Funded by the European Union

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

Doctoral Candidate (DC10) – Innovative *in vitro* and *in vivo* models for TME protease research

About OncoProTools

OncoProTools is an 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 Bern

With 19,230 students and 3,260 PhD students, UBERN is the fourth largest university in Switzerland and was ranked 109 in the 2021 Times World University Rankings. The university's comprehensive offer includes 8 faculties with more than 150 institutes and 9 inter- and transdisciplinary centers of excellence. UBERN has set itself the goal of becoming a climate-neutral institution by 2025 in all areas in which it has direct influence. Furthermore, in its Strategy 2021, it commits itself to integrating sustainability as an interdisciplinary issue in all areas of the university and promoting the respectful use of ecological, economic and social resources. The host institution will be the department of Nuclear Medicine of the University Hospital at the University of Bern (UBERN).

Tasks description

The research focus, at the Radiopharmacy Lab at the Dept. of Nuclear Medicine, is the development and preclinical evaluation of nuclear probes (radiotracers, radiopharmaceuticals) with the potential to be used for the in vivo imaging and therapy of primary as well as metastatic tumor lesions. One of our currently running projects in collaboration with Prof. Rösch concerns the investigation, in preclinical *in vitro* and *in vivo* tumor models, of the intercellular communication between CAFs, NAFs, tumor and immune cells, through FAP biological response. Further targeted radionuclide imaging and therapy approaches of FAP will be thoroughly explored on the above developed models.

In this position, you will:

- Become familiar with radiolabeling techniques for FAP inhibitors, cell culture, targeting radionuclide imaging and therapy, molecular and cellular biology, animal experiments, non-invasive PET/SPECT/CT imaging.
- Write project reports for your local and network supervisors on a regular basis.
- Enroll in the UBERN Doctoral School and comply with the 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 CSIC-CNB (5 months, Spain) to characterize p38 MAPK activity in CAFs, co-cultured with other TME cells
- Industrial secondment at CellPly (5 months, Italy) for multilevel phenotyping of lymphoma-derived cellular co-cultures

Profile & requirements

- Applicants must hold a master's degree or equivalent in the field of (Bio-) Chemistry, Biology, Pharmaceutical Sciences or equivalent.
- 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 working with cell culture, molecular cell biology techniques and basic knowledge in chemistry.
- 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 doctoral candidate recruited by the University of Bern will be financed nationally due to Switzerland's status as a Third Country in Horizon Europe and will therefore not be an official EU-funded MSCA doctoral candidate. However, the doctoral candidate recruited by the University of Bern will be fully integrated into the doctoral network and will enjoy the same rights and opportunities as all other doctoral candidates recruited within the network.
- ✓ The selected candidate will be employed by the host organisation for **36 months.**
- ✓ **The start date will be January, 1st 2023 onwards.**
- ✓ Doctoral candidates are offered a competitive remuneration based on the MSCA allowances in line with the MSCA WP 2021-2022. The Doctoral Candidate will be SBFI financed and the salary will be in line with the MSCA allowances, incl. deduction of all compulsory national (employer and employee) labour taxes.
- ✓ 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

- In order for an application to be valid and processed, candidates must apply for this position by filling in the application form on the project website https://www.uantwerpen.be/en/projects/protease-guided-tumor-targeting-tools/job-openings/submit/.
- 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 a financial support of max. € 200 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:
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Disclaimer: please note that this offer is subject to the signature of the grant agreement nr° 101073231 expected by mid July 2022