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*What! Is Brutus sick,
And will he steal out of
his wholesome bed
To dare the vile contagion of the night?
Julius Caesar ii:1:1263*

Viruses provide a fascinating study. They are the simplest living organisms, and self replicating RNA particles (the earliest viruses), were most likely the earliest organisms on Earth able to replicate and hence promulgate their species. They still represent the simplest known living organisms at a molecular level, particularly if viroids and prions are included within the discussion.

By definition, viruses are organisms with nucleic acid genomes that are dependent upon intracellular replication using host metabolic machinery. However, these basic DNA or RNA organisms cause enormous diversity of prokaryotic, plant and animal infection. Their molecular activities are of immense importance both in understanding the diseases they cause, and in defining normal and aberrant cellular processes.

There has been an enormous, continuing expansion in our knowledge about viruses – particularly due to the availability of molecular methods allowing dissection of the basic molecular aspects of viral replication, virus maintenance within cells in acute, chronic and latent infection, and viral manipulation of the host cell. These scientific advances have allowed (albeit more slowly) improvements in our clinical understanding, and treatment of human viral illness.

Peter Medawar, a great admirer of the scientific philosophy of Karl Popper, summarised some of these significant benefits: “the facts need no longer be known explicitly.. (as) we are being progressively relieved of the burden of singular instances, the tyranny of the particular”. The emerging understanding of the basic mechanisms of transmission, replication, cell damage, cell manipulation and latency of individual viruses, has allowed valuable paradigms to be described, both for viral and cellular processes.

This issue of *Microbiology Australia* concentrates on the blood borne viruses – particularly in relation to their importance as transmissible agents of human infection. Important issues emerging from such discussions include how best to test for viruses in blood supplies, utilising antibody and nucleic acid tests (NAT) optimally in diagnosis and screening, the nature of the emerging threats to the blood supply, and how are these threats best addressed by regulatory bodies such as the Therapeutic Goods Administration (TGA). Also included are more descriptive papers on the characteristics of some of the important infectious agents found within blood products – such as hepatitis C virus (HCV), human cytomegalovirus (HCMV) and agents infecting children.

Since the emergence of new variant Creutzfeldt-Jakob disease (nvCJD) in the UK during the late 1980s, the term

‘minimal risk’ has decreasing acceptability by the general public in relation to blood supply, allograft transplants and public health in general. The emergence of new threats such as imported diseases (discussed by Paul Young), the extended asymptomatic period associated with a number of infections, presence of known threats to the blood supply (discussed by Robyn Wood), threats to the unborn baby (discussed by Sian Munro), and the emergence of resistant viruses (discussed by Gillian Scott) all demonstrate the increasing importance of viruses for public and individual health.

There are new opportunities for assessment of the blood supply, including the availability of technical advances using pooling, antibody avidity, nucleic acid testing and improved quality assurance (addressed by Greg Maine and Ros Escott), opportunities for donor screening and treatment of blood (addressed by David Smith), and public health opportunities for national monitoring and administrative bodies such as the Australian Paediatric Surveillance Unit, the National Blood Authority, and the Therapeutic Goods Administration.

The papers presented are aimed at opening discussion about some important aspects of viral illness. Many others could have been included – just as virology impinges upon every aspect of human life. The papers represent opinions from a diverse group of scientists and clinicians around the country. There are many other distinguished scientists who work in these significant areas who could equally have contributed important opinions.

Again, from Peter Medawar; “Today the world changes so quickly that, in growing up, we take leave not just of youth but of the world we were young in”. The papers here represent a starting point for discussion, not definitive text, and I commend them to you for your consideration.