ESR 3

THE PROJECT

Predictive factors for pain evolution as well as susceptibility and resilience in chronic pain and mood disorders comorbidity.

Objectives

1/ To identify behavioural/psychometric, functional (local field potentials/MRI) and molecular (e.g. inflammatory markers) predictive factors by comparing human and animal data obtained prior and at the early time point of chronic pain.

2/ To characterize the evolution of pain-related phenotypes using an animal model and compare with patient cohort in order to study the resilience and susceptibility in the comorbidity of chronic pain and anxiety/depression.

Methodology

For the preclinical part, a large group of female and male rats will be characterized prior and at the early time of neuropathy model. A battery of tests will be employed to characterize emotional and cognitive behavior. Electrodes will be implanted in relevant nodes of the frontostriatal network to measure power and coherence (local field potentials). Blood will be collected for cytometry and multiplex ELISA to quantify relevant markers such as inflammatory markers**.** The preclinical data will be compared with human cohorts in which blood, psychometric information and fMRI was obtained at the early stages of the pathology.

Expected Results

Comparison of the preclinical and clinical data will reveal the predictive factors for the pain evolution, susceptibility and resilience factors. ESR will acquire knowledge on how to compare animal and human behavioural and physiological data

Supervisors and host organisations

Main supervisors and recruiting organisation:
Hugo Leite-Almeida

Escola de Medicina, Instituto de Investigação em Ciências da Vida e da Saúde, Universidade do Minho, Portugal

Frauke Nees[2],

[2]Institute of Medical Psychology and Medical Sociology, University Medical Center Schleswig-Holstein (UKSH), Kiel University, Kiel, Germany

Co-supervisor (company):
Augusto Filipe,
Tecnimede, Sintra,
Portugal

Planned mobility track and secondments:

UMinho, Portugal: M5-14, M31-40: Isolation of phenotypic and molecular factors with potential predictive value for pain evolution and for the manifestation of comorbid behaviours in preclinical models of chronic pain.

Kiel University, Germany: M15-27: Isolation of psychometric, functional (MRI) and molecular factors with predictive value for pain evolution and for the manifestation of comorbid behaviours in human patients.

Ted, Portugal: M28-30: Identification and characterization of new analgesic drugs; product development.

Enrolment in Doctoral degrees:

University of Minho and University of Kiel/Joint Diploma (upon further discussions).

THE POSITION

Duration

36 mo

Salary

2753, 34€

Allowance

Mobility allowance 600€/month, Family allowance 500€/month (if required).

THE CANDIDATE PROFILE

Academic prerequisite

The applicant must have a MSc degree (obtained at the application date) in areas related with biological sciences (e.g. medicine, biology, pharmacy, etc.).

Knowledge on specific topics

Knowledge on basic and clinical aspects of pain neurobiology will be valued as well as on statistics and programming.

Proficiency in English is mandatory

Technical skills

Prior experience with animal models, particularly regarding surgical training, tissue collection and behavioural paradigms (pain assessment, anxiety- and depressive-like behaviors) will be valued in the evaluation.

Exclusion criteria

Nationality is not a criterion: Researchers can be of **any nationality**. Rather the location of the researcher's residence or main activity during the 3 years prior to their recruitment is determining. Indeed, the candidate **must not have resided** or carried out their main activity (work, studies, etc.) **in Portugal** (the country of the recruiting beneficiary) 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 as part of a procedure for obtaining refugee status under the Geneva Convention1 are not taken into account.

The candidate shall, at the time of recruitment, be in the **first four years** (full-time equivalent research experience) of their research careers and **have not been awarded a doctoral degree**.

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