**INTRODUCTION**

- Infections caused by nontuberculous mycobacteria (NTM) are increasing in prevalence due to improved recognition and diagnosis.
- NTM infections are generally difficult to treat since these organisms are resistant to most of the antibacterial drugs and therefore new agents are needed.
- M. avium complex (MAC) and the M. abscessus complex are the most common pathogens found.
- Here we describe the in vitro activity of SPR719, a novel gyrase inhibitor, against MAC and M. abscessus in comparison to other antibacterial agents.

**METHODS**

- MIC testing of SPR719 was performed by microbroth dilution using Mueller Hinton broth, consistent with M2-A2 CLSI methodology.
- Comparator antibiotics included amikacin (AMK), cefoxitin (FOX), ciprofloxacin (CIP), clarithromycin (CLR), doxycycline (DOX), imipenem (IPM), lefamulin (LZD), minocycline (MIN), moxifloxacin (MOX), rifampin (RIF), tobramycin (TOB), and trimethoprim/sulfamethoxazole (TMP/SMX) for the rapidly growing species (RGM).
- Comparator antibiotics included AMK and CLR for the MAC.
- Comparator antibiotics included CIP, CLR, DOX, LZD, MIN, RIF, and TMT for the slowly growing NTM.

**ABSTRACT**

**Background:** Nontuberculous mycobacteria (NTM) infections are increasingly encountered globally. Mycobacterium abscessus complex (MAC) and M. avium complex (MAC) are the most frequently encountered NTM among clinical laboratories, and treatment options are limited. In this study, the in vitro potency of a novel gyrase inhibitor, SPR719, was assessed.

**RESULTS**

- SPR719 is a novel gyrase inhibitor with high potency against MAC and M. abscessus species.
- SPR719 MICs were within usual ranges for each species tested.
- For NTM tested, including isolates R to CIP or MXF, MICs for SPR719 were lower than CIP or MOX.
- MICs for all R (n=30) tested was ≤4 µg/mL, including 10 isolates of MAC were ≤2 µg/mL.
- Quality control performed by RGM with M. peregrine ATCC 700686 was 0.25 – 0.5 µg/mL, and Staphylococcus aureus ≤0.015 – 0.006 µg/mL.
- Quality control performed for slowly growing NTM with M. marinum ATCC 927 was 0.32 – 0.5 µg/mL.

**CONCLUSIONS**

- SPR719 was found to be potent against most clinical strains of NTM with an MIC<sub>90</sub> range of 0.25–4 µg/mL for several clinically significant NTM species.
- SPR719 may provide a useful treatment alternative to quinolones especially among species that are intrinsically R to quinolones (e.g., M. avium complex, M. immunogenenium, M. shiniae, and most isolates of the MAC).
- These findings support the further advancement of SPR719 for the treatment of NTM disease.

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**REFERENCE**

KL. M2-A2, 2011.