Professor Bryan R Cullen Hon DSc

Oration by Professor Lawrence Young
Pro-Vice-Chancellor

Around 10 million deaths a year are caused by infectious disease and we are all aware of the impact and continuing fear associated with infections such as AIDS, Ebola and Zika virus. Professor Bryan Cullen has revolutionised our understanding of the fundamental mechanisms of virus infection leading to new approaches to the diagnosis and treatment of infections ranging from HIV to herpesviruses. It is a delight to welcome Bryan Cullen to today's degree congregation.

Bryan was born in Bradford and as a canny Yorkshire man had the foresight to come to the new University of Warwick in 1970 to read Biochemistry. This was a very exciting time when Warwick was establishing itself as a world-leading centre for virology research. And, excuse the pun, this infectious environment ignited Bryan's interest and led to him heading off to the US where he gained his PhD in microbiology from Rutgers University in 1984.

A period in industry consolidated his interest in retroviruses (viruses that have RNA genomes) and in the application of molecular biology – where a revolution was taking place in the ability to manipulate and analyse the fundamental mechanisms of biology. Bryan recognised the enormous potential of these exciting new technologies. He moved to Duke University in 1987 – only four years after HIV, the retrovirus associated with AIDS was discovered – and began exploiting his knowledge of retrovirology and his technological expertise to focus on understanding HIV infection. Bryan's work has led to many key discoveries that have contributed to a much deeper understanding of the mechanisms by which HIV infects and grows in cells. He has also worked on human factors that act as innate inhibitors of retrovirus replication leading to novel ways of controlling the growth of HIV. Over the last 14 years Bryan has led the field in a completely new area – the role and function of virus-encoded microRNAs.

It is typical of Bryan's creativity and innovative approach that he is able to immediately recognise the potential of new discoveries and technologies and apply them to the field of virology. A recent example is the much-heralded technology of gene editing. Bryan has pioneered the use of this technology, not only to probe fundamental mechanisms of virus biology, but also as a potential therapeutic approach to eradicate infections.

Bryan has remained at Duke University for his entire academic career being appointed as the James B Duke Professor of Molecular Genetics and Microbiology in 1994 and is currently Director of the Duke University Center for Virology. He has served on the editorial boards of the some of the most important scientific journals in the world and been awarded many honours including Fellowship of the American Academy of Microbiology and Fellow of the American Association for the Advancement of Science. Bryan was awarded a Visiting Professorship to our Institute of Advanced Studies in 2012.

Globalisation is causing profound, sometimes unpredictable, changes in the ecological, biological and social conditions that shape the burden of infectious disease. Today's honorary graduate has worked tirelessly to understand the fundamental biology of virus infection and to use this knowledge to fight the scourge of infectious disease.

Mr Chancellor, in the name of the Senate, I present for admission to the degree of Doctor of Science, *honoris causa*, Professor Bryan Cullen.