariotti L, Lembo F. Host fecal DNA specific methylation signatures mark gut dysbiosis and inflammation in children affected by autism spectrum disorder. *Sci Rep (npj).* 2023 Oct 24;13(1):18197.
- Della Monica R, Buonaiuto M, Cuomo M, Pagano C, Trio F, Costabile D, de Riso G, Cicala FS, Raia M, Franca RA, Del Basso De Caro M, Sorrentino D, Navarra G, Coppola L, Tripodi L, Pastore L, Hench J, Frank S, Schonauer C, Catapano G, Bifulco M, Chiariotti L, Visconti R. Targeted inhibition of the methyltransferase SETD8 synergizes with the Wee1 inhibitor adavosertib in restraining glioblastoma growth. *Cell Death Dis (npj).* 2023 Sep 27;14(9):638.

Gabriella Esposito

Retinal and skin disorders as primary targets of innovative therapies for treatment of rare genetic diseases characterized by nonsense mutations.

- Petillo R, De Maggio I, Piscopo C, Chetta M, Tarsitano M, Chiriatti L, Sannino E, Torre S, D'Antonio M, D'Ambrosio P, Rambaldi M, Cioce M, De Stefano V, Parisi MR, Telese A, Oro M, Riveccio M, Radio FC, Mancini C, Niceta M, Cordeddu V, Bruselles A, Mammi C, Dattola A, Fioretti T, Esposito G, Novelli A, Tessitore A, Tessa A, Santorelli FM, Iolascon A, Monica MD, Tartaglia M, Priolo M. Genomic Testing in Adults with Undiagnosed Rare Conditions: Improvement of Diagnosis Using Clinical Exome Sequencing as a First-Tier Approach. *Clin Genet.* 2025 Feb 1.

- Fioretti T, Martora F, De Maggio I, Ambrosio A, Piscopo C, Vallone S, Amato F, Passaro D, Acquaviva F, Gaudiello F, Di Girolamo D, Maiolo V, Zarrilli F, Esposito S, Vitiello G, Auricchio L, Sammarco E, Brasi D, Petillo R, Gambale A, Cattaneo F, Ammendola R, Nappa P, Esposito G. Comprehensive Molecular Analysis of Disease-Related Genes as First-Tier Test for Early Diagnosis, Classification, and Management of Patients Affected by Nonsyndromic Ichthyosis. *Biomedicines*. 2024
- Karali M, Testa F, Di Iorio V, Torella A, Zeuli R, Scarpato M, Romano F, Onore ME, Pizzo M, Melillo P, Brunetti-Pierri R, Passerini I, Pelo E, Cremers FPM, Esposito G, Nigro V, Simonelli F, Banfi S. Genetic epidemiology of inherited retinal diseases in a large patient cohort followed at a single center in Italy. *Sci Rep*. 2022 Dec 2;12(1):20815.

b) Tutte le altre a scelta tra le seguenti Linee di Ricerca:

Stefano Amente

DNA Damage as a Transcriptional Signal: Molecular Mechanisms and Epigenetic Regulation.

- Piscone A, Gorini F, Ambrosio S, Noviello A, Scala G, Majello B, Amente S. Targeting the 8-oxodG Base Excision Repair Pathway for Cancer Therapy. *Cells*. 2025 Jan 14;14(2):112.
- Scala G, Gorini F, Ambrosio S, Chiariello AM, Nicodemi M, Lania L, Majello B, Amente S. 8-oxodG accumulation within super-enhancers marks fragile CTCF-mediated chromatin loops. *Nucleic Acids Res*. 2022 Apr 8;50(6):3292-3306.
- Gorini F, Scala G, Di Palo G, Dellino GI, Coccozza S, Pelicci PG, Lania L, Majello B, Amente S. The genomic landscape of 8-oxodG reveals enrichment at specific inherently fragile promoters. *Nucleic Acids Res*. 2020 May 7;48(8):4309-4324.

Immacolata Andolfo

Investigating the role of gain-of-function PIEZO1 genetic variants in the crosstalk between erythropoiesis and iron metabolism through integrated in vitro, ex vivo, and in vivo studies.

- Rosato BE, D'Onofrio V, Marra R, Nostroso A, Esposito FM, Iscaro A, Lasorsa VA, Capasso M, Iolascon A, Russo R, Andolfo I. RAS signaling pathway is essential in regulating PIEZO1-mediated hepatic iron overload in dehydrated hereditary stomatocytosis. *Am J Hematol*. 2025 Jan;100(1):52-65.
- Ma S, Dubin AE, Zhang Y, Mousavi SAR, Wang Y, Coombs AM, Loud M, Andolfo I, Patapoutian A. A role of PIEZO1 in iron metabolism in mice and humans. *Cell*. 2021 Feb 18;184(4):969-982.e13.
- Andolfo I, Rosato BE, Manna F, De Rosa G, Marra R, Gambale A, Girelli D, Russo R, Iolascon A. Gain-of-function mutations in PIEZO1 directly impair hepatic iron metabolism via the inhibition of the BMP/SMADs pathway. *Am J Hematol*. 2020 Feb;95(2):188-197.

Irene Cantone

Understanding Chromatin-mediated Epigenetic mechanisms underlying T and B cell immune responses in the Sex-Bias of Multiple Sclerosis.

