



Animal Models for Infection Pharmacology

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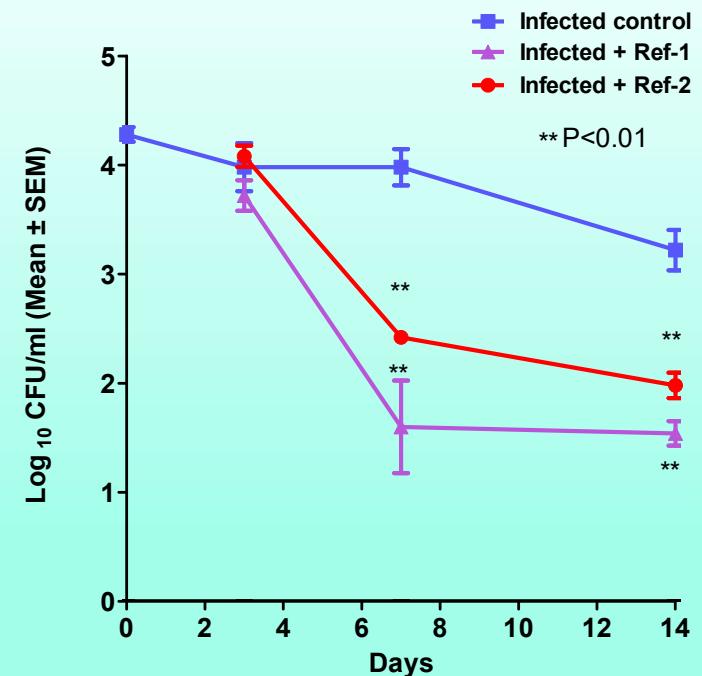
Osteomyelitis in Rats

- Species: Rat [Sprague Dawley]
- Pathogens: *S. aureus*/MRSA/ *S. epidermidis*
- Sclerosing agent: Arachidonic acid
- Treatment Duration : 14 days
- Readout: CFU/HP in Bone & marrow



Groups	Day 14 [Log ₁₀ CFU/ml bone marrow]
Uninfected Control	0
Infected control	3.22 ± 0.19
Infected + Bead loaded with Ref. drug I	1.54 ± 0.11**
Infected + Bead loaded with Ref. drug II	1.98 ± 0.12***

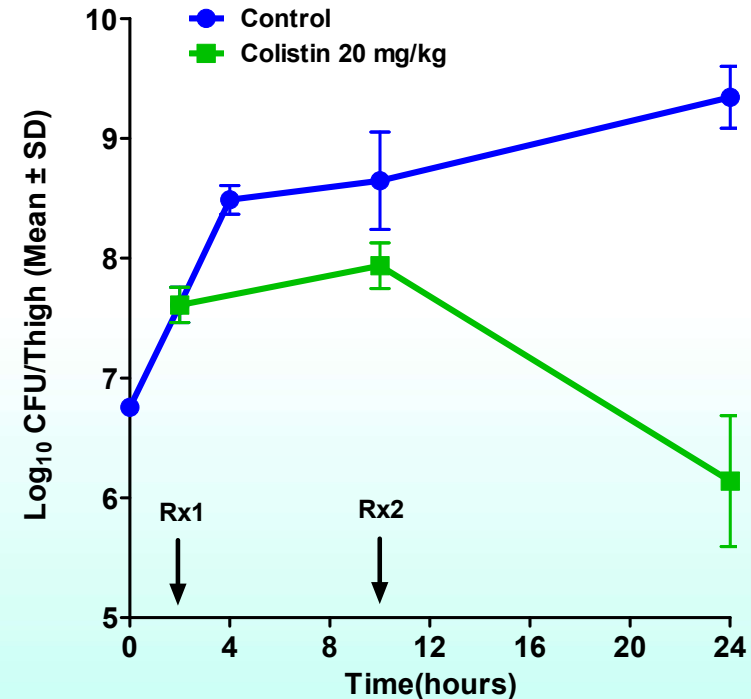
***Significantly different from control [p<0.001]





Neutropenic Thigh Infection Model in Mice: Screening and PK/PD

- Species: Mouse[BALB/c]
- Neutropenia: Cyclophosphamide,IP
- Pathogens: *A. baumannii*, *E.coli*, *S. aureus*, MRSA
- Infection: Thigh
- Inoculum: $\sim 10^6$ CFU/animal
- Treatment initiated at 2 h post infection (PI) and animals sacrificed at 6-24 h post Rx
- Readout: Log_{10} CFU/thigh

