



UNIVERSITÀ
di VERONA

Dipartimento
di BIOTECNOLOGIE



Are you interested in developing **magnetoplasmonic nanoparticles to target neurons**?

We have **2 positions** available for 1 year (with possibility of extension) **starting from September 15th, 2024**, to work on the preparation and characterization of magnetoplasmonic nanoparticles coated with biocompatible polymers and functionalized with peptides or proteins. Our research is conducted in the framework of the EU project SynMech <https://www.synmech.eu/>.

Submit your application not later than August 21st, 2024 at 1 p.m. according to the indications reported in the call text published on the UniVR institutional website here <https://www.univr.it/en/job-vacancies/assegnisti-di-ricerca/assegni-di-ricerca/0/13442> and here <https://www.univr.it/en/job-vacancies/assegnisti-di-ricerca/assegni-di-ricerca/0/13443>.

Please note that administratively these are two independent calls (but feel free to apply to both); the selection procedure for both positions requires an on-site interview (no videoconference possible) on September 3rd 2024.

Offer Description

We are part of a European consortium that aims to develop a mechanogenetic technology to regulate functional connectivity of neural circuits. Additionally, we aim to show that this technology can be harnessed for therapeutic purposes in high-prevalence treatment-resistant brain disorders.

The research work in my group at the University of Verona focuses on the design, preparation, and characterization of biocompatible magnetoplasmonic nanoparticles to stimulate and repair dysfunctional brain circuits in response to externally applied magnetic fields.

Your tasks

- Preparation and physicochemical characterization of inorganic nanoparticles.
- Synthesis and characterization of organic oligomers as surface coatings.
- Chemical modification of peptides and proteins including the development of bioconjugation strategies
- Immobilization of peptides and proteins on nanoparticles including the functional characterization of the conjugates
- *In vitro* testing of biofunctionalized nanoparticles
- Report to the group on the progresses of your research activities

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About the Department of Biotechnology at University of Verona

The Department of Biotechnology (DB, <http://www.dbt.univr.it>) offers a multidisciplinary research environment covering the areas of biological, chemical, and agricultural sciences and of industrial processes. Current research activities address issues related to biotechnological applications for the health, environment, and agri-food industry. DB has strong ties with companies in areas of great economic significance and is characterized by the presence of 6 spin off companies. DB has achieved excellent results in the last two national evaluations of the quality of research (VQR 2015-2019 and 2011-2014). In 2023 As part of the Departments of Excellence initiative of the Italian Ministry of University and Research (MUR), DB has been awarded a >7.5 Mio Euro special grant to further develop its research and teaching activities in the next five years.

The team

The Organic Chemistry and Nanobiointeractions group develops synthetic approaches for nanomaterials (gold, iron oxide and silver mainly) or hybrid organic-inorganic systems, including green chemistry approaches. Additionally, we develop organic molecules, including oligomers and polymers, for the coating and functionalization of (nano)material surfaces. We investigate the functionalization of these coatings with biomolecules such as peptides, proteins, and oligonucleotides for potential therapeutic and diagnostic applications. We also study the interactions of the engineered nanomaterials we produce with biological systems *in vitro*.

We are currently involved in several international projects and networks evaluating the biological activity of these nanomaterials *in vivo*.

For further information:

please check our webpage: <https://www.dbt.univr.it/?ent=persona&id=62132&lang=en> or contact me at [roberto.fiammengo\[at\]univr.it](mailto:roberto.fiammengo[at]univr.it).

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