- Credendino SC, Neumayer C, Cantone I. Genetics and Epigenetics of Sex Bias: Insights from Human Cancer and Autoimmunity. *Trends Genet*. 2020 Sep;36(9):650-663.
- Cantone I, Dharmalingam G, Chan YW, Kohler AC, Lenhard B, Merkenschlager M, Fisher AG. Allele-specific analysis of cell fusion-mediated pluripotent reprogramming reveals distinct and predictive susceptibilities of human X-linked genes to reactivation. *Genome Biol*. 2017 Jan 25;18(1):2.
- Cantone I, Bagci H, Dormann D, Dharmalingam G, Nesterova T, Brockdorff N, Rougeulle C, Vallot C, Heard E, Chaligne R, Merkenschlager M, Fisher AG. Ordered chromatin changes and human X chromosome reactivation by cell fusion-mediated pluripotent reprogramming. *Nat Commun*. 2016 Aug 10;7:12354.

Immacolata Castellano

Marine-inspired sulfur-containing amino acids as novel and eco-safe protective molecules against oxidative stress-induced damage.

- Brancaccio M, Milito A, Viegas CA, Palumbo A, Simes DC, Castellano I. First evidence of dermoprotective activity of marine sulfur-containing histidine compounds. *Free Radic Biol Med*. 2022 Nov 1;192:224-234..
- Russo MT, Santin A, Zuccarotto A, Leone S, Palumbo A, Ferrante MI, Castellano I. The first genetic engineered system for ovothiol biosynthesis in diatoms reveals a mitochondrial localization for the sulfoxide synthase OvoA. *Open Biol*. 2023 Feb;13(2):220309.

- Zuccarotto A, Solitto M, Leclère L, Panzella L, Gerdol M, Leone S, Castellano I. Molecular evolution of ovothiol biosynthesis in animal life reveals diversity of the natural antioxidant ovothiols in Cnidaria. *Free Radic Biol Med.* 2025 Feb 1;227:117-128.

Fabio Cattaneo

Unravelling the role of Formyl Peptide Receptors in cancer therapies resistance and cell metabolism reprogramming.

- Pecchillo Cimmino, T., Panico, I., Scarano, S., Stornaiuolo, M., Esposito, G., Ammendola, R., & Cattaneo, F. (2024). Formyl Peptide Receptor 2-Dependent cPLA2 and 5-LOX Activation Requires a Functional NADPH Oxidase. *Antioxidants (Basel, Switzerland)*, 13(2), 220.
- Cimmino TP, Pagano E, Stornaiuolo M, Esposito G, Ammendola R, Cattaneo F. Formyl-peptide receptor 2 signalling triggers aerobic metabolism of glucose through Nox2-dependent modulation of pyruvate dehydrogenase activity. *Open Biol.* 2023;13(10):230336.
- Pecchillo Cimmino T, Pagano E, Stornaiuolo M, Esposito G, Ammendola R, Cattaneo F. Formyl-Peptide Receptor 2 Signaling Redirects Glucose and Glutamine into Anabolic Pathways in Metabolic Reprogramming of Lung Cancer Cells. *Antioxidants (Basel)*. 2022;11(9):1692.

Roberta Colicchio

Antimicrobial synergy of phytochemicals to counteract feared emerging pathogens.

- Di Rosario M, Continisio L, Mantova G, Carraturo F, Scaglione E, Sateriale D, Forgione G, Pagliuca C, Pagliarulo C, Colicchio R, Vitiello M, Salvatore P. Thyme Essential Oil as a Potential Tool Against Common and Re-Emerging Foodborne Pathogens: Biocidal Effect on Bacterial Membrane Permeability. *Microorganisms*. 2024 Dec 27;13(1):37.
- Scaglione E, Sateriale D, Mantova G, Di Rosario M, Continisio L, Vitiello M, Pagliarulo C, Colicchio R, Pagliuca C, Salvatore P. Antimicrobial efficacy of Punica granatum Lythraceae peel extract against pathogens belonging to the ESKAPE group. *Front Microbiol.* 2024 Apr 22;15:1383027.
- Cirella R, Pagliuca C, Pither MD, Scaglione E, Nedashkovskaya OI, Chernikov OV, Hua KF, Colicchio R, Vitiello M, Kokoulin MS, Silipo A, Salvatore P, Molinaro A, Di Lorenzo F. Pushing the Boundaries of Structural Heterogeneity with the Lipid A of Marine Bacteria Cellulophaga. *Chembiochem*. 2023 May 16;24(10):e202300183.

Eliana De Gregorio

Targeting bacterial virulence factor: identification and characterization of bacterial proteins involved in pathogenesis for the development of alternative therapeutic strategies.

- Romano M, Falchi F, De Gregorio E, Stabile M, Migliaccio A, Ruggiero A, Napolitano V, Autiero I, Squeglia F and Berisio R (2024). Structure-based targeting of the lipid A-modifying enzyme PmrC to contrast colistin resistance in *Acinetobacter baumannii*. *Front. Microbiol.* 15:1501051.
- Esposito A, Rossi A, Stabile M, Pinto G, De Fino I, Melessike M, Tamanini A, Cabrini G, Lippi G, Aureli M, Loberto N, Renda M, Galletta LJV, Amoresano A, Dehecchi MC, De Gregorio E, Bragonzi A, Guaragna A. (2024). Assessing the Potential of N-Butyl-I-deoxynojirimycin (I-NBDNJ) in Models of Cystic Fibrosis as a Promising Antibacterial Agent. *ACS Pharmacol Transl Sci.* 7, 1807-1822.
- Stabile, M.; Esposito, A.; Iula, V.D.; Guaragna, A.; De Gregorio, E. (2023). PYED-1 Overcomes Colistin Resistance in *Acinetobacter baumannii*. *Pathogens*. 12, 1323.

