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# Antimicrobial Activity of Solithromycin (CEM-101), a Novel Fluoroketolide, Tested Against Isolates Collected in Europe during 2010 Surveillance

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## Abstract

**Objective**: To evaluate the potency and spectrum of solithromycin (SOL), a novel fluoroketolide, against a contemporary (2010) collection of European (EU) pathogens associated with community-acquired bacterial pneumonia (CABP) and acute bacterial skin and skin structure infections (ABSSSI), compared to erythromycin (ERY), azithromycin (AZI), clarithromycin (CLA), clindamycin (CLI) and telithromycin (TEL).

**Methods**: 6,378 isolates collected from 41 medical centers (18 EU countries) in 2010 were included. Species/group (number of isolates) were: *Staphylococcus aureus* (SA; 2,539), coagulase-negative staphylococci (CoNS; 610), enterococci (ENT; 934), *Streptococcus pneumoniae* (SPN; 764), viridans group streptococci (VGS; 274), beta-haemolytic streptococci (BHS; 762), *Haemophilus influenzae* (HI; 326) and *Moraxella catarrhalis* (MCAT; 169). Consecutive isolates were susceptibility (S) tested by CLSI broth microdilution methods and results were interpreted by CLSI and EUCAST breakpoints.

**Results**: SOL was eight-fold more active ($MIC_{90}$, 0.25 mg/L) against SA compared toTEL ($MIC_{90}$, 2 mg/L) with off-scale $MIC_{90}$ values found for ERY (>4 mg/L) and CLI (>2 mg/L). SOL ($MIC_{50/90}$, ≤0.03/>4 mg/L) had a comparable activity to TEL against CoNS (74.3% S). SOL was only moderately active against ENT ($MIC_{50/90}$, 0.5/2 mg/L), but was two-fold more potent than TEL ($MIC_{50/90}$, 1/4 mg/L). SOL demonstrated greater potency against *E. faecalis* (EF) ($MIC_{50}$, 0.06 mg/L) compared to *E. faecium* (EFM; $MIC_{50}$, 1 mg/L). SOL was very active against SPN ($MIC_{90}$, ≤0.03 mg/L), VGS and BHS ($MIC_{90}$, both ≤0.03 mg/L) with 100.0% of all streptococcal isolates inhibited at ≤0.5 mg/L. The SPN isolates were only 72.8, 75.1 and 82.5% S to penicillin (PEN), ERY and CLI, respectively. SOL was very active against MCAT ($MIC_{90}$, 0.06 mg/L) with lower activity against both beta-lactamase-positive and -negative HI isolates ($MIC_{90}$, 2 mg/L). SOL activity against HI was four-fold more active than ERY against MCAT. The EU collection sampled had 27.1% MRSA, 71.8% MR-CoNS, 1.2% vancomycin-resistant (VR)-EF, 18.7% VR-EFM, 22.3% PEN non-S VGS and 15.3% of HI were beta-lactamase-positive.

| Organism (no.) | Cumulative % occurrences at SOL MIC (mg/L): | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ≤0.03 | 0.06 | 0.12 | 0.25 | 0.5 | 1 | 2 | 4 | >4 |
| SA (2,539) | 61.4 | 88.3 | 89.8 | 90.0 | 90.1 | 90.2 | 90.2 | 90.3 | 100.0 |
| CoNS (610) | 52.6 | 71.0 | 73.6 | 74.1 | 74.3 | 74.4 | 74.6 | 75.3 | 100.0 |
| ENT (934) | 36.2 | 39.8 | 41.8 | 45.3 | 57.1 | 82.1 | 99.5 | 99.8 | 100.0 |
| SPN (764) | 91.4 | 94.2 | 96.6 | 99.5 | 100.0 | -[a] | - | - | - |
| VGS (274) | 91.2 | 95.6 | 98.2 | 100.0 | - | - | - | - | - |
| BHS (762) | 94.5 | 97.0 | 98.7 | 99.6 | 100.0 | - | - | - | - |
| HI (326) | 0.3 | 0.3 | 0.9 | 1.8 | 19.0 | 83.7 | 98.2 | 98.2 | 100.0 |
| MCAT (169) | 20.7 | 95.3 | 100.0 | - | - | - | - | - | - |

a. - = no occurrences; underlined value = $MIC_{90}$.

