Position Offered: UNIVERSITY GRADUATE

Project: Self-activating phototherapies for the treatment of glioblastoma multiforme

Technological and scientific fields: Design of new drugs, computational biology, high performance computing

Location: Valencia, Comunidad Valenciana, Instituto de Tecnología Química (ITQ), https://itq.upv-csic.es/, and Instituto de Ciencia Molecular (ICMOL), https://www.icmol.es/

Research Group/PI: Organic and Biological Photochemistry Group, PI: Virginie Lhiaubet (ITQ), and The Excited State Quantum Chemistry Group, co-PI: Daniel Roca Sanjuán (ICMOL)

PROJECT SUMMARY

We propose the development of an innovative technology based on intracellular photon generation for the treatment of brain tumors such as glioblastoma multiforme. The system will take advantage of the chemiluminescence induced by electron transfer to selectively excite a phototherapeutic agent in situ and induce cell death. An interdisciplinary and multidisciplinary approach, utilizing tools from theoretical and experimental chemistry, is planned. The hired researcher will perform tasks at the interface between chemistry, biology, biomedicine, and physics. The investigation will be carried out at two internationally renowned institutes: the Institute of Chemical Technology (experimental part, supervised by V. Lhiaubet) and the Institute of Molecular Science (computational chemistry, supervised by D. Roca Sanjuán).

PROFESSIONAL PROFILE

Minimum requirements:

- Required academic qualification: Degree in Chemistry, Pharmacy, or equivalent.
- Proficiency in Spanish and English.

Merits to be considered:

- Training or experience in computational chemistry and/or organic synthesis
- Motivation to develop a multidisciplinary topic
- Research experience (articles, oral presentations, posters...)

WHAT IS OFFERED

The project has a strong multidisciplinary character, involving the acquisition of knowledge in organic synthesis, spectroscopy, in vitro cellular studies, microscopy, quantum chemistry applied to the characterization of excited electronic states, and hybrid methodologies of quantum chemistry and molecular mechanics in computational photobiology. Depending on the academic profile of the hired researcher, the following will be offered: (i) advanced master's level training in computational chemistry by completing the Master's Degree in Theoretical Chemistry and Computational Modeling of 120 ECTS/2 years (https://shorturl.at/rIWTZ) or (ii) an equivalent qualification that complements their initial training in accordance with the Project's theme. Additionally, he/she will attend specialized courses, summer schools, and relevant conferences. The training will be complemented by two stays (one national and one international) in groups specialized in microscopy and in modeling processes of chemiexcitation and bioluminescence.

Contract conditions:

Indefinite contract for a University Graduate associated with the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (37.000 € - 41.000 €).

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

Email: lvirgini@itq.upv.es

Phone: +34 963877807

momentum@csic.es | https://momentum.csic.es/

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