Gabriella De Vita

Modeling rare inherited neurological disorders for identification of pathogenetic mechanisms and development of novel diagnostic tools.

- Gaspar IL, Terrone G, Carleo G, Carotenuto L, Miceli F, De Vita G, Tagliatalata M. Potassium current inactivation as a novel pathomechanism for KCNQ2 developmental and epileptic encephalopathy. *Epilepsia*. 2025 Apr 28.
- Cavaliere E, Gortan AJ, Passon N, Fabbro D, Marin D, Carecchio M, Baldan F, Credendino SC, Gallo R, Cogo P, Damante G, De Vita G. NKX2.1 run-on mutation associated to familial brain-lung-thyroid syndrome. *Clin Genet*. 2021 Jul;100(1):114-116.
- Mollo N, Esposito M, Aurilia M, Scognamiglio R, Accarino R, Bonfiglio F, Cicatiello R, Charalambous M, Procaccini C, Micillo T, Genesio R, Cali G, Secondo A, Paladino S, Matarese G, De Vita G, Conti A, Nitsch L, Izzo A. Human Trisomic iPSCs from Down Syndrome Fibroblasts Manifest Mitochondrial Alterations Early during Neuronal Differentiation. *Biology (Basel)*. 2021 Jun 30;10(7):609

Raffaella Faraonio

Non coding RNAs as downstream or upstream regulators of the Nrf2 and p53 redox-related pathways: from molecular mechanisms to pathological conditions, including cancer and age-related diseases.

- Punziano, C., Trombetti, S., Cesaro, E., Grosso, M., & Faraonio, R. (2024). Antioxidant Systems as Modulators of Ferroptosis: Focus on Transcription Factors. *Antioxidants* (Basel, Switzerland), 13(3), 298.
- Rendina, D., D'Elia, L., Abate, V., Rebellato, A., Buondonno, I., Succoio, M., Martinelli, F., Muscariello, R., De Filippo, G., D'Amelio, P., Fallo, F., Strazzullo, P., & Faraonio, R. (2022). Vitamin D Status, Cardiovascular Risk Profile, and miRNA-21 Levels in Hypertensive Patients: Results of the HYPODD Study. *Nutrients*, 14(13), 2683.
- Lettieri-Barbato, D., Aquilano, K., Punziano, C., Minopoli, G., & Faraonio, R. (2022). MicroRNAs, Long Non-Coding RNAs, and Circular RNAs in the Redox Control of Cell Senescence. *Antioxidants* (Basel, Switzerland), 11(3), 480

Danilo Fiore

Implementing multiple precision medicine approaches to overcome drug persistence in T-Cell lymphoma.

- Fiore D, et al. A patient-derived T cell lymphoma biorepository uncovers pathogenetic mechanisms and host-related therapeutic vulnerabilities. *Cell Rep Med*. 2025 Apr 15;6(4):102029.
- Cappelli LV*, Fiore D*, Phillip JM, Yoffe L, Di Giacomo F, Chiu W, Hu Y, Kayembe C, Ginsberg M, Consolino L, Barcia Duran JG, Zamponi N, Melnick AM, Boccalatte F, Tam W, Elemento O, Chiaretti S, Guarini A, Foà R, Cerchietti L, Rafii S, Inghirami G. Endothelial cell-leukemia interactions remodel drug responses, uncovering T-ALL vulnerabilities. *Blood*. 2023 Feb 2;141(5):503-518. PMID: 35981563; PMCID: PMC10082359.
- Fiore D, Cappelli LV, Broccoli A, Zinzani PL, Chan WC, Inghirami G. Peripheral T cell lymphomas: from the bench to the clinic. *Nat Rev Cancer*. 2020 Jun;20(6):323-342.

Alessandro Fiorenzano

Dissecting Human Dopaminergic Neuron Specification Using Advanced 3D Stem Cell-Based Models and Single-Cell Sequencing.

- Fiorenzano A, Storm P, Sozzi E, Bruzelius A, Corsi S, Kajtez J, Mudannayake J, Nelander J, Mattsson B, Åkerblom M, Björklund T, Björklund A, Parmar M. TARGET-seq: Linking single-cell transcriptomics of human dopaminergic neurons with their target specificity. *Proc Natl Acad Sci U S A*. 2024 Nov 19;121(47):e2410331121.
- Sozzi E, Kajtez J, Bruzelius A, Wesseler MF, Nilsson F, Birtele M, Larsen NB, Ottosson DR, Storm P, Parmar M, Fiorenzano A. Silk scaffolding drives self-assembly of functional and mature human brain organoids. *Front Cell Dev Biol*. 2022 Oct 14;10:1023279.
- Fiorenzano A, Sozzi E, Birtele M, Kajtez J, Giacomoni J, Nilsson F, Bruzelius A, Sharma Y, Zhang Y, Mattsson B, Ernénus J, Ottosson DR, Storm P, Parmar M. Single-cell transcriptomics captures features of human midbrain development and dopamine neuron diversity in brain organoids. *Nat Commun*. 2021 Dec 15;12(1):7302.