**Conclusions**: SOL clearly exhibited greater potency than currently available macrolide agents, CLI and TEL, against contemporary (2010) EU pathogens commonly isolated in CABP or ABSSSI. This data supports clinical trial investigations of SOL for the treatment of these infections.

## Introduction

Increased antimicrobial resistance among Gram-positive pathogens is occurring worldwide. Methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE) and penicillin-resistant *Streptococcus pneumoniae* are becoming increasingly difficult to treat. Additionally, emerging cases of macrolide-resistant *S. pneumoniae* and *Streptococcus pyogenes* are causing global alarm. Therefore, new oral and/or parenteral antimicrobial agents with activity against these Gram-positive pathogens are in demand.

Ketolides are semisynthetic antimicrobial agents derived from erythromycin A, and were designed to overcome macrolide-resistant *S. pneumoniae*. Ketolides posses a keto-group at the C-3 position of the lactone ring, rather than L-cladinose, as seen in erythromycin. Solithromycin (CEM-101) is a new fluoroketolide displaying activity against many pathogens that cause respiratory tract infections (RTI), acute bacterial skin and skin structure infections (ABSSSI) and urogenital infections. This new compound has potent activity against Gram-positive pathogens, including macrolide-resistant strains and various fastidious Gram-negative strains, including *Haemophilus* spp., *Moraxella* spp., and species of *Mycoplasma* and *Ureaplasma*.

In the study presented here, the *in vitro* potency and spectrum of activity of solithromycin and comparator agents were evaluated against 6,378 bacterial pathogens collected from European medical centres in 2010.

## Materials and Methods

Bacterial isolates. A total of 6,378 consecutively collected non-duplicate bacterial isolates originated from 41 European medical center sites located in 18 countries. These organisms were isolated from bloodstream infections, community-acquired RTI, pneumonia in hospitalized patients, or patients with ABSSSI. Identifications were confirmed as needed by the Vitek system (bioMerieux, Hazelwood, Missouri, USA) or conventional tests.

Antimicrobial susceptibility testing. Isolates were susceptibility tested against solithromycin and comparators using the Clinical Laboratory Standards Institute (CLSI) M07-A8 (2009) broth microdilution method. All strains were tested in validated, broth microdilution panels manufactured by TREK Diagnostics (Cleveland, Ohio, USA). Mueller-Hinton Broth (MHB) adjusted to contain physiological levels of calcium (50 mg/L) was used when testing daptomycin and supplements designated for use by the CLSI when testing fastidious species (*Haemophilus* and streptococci). The following quality control (QC) organisms were concurrently tested: *Enterococcus faecalis* ATCC 29212, *S. aureus* ATCC 29213, *S. pneumoniae* ATCC 49619 and *H. influenzae* ATCC 49247; all QC results were within ranges specified by the CLSI (M100-S21, 2011).

