

## THE TICK CELL BIOBANK: TICK AND OTHER ARTHROPOD CELL LINES FOR TROPICAL MEDICINE RESEARCH

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Continuous cell lines derived from ticks and other arthropods are essential tools for laboratory-based research on medically-important, vector-borne viruses, bacteria, protozoa and helminths. The Tick Cell Biobank (TCB) at the University of Liverpool, the world's only dedicated repository for tick and other arthropod cell lines, underpins this research through provision of existing cell lines and training in their maintenance to scientists worldwide, and generation and characterisation of novel cell lines. As well as housing the world's largest collection of tick cell lines, the TCB is working to generate new cell lines from biting midges, sand flies, tsetse flies, mosquitoes and mites. The burden of vector-borne disease falls disproportionately on lower- and middle-income countries (LMIC) in the Tropics, and the TCB's emphasis on tropical arthropod vectors reflects this; to facilitate dissemination and uptake of arthropod cell line technologies by LMIC scientists, the TCB is establishing Outposts in Malaysia, Kenya and Brazil. Recent applications of tick cell lines in tropical medicine research include development of the first *in vitro* culture system for propagation of *Mycobacterium leprae*, and advances in understanding of tick-human transmission of Crimean-Congo hemorrhagic fever virus, tick-borne flaviviruses and spotted fever group *Rickettsia* species.