



Cumbria Humanist Group

**Dr Jamie Caryl of the Faculty of Biological Sciences at the University of Leeds,
talking about “Superbugs – and other Aspects of Micro-Evolution.”**

**Meeting at Morton Community Centre, Wigton Road, Carlisle
on Wednesday, 18 June 2008 at 7.30 pm**

With hospital infections so much in the news in recent years, Cumbria Humanist Group members were intrigued by Dr Jamie Caryl’s account of his work at the University of Leeds on the genetics of bacterial antibiotic resistance – the “Superbugs” of the popular media! Multiply-resistant *Staph. aureus* and *Clostridium difficile* are the most common causes of problem hospital infections, although such resistant organisms occur in about 20% of healthy individuals where they cause no problems at all.

The dangerous infectious illnesses that fail to respond to antibiotics usually only occur when an individual is sick and their immune system is compromised. Resistance to antibiotics was first observed almost fifty years ago. The massive increase in the occurrence of resistant bacteria over the decades has been attributed to excessive or misuse of antibiotics, especially ‘broad spectrum’ drugs which kill a wide range of bacteria and not just those causing the infectious illness, as well as failures of hospital hygiene practices in recent years, and probably the prophylactic use of antibiotics in raising farm animals for meat.

Jamie described the processes of bacterial genetics which allowed mutated genes for drug resistance to be passed between organisms, including those of different species – hence the problems of using broad-spectrum antibiotics which kill normal flora as well as the pathogenic organisms causing the illness. So a mutation occurring in any of the range of bacteria can potentially be passed to all of them.

Members felt that the elements of the pharmaceutical industry, the so-called “Big Pharma”, had to bear some responsibility for excessive and inappropriate use of antibiotics, and we were interested to hear that some smaller ‘not-for-profit’ companies (“Small Pharma!”), generally within universities, are now concentrating their research on finding new drugs to target the specific problem infections.

At the core of Humanism is the rejection of religion and beliefs such as creationism, and so this field is of particular interest to us, as it offers evidence of Darwinian evolution – survival of the fittest. The bacteria that have spontaneous mutations conferring resistance to antibiotics will survive and reproduce in the environment where their fellows without the mutation will be killed by the drug.

If you are interested in Humanism, visit our website at www.cumbria-humanists.org.uk or telephone 01228 810592 or 01768 881245 for more information.

(380 words)

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Affiliated to the British Humanist Association