The Tick Cell Biobank: tick and insect cell lines for parasitology research

Catherine Hartley, Jing Jing Khoo, Alistair Darby, Benjamin Makepeace, Lesley Bell-Sakyi

Department of Infection Biology and Microbiomes, Institute of Infection, Veterinary and Ecological Sciences, University of Liverpool, Liverpool L3 5RF, UK

Ticks are not only haematophagous ectoparasites in their own right, but also vectors of a range of disease-causing protozoan and helminth parasites, including species of the genera *Babesia*, *Theileria*, *Hepatozoon* and *Cercopithifilaria*. Haematophagous insects are also notorious for transmitting pathogenic parasites including species of the protozoa *Plasmodium*, *Trypanosoma* and *Leishmania* and the helminth genera *Wuchereria*, *Brugia*, *Loa* and *Onchocerca*. Cell lines derived from tick and insect vectors offer a convenient and accessible approach to many aspects of research on the arthropods and the pathogens they transmit. The Tick Cell Biobank (TCB) at the University of Liverpool is the world's only dedicated culture collection for cell lines derived from ticks and biting insects. We generate, store and supply cell lines and provide training in their maintenance through the parent TCB and our Outposts in Malaysia, Brazil and Kenya. We hold cell lines derived from 20 ixodid and three argasid tick species, including major livestock and human disease vectors, and a growing panel of cell lines from insect vectors including mosquitoes, sand flies, biting midges, tsetse flies and triatomine bugs. Cell lines are distributed to scientists worldwide subject to Material Transfer Agreements; for further information, contact us at tickcellbiobankenquiries@liverpool.ac.uk.