

# CSF SUMMER SCHOOL FOR YOUNG SCIENTISTS

## From Wet Lab to the Clinic: Preventing Pregnancy-related Complications

July 21st- 25th

### Program leader

**Dr. Tamara Garrido**

Group: Maternal implications in the origin of preeclampsia.

### Description:

This intensive program delves into obstetric research, specifically focusing on the maternal contributions to preeclampsia, a serious pregnancy complication. Through a combination of hands-on experiments, seminars, and participation in scientific discussions, you'll gain a comprehensive understanding of the scientific process behind preventing pregnancy-related complications.



### Learning objectives:

- Gain familiarity with research projects in reproductive medicine, with a focus on pregnancy complications. Understand experimental design, objectives, sample types, cutting-edge technologies, the significance of knowledge, and associated limitations.
- Comprehend the key areas of a clinical trial, encompassing study design, ethics, regulations, participant recruitment, sample collection, and monitoring.
- Understand the process from receiving a patient's sample to processing, storing it securely and performing an experimental protocol.
- Gain an understanding of cell culture basics and its applications in research.
- Learn the process of 3D cell culture for developing endometrial human assembloids and their potential applications in research.
- Acquire foundational knowledge for the analysis and interpretation of research results (-omics, classical molecular techniques).
- Master the structuring of information for publication in a scientific paper.



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### Provisional Outline Timetable:

**21**  
JULY

#### **Presentation and general introduction**

- 9:00 -11:00 | Arrive at the Carlos Simon Foundation, leaders' introduction and course presentation
- 11:30 - 13:30 | Introduction of ongoing research projects and clinical trials. Introduction to preeclampsia lab techniques: Decidualization and cell culture

**22**  
JULY

#### **Processing blood samples, sequencing and clinical translation**

- 9:00 -11:00 | Learn how to register patients' samples, process blood and store plasma
- 11:30 - 13:30 | Understand the basics of NGS library generation, sequencing and results. Learning topic: From hypothesis to Clinical Translation

**23**  
JULY

#### **Processing an endometrial biopsy**

- 9:00 -11:00 | Introduction to process an endometrial biopsy and its potential research purposes
- 11:30 - 13:30 | Isolating epithelial and stromal cells from the endometrium. Culturing the isolated cells and preserving frozen cells

**24**  
JULY

#### **Molecular techniques**

- 9:00 - 11:00 | Introduction to molecular techniques such as ELISA and western blot
- 11:30 - 13:30 | Obtaining genetic material/proteins from cell cultures and analysis. Life Imaging: Measure and interpret results

**25**  
JULY

#### **Cell culture techniques and Results publication**

- 9:00 - 11:00 | Introduction and manipulation of 3D cell culture techniques
- 11:30 - 13:00 | Learning the basic steps of interpreting and publishing results. Discuss the research based on learned topics and finish the course
- 13:00 - 13:30 | Diploma handout and farewell

(\*) Please note that this is a sample program. Since this program follows a shadowing format, the proposed activities and schedules may vary depending on the progress or status of the research at the time the course is conducted.

