Title: Mass spectrometry-based tools to uncover protein signatures and mechanisms of cancer

Dr Rebeca Kawahara Sakuma

Abstract: Despite advancements in cancer prevention, diagnosis and multimodal treatment, cancer is still a major public health problem and a deadly disease. Advanced mass spectrometry (MS) has enabled scientists to discover and validate novel protein-based biomarkers and therapeutic targets in a variety of cancers. In this seminar, I will discuss how this powerful tool can meet the scientific method - from hypothesis generation to hypothesis testing – and help us to uncover molecular changes, including large-scale protein level and post-translational modification, such as glycosylation and proteolysis, associated with cancer development, progression and metastasis. A brief overview of my career contributions in the emerging fields of MS-based proteomics, glycomics and glycoproteomics in the context of oral cancer, prostate cancer and colorectal cancer research will be given with the aim to open avenues for new collaborations and to explore shared interests and expertise areas.

Biography: Dr Rebeca Kawahara Sakuma is a recently awarded Cancer Institute NSW Early Career Development Fellow (2019-22) in the Analytical Glycoimmunology Group, Department of Molecular Sciences, Macquarie University, Australia. She received her PhD in Functional and Molecular Biology in 2015 from University of Campinas, Brazil and completed a postdoctoral position with a focus on molecular cancer research in the Glycoproteomics group of Prof Giuseppe Palmisano, University of Sao Paulo, Brazil (2015-17). She has also been trained in other high profile (glyco)proteomics laboratories including Prof Michael MacCoss, University of Washington, Seattle (2014), Prof Martin R. Larsen, University of Southern Denmark (2016) and, lately, Dr Morten Andersen and Distinguished Prof Nicki Packer, Macquarie University (2017-18) as a visiting fellow. Currently, her research focuses on understanding how protein N-glycosylation modulates the tumour microenvironment and impacts the immune- and cancer-related anti- and pro-inflammatory processes in colorectal cancer.