

# PREDOCTORAL POSITION

The Bioengineering in Reproductive Health Laboratory, directed by Dr. Samuel Ojosnegros at IBEC, is looking for a **highly motivated candidate** to apply for **doctoral fellowships** (such as FPU, FPI, or FI). This position offers the opportunity to work at the interface of **photonics, artificial intelligence (AI), and translational medicine**, contributing to both fundamental research and the development of cutting-edge diagnostic tools.

Our lab is the first Open Innovation Lab at IBEC, bridging **basic research and market-oriented innovation**. We focus on mammalian early development and reproductive health, combining advanced photonics and AI-driven methodologies to address infertility and improve clinical practices (see [Parra et al.](#)). The successful candidate will join a multidisciplinary team and contribute to a project aimed at developing a novel diagnostic system for **human embryos, oocytes, organoids, and diseased cells**, with applications in **IVF clinics** and research collaborations with hospitals such as Vall d'Hebron.

## Project Overview

The primary goal of this project is to create an innovative device for **non-invasive classification and evaluation** of embryos and other biological systems. By combining **advanced photonics-based imaging technologies** and **AI**, the project will:

- Designing and training AI algorithms to classify and evaluate metabolic and mitochondrial patterns.
- Develop and optimize microscopes tailored to analyze embryos, organoids, and other cellular systems under physiological conditions.
- Collaborating with clinical partners and contributing to a **spin-off initiative** focused on commercializing a diagnostic platform for fertility clinics.

## Candidate Requirements

- **Master's degree** in Photonics, Physics, Computer Science, or related disciplines.
- **Programming skills** and an interest in AI applications for biomedical imaging.
- Basic knowledge or interest in **optical system design** and imaging technologies.
- Motivation to **learn basic biology** and collaborate with clinicians and engineers.

## How to Apply

Send your **CV** and a brief **cover letter** to Dr. Anna Ferrer at [aferrer@ibecbarcelona.eu](mailto:aferrer@ibecbarcelona.eu).

For further information about our work, please visit our [website](#).