



Staphylococcus aureus (CA-MRSA, USA300 LAC) Necrotizing pneumonia

Procedure Summary

- Immunocompetent New Zealand rabbits
 - Clinical *S. aureus* strains (LAC USA300 PVL+ or LAC USA300 delta-PVL)
- Intra-tracheal challenge
- Reference compounds
 - Antibiotics : vancomycin IV (continuous infusion), linezolid 600mg/12h IV, clindamycin 600mg/8H IV, ceftaroline fosamil 600mg/12h IV
 - Antibodies : ASN100 (preventive or curative)
- Simulated human dosing (PK) for 48h

Experimental readouts

- Bacterial burden in lung tissue and spleen
- Weight loss, food intake
- Fever, Clinical disease severity score
- Survival rate
- Gross pathology of lungs, Lung weight / body weight
- Immune cell counts
- Histology
- Toxins quantification

Optional Services

- Broncho Alveolar Lavage Fluid
- mRNA expression
- Cytokine and chemokine analysis

References

- Croisier *et al.*, AAC 2014 « *In vivo* efficacy of ceftaroline fosamil in a methicillin-resistant PVL-producing *Staphylococcus aureus* rabbit pneumonia model »
- Stulik *et al.*, Nat Scientific Reports 2019 « Preventing lung pathology and mortality in rabbit *Staphylococcus aureus* pneumonia models with cytotoxin-neutralizing monoclonal IgGs penetrating the epithelial »

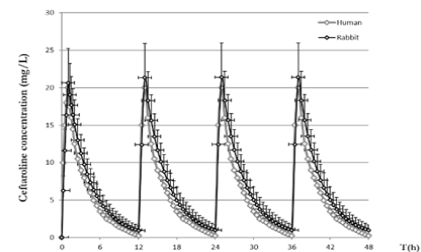
Facilities

- These assays are performed at our BSL2 laboratory / zootechnical center in Dijon, France

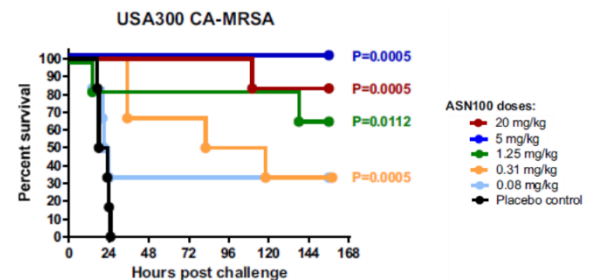
Animal Welfare

- Each experimental protocol is approved by the local ethics committee for animal experimentation of Grand Campus Dijon (Burgundy, France) and performed in accordance to the current recommendations of the European Institute of Health EU Directive 86/609.

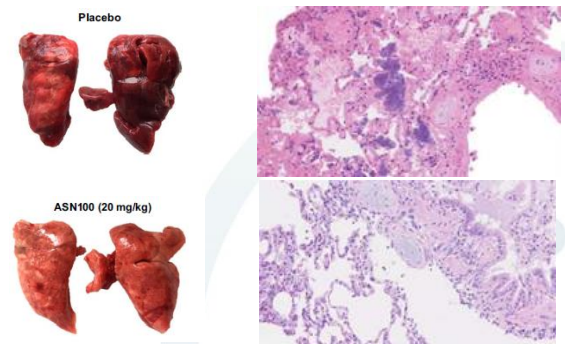
Concentration-time profiles in serum of rabbits for ceftaroline at 600mg/12h after IV human dosing



Dose-dependent protection elicited by ASN100 in rabbit models of lethal pneumonia. Rabbits were intravenously immunized with ASN100 (0.08 mg/kg to 20 mg/kg) or placebo 24 hours before intra-tracheal challenge with *S. aureus* strain.



Representative pictures of lungs from infected rabbits challenged with the USA300 CA-MRSA (LAC) strain that received ASN100 (20 mg/kg) or placebo 24 hours before.



Our scientific team will readily accommodate client-specific alterations and will provide expert advice and guidance for your efficacy studies

For more information please contact : info@vivexia.fr