



École Pratique
des Hautes Études

PSL 

UB
UNIVERSITÉ DE BOURGOGNE

CTM
Center for Translational
and Molecular medicine



Marie
Skłodowska-Curie
Actions

NO-Cancer-Net Project 4 - Study of the combination of chemotherapy and NO donor for the treatment of Triple Negative Breast Cancer (TNBC)

Applications are invited from suitably qualified candidates for 1 doctoral candidate position at EPHE PSL – INSERM U1231 Center for Translational and Molecular medicine – University of Burgundy, France to pursue PhD education as part of Horizon Europe MSCA-DN NO-CANCER-NET.

OFFER DESCRIPTION

NO-CANCER-NET Project 4 - Study of the combination of chemotherapy and Nitric Oxide (NO) donor for the treatment of Triple Negative Breast Cancer (TNBC).

Background. Triple Negative Breast Cancer (TNBC) represents an aggressive subtype of breast cancer occurring in about 10-20% of all diagnosed breast cancers. TNBC is characterized by the absence of oestrogen receptor ($E\alpha$), progesterone receptor (PR) and human epidermal growth factor receptor 2 (HER2) amplification. The recurrence rate of TNBC is high and the therapeutic options are limited. Thus, TNBC remains the most difficult subtype of breast cancer to treat. The overall aim of the **NO-CANCER-NET** is to explore the potential of therapeutics targeting NO and NO-regulated pathways in TNBC.

Objectives. Our team focuses on the development of a new therapeutic approach harnessing $TNF\alpha$, FasL and TRAIL balance within the tumour microenvironment to improve therapeutic options. The overall objective of this DC is to use NO-donors to harness the paradox action of the TNF ligands $TNF\alpha$, FasL and TRAIL (pro- versus anti-tumour effects) to improve the efficacy of conventional anti-cancer therapies. The objectives are to 1.) Potentiate the anti-tumour efficacy of conventional chemotherapies for TNBC treatment with an NO donor *in vitro* and *in vivo* using various TNBC murine models based on TNF ligands levels. 2.) Determine the impact of NO on the specific contribution of the TNF ligands/receptors axis (*in vitro* and *in vivo*) in regulating the anti-tumour response. 3) Identify new NO targets in the tumour microenvironment.

Host Institution. EPHE - university PSL, Paris / Center for Translational and Molecular medicine (CTM) – INSERM UMR 1231 / University of Burgundy

Degree awarding institution. EPHE-PSL

Supervisor. Dr. Stéphanie Plenchette

Start date: June 2024

For more information, contact :

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Website :

<https://ctm.u-bourgogne.fr/index.php/09-menu/>

<https://www.ephe.psl.eu/>

About NO-CANCER-NET:

Recently, Prof. Sharon Glynn, Principal Investigator (PI) at CÚRAM and the Lambe Institute, and colleagues in Italy, Denmark, France, Luxemburg and Spain have been awarded an EU-funded MSCA Doctoral Network Grant – NO-CANCER-NET: Advanced Engineering of Nitric Oxide Based Therapeutics for Triple Negative Breast Cancer Training Network.

NO-CANCER-NET represents a collaborative six-countries network, encompassing leading universities and government organizations. In addition to our consortium beneficiaries, NO-CANCER-NET has gathered a diverse group of companies, hospitals, and internationally renowned cancer institutions. These associate partners will play a vital role in translating and leveraging the project's outcomes over the medium to long term.

The overarching goal of NO-CANCER-NET is to establish an interdisciplinary, intersectoral, and international doctoral training and research programme. Our aim is to foster a new generation of leaders dedicated to advancing the treatment of triple-negative breast cancer (TNBC), emphasizing excellence in research and clinical practice.

NO-CANCER-NET will address three interconnected challenges aimed at identifying novel and effective nitric oxide (NO) based treatments for TNBC, including the discovery of selective biomarkers for effective patient stratification, the development of reliable 3D tumour models to investigate tumour biology and drug response and the development of novel NO-based treatment options. **The 10 Doctoral Candidates (DC) will be hosted across the network**, and in addition to conducting an original research study they will participate in a 36-month network-wide training program, public engagement activities and collaboration with network members through short-term secondments in European intersectoral partner organisations. NO-CANCER-NET will provide enhanced career perspectives in academic and non-academic sectors for 10 DCs.

Website: <https://www.universityofgalway.ie/cancercentre/research/no-cancer-net/>

The applicants, at the time for the application, should not have resided in the country where are applying to, for more than 12 months in the 3 years immediately prior to the reference date. **Start date is June 2024.**

Eligibility criteria

To apply for one of these PhD positions, the applicant should fulfil the following conditions:

- Have — **at the date of recruitment (start date of June 2024)** — a Bachelors and/or Master's degree in a discipline as indicated in the project description specific to the beneficiary to which you are applying.
- **Trans-national mobility:** The applicant — **at the date of recruitment** — should not have resided in the country where the research training takes place for more than 12 months in the 3 years immediately prior to recruitment, and not have carried out their main activity (work, studies, etc.) in that country. For refugees under the Geneva Convention (1951 Refugee Convention and the 1967 Protocol), the refugee procedure (i.e. before refugee status is conferred) will not be counted as 'period of residence/activity in the country of the beneficiary'.
- Be able to communicate fluently in English (speaking and writing). Oral interview with the prospective advisor may be required.

Note: A Master's degree (or equivalent) is not necessary at the time of the application, but will be required at the date of recruitment (in June 2024).

Key skills, Experience and Qualifications

Applications fulfilling the following criteria will be considered

- Eligible applicants must not have a doctoral degree at the date of their recruitment.
- Eligible candidates will be highly motivated and have an excellent track record in academic achievement. They will have a master's degree in Molecular and Cellular Biology, immunology or related fields (not necessary at the time of application, but will be required at the date of recruitment in June 2024).
- Hands-on experimental skills applied to cancer research: cell culture, molecular and cellular biology, immunocytochemistry, biochemistry. The applicant should have knowledge in microscopy, flow cytometry and *in vivo* assays. Competence in animal experimentation will be an advantage.
- A strong interest in research focusing on tumor microenvironment signaling and therapeutics in cancer is expected.
- Dynamic personality, rigour, perseverance, sense of priority and ability to work with others.
- Excellent analytical and data interpretation skills.
- Excellent knowledge in written and spoken English is mandatory.

Contract informations. € 47.491,20 per annum plus mobility and family allowances as applicable and in line with the EC rules for Marie Skłodowska Curie Doctoral Networks 2022.

To Apply:

Applications are to include (1) a letter of motivation describing why you wish to apply to NO-CANCER-NET and your specific project of choice, (2) an up to date CV, and (3) the contact details of three referees should be submitted via Google Application form <https://forms.gle/x2qQrv1p7Bb7PKWU6>. Please be aware that your application may be shared amongst the beneficiaries.

WORK LOCATION

Number of offers available

1

Company/Institute

EPHE-PSL / Center for Translational and Molecular medicine (CTM) – INSERM UMR
1231 / University of Burgundy

Address

UFR Sciences de Santé
7 Bd Jeanne d'Arc

City/Postal code

Dijon, 21000

Country

France