

The Biomedical Sciences and Engineering Laboratory of the Universidad Carlos III de Madrid is hiring a post-doctoral fellow within the frame of the European Project ERA4TB for Identification and characterization of molecular biomarkers for Mtb diagnostic and bacterial load quantification in vitro and to follow disease progression in animal models.

Required university level: PhD in Microbiology, Molecular Biology, Pharmacy, Health Science, ...

Domain of the activities: Microbiology and Molecular Biology technologies

Position: Post-doctoral, immediately available.

Context: The search for translational molecular biomarkers is a pressing need in clinical diagnostics and in the development of new drugs. The gold standard for assessing the efficacy of TB drug candidates relies on counting the viable *Mycobacterium tuberculosis* (Mtb) cells from cultures of samples (ex vivo and in vitro) at a limited number of time points, expressed as Colony Forming Units (CFU). CFU measurement presents significant limitations, including lengthy processing times, an inability to accurately describe the distribution of Mtb in the tissues and its low sensitivity. The development of non-invasive biomarkers is crucial for efficient and rapid diagnosis as well as for the prioritization of new drug regimens.

Projects currently underway among others include the ERA4TB consortium (<https://era4tb.org/>), a European JU-IMI initiative to accelerate the development of new TB regimens and TAIN-TB (Development of a Mycobacterium-specific CT contrast for TB diagnosis and monitoring).

Activities:

- Implementation of a methodology for the quantification of *Mycobacterium tuberculosis* and ribosomal RNA synthesis and maturation in samples from in vivo and in vitro experiments within the European ERA4TB consortium.
- Characterization of X-ray contrast probes in terms of efficacy and selectivity against mycobacteria.
- Design of experiments, preparation of technical reports and presentation of results at scientific meetings within the consortium.
- Provision of support to other research projects in which the Bioengineering Group is involved.
- Possibility of collaboration with the teaching activities of the Department of Bioengineering, which allow for the optimal use of the researcher's capacities in accordance with the regulations in force at UC3M.

Candidate Capacities:

- Microbiological techniques especially with mycobacteria.
- Evaluation of compounds with anti-tubercular activity.
- Molecular Biology methodology; Isolation and purification of Nucleic Acids, PCR, transformation, recombineering....
- Mammalian Cell Biology
- Communication skills: writing papers, technical reports, and dissemination notes.
- Team player.

Contact person: For additional questions please contact by mail:

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