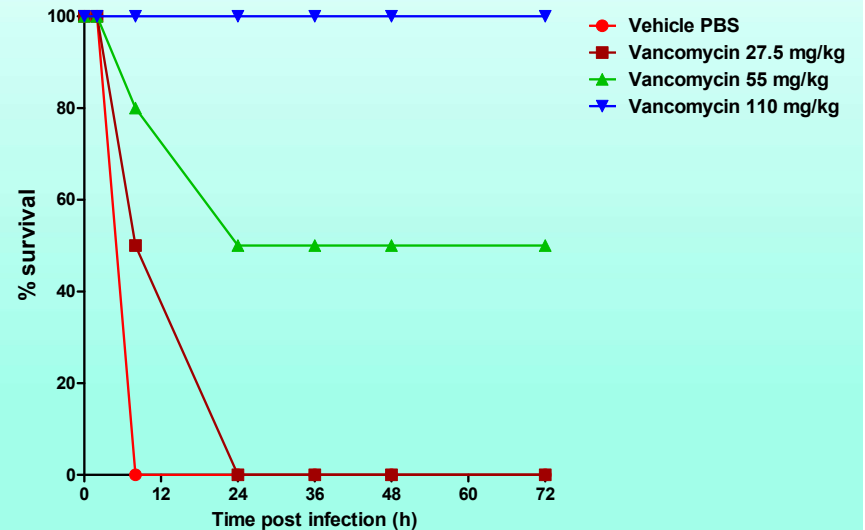
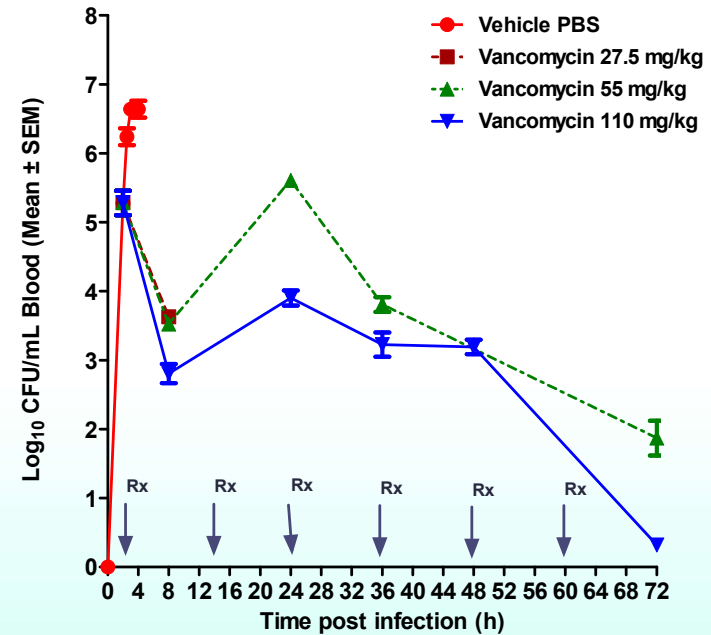


Time PI (h)	Log ₁₀ CFU <i>A. baumannii</i> /Thigh(Mean ± SD)	
	Control	Colistin [20 mg/kg]
10	8.65 ± 0.41	7.94 ± 0.19
24	9.34 ± 0.26	6.14 ± 0.55**

