

RECRUITING AND TRAINING PHYSICIANS-SCIENTISTS TO EMPOWER TRANSLATIONAL RESEARCH
A MULTILEVEL TRANSDISCIPLINARY APPROACH FOCUSED ON METHODOLOGY, ETHICS AND INTEGRITY IN
BIOMEDICAL RESEARCH - 2018-2023



RESEARCH TRAINING PROGRAM

I. General Information

Title of the research project:

Peripheral immunity and Parkinson's disease: a longitudinal study in patients with Parkinson's disease and *ex vivo/in vitro* assessment of dopaminergic agents on peripheral immunity

Name and address of the department:

Centro di Ricerca in Farmacologia Medica, Polo di Ricerca Biomedica Monte Generoso, Via Monte Generoso n. 71, Varese

Student's supervisor:

Marco Cosentino

II. Description of the project

(max 1500 characters, spaces included)

Background

Parkinson's disease (PD) affects 10 million people worldwide, one in 100 over 65 years of age and up to 5 in 100 over 80. At present, PD has no cure and symptomatic treatment consists of substitution therapy with dopaminergic agents. Emerging evidence points to the peripheral immune system and in particular to CD4+ T cells as novel key players in PD pathogenesis, therefore agents acting on peripheral immunity might in principle result in major effects on PD progression. Dopaminergic pathways exert major effects on peripheral immunity, however no one so far examined the immune effects of antiparkinson dopaminergic agents and their clinical relevance for PD patients.

What is the aim of the project?

To examine the immune profile of PD patients from PD diagnosis throughout disease progression and its relationship with their clinical conditions, and to examine the effects of antiparkinson dopaminergic agents on peripheral immunity.

What techniques and methods are used?

Clinical assessment of PD patients, immunophenotyping of peripheral blood, isolation and culture of immune cells.

When did the department start working on this project? (year)

2014

Type of research project:

Basic science

Clinical research without lab work

Clinical research with lab work

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III. Student's involvement

- The student will mainly observe YES NO
- The student will observe the experiments but will be involved in data analysis YES NO
- The student will take active part in experiments ("lab work") YES NO
- The student will take active part in clinical examination (clinical research) YES NO
- The student will be allowed to work with patients YES NO

What are the tasks expected to be accomplished by the student?

(max 500 characters, spaces included)

The student will learn basic laboratory techniques for the isolation and functional assessment of human immune cells. S/he will help in preparing and performing experiments, in data analysis and interpretation, and will collaborate in collecting and recording patients' clinical data.

What is expected from/what will be the general outcome of the student?

- To prepare a poster / presentation / scientific report / abstract
- The student's name will be mentioned in a future publication
- Opportunity to present together with the supervisor the results on a conference
- No specific outcome is expected

IV. Requirements

What skills are required from the student?

(max 500 characters, spaces included)

Ability to work in team, collaboration and communication skills, knowledge of Scientific English.

Is there any special knowledge or a certain level of studies needed?

- Subjects passed:
Pharmacology (required), Neurology (preferred)

Previous experience with:

Certificate of:

None

Are there any legal limitatons in the student's involvement in the project? YES NO

If yes, what are the limitations?

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For the use of students considering participating in the project, further information can be found from the following references:

(please add specific references, max 3)

Cosentino M, Comi C, Marino F. **The vermiform appendix in Parkinson's disease: At the crossroad of peripheral immunity, the nervous system and the intestinal microbiome.** Autoimmun Rev. 2019 Jul 16:102357. doi: 10.1016/j.autrev.2019.102357. [Epub ahead of print]

Storelli E, Cassina N, Rasini E, Marino F, Cosentino M. **Do Th17 Lymphocytes and IL-17 Contribute to Parkinson's Disease? A Systematic Review of Available Evidence.** Front. Neurol., 24 January 2019 | <https://doi.org/10.3389/fneur.2019.00013>

Kustrimovic N, Comi C, Magistrelli L, Rasini E, Legnaro M, Bombelli R, Aleksic I, Blandini F, Minafra B, Riboldazzi G, Sturchio A, Mauri M, Bono G, Marino F, Cosentino M. **Parkinson's disease patients have a complex phenotypic and functional Th1 bias: cross-sectional studies of CD4+ Th1/Th2/T17 and Treg in drug-naïve and drug-treated patients.** J Neuroinflammation. 2018 Jul 12;15(1):205. doi: 10.1186/s12974-018-1248-8.

V. Schedule

Duration of the project:

1 month 2 months 3 months

There are approximately 5 hours of work per day.

Available months:

January February March April May June
 July August September October November December

How many students can you accept to the project at the same time? 1

Special remarks:

Students should bring a white coat. Vaccination against tetanus and HCV are strongly recommended.

NOTE: a scientific report is required at the end of the program