In vitro activity of CFDC and comparator agents against Achromobacter spp.

**Table 1. Efficacy of Ceferodicol in Experimental Stenotrophomonas maltophilia Pneumonia in Persistency Neutrophilic Rabbits**

| Experimental groups | Cefiderocol (CFDC) | Trimethoprim-sulfamethoxazole (T/S) | Untrained controls (UC) | P Value |
|---------------------|-------------------|-------------------------------------|-------------------------|---------|
| **Pulmonary bacterial burden (Log CFU/g)** | 0.00 ± 0.00 | 1.58 ± 0.06 | 6.95 ± 0.35 | * P<0.001 |
| **BAL bacterial burden (Log CFU/mL)** | 0.00 ± 0.00 | 1.04 ± 0.06 | 5.07 ± 0.59 | * P<0.001 |
| **Survival median and probability (days %)** | 10.8 (9.7) | 7 (5.0) | 5.0 (5.0) | * P<0.01 |

**Conclusion.** Ceferodicol is highly active in treatment of *S. maltophilia* pneumonia in persistency neutrophilic rabbits, thus laying the foundation for future clinical investigations against this lethal infection.

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**Background.** Achromobacter spp. is intrinsically resistant to multiple antibiotics, and the treatment options are limited. Ceferodicol (CFDC), a siderophore cephalosporin approved in US and EU, is active against a wide variety of aerobic Gram-negative bacteria, including carbapenem-resistant strains. In this study, and in vivo anti-bacterial activity of CFDC against Achromobacter spp. was evaluated.

**Methods.** A total of 334 global isolates collected by IHMA from 39 countries in 2015-2019 were used. Minimum inhibitory concentrations (MICs) of CFDC and comparators were determined by broth microdilution method using iron-depleted GAMHB or CAS medium respectively, as recommended by CLSI guideline. In vivo efficacy of CFDC was compared with meropenem (MEM), piperacillin-tazobactam (P/TAZ), ceftazidime (CAZ), and ciprofloxacin (CIP) in a neutropenic murine lung infection model (n=5), and compared with MEM in a immunocompetent rat lung infection model (n=3-7) caused by *A. piechaudii* (1/334; 0.3%), Achromobacter sp. (8/334; 2.4%), A. denitrificans (2/334; 0.6%), and *S. maltophilia* (11/334; 3.3%), A. actinomycetemcomitans (2/334; 0.6%), and A. piechaudii (1/334; 0.3%).

**Conclusion.** CFDC showed potent in vivo efficacy reflecting in vitro activity against A. xylosoxids. The results suggested that CFDC has the potential to be an effective therapeutic option for Achromobacter spp. infections.

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