



Post-doctoral Position in Chemistry/Chemical Biology

Targeted Photosensitisers to Meet the Challenge of Pancreatic Cancer using Photodynamic Therapy

Starting date : Flexible from October 2024 to early January 2025.

Duration : 2 years.

Workplace : Université de Strasbourg, Institut Le Bel, 4, rue Blaise Pascal, Strasbourg.

Funding : French National Research Agency (ANR).

Salary : ca 3140 euros gross monthly depending on experience.

Context

Pancreatic ductal adenocarcinoma (PDAC) cancer is one of the deadliest cancer type due to poor prognosis, high metastatic potential and multidrug resistance. Surgery, radiotherapy and chemotherapy and their combinations did not much improve the survival rate which remains low around 5 % at 5 years. To meet the challenge of treating pancreatic cancer, photodynamic therapy (PDT) is a promising new modality. Thus, a strong consortium of renowned chemists, physicists, biologists, radio-physicists, radio-biologists and oncologists has been assembled under the [PEPR-LUMA](#) program. It aims to develop a targeted, light-activated treatment for pancreatic cancer and to gain an in-depth understanding of the light-matter interactions required for an effective and selective treatment.

Research project

Our objectives are the design, synthesis and thorough biophysical and biological studies of a generation of PDAC-targeted photosensitisers. The design of the photosensitisers will ensure the generation of reactive oxygen species (ROS) under near IR excitation to treat deep-seated tumours without photodamage to healthy tissue. Targeting moiety for receptors overexpressed in PDAC cancer will be conjugated to the photosensitisers to specifically generate ROS at the tumour site. Different light sources and excitation mode will be tested to generate cytotoxic species.

The recruited post-doctorate fellow will be in charge of the synthesis of porphyrin-based photosensitisers and their coupling to targeting units developed within the consortium. He/she will perform physico-chemical characterization of the photosensitisers, contribute to and supervise their biological activities within the collaboration network. He/she will communicate the progress of his/her work through consortium seminars, written reports and presentations at scientific congresses.

Candidate profile

The candidate should have:

A PhD degree in molecular chemistry and a strong background in organic synthesis, skills and motivation for multistep synthesis, expertise in characterization techniques (NMR 1D and 2D, mass spectrometry, absorption/emission spectroscopy, LC-MS) and purification techniques (column chromatography, HPLC).

High motivation to work in an interdisciplinary project at the interface of chemistry and biology.
Ability to conduct independent research and demonstrate open-mindedness, curiosity, and organization. English written and oral communication skills.

Host Laboratory.

LSAMM research group (<http://www.lsamm.fr/>) has extensive experience in the design of photosensitisers for anticancer and antimicrobial PDT (see Schmitt, J. *et al.*, *Angew. Chem. Int. Ed.* **2015**, *54*, 169. Schmitt, J. *et al.*, *Bioconjugate Chem.* **2018**, *29*, 3726. Jenni, S. *et al.*, *Org. Biomol. Chem.*, **2019**, *17*, 6585, Gourlot, C. *et al.*, *ACS Infect. Dis.* **2022**, *8*, 1509.

Application. To Prof Valérie Heitz, v.heitz@unistra.fr

Application review will begin immediately and will continue until the position is filled.

Cover letter and a detailed CV (Master grades, summary of the project results PhD/Post-doc, publications).

Two letters of recommendation sent from the referees to Prof. Valérie Heitz or contact details of two referees.