Professor Beth Psaila

Title: From Riches to Rags, the nuclear genome of megakaryocytes and platelets

Megakaryocytes undergo a unique form of the cell cycle that results is successive rounds of whole genome duplication (WGD) and an average ploidy of 16N. They then give rise to platelets - with no nucleus at all. This talk will cover two unpublished/in press projects focusing on these fascinating and unusual aspects of their cell biology. Firstly - how megakaryocytes tolerate whole genome duplication, the implications of this for their genome integrity, and how this is relevant for WGD tolerance in solid tumours. Secondly - our recent discovery that despite lacking a cell nucleus, platelets contain a repertoire of DNA fragments acquired by sequestration of cell free DNA during peripheral circulation, including free fetal and cancer cell-derived DNA.