## Results

- A total of 90.2% of the *S. aureus* isolates were inhibited by solithromycin at ≤1 mg/L (current CLSI breakpoint for another ketolide, telithromycin, Table 1).
- The activity of solithromycin against *S. aureus* and CoNS strains was similar ($MIC_{50}$, ≤0.03 mg/L for both pathogens; Table 2). Susceptibility rates for vancomycin, daptomycin and linezolid were near complete (>99%) against staphylococcal strains.
- Overall, the activity of solithromycin was at least two-fold greater than the activity of telithromycin against enterococci (99.5% were inhibited at a MIC ≤2 mg/L). Vancomycin resistance was observed in 6.6% (7.2% by EUCAST criteria) of tested strains. Susceptibility rates were high against all isolates for daptomycin (100.0%), and linezolid (99.9%, see Table 2).
- Solithromycin was among the most active antimicrobial agents tested against *S. pneumoniae* ($MIC_{90}$, 0.03 mg/L), inhibiting 100.0% of the strains at ≤1 mg/L (CLSI breakpoint for telithromycin).
- Solithromycin was very active against all viridans group streptococci (VGS; $MIC_{50}$ and $MIC_{90}$, ≤0.03 mg/L). Erythromycin and penicillin susceptibility rates were only 59.1% and 77.7%, whereas clindamycin susceptibility was 88.3%. All other comparator agents were very active against VGS.
- Solithromycin showed potent activity against all beta-haemolytic streptococci (BHS; $MIC_{50}$ and $MIC_{90,}$ ≤0.03 mg/L), inhibiting all strains at ≤0.5 mg/L. Telithromycin resistance (by EUCAST criteria) was 1.7% and erythromycin resistance was 16.5%. All other comparator agents were very active against BHS (Table 2).
- The activity of solithromycin ($MIC_{50}$, 1 mg/L) was comparable to azithromycin and greater than other macrolides or ketolides when tested against *H. influenzae* (Table 2; 98.2% inhibited at ≤2 mg/L). Agents showing >99% susceptibility rates according to CLSI breakpoint criteria included amoxicillin/clavulanate, ceftriaxone and levofloxacin.
- All comparators showed acceptable potencies against *M. catarrhalis* strains from European medical centres (Table 2). Solithromycin inhibited all of these strains at ≤0.12 mg/L.

Table 1. Frequency distributions of Solithromycin when tested against bacterial pathogens recovered in European medial centers in 2010.

| Organism group (no. tested)[a] | Number (Cumulative %) of strains inhibited at MIC (mg/L): | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ≤0.03 | 0.06 | 0.12 | 0.25 | 0.5 | 1 | 2 | 4 | >4 |
| *S. aureus* (2,539) | 1559 (52.6) | 682 (82.3) | 40 (89.8) | 5 (90.0) | 1 (90.1) | 2 (90.2) | 2 (90.2) | 2 (90.3) | 246 (100.0) |
| CoNS (610) | 321 (52.6) | 112 (71.0) | 16 (73.6) | 3 (74.1) | 1 (74.3) | 1 (74.4) | 1 (74.6) | 4 (75.3) | 151 (100.0) |
| *Enterococcus* spp. (934) | 338 (36.2) | 34 (39.8) | 18 (41.8) | 33 (45.3) | 110 (57.1) | 234 (82.1) | 162 (99.5) | 3 (99.8) | 2 (100.0) |
| *E. faecalis* (586) | 267 (45.6) | 30 (50.7) | 8 (52.1) | 24 (56.1) | 76 (69.1) | 111 (88.1) | 67 (99.5) | 1 (99.7) | 1 (100.0) |
| *E. faecium* (310) | 40 (12.9) | 2 (13.6) | 9 (16.5) | 9 (19.4) | 32 (29.7) | 121 (68.7) | 95 (99.4) | 2 (100.0) | |
| *S. pneumoniae* (764) | 698 (91.4) | 22 (94.2) | 18 (96.6) | 22 (99.5) | 4 (100.0) | | | | |
| Viridans group streptococcus (274) | 250 (91.2) | 12 (95.6) | 7 (98.2) | 5 (100.0) | | | | | |
| β-haemolytic streptococcus (762) | 720 (94.5) | 19 (96.7) | 13 (98.7) | 7 (99.6) | 3 (100.0) | | | | |
| *H. influenzae* (326) | 1 (0.3) | 0 (0.3) | 2 (0.9) | 3 (1.8) | 56 (19.0) | 211 (83.7) | 47 (98.2) | 0 (98.2) | 6 (100.0) |
| *M. catarrhalis* (169) | 35 (20.7) | 126 (95.3) | 8 (100.0) | | | | | | |

Table 2. Antimicrobial activity of solithromycin and comparator agents when tested against European bacterial strains collected in 2010.

