

Heraklion, 2nd February 2026,

EXPRESSION OF INTEREST

The **Gene Control Mechanisms lab** headed by **Dr Matthieu Lavigne** at the Institute of Molecular Biology and Biotechnology (**IMBB**) of the Research Technology Foundation (**FORTH**) in Heraklion (Greece) is looking for **one highly motivated PhD student** to join their research team.

The **lab** is generally interested in understanding **molecular mechanisms ruling RNA transcription** and DNA repair and how these processes impact healthy vs pathological (cancer, neurodegeneration, autoimmune diseases) gene expression programs in human cells.

The **project** aims to *delineate the **mechanism promoting expression of genotoxin-induced splicing neoantigens** in cancer cells and how they can **improve immunotherapy**.*

The ideal PhD candidate will demonstrate **knowledge and experience in transcription regulation, chromatin biology, immunology, cancer biology or DNA repair**. Technical skills in NGS (e.g. RNA-seq, ChIP-seq, ATAC-seq), cell culture (e.g. cancer cells, iPSCs), biochemistry (co-IP, MS) and ideally also in bioinformatics (omics analyses) are recommended.

The **aim** of the thesis will be to expand understanding of the molecular **mechanisms ruling neoepitopes expression in cancer cells** and test the impact/therapeutic potential of genotoxins on **transcription elongation deregulation** and on **aberrant co-transcriptional splicing**. You will challenge cancer cells in culture to perform advanced transcriptomics (including bioinformatic analysis) and **reveal stress-induced transcript isoforms**. Additionally, you will pull down and identify neoantigens presented by MHC-I on the surface of cancer cells using **mass spectrometry immunopeptidome** analysis. Finally, you will assess if produced neoepitopes create **vulnerabilities in cancer cells and boost immunogenic cell death (ICD)** in appropriate mouse models.

Candidates should be already eligible (or become eligible within the next 6 months) to enroll to the University of Crete's PhD program with a **MSc degree** (or equivalent) in molecular/cellular Biology or similar fields (e.g. Biotechnology, Bioengineering, Biomedicine, Bioinformatics), and have excellent communication skills, proficiency in english and ability to work in a team.

Please send a **CV** (2 page max) and a **cover letter** outlining the candidate's interests for this project and their background research experience including publications, technical skills and grades, and the contact information of at least two referees to lavigne@imbb.forth.gr before 20 th February.