Antonella Izzo

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

- Mollo, N., Aurilia, M., Scognamiglio, R., Zerillo, L., Cicatiello, R., Bonfiglio, F., Pagano, P., Paladino, S., Conti, A., Nitsch, L., & Izzo, A. (2022). Overexpression of the Hsa21 Transcription Factor RUNX1 Modulates the Extracellular Matrix in Trisomy 21 Cells. *Frontiers in Genetics*, 13, 824922.
- Mollo, N., Esposito, M., Aurilia, M., Scognamiglio, R., Accarino, R., Bonfiglio, F., Cicatiello, R., Charalambous, M., Procaccini, C., Micillo, T., Genesio, R., Cali, G., Secondo, A., Paladino, S., Matarese, G., De Vita, G., Conti, A., Nitsch, L., & Izzo, A. (2021). Human Trisomic iPSCs from Down Syndrome Fibroblasts Manifest Mitochondrial Alterations Early during Neuronal Differentiation. *Biology*, 10(7), 609.
- Izzo, A., Manco, R., Bonfiglio, F., Cali, G., De Cristofaro, T., Patergnani, S., Cicatiello, R., Scrima, R., Zannini, M., Pinton, P., Conti, A., & Nitsch, L. (2014). NR1P1/RIP140 siRNA-mediated attenuation counteracts mitochondrial dysfunction in Down syndrome. *Human Molecular Genetics*, 23(16), 4406–4419.

Danilo S. Matassa

The two-faced role of Syndesmos: riboregulation of DNA damage response.

- De Lella S, Pedalino L, Abaker MAA, Mignogna C, Cautiero R, Franca Esposito F, Matassa DS, Rosario Avolio R. The molecular chaperone TRAP1 promotes translation of Luc7I3 mRNA to enhance ovarian cancer cell proliferation. *bioRxiv* 2025.04.01.646636.
- Avolio R, Agliarulo I, Criscuolo D, Sarnataro D, Auriemma M, Pennacchio S, Calice G, Ng MY, Giorgi C, Pinton P, Cooperman B, Landriscina M, Esposito F, Matassa DS. Cytosolic and mitochondrial translation elongation are coordinated through the molecular chaperone TRAP1 for the synthesis and import of mitochondrial proteins. *bioRxiv [Preprint]*. 2023 Jan 19:2023.01.19.524708.
- Avolio R, Järvelin AI, Mohammed S, Agliarulo I, Condelli V, Zoppoli P, Calice G, Sarnataro D, Bechara E, Tartaglia GG, Landriscina M, Castello A, Esposito F, Matassa DS. Protein Syndesmos is a novel RNA-binding protein that regulates primary cilia formation. *Nucleic Acids Res.* 2018 Dec 14;46(22):12067-12086.

Rosa Marina Melillo

Tumor suppressor functions of Formyl peptide receptor 1 in gastroenteric cancer: control of inflammation resolution, cholesterol biosynthetic flux and interferon signaling.

- Liotti F, Marotta M, Costanzo M, De Simone C, Zirpoli S, De Falco V, Melillo RM, Prevete N. Formyl peptide receptor 1 signaling strength orchestrates the switch from pro-inflammatory to pro-resolving responses: The way to exert its anti-angiogenic and tumor suppressor functions. *Biomed Pharmacother.* 2025 May;186:117961.
- Liotti F, Marotta M, Sorriento D, Pagliuca C, Caturano V, Mantova G, Scaglione E, Salvatore P, Melillo RM, Prevete N. Probiotic *Lactobacillus rhamnosus* GG (LGG) restrains the angiogenic potential of colorectal carcinoma cells by activating a proresolving program via formyl peptide receptor 1. *Mol Oncol.* 2022 Aug;16(16):2959-2980.
- Prevete N, Liotti F, Illiano A, Amoresano A, Pucci P, de Paulis A, Melillo RM. Formyl peptide receptor 1 suppresses gastric cancer angiogenesis and growth by exploiting inflammation resolution pathways. *Oncoimmunology.* 2017 Feb 21;6(4):e1293213.

Giuseppe Merla

At the molecular bases of Lodder-Merla syndrome.

- Lodder EM, De Nittis P, Koopman CD, Wiszniewski W, Moura de Souza CF, Lahrouchi N, Guex N, Napolioni V, Tessadori F, Beekman L, Nannenberg EA, Boualla L, Blom NA, de Graaff W, Kamermans M, Cocciadiferro D, Malerba N, Mandriani B, Akdemir ZHC, Fish RJ, Eldomery MK, Ratbi I, Wilde AAM, de Boer T, Simonds WF, Neerman-Arbez M, Sutton VR, Kok F, Lupski JR, Reymond A, Bezzina CR, Bakkers J, Merla G. GNB5 Mutations Cause an Autosomal-Recessive Multisystem Syndrome with Sinus Bradycardia and Cognitive Disability. *Am J Hum Genet.* 2016 Sep 1;99(3):704-710.
- Poke G, King C, Muir A, de Valles-Ibáñez G, Germano M, Moura de Souza CF, Fung J, Chung B, Fung CW, Mignot C, Ilea A, Keren B, Vermersch AI, Davis S, Stanley T, Moharir M, Kannu P, Shao Z, Malerba N, Merla G, Mefford HC, Scheffer IE, Sadleir LG. The epileptology of GNB5 encephalopathy. *Epilepsia.* 2019 Nov;60(11):e121-e127.
- Vernon H, Cohen J, De Nittis P, Fatemi A, McClellan R, Goldstein A, Malerba N, Guex N, Reymond A, Merla G. Intellectual developmental disorder with cardiac arrhythmia syndrome in a child with compound heterozygous GNB5 variants. *Clin Genet.* 2018 Jun;93(6):1254-1256.

