life IN THE lab

PRODUCTS, INFORMATION, AND SCIENTAINMENT
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Illuminating the immune system

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* See page 21 for full details regarding validation.

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Christina Gordon
Scientist, Protein Services
UCB Pharma

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Stablisation of Native & Functional Membrane Proteins for Drug Discovery

CALIXAR has developed an innovative approach to isolate and stabilise therapeutic membrane protein targets such as GPCRs, ion channels, and transporters. They partnered with Thermo Fisher Scientific to help tackle the production and characterisation of these very promising and druggable targets to provide a new hope for the development of more accurate drug discovery.

Anass Jawhari
Chief Scientific Officer
CALIXAR

Find out more

EVERYDAY HERO Ameet Chimote, PhD

Department of Internal Medicine,
Division of Nephrology,
University of Cincinnati

The challenge: I have been working as a postdoctoral research associate in Dr. Laura Conforti's laboratory (Department of Internal Medicine, University of Cincinnati) for the past 7 years. The main research focus of our laboratory is to study the role played by the K^+ ion channels in the function of T lymphocytes and their implications in cancer. Previously, I had shown *in vitro* that exposure to hypoxia and adenosine (pathological conditions in solid tumours) inhibited these ion channels. The next logical step for me was to evaluate the expression and function of these ion channels in solid tumours. I was fortunate to avail the resources of University of Cincinnati Cancer Institute's Tumour Bank in procuring surgically resected solid tumour samples from head and neck cancer patients. However, I had no experience in isolating T cells from solid tumours; furthermore, another challenge was that I could not isolate the Tumour-Infiltrating Lymphocytes (TIL) by enzymatic dissociation because I needed to preserve the T cell function.

The solution: Try, try, and try, until you succeed! Under the guidance of my mentor, I "troubleshooted" protocols for isolating TILs based on published procedures in literature and consulted with technical support from companies until I could successfully isolate fully functional T cells from surgically resected head and neck tumours without using any enzymatic dissociation. The cell number I would isolate would vary from patient to patient; but for all of the samples the cell number of the infiltrated lymphocytes was much lower than what I expected. I learned to work with that small cell number and I was able to measure Ca^{2+} fluxes in these cells by flow cytometry and also phenotype them. To complete the "story", I did immunofluorescence staining for ion channel expression and functional markers in sections from these tumours.

Next steps: This was my first foray in the realm of "Translational Research" and I enjoyed the experience very much. Currently there is a lot of interest in studying ion channels in cancer T cells as potential targets for cancer immunotherapy. I want to build up on my experience and technical expertise gained from this project and continue to investigate ion channels in cancer T cells and decipher whether any "defects" in these ion channels can lead to the lack of immune response in cancers.

Learn more