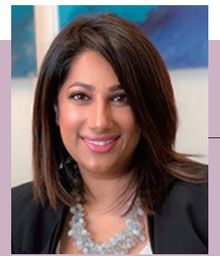

Ann-Marie CHACKO

Assistant Professor, Cancer & Stem Cell Biology Programme,
Head, Laboratory for Translational and Molecular Imaging (LTMI)
Duke-NUS Medical School, Singapore

Contact : ann-marie.chacko [at sign] duke-nus.edu.sg
Please replace [at sign] with @.

Research Interests

Molecular Imaging, In Vivo Diagnostics, Drug Delivery Systems, Cancer Immunotherapy, Clinical Translation

Education

2001	B.Sc. Honours Biochemistry, Bishop's University, Sherbrooke, QC, Canada
2003	M.Sc. Chemistry, University of Western Ontario, London, ON, Canada
2008	Ph.D. Pharmacological Sciences, University of Pennsylvania, Philadelphia (UPenn), PA, USA

Professional Career

2008- 2010	Postdoctoral Fellow, Pharmacology and Program in Targeted Therapeutics, Institute of Translational Medicine and Therapeutics (ITMAT), UPenn, Philadelphia, PA, USA
2011- 2012	Postdoctoral Fellow, Division of Clinical Molecular Imaging and Nuclear Medicine, Department of Radiology, UPenn, Philadelphia, PA, USA
2012- 2014	KL2 Fellow, Clinical and Translational Sciences, ITMAT, UPenn, Philadelphia, PA, USA
2012- 2014	Research Associate, Division of Clinical Molecular Imaging and Nuclear Medicine, Department of Radiology, UPenn, Philadelphia, PA, USA
2015 - present	Assistant Professor, Programme in Cancer and Stem Cell Biology, Duke-NUS Medical School, Singapore

Publications

1. Goggi JL, Hartimath SV, Hwang YY, Tan YX, Khanapur S, Boominathan R, Jiang L, Husaini AR, Cheng P, Yong FF Tan PW, Yuen TY, Jieu B, **Chacko AM**, Larbi A, Renia L, Johannes C, Robins, EG. Examining Immunotherapy Response Using Multiple Radiotracers. *Mol. Imaging Biol. Mol. Imaging Biol.* 2020; 22(4):993-1002.

2. Herr K, Serrano RMF, Ong J, Madan B, Virshup DM, **Chacko AM**. Characterization of anti-Frizzled Antibody [Zr-89] 18R5 for PET Imaging of Pancreatic Cancer. *J Nucl Med.* **2016**, 57(2):58

3. **Chacko AM**, Han JY, Greineder CF, Zern BJ, Mikitsh JL, Nayak M, Menon D, Johnston IH, Poncz M, Eckmann DM, Davies PF and Muzykantov VR. Enhancement of nanocarrier targeting to vascular endothelium via collaborative epitope engagement. *ACS Nano. Jul* **2015**. 9(7):6785-93.

Developing novel probes for in vivo molecular PET imaging of cancer immunotherapy

Ann-Marie Chacko

Cancer and Stem Cell Biology Programme, Laboratory for Translational and Molecular Imaging, Duke-NUS Medical School, Singapore

Nuclear imaging technologies, such as positron emission tomography (PET), offers the potential to noninvasively visualise and quantify biomarkers at a cellular level as they occur in their native environment, and in real time. PET of the tumour immune microenvironment (TME) is a fairly nascent field of study, and is highly relevant in the era of Cancer Immunotherapy (CI), as it could provide a pivotal platform for validating treatment safety and efficacy for the number of CI combinations that are poised or already in clinical testing.

In this talk, I will outline our strategies to identify and validate prognostic and predictive biomarkers aimed to ultimately improve CI outcome. Specifically, I will highlight our preclinical efforts to track endogenous immune cell markers of metabolism and inflammation (18F-FDG-PET), proliferation (18F-FLT-PET), and cytotoxic T cell activity (18F-GZB-PET). We will also discuss strategies of taking probes beyond the preclinical space, towards the clinic. "Shedding light" on immune response and their modulation, will have important implications for assessing treatment response during therapeutic intervention trials in cancer, and in other immune-related diseases including emerging infectious disease.