



Master's Thesis Project *at the* Institute of Developmental Immunology

Background: Cell death is essential for life. Programmed cell death, or apoptosis, is frequently triggered by permeabilisation of the mitochondrial outer membrane, allowing the efflux of mitochondria proteins into the cytoplasm where they activate caspases, committing the cell to a rapid demise without triggering an immune response. However, in the absence of caspase activation, this can be converted into a highly immunogenic form of cell death, partly due to release of mtDNA into the cytoplasm driving potent anti-tumour and anti-viral responses.

Project Goals: In this project you will generate, develop and test novel adeno-associated viruses (AAVs) which can be used to induce caspase-independent cell death in cancer cells. You will test these in relevant cancer models, and use them as a tool to interrogate outstanding questions in the field.

What will you learn? You will be trained in a number of cutting edge techniques, such as genome editing using CRISPR-Cas9, super-resolution microscopy, image analysis and flow cytometry, as well as standard laboratory techniques such as Western blotting and RT-qPCR. You should have good English language skills and be highly motivated. Previous lab experience would be beneficial, but not required.

Contact: Dr Joel Riley, joel.riley@i-med.ac.at