| Organism (no.tested)/ Antimicrobial agent | $MIC_{50}$ | $MIC_{90}$ | Range | % Susceptible/% Resistant CLSI[a] | % Susceptible/% Resistant EUCAST[b] |
|---|---|---|---|---|---|
| *S. aureus* (2,539) | | | | | |
| Solithromycin | ≤0.03 | 0.25 | ≤0.03 – >4 | - / - | - / - |
| Oxacillin | 0.5 | >2 | ≤0.25 – >2 | 72.9 / 27.1 | 72.9 / 27.1 |
| Erythromycin | ≤0.25 | >4 | ≤0.25 – >4 | 70.7 / 28.0 | 70.7 / 28.5 |
| Clindamycin | ≤0.25 | >2 | ≤0.25 – >2 | 89.7 / 10.1 | 89.3 / 10.3 |
| Telithromycin | ≤0.06 | 2 | ≤0.06 – >8 | 89.9 / 10.0 | - / - |
| Daptomycin | 0.25 | 0.5 | ≤0.06 – 2 | >99.9 / - | >99.9 / <0.1 |
| Vancomycin | 1 | 1 | ≤0.12 – 2 | 100.0 / 0.0 | 100.0 / 0.0 |
| Linezolid | 1 | 1 | 0.25 – 2 | 100.0 / 0.0 | 100.0 / 0.0 |
| Tetracycline | ≤0.25 | 0.5 | ≤0.25 – >8 | 92.4 / 6.9 | 91.9 / 7.8 |
| Levofloxacin | ≤0.5 | >4 | ≤0.5 – >4 | 70.3 / 28.5 | 70.3 / 28.5 |
| Trimethoprim/sulfamethoxazole | ≤0.5 | ≤0.5 | ≤0.5 – >4 | 99.3 / 0.7 | 99.3 / 0.7 |
| CoNS (610) | | | | | |
| Solithromycin | ≤0.03 | >4 | ≤0.03 – >4 | - / - | - / - |
| Oxacillin | >2 | >2 | ≤0.25 – >2 | 28.2 / 71.8 | 28.2 / 71.8 |
| Erythromycin | >4 | >4 | ≤0.25 – >4 | 36.6 / 62.9 | 36.6 / 63.4 |
| Clindamycin | ≤0.25 | >2 | ≤0.25 – >2 | 71.1 / 27.4 | 68.6 / 28.9 |
| Telithromycin | ≤0.06 | >8 | ≤0.06 – >8 | 74.3 / 25.6 | - / - |
| Daptomycin | 0.25 | 0.5 | ≤0.06 – 2 | 99.7 / - | 99.7 / 0.3 |
| Vancomycin | 1 | 2 | 0.25 – 4 | 100.0 / 0.0 | 99.7 / 0.3 |
| Linezolid | 0.5 | 1 | ≤0.12 – >8 | 99.7 / 0.3 | 99.7 / 0.3 |
| Tetracycline | 1 | >8 | ≤0.25 – >8 | 86.1 / 12.0 | 71.8 / 15.4 |
| Levofloxacin | 2 | >4 | ≤0.5 – >4 | 44.9 / 49.8 | 44.9 / 49.8 |
| Trimethoprim/sulfamethoxazole | ≤0.5 | >4 | ≤0.5 – >4 | 62.8 / 37.2 | 62.8 / 21.6 |
| *Enterococcus* spp. (934) | | | | | |
| Solithromycin | 0.5 | 2 | ≤0.03 – >4 | - / - | - / - |
| Ampicillin | ≤1 | >8 | ≤1 – >8 | 67.7 / 32.3 | 67.0 / 32.3 |
| Erythromycin | >4 | >4 | ≤0.25 – >4 | 6.9 / 65.7 | - / - |
| Telithromycin | 1 | 4 | ≤0.06 – >8 | - / - | - / - |
| Daptomycin | 1 | 2 | ≤0.06 – 4 | 100.0 / - | - / - |
| Teicoplanin | ≤1 | ≤1 | ≤1 – >8 | 93.8 / 6.2 | 93.5 / 6.5 |
| Vancomycin | 1 | 2 | 0.25 – >16 | 92.8 / 6.6 | 92.8 / 7.2 |
