A leading causative agent of community-acquired pneumonia (CAP), Streptococcus pneumoniae (SPN), is a penicillin-resistant pathogen. MK-2764, a novel aminomethylcycline, is being developed for the treatment of SPN infections. This study aimed to investigate the pharmacokinetic and pharmacodynamic properties of MK-2764 against SPN isolates.

### Methods

**Antibiotic Susceptibility**: The susceptibility of SPN isolates was determined using broth microdilution methods. The minimum inhibitory concentration (MIC) was established, and the percentage of isolates susceptible, intermediate, or resistant was calculated.

**Pharmacokinetics**: MK-2764 was administered via subcutaneous injections to groups of 6 mice approximately 12 hours after infection. Samples were collected from blood, lung tissue, and BAL for analysis. The pharmacokinetic parameters such as Cmax, AUC, and T > MIC were calculated.

### Results

- **Cmax/MIC vs CFU**: The maximum bacterial kill was observed after doses of approximately 10 mg/kg.
- **Log10 CFU Change after 24 hours**: MK-2764 produced an overall dose-dependent killing effect. On an exposure basis, the amount of drug entry and accumulation in the extravascular compartment of relevance.

### Conclusions

MK-2764 appears to concentrate at the site of infection in this model as demonstrated by the amount of drug entry and accumulation at the site of infection make this a candidate for further evaluation.