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New Breakthrough in Fight Against Lethal CCHF Virus

Crimean-congo Haemorrhagic Fever (CCHF) virus is a rare, but serious human infection that causes internal bleeding, organ failure and ultimately death. Scientists writing in the Journal of General Virology have developed a new model to study CCHF, which should enhance the development of vaccines and antivirals against this deadly disease.

CCHF virus is a tick-borne pathogen that infects (but does not cause disease in) wild and domestic animals in many countries in Africa, Europe and Asia. Humans may become infected from a tick bite or through direct contact with blood or other infected tissues from livestock such as cattle, sheep and goats. CCHF infections in humans lead to serious disease and have a fatality rate of approximately 30%. New vaccines and treatments are urgently needed to combat the CCHF virus, but their development is being hindered by a lack of suitable animal models for testing.

Scientists from the Swedish Institute for Infectious Disease Control, Solna, Sweden have now found that immune-deficient mice can be used as a model to study how CCHF virus behaves in humans. The group discovered that mice unresponsive to key antiviral molecules produced by their innate immune system developed classic symptoms of CCHF

viral infection that were fatal.

Dr Ali Mirazimi who led the study, believes the groups' work will contribute enormously to vaccine and antiviral development studies. "To date there is no safe or effective vaccine available for human use or a specific antiviral for CCHF virus," he said. "A reliable animal model is the only way that the safety and effectiveness of a potential vaccine or antiviral treatment can be properly evaluated," he explained.

New strategies to control the spread of the CCHF virus could also have huge economic impact for farmers in developing countries. "As the virus can be transmitted to humans via infected animal tissues, farmers, who breed food-producing animals can lose huge amounts of money if their stocks have to be culled," explained Dr. Mirazimi.