Chiara Pagliuca

Exploring the effects of gut microbiota on H. pylori virulence to develop innovative therapeutic solutions.

- Pither MD, Illiano A, Pagliuca C, Jacobson A, Mantova G, Stornaiuolo A, Colicchio R, Vitiello M, Pinto G, Silipo A, Fischbach MA, Salvatore P, Amoresano A, Molinaro A, Di Lorenzo F. Bacteroides thetaiotaomicron rough-type lipopolysaccharide: The chemical structure and the immunological activity. *Carbohydr Polym.* 2022 Dec 1;297:120040.
- Liotti F, Marotta M, Sorriento D, Pagliuca C, Caturano V, Mantova G, Scaglione E, Salvatore P, Melillo RM, Prevete N. Probiotic *Lactobacillus rhamnosus* GG (LGG) restrains the angiogenic potential of colorectal carcinoma cells by activating a proresolving program via formyl peptide receptor 1. *Mol Oncol.* 2022 Aug;16(16):2959-2980.
- Labruna G, Nanayakkara M, Pagliuca C, Nunziato M, Iaffaldano L, D'Argenio V, Colicchio R, Budelli AL, Nigro R, Salvatore P, Barone MV, Sacchetti L. Celiac disease-associated *Neisseria flavescens* decreases mitochondrial respiration in CaCo-2 epithelial cells: Impact of *Lactobacillus paracasei* CBA L74 on bacterial-induced cellular imbalance. *Cell Microbiol.* 2019 Aug;21(8):e13035.

Luca Palazzo

Investigating and targeting PARP-dependent DNA damage responses to unveil novel targets and biomarkers for cancer therapy.

- Caggiano R, Prokhorova E, Duma L, Schützenhofer K, Lauro R, Catara G, Melillo RM, Celetti A, Smith R, Weroha SJ, Kaufmann SH, Ahel I, Palazzo L. Suppression of ADP-ribosylation reversal triggers cell vulnerability to alkylating agents. *Neoplasia*. 2025 Jan;59:101092.
- Prokhorova E, Agnew T, Wondisford AR, Tellier M, Kaminski N, Beijer D, Holder J, Gros Lambert J, Suskiewicz MJ, Zhu K, Reber JM, Krassnig SC, Palazzo L, Murphy S, Nielsen ML, Mangerich A, Ahel D, Baets J, O'Sullivan RJ, Ahel I. Unrestrained poly-ADP-ribosylation provides insights into chromatin regulation and human disease. *Mol Cell*. 2021 Jun 17;81(12):2640-2655.e8.
- Palazzo L, Suskiewicz MJ, Ahel I. Serine ADP-ribosylation in DNA-damage response regulation. *Curr Opin Genet Dev*. 2021 Dec;71:106-113.

Silvia Parisi

Pluripotent stem cells models to study development and diseases.

- Divisato G, Chiariello AM, Esposito A, Zoppoli P, Zambelli F, Elia MA, Pesole G, Incarnato D, Passaro F, Piscitelli S, Oliviero S, Nicodemi M, Parisi S, Russo T. Hmga2 protein loss alters nuclear envelope and 3D chromatin structure. *BMC Biol*. 2022 Aug 2;20(1):171
- Parisi S, Castaldo D, Piscitelli S, D'Ambrosio C, Divisato G, Passaro F, Avolio R, Castellucci A, Gianfico P, Masullo M, Scaloni A, Russo T. Identification of RNA-binding proteins that partner with Lin28a to regulate Dnmt3a expression. *Sci Rep*. 2021 Jan 27;11(1):2345.
- Concilli M, Petruzzelli R, Parisi S, Catalano F, Sirci F, Napolitano F, Renda M, Galletta LJV, Di Bernardo D, Polishchuk RS. Pharmacoproteomics pinpoints HSP70 interaction for correction of the most frequent Wilson disease-causing mutant of ATP7B. *Proc Natl Acad Sci U S A*. 2020 Dec 22;117(51):32453-32463.

Fabiana Passaro

Exploring the role of metabolic and epigenetic remodeling in the direct reprogramming of cardiac fibroblasts into cardiomyocytes.

- Improda T, Morgera V, Vitale M, Chiariotti L, Passaro F, Feola A, Porcellini A, Cuomo M, Pezone A. Specific Methyl-CpG Configurations Define Cell Identity through Gene Expression Regulation. *Int J Mol Sci*. 2023 Jun 9;24(12):9951.
- Testa G, Di Benedetto G, Passaro F. Advanced Technologies to Target Cardiac Cell Fate Plasticity for Heart Regeneration. *Int J Mol Sci*. 2021 Sep 1;22(17):9517.
- Testa G, Russo M, Di Benedetto G, Barbato M, Parisi S, Pirozzi F, Tocchetti CG, Abete P, Bonaduce D, Russo T, Passaro F. Bmi1 inhibitor PTC-209 promotes Chemically-induced Direct Cardiac Reprogramming of cardiac fibroblasts into cardiomyocytes. *Sci Rep*. 2020 Apr 28;10(1):7129.

Luigi M. Pavone

Molecular mechanisms in lysosomal storage diseases and novel therapeutic approaches for mucopolysaccharidoses.

