Model Name
Klebsiella pneumoniae, Carbapenem resistant KPC-2 (BAA 1705), Lung Infection Model, CFU/g

Item Number
608572

Introduction
This assay assesses the antimicrobial efficacy of test articles in a thigh muscle infection model with a carbapenem resistant strain. The microbial counts in tissue are measured. This KPC-2 (MBL-) carbapenemase producing K. pneumoniae strain is resistant to ciprofloxacin and β-lactam antibiotics (including aztreonam). It has intermediate susceptibility to amikacin and is susceptible to tigecycline and colistin.

Procedure Summary
Groups of 5 neutropenic mice are used. Animals are inoculated intranasally with pathogen suspension then test articles or vehicle are administered at time points after inoculation. (Doses may be administered IV, SC, PO, IM, IP or by IV infusion). At 24 after the first treatment, animals are humanely euthanized and tissue is aseptically removed. Tissue is homogenized and pathogen counts are determined by plating to agar medium. Pathogen counts from treatment groups are compared to vehicle groups and the significance of an effect is determined.

Turnaround Time(s)
5 weeks from sample receipt

Literature
DeRyke CA et al., Antimicrobial Agents and Chemotherapy 51:1481-1486, 2007

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

Related Assay(s)  (Item # - Assay Name - Species)
612120* - Klebsiella pneumoniae, KPC-2 (BAA-1705) MIC - Bacteria
*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
Gentamicin

Graph

*Klebsiella pneumoniae*, Lung Infection
KPC-2 (ATCC BAA-1705)
Gentamicin (GEN) titration

Last modified February 20, 2018