Project proposal

Project title	Association of Varizella-Zoster-Virus and host immune response
First Supervisor	Dr — Hossein Ashrafi
Second Supervisor	Dr Dhayaneethie Perumal
School	Life Sciences
Other member of supervisory team (no more than three KU supervisors in total)	
Specific requirements beyond 2:1 degree	Experience in cell culture and current molecular biology techniques

Project summary

(max 4,000 characters)

Varicella zoster virus (VZV) causes chicken pox as a primary infection following which it becomes latent in neurons in the dorsal root ganglia and trigeminal ganglia. It may then reactivate to cause shingles (herpes zoster), the most serious complication of which is post-herpetic neuralgia (PHN). Severity of lesions is depended on the host's immune response.

Like many viruses, VZV appears to have evolved mechanisms resulting in escape from host immune surveillance by down-regulating cell surface MHC 1 expression and delay of resolution of infection. The VZV genome encodes a membrane gene, ORF 1, which is localised in the cell Golgi apparatus possibly important for the transport of MHC class I to the cell surface and cytotoxic T cell activation.

The purpose of this proposal is to identify means of promoting lesion progression by investigating the association between the **ORF 1** gene of VZV and transport of MHC 1 to the cell surface. This study, in collaboration with scientists in Glasgow and USA, will help to elucidate the early events in VZV infection that determine disease development, and may offer novel means of therapeutic intervention.

The environment is conductive to cross-fertilisation and collaboration. Range of cellular and molecular pathology techniques and facilities will be used in this project including plasmid prep, gene cloning, tissue culture, gene transfection, Western blotting analysis, PCR, flow cytometry and confocal microscopy.
All the necessary reagents are available in our laboratory at Kingston University or in our collaborators'. All techniques for use in this study have been published in our previous studies.