

Date / Time:
Tuesday, 6 April 2010
12.00 nn

Venue:
Seminar Room @ Level 3
Department of
Microbiology
MD4, 5 Science Drive 2
Singapore 117576

Convener:
Assoc. Prof. Ho Bow /
Assoc. Prof. Tan Yee Joo

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“Understanding Human Coronavirus NL63”

Assoc. Prof. Burtram Clinton Fielding
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University of the Western Cape,
Republic of South Africa



Assoc. Prof Burtram C Fielding completed both his B.Sc. (Microbiology and Physiology) and B.Sc. Honours (Microbiology, *cum laude*) degree studies at the University of the Western Cape. Prof Fielding obtained his doctoral degree in Microbiology in 2001 from the University of the Western Cape and was appointed as Lecturer in the Department of Biotechnology at UWC in January 2001. He accepted a position as Postdoctoral Research Fellow in the Collaborative Antiviral Research Group at the Institute of Molecular and Cell Biology (IMCB), Singapore in February 2003. He spent the next three years at IMCB while on study leave from UWC working on SARS coronavirus. His work focused on the protein interactions between viral and host proteins, in particular the coronavirus accessory proteins. Prof Fielding was promoted to Associate Professor in the Department of Medical Biosciences in 2008. Currently, his research focuses on pathogens affecting human health. His laboratory is involved in research into RNA viruses NL63-HCoV, SARS-HCoV and Hepatitis C virus, as well as the control of bacterial pathogens affecting food safety. He is also involved in mode of action studies of plant extracts against important antibiotic resistant human bacterial pathogens.

Abstract

RNA viruses are responsible for not only frequent benign diseases (which nonetheless have an enormous economic impact, *vide infra*), but also for millions of deaths each year in both industrialized and developing countries. Among the most formidable agents are coronaviruses, which cause 10-15% of all the common colds in the world. Even though coronavirus infection of humans is not normally associated with severe diseases, the identification of the coronavirus responsible for the outbreak of severe acute respiratory syndrome showed that highly pathogenic coronaviruses can enter the human population. Shortly after the identification of SARS-CoV, another novel human coronavirus (HCoV-NL63) was isolated from a seven-month old infant suffering from respiratory symptoms. This virus has subsequently been identified in various countries, indicating a worldwide distribution. HCoV-NL63 has been shown to infect mainly children and the immunocompromised, who presented with either mild upper respiratory symptoms (cough, fever and rhinorrhoea) or more serious lower respiratory tract involvement such as bronchiolitis and croup, which was observed mainly in younger children. Data presented will give a summary of our current understanding of this virus. It will also focus on our studies done to elucidate the possible function(s) of accessory protein ORF3 from HCoV-NL63.