Model Name
Staphylococcus aureus USA300 MRSA (BAA-1717), Disseminated Infection, LD90-100

Item Number
608188

Introduction
This model evaluates the antimicrobial efficacy of test articles for treatment of disseminated infections with a community acquired MRSA. USA300 S. aureus is a community-associated epidemic MRSA that causes rapidly progressive and fatal diseases. This strain, originally named TCH1516, is resistant to erythromycin and most classes of β-lactam antibiotics. It is susceptible to quinolones, vancomycin, daptomycin, linezolid, and carbapenems.

Procedure Summary
Groups of 10 immune competent mice are used. Each animal is inoculated with an intravenously administered LD90-100 dose of Methicillin Resistant Staphylococcus aureus (USA300 MRSA, BAA-1717) suspended in 0.1 ml PBS. Test substance and vehicle are administered one hour later. Doses may be administered IV, SC, PO, IM, IP or by IV infusion. Mortality is recorded daily during the following 7 days. Prevention of mortality in 50 percent or more (>50%) of the animals indicates significant activity. The Minimum Effective Dose (MED) is defined as the dose that results in survival of 50% (or more) of the test animals.

Turnaround Time(s)
4 weeks from sample receipt

Literature
Rouha H. et al., mAbs. 7(1): 243-254. 2015

Optional Services
Analysis of cytokines (with Luminex) and PK exposure can be performed upon request.

Related Assay(s)  (Item # - Assay Name - Species)
604045* - Staphylococcus aureus, USA300 MRSA (TCH1516, BAA-1717) MIC – Bacteria
608200 - Staphylococcus aureus USA300 MRSA (BAA-1717), Wound Infection, CFU/g – Mouse
608190 - Staphylococcus aureus USA300 MRSA (BAA-1717), Dermal Infection - Mouse
*provided by partner lab Eurofins Pharma Discovery Services

Modified Protocols
We will readily accommodate client-specified alterations.

Laboratory
These assays are performed at our AAALAC accredited BSL2 laboratory in Taipei, Taiwan.

Animal Welfare
All aspects of this work is performed in general accordance with the Guide for the Care and Use of laboratory animals (National Academy Press, Washington, DC, 2011). The study protocol was approved by the Pharmacology Discovery Services IACUC and is performed with the oversight of veterinarians to assure the humane treatment of laboratory animals.
Reference Compound
Vancomycin

Graph

Septicemia model, MRSA (EAA-1717)
Vancomycin (VAN) titration
in normal BALB/c mice

Last modified February 20, 2018