** P < 0.01 when compared to 2 hr control

Sepsis Model in Mice: Screening and PK/PD

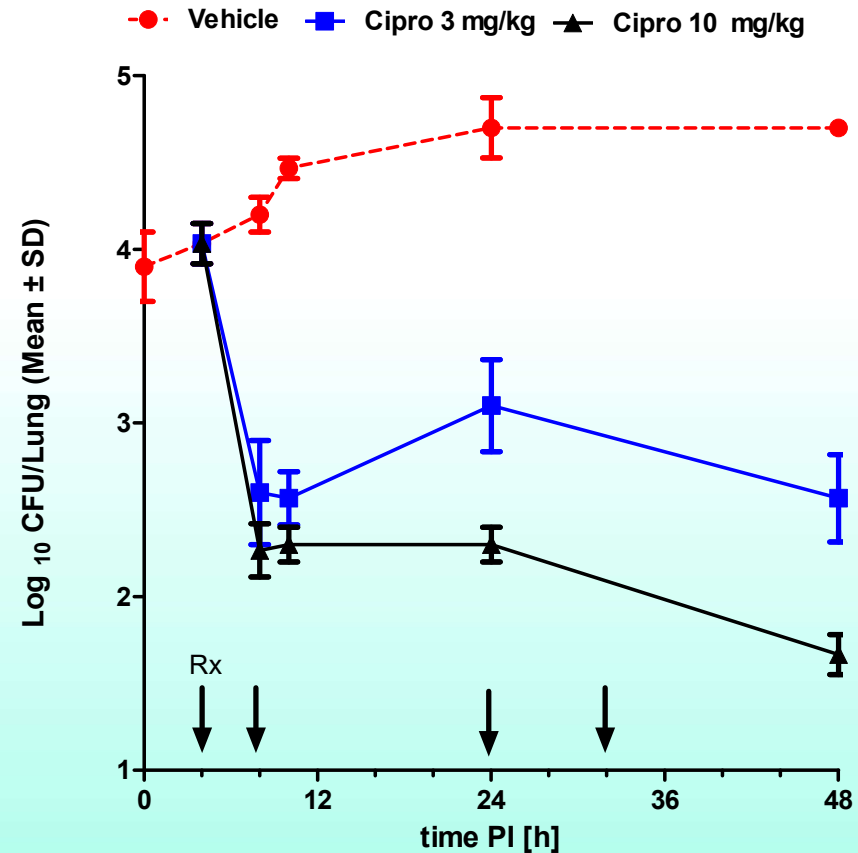
- Species: Mouse[BALB/c]
- Neutropenia : Cyclophosphamide, IP
- Pathogens: MRSA, *P. aeruginosa*
- Inoculum and infection: $\sim 10^6$ CFU/animal with pig gastric mucin, IP
- Treatment initiated at 2 h post infection (PI)
- Readout: Bacteremia/Septicemia/Survival



Lung Infection Model in Mice : Screening and PKPD

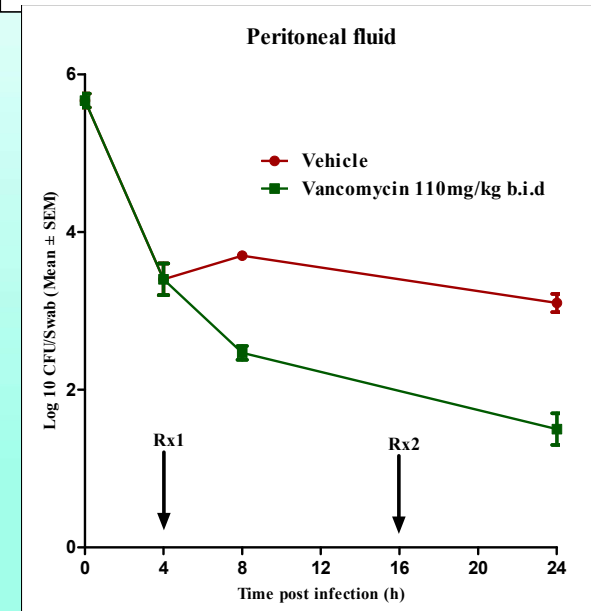
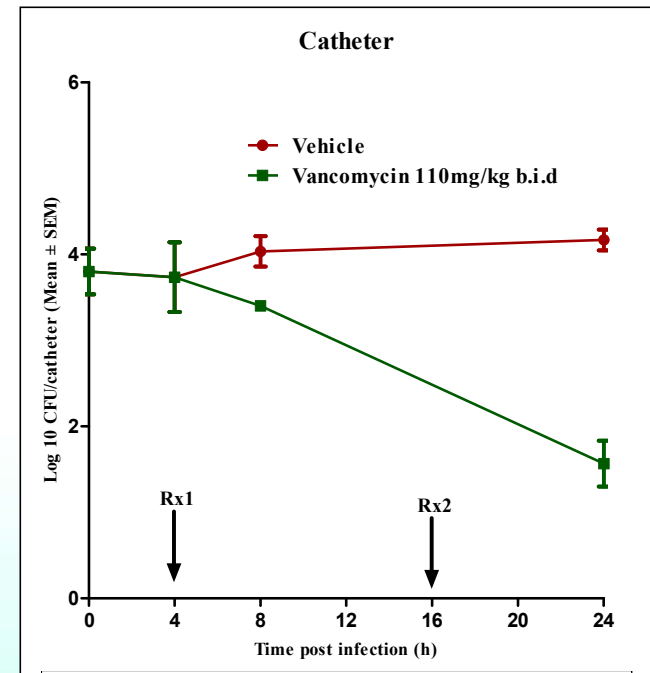
- Species: Mouse [BALB/c]
- Bacteria : *K. pneumoniae* [ATCC13883]
- Neutropenia: Cyclophosphamide
- Infection: Intranasal [$\sim 10^4$ CFU/animal]
- Treatment initiated 4h PI
- Readout: Log_{10} CFU/lungs

