

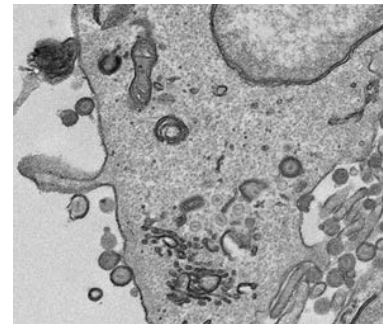
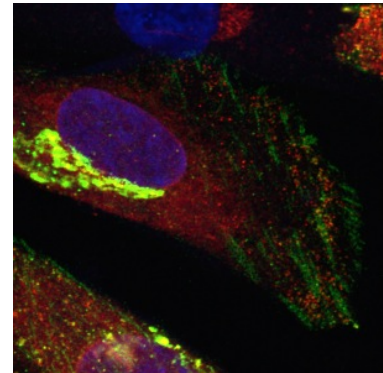
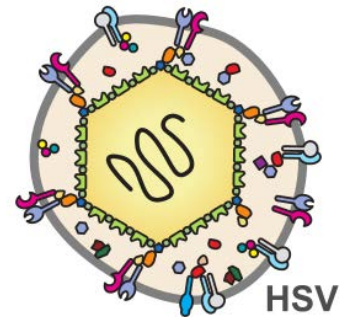
## PhD Studentship: How do herpesviruses remodel intracellular membranes to assemble virus particles?

Applications are invited for a PhD studentship position co-funded by the Department of Pathology and Diamond Light Source to commence from October 2018. The studentship will be funded for three years in the first instance, with the possibility of additional funding in the fourth year.

The successful candidate will join a collaboration between the laboratories of Dr Stephen Graham and Dr Colin Crump at the University of Cambridge, and Dr Maria Harkiolaki at Diamond Light Source, to investigate how herpesviruses remodel membranes during infection. This project brings together two world-leading research institutes to combine cutting-edge super-resolution fluorescence microscopy, cryo X-ray tomography (cryoXT), biochemistry and cell biology approaches to probe the molecular details of how herpesviruses remodel membranes during infection.

Viruses have evolved ingenious mechanisms to reorganise the environment of infected cells to best suit their replication, and understanding how viruses achieve this is key to developing the next generation of anti-viral therapies. Herpesviruses are highly prevalent human and animal pathogens that cause serious diseases. These viruses dramatically remodel the endomembrane system of infected cells to efficiently produce membrane-wrapped infectious progeny. We seek to determine the molecular pathways that stimulate envelopment of the human herpesviruses. Previous work in our laboratories has identified conserved viral protein complexes required for efficient membrane wrapping of nascent virus particles. However, the details of the envelopment process and the stages involving these complexes remains unclear. We will use super-resolution fluorescence microscopy and cryoXT to unravel the spatiotemporal dynamics of virus envelopment in cells infected with wild-type or mutant herpesvirus strains. Correlative fluorescence microscopy and cryoXT will allow us to identify specific virus proteins at sites of virion assembly and capture whole-cell images of the envelopment process at nanometer resolution. By systematically investigating defects in virus envelopment across a panel of genetically-engineered mutant strains of HSV-1 we will be able to dissect the specific roles played by each of the conserved protein complexes that promote virus envelopment.

In addition to uncovering the roles of particular viral proteins during envelopment, host factor requirement and function will be investigated. Our laboratories have identified a number of cellular proteins required for efficient virus assembly. We will investigate these interactions biochemically and



use infection-based cellular assays (of wild type or CRISPR/Cas9 genome edited human cells) to probe how these host proteins contribute to virus assembly.

Candidates should have a first or upper second class degree in biochemistry, cell biology or biological/medical science and should possess excellent written and oral communication skills. The post-holder should be highly motivated and able to work as part of a team. Funding will cover the student's University Fees and stipend of £16,772.00 in year 1, with the student stipend increasing by approximately 1.5% each year, and will include allowances for travel to/from Diamond Light Source and conference attendance. The successful candidate will have the opportunity to work in both Cambridge and at Diamond during their studentship, with the expectation that the student will have spent 50% of their time at each site by the end of their studies. The studentship is only available to UK nationals and EU students who meet the UK residency requirements\*. The Department requires that by the time of interview all potential students must have fulfilled the language requirements for admission (for more details see <http://www.graduate.study.cam.ac.uk/courses/directory/blpapdpth/requirements>). Applications from ineligible candidates will not be considered.

Fixed-term: The funds for this post are available for 3 years in the first instance.

Informal enquires regarding this studentship may be made to Dr Stephen Graham <scg34@cam.ac.uk>. General queries should be directed to [graduate.studies@path.cam.ac.uk](mailto:graduate.studies@path.cam.ac.uk) or 01223 333940.

**Closing date for applications: 25th February 2018**

**All applications should be made online via the University of Cambridge Applicant Portal (<https://www.graduate.study.cam.ac.uk/how-do-i-apply>) using the Department of Pathology course code (BLPA22).** In the studentship section of your application please state that you are applying for the Cambridge-Diamond studentship.

\* Further information about the UK residency requirements and your fee status can be found at the following website: <http://www.graduate.study.cam.ac.uk/finance/fees/what-my-fee-status>