Post-Doctoral Fellow

Department of Microbiology & Immunology

Lab of Dr. Botond Z. Igyarto

REQ-0027541 & REQ-0027538

POSTDOCTORAL POSITIONS

The Igyártó laboratory at Thomas Jefferson University is supported by NIH and the LEO Foundation. The lab is seeking well-trained, highly motivated postdoctoral fellows with a Ph.D. in immunology or a related field who can drive projects with minimal oversight. Candidates with experience in mouse models, mouse and human dendritic cells (DCs), flow cytometry, histology, imaging, and molecular/omics approaches (RNA-seq, ATAC-seq, ChIP-seq, microarray, CRISPR-Cas9, etc.) are especially encouraged to apply.

Projects

• Regulation of humoral immune responses by distinct DC subsets – toward DC-tailored vaccines

Our work shows that specific DC subsets, contrary to the textbook model, can elicit protective antibody responses even in the absence of inflammation and canonical cytokines. Defining how DCs support such “steady-state” humoral immunity will inform the design of adjuvant-free vaccines with reduced side effects and may open new avenues to prevent or treat autoimmunediseases such as lupus and pemphigus.

• Intracellular monitoring and surveillance by DCs

We recently discovered that DCs are not mere scavengers of extracellular material; they can actively siphon specific RNAs from neighboring cells through a previously unrecognizedmechanism. This form of intracellular monitoring likely shapes many facets of immunity, including tolerance induction, responses to intracellular pathogens, tumor immunology,metabolism, and transplantation. Fellows will have the opportunity to connect this pathway to their disease or mechanistic area of interest and help define a new chapter in immunology.

• Trained immunity induced by mRNA-LNP vaccination and its transgenerational inheritance

Emerging data from the lab indicate that mRNA-lipid nanoparticle (LNP) formulations can imprint long-lasting functional changes in innate immune cells consistent with trained immunity. We aim to dissect the molecular and epigenetic mechanisms underlying this

reprogramming, determine its impact on subsequent infections and vaccinations, and test how these traits are transmitted across generations. This project integrates *in vivo* models, innate immune profiling, and multi-omics toredefine how vaccines shape immunity over the life course and beyond.

Application instructions

Interested candidates are encouraged to contact Dr. Igyártó directly. Please include:

• A cover letter describing your past research accomplishments, future research interests, and career

goals

• CV

• Contact information for your Ph.D. mentor (and, if applicable, current supervisor)

Please use the links below to apply:

https://jeffersonhealth.wd5.myworkdayjobs.com/ThomasJeffersonExternal/job/Philadelphia-PA/Post-Doctoral-Fellow---Department-of-Microbiology---Immunology---Lab-of-Dr-Igyarto_REQ-0027541

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