



Cambridge Society for the Application of Research

Churchill College  
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[www.csar.org.uk](http://www.csar.org.uk)

## "Where is it safe to go on holiday?"

(Antigenic Cartography, a mathematical method for mapping the spread of viruses)

### **Professor Derek Smith**

Professor of Infectious Disease Informatics, Department of Zoology,  
University of Cambridge

7.30 p.m., Monday 2<sup>nd</sup> March, 2009

The Wolfson Lecture Theatre, Churchill College, Storey's Way, Cambridge

#### ***Professor Smith writes:***

#### **"The Evolution of Influenza Viruses**

Influenza viruses infect 5-20% of the world's population each year.

In the developed world, about 1 in a 100 cases of influenza results in hospitalization.

World-wide more than 500,000 people die from influenza or its complications each year. Approximately five times more people died in the influenza pandemic in 1918 than were killed in the First World War.

The primary reason why influenza continues to be such a threat to human health is that many times when it causes a new epidemic, the virus has changed. Such changes allow the virus to infect not only individuals who have never had influenza before, but to re-infect individuals who have previously been exposed.

In this lecture, I will describe the origins and evolution of influenza viruses, and how they circulate around the world. I will describe the global tracking systems to monitor influenza virus evolution, and the twice yearly process to update the strains used the influenza virus vaccine.

Finally, I will discuss whether influenza virus evolution might be predictable, whether we might be able to get ahead of the virus and slow down its evolution, and thus reduce the burden of influenza on human health."

#### ***About the speaker:***

Derek Smith is Professor of Infectious Disease Informatics at Cambridge, a member of the Department of Virology at Erasmus Medical Centre in The Netherlands, and is a Senior Research Fellow at the Fogarty International Center at the US National Institutes of Health.

He is an advisor to the World Health Organization and is a member of its influenza vaccine strain selection committee.

His research is focused on how pathogens evolve, to what extent this evolution is predictable, and determining public and animal health measures against such ever-changing pathogens.

### **The Organising Secretary adds.....**

I am told that this will be an outstanding lecture. I am greatly relieved to have been able to put together this 'flyer', because I discovered today that our speaker is outside the UK until Sunday! He is in the Far East, but phoned me in transit today at work from Hong Kong airport!

Our President is off in the Mauritius on a lecture tour at present, so your Chairman will be Professor Lisa Hall, who knows the speaker and his work. The Vote of Thanks will be proposed by Professor Sir Tom Blundell. Both are CSAR Members of Council.

Thank you all for your support. Our lectures are getting steadily better attended, and there is a healthy leavening of post-docs and PhD students. We regularly have ~100 in the audience, and for Dr Mackay's talk, we estimate an attendance of ~330 (the Wolfson is licensed for 300). All good!

Best Regards

### **Richard Freeman, CSAR Organising Secretary**

Phone 01799 525 948 and 07787 511 006

Coffee available, as usual, in the foyer outside the lecture theatre from ~7.00 p.m.

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