- Scarcella M, Scerra G, Ciampa M, Caterino M, Costanzo M, Rinaldi L, Feliciello A, Anzilotti S, Fiorentino C, Renna M, Ruoppolo M, Pavone LM, D'Agostino M, De Pasquale V. Metabolic rewiring and autophagy inhibition correct lysosomal storage disease in mucopolysaccharidosis IIIB. *iScience*. 2024 Jan 29;27(3):108959.
- De Pasquale V, Esposito A, Scerra G, Scarcella M, Ciampa M, Luongo A, D'Alonzo D, Guaragna A, D'Agostino M, Pavone LM. N-Substituted I-Iminosugars for the Treatment of Sanfilippo Type B Syndrome. *J Med Chem*. 2023 Feb 9;66(3):1790-1808.
- Scerra G, De Pasquale V, Scarcella M, Caporaso MG, Pavone LM, D'Agostino M. Lysosomal positioning diseases: beyond substrate storage. *Open Biol*. 2022 Oct;12(10):220155.

Giovanna M. Pierantoni

RNA epitranscriptomic and proteomic signatures to identify cancer biomarkers in representative cancer types (glioblastoma, osteosarcoma, breast and colon cancer) for improving precision oncology.

- Anzilotti S, Valente V, Brancaccio P, Franco C, Casamassa A, Lombardi G, Palazzi A, Conte A, Paladino S, Canzoniero LMT, Annunziato L, Pierantoni GM*, Pignataro G. Chronic exposure to I-BMAA cyanotoxin induces cytoplasmic TDP-43 accumulation and glial activation, reproducing an amyotrophic lateral sclerosis-like phenotype in mice. *Biomed Pharmacother*. 2023 Nov;167:115503.

- Conte A, Valente V, Paladino S, Pierantoni GM. HIPK2 in cancer biology and therapy: Recent findings and future perspectives. *Cell Signal*. 2023 Jan;101:110491.
- Conte A, Paladino S, Bianco G, Fasano D, Gerlini R, Tornincasa M, Renna M, Fusco A, Tramontano D, Pierantoni GM. High mobility group A1 protein modulates autophagy in cancer cells. *Cell Death Differ*. 2017 Nov;24(11):1948-1962.

Maurizio Renna

Role of (macro)autophagy in the regulation of the turn-over, unconventional secretion and inter-neuronal spreading of neurodegenerative diseases-associated aggregation-prone proteins.

- Bonavita R, Scerra G, Di Martino R, Nuzzo S, Polishchuk E, Di Gennaro M, Williams SV, Caporaso MG, Caiazza C, Polishchuk R, D'Agostino M, Fleming A, Renna M. The HSPB1-p62/SQSTM1 functional complex regulates the unconventional secretion and transcellular spreading of the HD-associated mutant huntingtin protein. *Hum Mol Genet*. 2023: ddad047.
- Bonavita R, Di Martino R, Cortone G, Prodomo A, Di Gennaro M, Scerra G, Panico V, Nuzzo S, Salvatore M, Williams SV, Vitale F, Caporaso MG, D'Agostino M, Pisani FM, Fleming A, Renna M. A method for the analysis of the oligomerization of the Huntington's disease-associated, aggregation-prone mutant huntingtin protein by isopycnic ultracentrifugation. *Front. Mol. Biosci*. 2024, 11
- Bonavita R, Vitale F, Verdicchio LV, Williams SV, Caporaso MG, Fleming A, Renna M. Small HSPs at the crossroad between protein aggregation, autophagy and unconventional secretion: clinical implications and potential therapeutic opportunities in the context of neurodegenerative diseases. *Front. Cell Dev. Biol*. 2026 13:1538377.

M. Fiammetta Romano

The nuclear role of Programmed Death Ligand 1.

- Giordano C, Marrone L, Romano S, Della Pepa GM, Donzelli CM, Tufano M, Capasso M, Lasorsa VA, Quintavalle C, Guerri G, Martucci M, Auricchio A, Gessi M, Sala E, Olivi A, Romano MF*, Gaudino S. The FKBP51s Splice Isoform Predicts Unfavorable Prognosis in Patients with Glioblastoma. *Cancer Res Commun*. 2024 May 16;4(5):1296-1306.
- Tufano M, D'Arrigo P, D'Agostino M, Giordano C, Marrone L, Cesaro E, Romano MF*, Romano S. PD-L1 Expression Fluctuates Concurrently with Cyclin D in Glioblastoma Cells. *Cells*. 2021 Sep 9;10(9):2366.
- D'Arrigo P, Digregorio M, Romano S, Tufano M, Rea A, Hausch F, Dedobbeleer M, Vigorito V, Russo S, Bauder M, Rogister B, Romano MF. The splicing FK506-binding protein-51 isoform plays a role in glioblastoma resistance through programmed cell death ligand-1 expression regulation. *Cell Death Discov*. 2019 Sep 24;5:137.

Paola Salvatore

New antimicrobial resistance strategies and adjunctive treatments in invasive disease.

