MARIE SKŁODOWSKA-CURIE INDIVIDUAL FELLOWSHIPS 2019

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

NOVA School of Science and technology | UCIBIO – Applied Molecular Biosciences Unit

RESEARCH GROUP AND URL

Glycoimmunology group
http://sites.fct.unl.pt/glycoimmunology/home

SUPERVISOR (NAME AND E-MAIL)

Paula Videira
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SHORT CV OF THE SUPERVISOR

Assistant Professor at Faculdade de Ciência e Tecnologia/ Universidade NOVA de Lisboa. Founder the Glycoimmunology Research Group and highly interested in novel immunotherapeutic approaches to treat patients with cancer and with congenital disorders of Glycosylation (CDG). Co-founder of CellmAbs, a project focused on researching and developing innovative biopharmaceuticals for the treatment of cancer.
Current goals and motivations are:
-To identify novel therapeutic targets and to develop novel antibody-based approaches to treat cancer. Expert in addressing aberrant glycosylation in different types of cancer, such as bladder, lung and breast cancer. The work is a pioneer and contributed with a solid understanding of glycans implications in tumour growth and metastasis and immune response. Development of anti-glycan antibodies (PCT 110526/ 2019000001)
-To understand the role of glycans expressed by dendritic cells (DC). Expert in exploiting DC-based immunotherapy, and fining-tune the immune response, based on specific glycan modifications. Development of innovative technology to enhance DC-based vaccines (WO 2017002045 A1).
- To improve awareness on CDG, improve patient's quality of life, and research on these rare conditions. Currently interested in mechanisms behind altered immune responses. Director and co-founder of CDG & Allies-PPAIN, an international network of professionals and patient associations dedicated to CDG and allies such as cancer (www.researchcdg.com).
Previous Fulbright fellow, presently leading both national and international research projects, with multidisciplinary consortiums. Currently supervising six PhD students and several Master students and postdocs. The author in more than 75 international peer-review publications, as first or corresponding author in 36 of these publications. National and international jury at 18 scientific project calls, reviewer at 15 scientific journals. Presently member (Portuguese representative) of COST Scientific Committee and the editorial board of international scientific journal.

5 SELECTED PUBLICATIONS

- Loureiro LR, Sousa DP, Ferreira D, Chai W, Lima L, Pereira C, Lopes CB, Correia VG, Silva LM, Li C, Santos LL, Ferreira JA, Barbas A, Palma AS, Novo C, **Videira PA**. 2018. Novel monoclonal antibody L2A5

specifically targeting sialyl-Tn and short glycans terminated by alpha-2–6 sialic acids. Sci Rep 2018 doi: 10.1038/s41598-018-30421-w

- Carrascal MA, Silva M, Ferreira JA, Azevedo R, Ferreira D, Silva AMN, Ligeiro D, Santos LL, Sackstein R, **Videira PA**. A functional glycoproteomics approach identifies CD13 as a novel E-selectin ligand in breast cancer. Biochim Biophys Acta. 2018 May 17. pii: S0304-4165(18)30145-4.

- Silva M, Silva Z, Marques G, Ferro T, Gonçalves M, Monteiro M, van Vliet S, Mohr E, Lino AC, Fernandes AR, Lima FA, van Kooyk Y, Matos T, Tadokoro CE and **Videira PA**. Sialic acid removal from dendritic cells improves antigen cross-presentation and boosts anti-tumor immune responses. Oncotarget. 2016. 7:41053-41066 doi: 10.18632/oncotarget.9419.

- Bugalho A, Martins C, Silva Z, Nunes G, Mendes AS, Ferreira I, **Videira PA**. 2016. Immature Myeloid Cells and Tolerogenic Cytokine Profile in Lung Adenocarcinoma Metastatic Lymph Nodes Assessed by Endobronchial Ultrasound. Tumor Biology, 1-9. doi: 10.1007/s13277-015-3885-1

- Carrascal MA, Severino P, Cabral MG, Silva M, Ferreira JA, Quinto H, Pen C, D. Ligeiro, LL Santos, Dall'Olio F, **Videira PA**. 2014 Sialyl Tn-expressing bladder cancer cells induce a tolerogenic phenotype in innate and adaptive immune cells. *Molecular Oncology*. 8:753-65 doi.org/10.1016/j.molonc.2014.02.008.

PROJECT TITLE AND SHORT DESCRIPTION

Novel glycan-based immune checkpoints

Immunotherapy has revolutionized cancer treatment by strengthening the immune response to fight cancer and devolve immune protection. However, its efficiency remains suboptimal and almost two thirds do not respond to treatment or show severe immune related adverse effects. There is an unmet need for better understanding of tumor -induced immunosuppression and identification of more efficient immune checkpoints. Accumulating evidence shows that tumor associated sialylated glycans play an important role in immunosuppression as well as other malignant features. The group is presently focused in the understanding of the mechanisms that lead to aberrant expression of these glycans and its role in immune evasion in different types of cancer. Cell line models as well as anti-glycans antibodies have been established to perform in vitro and in vivo assays. Long term collaborations have already been established with clinicians at key national and international hospitals, affording access to a unique set of patient specimens and data.
The long-term objective is to develop novel immunotherapies against cancer.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST

Life Sciences (LIF)