



Research Project Proposal
Academic year 2019-2020

Project Nº 14

Title: *Role of the mutagenic enzyme AID in the pathogenesis of B-cell lymphomas*

Department/ Laboratory

Hematology-Oncology Program at CIMA, Laboratory of Lymphoproliferative Syndromes (Lab 1.03)

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Summary

BACKGROUND: *Evolution places a high premium on keeping DNA stable throughout its lifetime, since DNA instability can lead to pathological mutations and genomic alterations. The discovery of DNA deamination, a process by which our own genomes become the target of local DNA mutations by a group of enzymes called AID/APOBEC DNA deaminases, has provided novel and deep insights into the understanding of immunity, DNA repair, epigenetics, and cancer.*

*We work with the **hypothesis** that the B-cell-specific mutagenic enzyme AID is implicated in a number of fundamental aspects of B-cell lymphomagenesis and anti-tumoral immune responses.*

GOALS: *Our proposal aims to comprehensively characterize the involvement of AID in the progression and tumor microenvironment of diffuse large B-cell lymphoma (DLBCL), which is the most frequent and highly aggressive type of B cell lymphoma with urgent unmet clinical needs.*

METHODOLOGY: *To achieve this the candidate will have to maintain a breeding colony of a new multi-transgenic and AID-deficient lymphoma mouse model recently generated in the lab. Research with these mice will include the use of cytometry, computational immunology tools, immunohistochemistry, and other cellular and molecular techniques to characterize tumor onset and the landscape of immune cell types in the murine tumor microenvironment, as well as to assess morphology, distribution and expression of co-inhibitory/co-stimulatory molecules on tumor-infiltrating immune cells.*

Importantly, research tasks in this project will require that the student obtains the 'official approval' to work with animals offered in the MIB.

yes	X	Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?
no		