- Pagliuca C, Colicchio R, Resta SC, Tal† A, Scaglione E, Mantova G, Continisio L, Pagliarulo C, Bucci C, Alifano P, Salvatore P. *Neisseria meningitidis* activates pyroptotic pathways in a mouse model of meningitis: role of a two-partner secretion system. *Front Cell Infect Microbiol*. 2024 Sep 23;14:1384072.
- Colicchio R, Pagliuca C, Ricci S, Scaglione E, Grandgirard D, Masouris I, Farina F, Pagliarulo C, Mantova G, Paragliola L, Leib SL, Koedel U, Pozzi G, Alifano P, Salvatore P. Virulence Traits of a Serogroup C Meningococcus and Isogenic *cssA* Mutant, Defective in Surface-Exposed Sialic Acid, in a Murine Model of Meningitis. *Infect Immun*. 2019 Mar 25;87(4):e00688-18.
- Ferrucci V, Miceli M, Pagliuca C, Bianco O, Castaldo L, Izzo L, Cozzolino M, Zannella C, Oglio F, Polcaro A, Randazzo A, Colicchio R, Galdiero M, Berni Canani R, Salvatore P, Zollo M. Modulation of innate immunity related genes resulting in prophylactic antimicrobial and antiviral properties. *J Transl Med*. 2024 Jun 17;22(1):574.

Daniela Sarnataro

Molecular mechanism behind membrane trafficking and degradation pathways of aggregation-prone proteins in neurodegenerative diseases.

- Limone A, Di Napoli C, Napolitano F, et al. Targeting RPSA to modulate endosomal trafficking and amyloidogenesis in genetic Alzheimer's disease. *Biochim Biophys Acta Mol Basis Dis*. 2025;1871(5):167753.
- Limone A, Veneruso I, Izzo A, Renna M, Bonavita R, Piscitelli S, Calì G, De Nicola S, Riccio P, D'Argenio V, Lavecchia A, Sarnataro D. Activation of Non-Canonical Autophagic Pathway through Inhibition of Non-Integrin Laminin Receptor in Neuronal Cells. *Cells*. 2022 Jan 29;11(3):466.

- Limone A, Veneruso I, D'Argenio V, Sarnataro D. Endosomal trafficking and related genetic underpinnings as a hub in Alzheimer's disease. *J Cell Physiol.* 2022 Oct;237(10):3803-3815.

Filippo Scialò

Cracking the Metastatic Code in Lung Cancer: Elucidating Cellular and Molecular Mechanisms, Identifying Innovative Therapeutic Targets, and Discovering Predictive Biomarkers for Metastatic Progression.

- Scialò F, Vitale M, D'Agnano V, Mariniello DF, Perrotta F, Castaldo A, Campbell SFM, Pastore L, Cazzola M, Bianco A. Lung Microbiome as a Treatable Trait in Chronic Respiratory Disorders. *Lung.* 2023 Oct;201(5):455-466.
- Vitale M*, Scialò F*, Passariello M, Leggiero E, D'Agostino A, Tripodi L, Gentile L, Bianco A, Castaldo G, Cerullo V, De Lorenzo C, Pastore L. Oncolytic Adenoviral Vector-Mediated Expression of an Anti-PD-L1-scFv Improves Anti-Tumoral Efficacy in a Melanoma Mouse Model. *Front Oncol.* 2022 May 20;12:902190.
- Stella GM*, Scialò F*, Bortolotto C, Agustoni F, Sancì V, Saddi J, Casali L, Corsico AG, Bianco A. Pragmatic Expectancy on Microbiota and Non-Small Cell Lung Cancer: A Narrative Review. *Cancers (Basel).* 2022 Jun 26;14(13):3131.

Olga Scudiero

Genetic Profiling for Exercise Personalization: A Multi-Trait Panel Targeting Athletic Potential, Injury Risk and Personalized Therapeutic Strategies for Metabolic and Neurological Disorders.

- Mennitti C, Brancaccio M, Gentile L, Ranieri A, Terracciano D, Cennamo M, La Civita E, Liotti A, D'Alicandro G, Mazzaccara C, Frisso G, Pero R, Lombardo B, Scudiero O. Athlete's Passport: Prevention of Infections, Inflammations, Injuries and Cardiovascular Diseases. *J Clin Med.* 2020 Aug 6;9(8):2540.
- Mennitti C, Ranieri A, Nigro E, Tripodi L, Brancaccio M, Ullisse J, Gentile L, Fimiani F, Cesaro A, D'Alicandro G, Limongelli G, Daniele A, Pero R, Frisso G, Calabrò P, Pastore L, Licenziati MR, Scudiero O, Lombardo B. The Impact of Physical Exercise on Obesity in a Cohort of Southern Italian Obese Children: Improvement in Cardiovascular Risk and Immune System Biomarkers. *Int J Environ Res Public Health.* 2022 Dec 29;20(1):602.
- Mennitti C, Miele C, Scarano C, Veneruso I, Gentile A, Mormile R, Saviano F, D'Alicandro G, Mazzaccara C, Frisso G, Capasso F, D'Argenio V, Scudiero O. Integrated Approach to Highlighting the Molecular Bases of a Deep Vein Thrombosis Event in an Elite Basketball Athlete. *Int J Mol Sci.* 2023 Jul 31;24(15):12256.

Nadia Tinto

Forensic chronobiology: integrative molecular approaches for post-mortem interval estimation in human skeletal remains

- Di Nunzio M., Pieri M., Gangitano D., Di Nunzio C. Tinto N., Niola M., Barrot-Feixat C. Leveraging genetics to support forensic toxicology analysis: Demonstrating concordance among marijuana samples. *Journal of Applied Research on Medicinal and Aromatic Plants.* 2024, 43:100598
- Di Nunzio A., Di Nunzio C., Maione G., Iafusco F., Tinto N. A complex case of paternity testing. *Biochimica Clinica Biochimica Clinica.* 2023, 47(4): e58–e61. doi: 10.19186/BC_2023.046
- Di Nunzio A., Tinto N., Iafusco F., Zibetti A., Ricci P., Di Nunzio C. Null allele can bring to interpretative problems in a deficitary paternity case. *Forensic Science International: Genetics Supplement Series.* 2022, 8:115–116

Konrad A. Urbanek

Modulators of the incretin system in models of cardiometabolic heart failure with a preserved ejection fraction: cellular and molecular mechanism of myocardial remodeling and multi-organ involvement.

