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Galleria mellonella as a model for antimicrobial drug screening

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Galleria mellonella (wax moth) larvae have been used as an infection model to understand microbial pathogens since the 1980's and are susceptible to a broad range of bacteria and fungi which cause disease in humans. The use of larvae for infection studies is not subject to home office regulation in UK and *G. mellonella* larvae are generally considered to be an ethical alternative to studies in mammals. The larvae have the advantage that they can be infected at 37°C, allowing the expression of temperature-regulated virulence genes. A defined infection site allows larvae to be injected with precise doses of bacteria and/or drugs. Drawbacks of this model include the lack of an adaptive immune response and a lack of mammalian target organs. During the past 5 years there have been reports of the testing of at least existing 22 antibiotics and 5 existing antifungal compounds for their abilities to control infections caused by 17 pathogens in Galleria. There is good agreement between drug efficacy data obtained in *G. mellonella* and efficacy data previously obtained in mammalian models or in human trials. These findings have generated confidence in the value of *G. mellonella* for antimicrobial drug screening and more recently there has been a shift towards using this model to screen new drugs and approaches for disease control.

Biography

Richard W Titball is a Professor of Molecular Microbiology at the University of Exeter and was previously a Senior Fellow at the Defense Science and Technology Laboratory. He is a Founder of Biosystems Technology, which specializes in alternative infection models. He has published more than 300 peer reviewed papers, filed 20 patents and currently serves as an Editor of Vaccine and an Editorial Board Member of NPJ Vaccines.

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