Project Title	Utilisation of SV2a as a biomarker in Alzheimer's Disease
Supervisor(s)	Dr Johanna Jackson (Department of Brain Sciences) Dr Samuel Barnes (Department of Brain Sciences)
Themes	Microscopy
Project Type	Lab based
Project Description	"Synapse loss and dysfunction are key features of AD and, to enable the progression of drug discovery in this area, a reliable biomarker is required to track cognitive impairment to determine drug efficacy. SV2a, a protein present at synaptic vesicles, is currently under investigation as the target of a PET tracer to track synaptopathy in AD. Here we will characterise the SV2a protein both preclinically and in human tissue by mapping its cellular and synaptic distribution and its relationship to AD pathology. To do this, we will test the validity of expansion microscopy to determine whether the expansion of tissue enhances the visualisation of synaptic puncta by advanced imaging techniques (i.e. imaging mass cytometry, two photon imaging and/or super resolution microscopy). We will then use expansion microscopy and advanced imaging techniques to map the cell-type and synapse-type distribution in mouse and human tissue of the SV2a protein."