

**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

Multimomics 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.
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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
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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.
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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.
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Irene Cantone

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

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- 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.

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Fabio Cattaneo

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

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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.
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Elia De Gregorio

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

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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.
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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.
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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.
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Alessandro Fiorenzano

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

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Antonella Izzo

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

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Danilo S. Matassa

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

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Rosa Marina Melillo

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

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Giuseppe Merla

At the molecular bases of Lodder-Merla syndrome.

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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.
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Luca Palazzo

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

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Silvia Parisi

Pluripotent stem cells models to study development and diseases.

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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.
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Luigi M. Pavone

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

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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.

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