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Protease-guided tumor targeting tools to revolutionize cancer diagnostics and treatment (OncoProTools)

Doctoral Candidate (DC3) – Innovative Target Modulators (TMs) for simultaneous delivery of CAR T cell therapy, radio- and chemotherapy to tumors

About OncoProTools

OncoProTools is a MSCA Doctoral Network that is currently starting up. The mission of OncoProTools is to develop tumor targeting strategies for cancer diagnostics and therapeutics, to make them more effective, selective, patient-friendly and personalized. Tumor targeted diagnostics and therapeutics are molecules that are typically equipped with a vector unit. The vector unit binds to a protein that is overexpressed on cancer cells or in the Tumor Micro-Environment (TME), causing the diagnostic or therapeutic payload to accumulate in the tumor. Exciting, recent innovations rely on small molecule vectors that target TME proteases. Proteases are ideal candidates for tumor targeting: they are often strongly overexpressed in the TME and possess an active site that allows high-affinity anchoring of vectors. Members of this consortium have played a leading role in these recent developments.
OncoProTools wants to force breakthroughs by:
1) Exploring innovative venues for protease targeting in cellular immunotherapy.
2) Discovering novel vectors that bind to other TME proteases, like cathepsins and granzymes.
3) Personalized applications of protease targeting: deliver innovative diagnostics through deeper understanding of TME biology.
OncoProTools will deliver a training program to 10 Doctoral Candidates that truly captures the MSCA values, hence providing them with all capabilities to become leaders of tomorrow's R&I in Europe.

About University of Copenhagen

Driven by intellectual creativity and critical thinking since 1479, researchers and students at the University of Copenhagen have expanded horizons and contributed to moving the world forward. With its 5,000 researchers and 37,500 students, the University boasts an international research and study environment and is highly ranked on the leading ranking lists of the world's best universities. The University offers researchers and students the opportunity to develop their talent and launches ambitious interdisciplinary initiatives to support its strong academic communities. Through research-based teaching – and by involving them in research – students are equipped to address society's challenges and needs. The University of Copenhagen is working towards becoming one of the world's greenest campus areas, leaving as little environmental and climate footprint as possible. The University facilitates cross-organisation collaboration, liaises with the business community and helps students find relevant programmes and projects in the field of sustainability. The University also focuses on gender equality and sees diversity as a strength.

Tasks description

This interdisciplinary doctoral position is jointly hosted by the Department of Drug Design and Pharmacology (ILF) at the University of Copenhagen (KU). The position will be supervised from Assoc. Prof. Matthias Herth. His group focusses on the development of novel radiopharmaceuticals, pretargeted drug delivery, imaging and therapy strategies. His group work with medicinal chemistry, radiochemistry, biology and molecular imaging. In this position, you will:

- Design, synthesize and characterize novel ligands for pretargeting that allow simultaneously for drug release, imaging or radionuclide therapy approaches which are aimed to increase the efficacy of CAR-T cells.
- Perform analytical, biochemical and biological investigations on the compounds.
- Radiolabel developed ligands and are involved in their biological evaluation.
- Write project reports for your local and network supervisors on a regular basis.
- Enroll in the Pharma PhD School and comply its doctoral training requirements.
- Participate actively to OncoProTools' training, dissemination, communication and valorization program.
- Prepare a doctoral thesis, and publish scientific articles related to the research project.

Furthermore, the selected candidate will take part in the following planned secondments:

- Academic secondment to HZDR, Germany (4 months) to design and evaluate the CAR-T cells which will be targeted by the novel imaging probes.
- Industrial secondment at CROmed, Hungary (5 months) to evaluate the in vivo capabilities of developed approaches.

Profile & requirements

- Applicants must hold a master's degree or equivalent in the field of chemistry or related fields

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- Master students in their final year may apply. Transcripts of the master's degree should be obtained before signing the contract.
- Applicants must have a solid knowledge of organic/medicinal chemistry or pharmacy
- Applicants have obtained outstanding academic results
- Applicants must have an ability to understand and express themselves in both written and spoken English to a level that is sufficiently high for them to derive the full benefit from the network training.
- Applicants must be eligible to enrol on a PhD programme at the host institution.
- Applicants must have the necessary academic skills and background to make the success of a doctoral degree.
- Applicants can be of any nationality but must comply with the Horizon Europe MSCA eligibility criteria:

HORIZON MSCA Mobility Rule: researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organisation for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays and time spent by the researcher as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.

HORIZON MSCA eligibility criteria: supported researchers must be doctoral candidates, i.e. not already in possession of a doctoral degree at the date of the recruitment. Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will not be considered eligible.

Benefits

- ✓ The selected candidate will be employed by the host organisation for **36 months.**
- ✓ **The start date will be from January, 1st 2023 onwards**
- ✓ Salary, pension and terms of employment are in accordance with the agreement between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State. Depending on seniority, the monthly salary begins around 28,300 DKK/roughly 3,770 EUR (taxable) plus pension (April 2022 level). The salary is added a mobility allowance (600 EUR per month) and (if eligible) a family allowance (660 EUR per month). Moreover, funding is available for technical and personal skills training and participation in international research events.
- ✓ The opportunity to be part of an MSCA Doctoral Network: the selected candidate will benefit from the designed training programme offered by the host organisation and the OncoProTools consortium.
- ✓ The selected candidate will participate in international secondments to other organisations within the OncoProTools network and in outreach activities targeted at a wide audience.

Please, find additional information in the Horizon Europe Work Programme MSCA from p.75 onwards.

Application

- Interested candidates are invited to apply for this position by filing in the application form via this link: https://employment.ku.dk/phd/?show=156722
- The closing date for applications is **July 15th 2022**.
- The selection committee will review all of the applications as soon as possible after the application deadline. As soon as a decision has been made, we will inform you about the next steps in the selection procedure.
- Pre-selected candidates will be invited to take part in the recruitment event in Antwerp (Belgium) on October 6th, 2022. OncoProTools will offer financial support to attend this physical event.
- The recruitment process of DCs within OncoProTools is in line with the principles set out in the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers.
- Ukrainian researchers are eligible to benefit from the Science4Refugees initiative without the need of holding the refugee status.

Additional information

For additional information about the research project and this individual position, please contact:

Assoc. Prof. Matthias Herth, email: matthias.herth@sund.ku.dk

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science4refugees

Disclaimer: please note that this offer is subject to the signature of the grant agreement nr° 101073231 expected by mid July 2022