

AVAILABLE POSITIONS

GENOMIC MEDICINE RESEARCH AREA

Principal Investigators involved	DIEGO DI BERNARDO DAVIDE CACCHIARELLI GENNARO GAMBARDELLA SANDRO BANFI
Institute of Affiliation	TIGEM, Telethon Institute of Genetics and Medicine

PROJECT INFO	
Short description of the project	<p>The Genomic Medicine (GM) area at TIGEM is characterised by a strongly interdisciplinary approach, bringing together investigators with complementary expertise in engineering, computer science, and quantitative biology, in close interaction with geneticists and cell biologists across the Institute. This integrated environment supports PhD research projects aimed at advancing the understanding, diagnosis, and treatment of rare genetic disorders through the combined use of innovative experimental and computational methodologies.</p> <p>Areas of interest include synthetic biology, particularly the design and engineering of genetic circuits to control gene expression; the use of artificial intelligence and foundation models in biology for protein engineering and for the interpretation of variants of unknown significance; and projects related to undiagnosed diseases, with the goal of identifying the molecular diagnosis in patients with rare disorders and clarifying missing heritability, with special emphasis on the contribution of non-coding genomic elements, particularly non-coding RNAs, and on the development of innovative high-throughput functional assays based on massive parallel reporter assays and single-cell sequencing technologies.</p>
3 key words for the project	<ol style="list-style-type: none"> 1. Artificial Intelligence 2. Synthetic Biology 3. Functional Genomics

LAB INFO	
Institutional page links	<p>Diego di Bernardo: https://www.tigem.it/research/research-faculty/di-bernardo</p> <p>Davide Cacchiarelli: https://www.tigem.it/research/research-faculty/cacchiarelli</p> <p>Gennaro Gambardella: https://www.tigem.it/research/research-faculty/gambardella</p> <p>Sandro Banfi: https://www.tigem.it/research/research-faculty/banfi</p>

AVAILABLE POSITIONS

MOLECULAR AND CELLULAR BIOLOGY RESEARCH AREA

Principal Investigators involved	ANDREA BALLABIO MIRKO CORTESE MARIA ANTONIETTA DE MATTEIS CHIARA DI MALTA BRUNELLA FRANCO LUIS GALIETTA PAOLO GRUMATI DIEGO MEDINA GENNARO NAPOLITANO ROMAN POLISHCHUK CARMINE SETTEMBRE
Institute of Affiliation	TIGEM, Telethon Institute of Genetics and Medicine

PROJECT INFO	
Short description of the project	<p>We use state-of-the-art molecular and cellular biology to understand how disease-causing mutations rewire the behaviour of individual cells and their organelles.</p> <p>Our goal is to map disease mechanisms at the morpho-functional level: how specialized cell types work, how they cooperate in tissues, and how pathogenic variants disrupt these networks.</p> <p>Projects integrate advanced genomics and genome editing, quantitative proteomics and lipidomics, live-cell and super-resolution imaging, and chemical biology to dissect trafficking, organelle biogenesis and signalling.</p> <p>A particular focus is on membrane trafficking and endo-lysosomal, ER and Golgi function, where many rare disorders converge.</p> <p>The approach is multidisciplinary with cutting-edge imaging, in vivo reconstitution, multi-omics and bioinformatics, as well as organoids and animal models, enabling translation of mechanistic insight into better diagnostics and innovative therapies for rare genetic diseases.</p>
3 key words for the project	<ol style="list-style-type: none"> 1. Molecular and Cellular Biology 2. Genetic disorders 3. Therapeutic targets

LAB INFO	
Main topic/s of the lab	
Institutional page link	<p>Andrea Ballabio: https://www.tigem.it/research/research-faculty/ballabio</p> <p>Mirko Cortese: https://www.tigem.it/research/research-faculty/cortese</p> <p>Maria Antonietta De Matteis: https://www.tigem.it/research/research-faculty/de-matteis</p> <p>Chiara Di Malta: https://www.tigem.it/research/research-faculty/di-malta</p> <p>Brunella Franco: https://www.tigem.it/research/research-faculty/franco</p>

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Luis Galietta:

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Diego Medina:

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Carmine Settembre

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AVAILABLE POSITIONS

MOLECULAR THERAPY RESEARCH AREA

Principal Investigators involved	ALBERTO AURICCHIO NICOLA BRUNETTI PIERRI ALESSIA INDRIERI NUNZIA PASTORE PASQUALE PICCOLO IVANA TRAPANI
Institute of Affiliation	TIGEM, Telethon Institute of Genetics and Medicine

PROJECT INFO	
Short description of the project	<p>The mission of TIGEM's Molecular Therapy (MT) research is to develop novel strategies for the prevention and treatment of disease. A research therapeutic strategy investigated at TIGEM is in vivo gene therapy. The general objective of the project is to investigate the efficacy and safety viral or nonviral vectors, such as adeno-associated vectors (AAV) and lipid nanoparticles, in preclinical models of inherited metabolic disorders or inherited retinal degenerations, and to translate the most promising findings into the clinic.</p> <p>TIGEM research on AAV vectors has been particularly successful in inherited metabolic disorders, especially lysosomal storage disorders, and inherited retinal degenerations. We also investigate small molecules pharmacological approaches for inherited metabolic disorders.</p>
3 key words for the project	<ol style="list-style-type: none"> 1. Molecular Biology 2. Genetic disorders 3. Therapy

LAB INFO	
Institutional page link	<p>Alberto Auricchio: https://www.tigem.it/research/research-faculty/auricchio</p> <p>Nicola Brunetti Pierri: https://www.tigem.it/research/research-faculty/brunetti</p> <p>Alessia Indrieri: https://www.tigem.it/research/research-faculty/indrieri</p> <p>Nunzia Pastore: https://www.tigem.it/research/research-faculty/pastore</p> <p>Pasquale Piccolo: https://www.tigem.it/research/research-faculty/piccolo</p> <p>Ivana Trapani: https://www.tigem.it/research/research-faculty/trapani</p>