| Quinupristin/dalfopristin | >4 | >4 | ≤0.5 – >4 | 27.4 / 64.0 | 27.4 / 51.5 |
| Linezolid | 1 | 1 | 0.25 – 8 | 99.9 / 0.1 | 99.9 / 0.1 |
| Levofloxacin | >4 | >4 | ≤0.5 – >4 | 45.8 / 51.8 | - / - |
| Trimethoprim/sulfamethoxazole | >4 | >4 | ≤0.5 – >4 | - / - | 46.3 / 53.2 |
| *E. faecalis* (586) | | | | | |
| Solithromycin | 0.06 | 2 | ≤0.03 – >4 | - / - | - / - |
| Ampicillin | ≤1 | 2 | ≤1 – 8 | 100.0 / 0.0 | 99.8 / 0.0 |
| Erythromycin | >4 | >4 | ≤0.25 – >4 | 6.8 / 55.3 | - / - |
| Telithromycin | 0.25 | 4 | ≤0.06 – >8 | - / - | - / - |
| Daptomycin | 1 | 1 | ≤0.06 – 2 | 100.0 / - | - / - |
| Teicoplanin | ≤1 | ≤1 | ≤1 – >8 | 98.8 / 1.2 | 98.8 / 1.2 |
| Vancomycin | 1 | 2 | 0.25 – >16 | 98.8 / 1.2 | 98.8 / 1.2 |
| Quinupristin/dalfopristin | >4 | >4 | ≤0.5 – >4 | 0.5 / 94.9 | 0.5 / 81.4 |
| Linezolid | 1 | 1 | 0.25 – 2 | 100.0 / 0.0 | 100.0 / 0.0 |
| Levofloxacin | 1 | >4 | ≤0.5 – >4 | 64.7 / 34.3 | - / - |
| Trimethoprim/sulfamethoxazole | ≤0.5 | >4 | ≤0.5 – >4 | - / - | 60.2 / 39.1 |
| *E. faecium* (310) | | | | | |
| Solithromycin | 1 | 2 | ≤0.03 – 4 | - / - | - / - |
| Ampicillin | >8 | >8 | ≤1 – >8 | 4.5 / 95.5 | 3.5 / 95.5 |
| Erythromycin | >4 | >4 | ≤0.25 – >4 | 2.6 / 91.0 | - / - |
| Telithromycin | 2 | 4 | ≤0.06 – 8 | - / - | - / - |
| Daptomycin | 2 | 2 | ≤0.06 – 4 | 100.0 / - | - / - |
| Teicoplanin | ≤1 | >8 | ≤1 – >8 | 83.5 / 16.5 | 82.9 / 17.1 |
| Vancomycin | 1 | >16 | 0.5 – >16 | 81.3 / 17.7 | 81.3 / 18.7 |
| Quinupristin/dalfopristin | ≤0.5 | 4 | ≤0.5 – >4 | 78.4 / 10.6 | 78.4 / 1.0 |
| Linezolid | 1 | 1 | 0.5 – 8 | 99.7 / 0.3 | 99.7 / 0.3 |
| Levofloxacin | >4 | >4 | ≤0.5 – >4 | 5.5 / 90.6 | - / - |
| Trimethoprim/sulfamethoxazole | >4 | >4 | ≤0.5 – >4 | - / - | 14.6 / 85.4 |
| *S. pneumoniae* (764) | | | | | |
| Solithromycin | 0.02 | 0.03 | ≤0.008 – 0.5 | - / - | - / - |
| Penicillin[c] | ≤0.03 | 2 | ≤0.03 – >4 | 94.2 / 0.1 | - / - |
| Penicillin[c] | ≤0.03 | 2 | ≤0.03 – >4 | 72.8 / 16.4 | 72.8 / 5.8 |
| Amoxicillin/clavulanate | ≤1 | 2 | ≤1 – >8 | 92.3 / 4.1 | - / - |
| Ceftriaxone | ≤0.06 | 1 | ≤0.06 – 4 | 95.5 / 0.3 | 82.3 / 0.3 |
| Erythromycin | ≤0.06 | >8 | ≤0.06 – >8 | 75.1 / 24.5 | 75.1 / 24.5 |
