

HOSTING GROUPS FOR INTERNATIONAL MOBILITY

Nome gruppo **Synthesis of Organic Materials and Bioactive molecules**



Our research activity is centered on interdisciplinary innovation at the intersection of **biomolecular science**, **sustainable chemistry**, and **advanced materials science**. A key focus lies in **precision medicine**, particularly in the development and evaluation of small-molecule therapies that address **genetic disorders caused by nonsense mutations**, such as cystic fibrosis, duchenne muscular dystrophy, primary immunodeficiency diseases etcetera. These studies demonstrate a commitment to translating molecular discoveries into therapeutic applications with real clinical potential.

In parallel, our work in **green and sustainable chemistry** emphasizes the design and synthesis of **eco-friendly materials** derived from renewable resources, such as soybean oil and cellulosic compounds. These materials are tailored for high-performance applications in **wastewater treatment** and **organic dye adsorption**, contributing to environmental remediation. We also explore transition from conventional synthetic pathways into more **sustainable and efficient approaches**, particularly for the synthesis of heterocycles—valuable compounds in pharmaceuticals and materials.

Together, these research directions reflect a cohesive strategy that combines **scientific rigor**, **technological relevance**, and **societal impact**, aiming to advance both human health and environmental sustainability. Our work bridges fundamental science with application-driven goals, leveraging chemistry as a central tool for solving complex challenges across disciplines.



Team members:

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Selected publications:

- *A precision medicine approach to primary immunodeficiency disease: Ataluren strikes nonsense mutations once again*, **Mol. Ther.**, 33(7), 1-11 (2025) (<http://doi.org/10.1016/j.ymthe.2025.03.045>)
- *Easily synthesized soybean oil bio-based material for wastewater treatment*, **Sust. Mater. Tech.**, 43, 1-14 (2025) (<https://doi.org/10.1016/j.susmat.2024.e01216>)
- *Amphiphilic Fluoro-Functionalized Cellulosic Materials: Synthesis, Characterization, and Organic Dye Adsorption Properties*, **EurJOC**, 1-14 (2025) (<https://doi.org/10.1002/ejoc.202500035>)
- *From Conventional to Sustainable Catalytic Approaches for Heterocycles Synthesis*, **ChemSusChem**, 17, 1-55 (2024) (<https://doi.org/10.1002/cssc.202301604>)
- *Promoting readthrough of nonsense mutations in CF mouse model: Biodistribution and efficacy of NV848 in rescuing CFTR protein expression*, **Mol. Ther.**, 32(12), 4514-4523 (2024) (<http://doi.org/10.1016/j.ymthe.2024.10.028>)