

Disk Zone and Minimal Inhibitory Concentration (MIC) Correlations for Testing Solithromycin (SOL), a Novel Fluoroketolide with Potent, Broad-Spectrum Activity

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Background: SOL is a novel fluoroketolide that has an *in vitro* activity spectrum different and frequently more potent than currently available macrolides. As SOL is in late stage clinical development, this study was done to evaluate the relationship between broth MICs and disk zone diameter.

Methods: Isolates were concurrently tested against SOL by broth microdilution and disk diffusion (15 µg) in accordance with the appropriate CLSI guidelines. The organisms tested included *Staphylococcus* spp. (ST, [n=100]), *Enterococcus faecalis* (EF, [n=50]), *Streptococcus pneumoniae* (SP, [n=100]), beta-haemolytic streptococci (BH, [n=150]), *Haemophilus influenzae* (HI, [n=101]), and *Moraxella catarrhalis* (MC, [n=101]).

Results: As summarized in the table below for ST, EF, MC, and HI, a broad range of MICs and zone sizes were obtained that resulted in reasonable R² values. For SP and BH the activity of SOL was such that all MICs were ≤ 0.25 µg/mL. This lack of strains with higher MICs resulted in relatively lower R² values.

Organism	N	MIC Range (µg/mL)	Zone Range (mm)	R ² Value
ST	100	0.015 - >32	6 - 39	0.80
EF	50	0.008 - 4	16 - 32	0.73
SP	100	0.002 - 0.25	21 - 35	0.25
BH	150	0.002 - 0.25	8 - 38	0.26
MC	101	0.002 - >32	6 - 47	0.47
HI	101	0.03 - >32	6 - 32	0.50

Conclusions: This study indicates that disk diffusion will be a reliable method for assessing the *in vitro* activity of SOL against the target bacterial species. The eventual establishment of disk interpretive breakpoints will need to await correlative MIC disk data from clinical trials and perhaps profiling a greater collection of isolates in an expanded disk/broth correlation study.