- Telesca M, De Angelis A, Donniacuo M, Bellocchio G, Riemma MA, Mele E, Canonico F, Cianflone E, Torella D, D'Amario D, Patti G, Liantonio A, Imbrici P, De Luca A, Castaldo G, Rossi F, Cappetta D, Urbanek K, Berrino L. Effects of sacubitril-valsartan on aging-related cardiac dysfunction. *Eur J Pharmacol.* 2024 Sep 5;978:176794.
- Telesca M, Donniacuo M, Bellocchio G, Riemma MA, Mele E, Dell'Aversana C, Sgueglia G, Cianflone E, Cappetta D, Torella D, Altucci L, Castaldo G, Rossi F, Berrino L, Urbanek K, De Angelis A. Initial Phase of Anthracycline Cardiotoxicity Involves Cardiac Fibroblasts Activation and Metabolic Switch. *Cancers (Basel).* 2023 Dec 21;16(1):53.
- Urbanek K, Cappetta D, Bellocchio G, Coppola MA, Imbrici P, Telesca M, Donniacuo M, Riemma MA, Mele E, Cianflone E, Naviglio S, Conte E, Camerino GM, Mele M, Bucci M, Castaldo G, De Luca A, Rossi F, Berrino L, Liantonio A, De Angelis A. Dapagliflozin protects the kidney in a non-diabetic model of cardiorenal syndrome. *Pharmacol Res.* 2023 Feb;188:106659.

Mariateresa Vitiello

Emerging antimicrobials: Sources, Mechanisms of action and Molecular approaches to combating multi-drug-resistant infectious pathogens

- Di Rosario M, Continisio L, Mantova G, Carraturo F, Scaglione E, Sateriale D, Forgione G, Pagliuca C, Pagliarulo C, Colicchio R, Vitiello M*, Salvatore P. Thyme Essential Oil as a Potential Tool Against Common and Re-Emerging Foodborne Pathogens: Biocidal Effect on Bacterial Membrane Permeability. *Microorganisms*. 2024 Dec 27;13(1):37.
- Scaglione E, Sateriale D, Mantova G, Di Rosario M, Continisio L, Vitiello M, Pagliarulo C, Colicchio R, Pagliuca C, Salvatore P. Antimicrobial efficacy of Punica granatum Lythraceae peel extract against pathogens belonging to the ESKAPE group. *Front Microbiol*. 2024 Apr 22;15:1383027.
- Pither MD, Mantova G, Scaglione E, Pagliuca C, Colicchio R, Vitiello M, Chernikov OV, Hua KF, Kokoulin MS, Silipo A, Salvatore P, Molinaro A, Di Lorenzo F. The Unusual Lipid A Structure and Immunoinhibitory Activity of LPS from Marine Bacteria *Echinicola pacifica* KMM 6172T and *Echinicola vietnamensis* KMM 6221T. *Microorganisms*. 2021 Dec 10;9(12):2552.

Massimo Zollo

New therapeutics targets for clinical intervention for both paediatric and adult brain cancer

- Ferrucci V, de Antonellis P, Pennino FP, Asadzadeh F, Virgilio A, Montanaro D, Galeone A, Boffa I, Pisano I, Scognamiglio I, Navas L, Diana D, Pedone E, Gargiulo S, Gramanzini M, Brunetti A, Danielson L, Carotenuto M, Liguori L, Verrico A, Quaglietta L, Errico ME, Del Monaco V, D'Argenio V, Tirone F, Mastronuzzi A, Donofrio V, Giangaspero F, Picard D, Remke M, Garzia L, Daniels C, Delattre O, Swartling FJ, Weiss WA, Salvatore F, Fattorusso R, Chesler L, Taylor MD, Cinalli G, Zollo M. Metastatic group 3 medulloblastoma is driven by PRUNE1 targeting NME1-TGF- β -OTX2-SNAIL via PTEN inhibition. *Brain*. 2018 May 1;141(5):1300-1319.
- Ferrucci V, Miceli M, Pagliuca C, Bianco O, Castaldo L, Izzo L, Cozzolino M, Zannella C, Oglio F, Polcaro A, Randazzo A, Colicchio R, Galdiero M, Berni Canani R, Salvatore P, Zollo M. Modulation of innate immunity related genes resulting in prophylactic antimicrobial and antiviral properties. *J Transl Med*. 2024 Jun 17;22(1):574.
- Ferrucci V, Asadzadeh F, Collina F, Siciliano R, Boccia A, Marrone L, Spano D, Carotenuto M, Chiarolla CM, De Martino D, De Vita G, Macrì A, Dassi L, Vandenbussche J, Marino N, Cantile M, Paoletta G, D'Andrea F, di Bonito M, Gevaert K, Zollo M. Prune-1 drives polarization of tumor-associated macrophages (TAMs) within the lung metastatic niche in triple-negative breast cancer. *iScience*. 2020 Dec 13;24(1):101938.