| Clindamycin | ≤0.25 | >1 | ≤0.25 – >1 | 82.5 / 17.0 | 83.0 / 17.0 |
| Telithromycin | ≤0.06 | ≤0.06 | ≤0.06 – 1 | 100.0 / 0.0 | 95.8 / 0.3 |
| Levofloxacin | 1 | 1 | ≤0.5 – >4 | 99.2 / 0.8 | 99.2 / 0.8 |
| Tetracycline | 0.5 | >8 | ≤0.25 – >8 | 76.7 / 22.8 | 76.3 / 23.3 |
| Trimethoprim/sulfamethoxazole | ≤0.5 | 4 | ≤0.5 – >4 | 74.6 / 17.8 | 80.5 / 17.8 |
| Viridans Group Streptococci (274) | | | | | |
| Solithromycin | ≤0.03 | ≤0.03 | ≤0.03 – 0.25 | - / - | - / - |
| Penicillin | 0.06 | 0.5 | ≤0.03 – >4 | 77.7 / 3.6 | 86.5 / 3.6 |
| Amoxicillin/clavulanate | ≤1 | ≤1 | ≤1 – >8 | - / - | - / - |
| Erythromycin | ≤0.25 | >4 | ≤0.25 – >4 | 59.1 / 39.1 | - / - |
| Clindamycin | ≤0.25 | >2 | ≤0.25 – >2 | 88.3 / 11.7 | 88.3 / 11.7 |
| Telithromycin | ≤0.06 | 0.12 | ≤0.06 – >8 | - / - | - / - |
| Daptomycin | 0.25 | 0.5 | ≤0.06 – 2 | 99.6 / - | - / - |
| Vancomycin | 0.5 | 0.5 | ≤0.12 – 2 | 99.6 / - | 100.0 / 0.0 |
| Levofloxacin | 1 | 2 | ≤0.5 – >4 | 96.4 / 1.8 | - / - |
| Linezolid | 1 | 1 | ≤0.12 – 2 | 100.0 / - | - / - |
| Trimethoprim/sulfamethoxazole | ≤0.5 | 2 | ≤0.5 – >4 | - / - | - / - |
| β-haemolytic Streptococci (762) | | | | | |
| Solithromycin | ≤0.03 | ≤0.03 | ≤0.03 – 0.5 | - / - | - / - |
| Penicillin | ≤0.03 | 0.06 | ≤0.03 – 0.25 | 99.9 / - | 100.0 / 0.0 |
| Amoxicillin/clavulanate | ≤1 | ≤1 | ≤1 – 2 | - / - | 100.0 / 0.0 |
| Erythromycin | ≤0.25 | 4 | ≤0.25 – >4 | 81.9 / 16.5 | 81.9 / 16.5 |
| Clindamycin | ≤0.25 | ≤0.25 | ≤0.25 – >2 | 92.3 / 7.5 | 92.5 / 7.5 |
| Telithromycin | ≤0.06 | ≤0.06 | ≤0.06 – >8 | - / - | 97.0 / 1.7 |
| Daptomycin | ≤0.06 | 0.25 | ≤0.06 – 0.5 | 100.0 / - | 100.0 / 0.0 |
| Vancomycin | 0.25 | 0.5 | ≤0.12 – 1 | 100.0 / - | 100.0 / 0.0 |
| Levofloxacin | ≤0.5 | 1 | ≤0.5 – >4 | 99.2 / 0.3 | 95.7 / 0.8 |
| Linezolid | 1 | 1 | 0.5 – 1 | 100.0 / - | 100.0 / 0.0 |
| Trimethoprim/sulfamethoxazole | ≤0.5 | ≤0.5 | ≤0.5 – >4 | - / - | 99.2 / 0.7 |
| *H. influenzae* (326) | | | | | |
| Solithromycin | 1 | 2 | ≤0.008 – >16 | - / - | - / - |
| Ampicillin | ≤1 | >8 | ≤1 – >8 | 83.4 / 14.4 | 83.4 / 16.6 |
| Amoxicillin/clavulanate | ≤1 | 2 | ≤1 – 4 | 100.0 / 0.0 | 89.0 / 11.0 |
