UCD Centre for Research in Infectious Diseases

UCD CRID, established and directed by Prof. William W. Hall, is located in a dedicated research building in UCD. This centre has Biosafety Level 2 (BL2) and BL3 (+) containment facilities and dedicated fully equipped laboratories for molecular virology, cellular biology and immunology.

The UCD Centre for Research in Infectious Diseases (CRID) currently comprises several Principal Investigators and research groups focusing on many aspects of the pathogenesis, immunology and epidemiology of HIV-1, HTLV, HCV and other human viral infections. Importantly, CRID benefits from a close relationship with the UCD National Virus Reference Laboratory (NVRL), where there are joint research studies and a sharing of resources and expertise. Current and past research programmes are supported by Irish Aid, the Atlantic Philanthropies, Wellcome Trust, Japanese Foundation for AIDS Prevention, Science Foundation Ireland (SFI), Health Research Board (HRB), Irish Research Council (formerly IRCSET) and by UCD-seed funding.

The Ireland Vietnam Blood Borne Virus Initiative (IVVI) is a collaborative programme between UCD and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. The programme aims to develop capacity in clinical and diagnostic virology and virus research in Vietnam through infrastructure development and specialized training programmes. The concept was developed by Professor William Hall, Director of CRID, in response to the significant morbidity and mortality associated with blood borne virus (BBV) infections in Vietnam. Initial studies which have been recently published have focused on the molecular epidemiology and analysis of HIV and Hepatitis B and C viruses (HBV, HCV) in Vietnam, which have highlighted the extraordinary diversity of viral species there. The initiative has also been involved in molecular analysis of Dengue and Chikungunya viruses in Vietnam and has demonstrated dynamic changes in circulating Dengue virus serotypes which have significant implications for clinical outcomes.

The Molecular Reference and Research Unit (MRU) carries out molecular epidemiological and pathogenesis studies on a range of blood-borne and respiratory viruses, viral drug resistance and tropism assays and performs World Health Organisation (WHO) surveillance work on influenza, measles, mumps and rubella viruses. Recent research programmes have also focused on developing molecular assays for arbovirus infections (Dengue and Chikungunya viruses).

The Host-virus Interaction Mapping Programme aims at characterising at the molecular and functional levels, interactions between key human viruses (HCV, HTLV-I, HTLV-2 and HIV-1) and the host cellular machinery. To delineate the host-virus interface, we have developed an expanding portfolio encompassing a wide array of tools for cellular biology, molecular virology combined with proteomic and metabolomic approaches.

The Viral Pathogenesis Programme has focused on transgenic and SCID mouse models of adult T cell leukaemia (ATL) which is caused by HTLV-1 infection. The studies which are in collaboration with the National Institute of Infectious Disease (NID) in Tokyo are designed to identify specific molecular events in disease development so as to design focused treatments for this disease. These have focused on the role of cancer stem cells and have allowed the development of new targeted therapeutics and which are currently being studied in human clinical trials.

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My research interests are focused on viral pathogenesis and specifically involve blood-borne viruses including HBV, HTLV-1, HIV and HCV. In terms of the former two viruses the studies have focused on understanding details of virus replication using proteomic approaches. Studies on HBV and HCV are focused on molecular epidemiology.

I am also the founder of the Ireland/Vietnam Blood Borne Virus Initiative (IVVI) (www.ivvi.org) which is a collaborative programme between University College Dublin (UCD) and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. I am also co-founder of the Global Virus Network (www.gvn.org).

For more information about UCD Centre for Research in Infectious Diseases, and for a list of current and future initiatives, please visit the School’s award-winning website, available at http://www.ucd.ie/medicine/ourresearch/researchcentres/ucdcentreforresearchinfectiousdiseases/