RESEARCH TRAINING PROGRAM

I. General Information

Title of the research project:
In vitro investigation on isolated human neutrophils of the pharmacological profile of plant compounds for human health

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:
Franca Marino

II. Description of the project

(max 1500 characters, spaces included)

Background

Polymorphonuclear neutrophils (PMN) are usually considered as the first line of defense against invading microorganisms and as contributors to the orchestrated response after tissue invasion by pathogens. PMN are able to migrate into inflamed tissues, and in loco provide to the immune response through a number of different mechanisms. In the last decades we have shown that these cells represent a valid tool to test in vitro the ability of different compounds, including from plant sources, to affect key functions of these cells.

What is the aim of the project?

The main aim of the project is to find new and easy models to test the ability of novel compounds from plant origin as anti-inflammatory drugs.

What techniques and methods are used?

Isolation from peripheral blood of viable cells, culture and treatment with different agents.

When did the department start working on this project? **(2018)**

Type of research project:

x Basic science ☐ Clinical research without lab work ☐ Clinical research with lab work

III. Student's involvement

The student will mainly observe	☐ YES **X** NO
The student will observe the experiments but will be involved in data analysis	☐ YES **X** NO
The student will take active part in experiments ("lab work")	**X** 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?
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 data obtained during the study. If notion of statistics are available, S/he will collaborates/assists in data analysis.

What is expected from/what will be the general outcome of the student?
X To prepare a poster / presentation / scientific report / abstract
X 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?
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:
Notion of general pathology and physiology; basic knowledge in pharmacology

☐ Previous experience with:
_____

☐ Certificate of:
_____

☐ None

Are there any legal limitations in the student's involvement in the project? ☐ YES **X** NO
If yes, what are the limitations?
_____

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)

1. Mabou Tagne A, Marino F, Legnaro M, Luini A, Pacchetti B, Cosentino M. A **Novel Standardized Cannabis sativa L. Extract and Its Constituent Cannabidiol Inhibit Human Polymorphonuclear Leukocyte Functions**. Int J Mol Sci. 2019 Apr 13;20(8). pii: E1833. doi: 10.3390/ijms20081833.
2. Marino F, Scanzano A, Pulze L, Pinoli M, Rasini E, Luini A, Bombelli R, Legnaro M, de Eguileor M, Cosentino M. **β_2-Adrenoceptors inhibit neutrophil extracellular traps in human polymorphonuclear leukocytes.** Journal of Leukocyte Biology 2018, 104: 603-614.
3. Marino F, Schembri L, Rasini E, Pinoli M, Scanzano A, Luini A, Congiu T, Cosentino M. **Characterization of human leukocyte -huvec adhesion: effect of cell preparation methods**. Journal of Immunological Methods; 2017: 443:55–63

V. Schedule

Duration of the project:

X 1 month **X** 2 months **X** 3 months

*There are approximately **6** hours of work per day.*

Available months:

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

How many students can you accept to the project at the same time? 2

Special remarks:
(e.g., students should bring a stethoscope and a white coat, any vaccinations required, etc.)

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