| Ceftriaxone | ≤0.06 | ≤0.06 | ≤0.06 – 0.12 | 100.0 / - | 100.0 / 0.0 |
| Azithromycin | 1 | 2 | ≤0.25 – >4 | 98.8 / - | 0.0 / 1.2 |
| Clarithromycin | 8 | 16 | ≤0.25 – >32 | 85.0 / 2.1 | 0.6 / 0.9 |
| Telithromycin | 2 | 2 | ≤0.06 – >8 | 98.5 / 0.9 | 0.9 / 0.9 |
| Levofloxacin | ≤0.5 | ≤0.5 | ≤0.5 | 100.0 / - | 100.0 / 0.0 |
| Tetracycline | 0.5 | 1 | ≤0.25 – >8 | 98.5 / 1.5 | 98.2 / 1.5 |
| Trimethoprim/sulfamethoxazole | ≤0.5 | >4 | ≤0.5 – >4 | 72.4 / 24.5 | 72.4 / 26.4 |
| *M. catarrhalis* (169) | | | | | |
| Solithromycin | 0.06 | 0.06 | ≤0.008 – 0.12 | - / - | - / - |
| Penicillin | >4 | >4 | ≤0.03 – >4 | - / - | - / - |
| Amoxicillin/clavulanate | ≤1 | ≤1 | ≤1 – 2 | 100.0 / 0.0 | 99.4 / 0.6 |
| Ceftriaxone | 0.25 | 0.5 | ≤0.06 – 2 | 100.0 / - | 99.4 / 0.0 |
| Cefuroxime | 1 | 2 | 0.25 – 4 | 100.0 / 0.0 | 81.7 / 0.6 |
| Erythromycin | 0.25 | 0.25 | ≤0.06 – 0.5 | 100.0 / - | 96.4 / 0.0 |
| Telithromycin | 0.12 | 0.12 | ≤0.06 – 0.25 | - / - | 100.0 / 0.0 |
| Levofloxacin | ≤0.5 | ≤0.5 | ≤0.5 – >4 | 99.4 / - | 99.4 / 0.6 |
| Tetracycline | ≤0.25 | 0.5 | ≤0.25 – 1 | 100.0 / 0.0 | 100.0 / 0.0 |
| Trimethoprim/sulfamethoxazole | ≤0.5 | ≤0.5 | ≤0.5 – 4 | 97.0 / 1.2 | 97.0 / 2.4 |

a. Criteria as published by the CLSI [2011] and EUCAST [2011].
b. Criteria as published by the CLSI [2011] for 'Penicillin parenteral (non-meningitis)'.
c. Criteria as published by the CLSI [2011] for 'Penicillin (oral penicillin V)'.

## Conclusions

- Overall, solithromycin displayed similar activity when compared to telithromycin against staphylococcal groups (*S. aureus* and CoNS), and was more active than this ketolide against *Enterococcus* spp.
- Solithromycin demonstrated wide coverage for different streptococcal groups, including *S. pneumoniae,* VGS and BHS, showing a potency comparable or superior to telithromycin and currently marketed macrolides (erythromycin, azithromycin, and clarithromycin).
- Solithromycin is a promising agent for treatment of bacterial pathogens causing RTI and other infections, especially those organisms having resistances to currently used $MLS_B$ agents.

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