Time (h)	Vehicle	Cipro 3 mg/kg	Cipro 10 mg/kg
	Mean \pm SEM		Mean \pm SEM
0	3.92 \pm 0.1	-	-
4	4.02 \pm 0.07	4.02 \pm 0.07	4.02 \pm 0.07
8	4.23 \pm 0.05	2.61 \pm 0.16	2.28 \pm 0.07
10	4.49 \pm 0.04	2.57 \pm 0.08	2.28 \pm 0.05
24	4.7 \pm 0.11	3.12 \pm 0.16	2.31 \pm 0.07
48	4.68	2.57 \pm 0.15	1.66 \pm 0.06



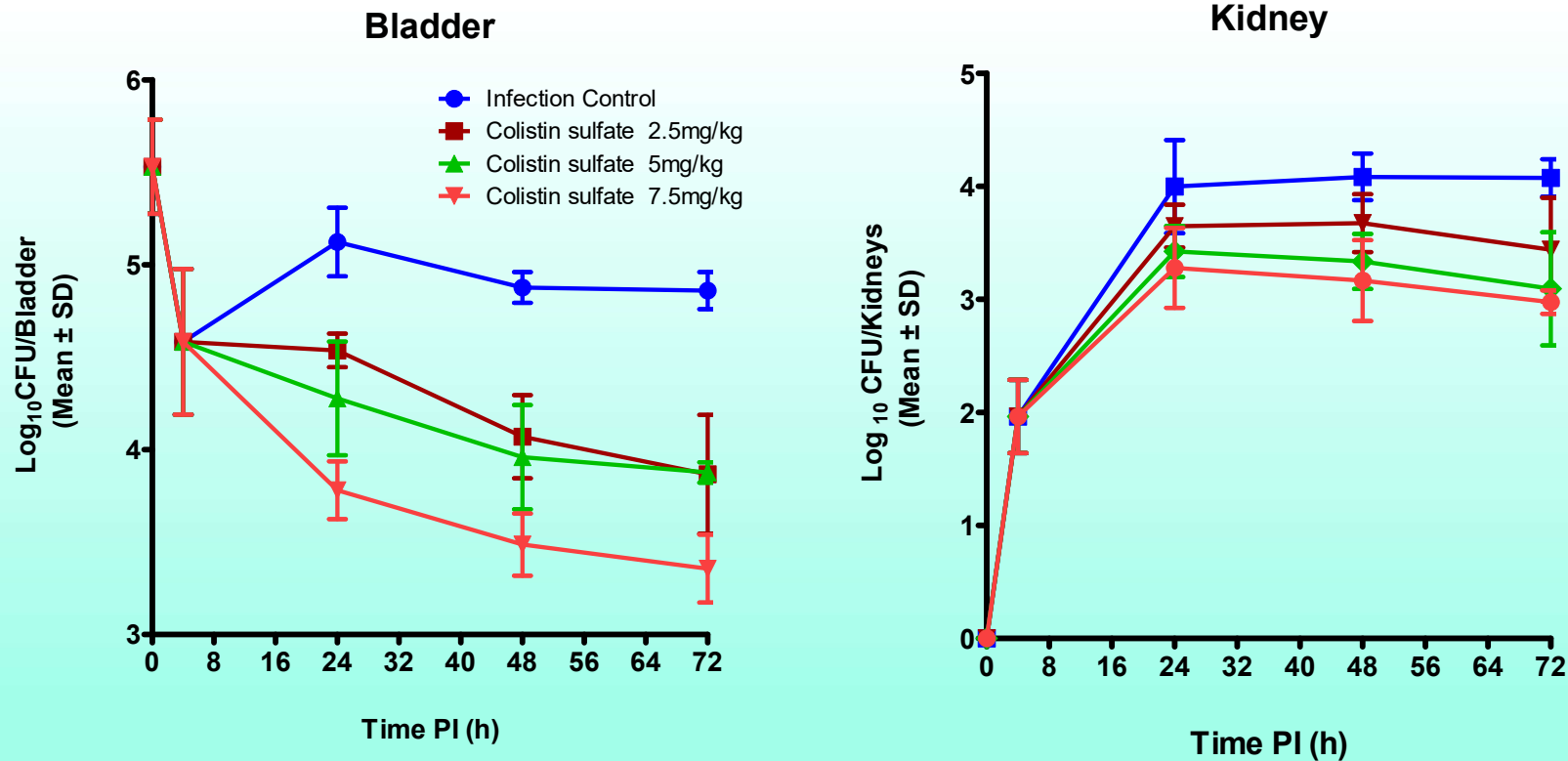
Foreign Body Infection Model in Mice

- Species: Mouse [BALB/c]
- Pathogens: MRSA/*P. aeruginosa*
- Silicon catheter in the peritoneal cavity
- Infection : intraperitoneal injection of bacteria into lateral abdominal wall opposite the operation wound, 15 min after insertion of t catheter implant.
- Treatment : 4 h post infection
- Readout: CFU enumerated in peritoneal cavity and catheter and Biofilm on catheter



