UAB
Universitat Autònoma de Barcelona

PhD position available in the Molecular Biomedicine group (UAB)

One 4-year PhD position (Formación de Personal Investigador, FPI) is available in the Molecular Biomedicine group (MolBioMed) at the Chemistry Department of the Universitat Autònoma de Barcelona (UAB).

The project **PID2023-147140NB-I00** funded by the Spanish Ministry of Science, Innovation and Universities is entitled: **Approaching cancer as an inflammation-based disease: Theoretical development of innovative ways to design new pharmacological and photo-pharmacological treatments.**

In this theoretical project, new knowledge will be generated for the rational design of drugs capable of mitigating or even eliminating the inflammation associated with cancer to transfer this knowledge to experimental groups that synthesize the molecules and/or carry out the necessary clinical analyses. In the medium/long term, the beneficiaries will be cancer patients, doctors, the system healthcare and the biotechnological and pharmaceutical industries. Since the project is intended to solve a problem linked to a major social challenge, this is a multi- and interdisciplinary project in the field of Theoretical Molecular Biology in which Mathematics, Physics, Chemistry, Biochemistry, Biology, and Computer Science must achieve a synergy aimed at finding new ways to treat cancer.

Cancer causes nearly 8 million deaths a year. Inflammation is known to be a feature key in cancer processes, so the many connections between cancer and inflammation are used in different therapies. The body's immune system responds to inflammation, fighting off invaders and healing damaged tissue. White blood cells move to the damaged tissue and produce substances that induce cell division, regenerating the destroyed tissue. This one process should end when the wound has healed. However, if the inflammation appears at the wrong time or becomes chronic, the development of cancers and malignant cells can occur and take advantage of the inflammatory environment by eliminating cells meant to fight the tumour. The key enzymes that initiate inflammation and subsequently participate in its resolution are Cyclooxygenase-2 and Lipoxygenases 5, 12, and 15. **In this project, Theoretical Chemistry will be used (Quantum Chemistry, Statistical Mechanics, and Biomolecular Simulations) for the rational design of new pharmacological and photo-pharmacological cancer treatments based on the modification of the activity of these enzymes and their interaction with their corresponding receptors.**

Research group information: https://webs.uab.cat/molbiomed/

Candidate requirements:

- Experience in methods of Theoretical Chemistry (Quantum Mechanics, Docking, Molecular Dynamics simulations of proteins and enzymes) and in data analysis and interpretation.

- Admission or registration in the Chemistry doctoral program of the UAB.

- Strong motivation for scientific research in an interdisciplinary and international environment.

Interested candidates please contact Prof. Àngels González-Lafont

(angels.gonzalez@uab.cat **before October 10, 2024.**

and consult the call in the following link:

https://www.uab.cat/web/recerca/itineraris/gestio-de-la-recerca/informacio-destacada-de-convocatories-de-recerca-1345889758618.html