

CEM-101, a novel ketolide; *in vitro* activity against resistant strains of *Streptococcus pneumoniae* and *Haemophilus influenzae*

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Objective: CEM-101 is a promising fluoroketolide that has potent activity against respiratory tract pathogens resistant to other macrolide agents. Its activity against a variety of resistant strains of *Streptococcus pneumoniae* and *Haemophilus influenzae* was investigated.

Methods: The *in vitro* activity of CEM-101 was compared with that of telithromycin, azithromycin, erythromycin, levofloxacin and doxycycline against a total of 199 resistant *S. pneumoniae* and 191 resistant *H. influenzae* by agar dilution procedures (CLSI, M7-A7, M100-S18). The tested strains included *S. pneumoniae* erythromycin-resistant (*erm B* genotype; 107 isolates and *mefE* genotype; 54) and ciprofloxacin-resistant (*gyrA* and *parC* genotype; 38) and also *H. influenzae* ery-resistant (*erm A,B,C* genotype; 138) and cipro-resistant (*gyrA* and *parC* genotype; 53).

Results: Against *S. pneumoniae* ery-resistant strains (*ermB* genotype), the activity of CEM-101 (MIC₉₀ 1mg/L) and levofloxacin (MIC₉₀ 2mg/L) was superior to the macrolides tested: telithromycin (MIC₉₀ 4mg/L), azithromycin (MIC₉₀ ≥64 mg/L), erythromycin (MIC₉₀ ≥64 mg/L) and doxycycline (MIC₉₀ 32 mg/L). Against *S. pneumoniae* ery-resistant (*mefE* genotype) group, CEM-101 (MIC₉₀ 0.25 mg/L) was the most active agent followed by levofloxacin (MIC₉₀ 2mg/L), telithromycin (MIC₉₀ 8 mg/L), doxycycline (MIC₉₀ 16 mg/L), azithromycin (MIC₉₀ ≥64 mg/L) and erythromycin (MIC₉₀ ≥64 mg/L). Against *S. pneumoniae* cipro-resistant (*gyrA* and *parC* genotype) group, CEM-101 (MIC₉₀ 0.25 mg/L) was also the most active agent tested followed by telithromycin (MIC₉₀ 1 mg/L), levofloxacin (MIC₉₀ 2mg/L), doxycycline (MIC₉₀ 16 mg/L), azithromycin (MIC₉₀ ≥64 mg/L) and erythromycin (MIC₉₀ ≥64 mg/L). Against *H. influenzae* ery-resistant (*ermA,B,C* genotype) strains, CEM-101 (MIC₉₀ 4 mg/L) was the most active macrolide tested followed by telithromycin (MIC₉₀ 16 mg/L), azithromycin (MIC₉₀ 16 mg/L) and erythromycin (MIC₉₀ ≥64 mg/L). Against *H. influenzae* cipro-resistant (*gyrA* and *parC* genotype) group, CEM-101 (MIC₉₀ 2 mg/L) was slightly more active than telithromycin (MIC₉₀ 4 mg/L) and levofloxacin (MIC₉₀ 4 mg/L).

Conclusions: These data confirm the interesting activity of the new fluoroketolide CEM-101 against resistant *Streptococcus pneumoniae* and *Haemophilus influenzae*.