Urinary Tract Infection Model in Mice

- Species: Mouse [BALB/c]
- Bacterium and Strain: *E.coli* /kpc
- Infection: Anesthetized mice infected transurethrally by use of a guided sterile catheter
- Readout: CFU per mL bladder and kidney

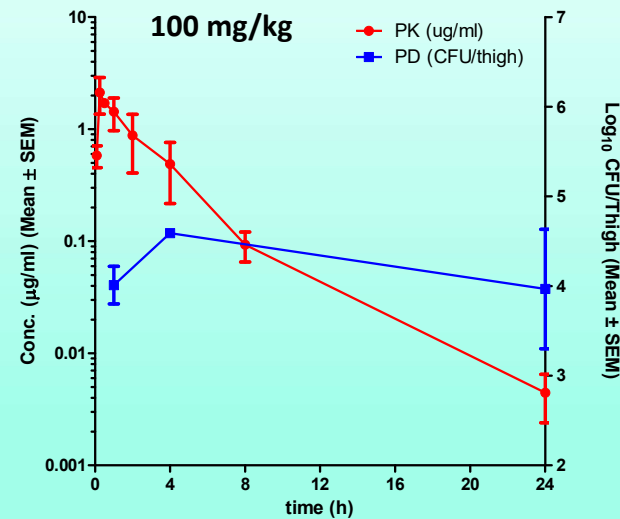
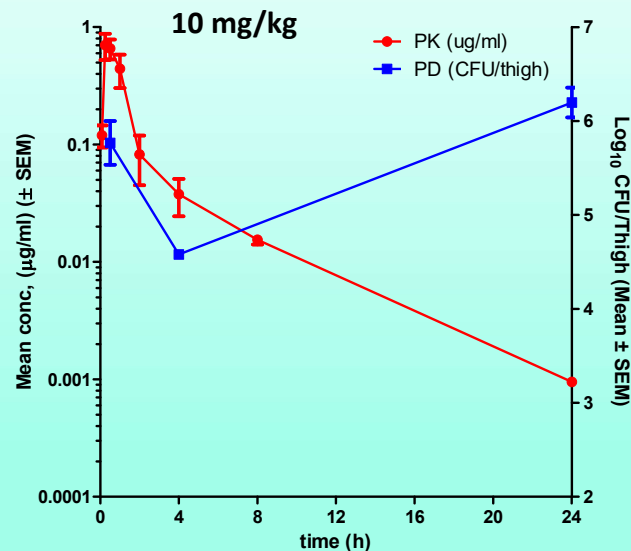


Advanced Studies with Mouse Models of Infection

- Dose Fractionation Studies to Identify PK/PD index of Efficacy in Mouse models of

- Thigh Infection
- Lung Infection
- Septicemia

- Time course of Dose response studies to enable PK/PD modelling





Customised Models

We customise disease models based on Client's Needs



Thank You

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