

O0735 Antimicrobial activity of an antiseptic miramistinAli Osmanov¹, David W. Denning*¹¹ The University of Manchester, Manchester, United Kingdom

Background: Miramistin is a topical antiseptic with a broad antimicrobial activity that was developed the Soviet Union during Cold War within the framework of the 'Space Biotechnology Programme'.

Materials/methods: *In vitro* activity of Miramistin was determined following CLSI guidelines against 46 bacterial and 35 fungal clinically relevant isolates. Mammalian cell toxicity was tested *in vitro* on McCoy cell line, topical and systemic tolerability, and *in vivo* effectiveness was performed using *Galleria mellonella* models.

Results: The range for MIC against bacteria was 0.78->50 mg/L, with the geometric mean of 25 mg/L. Miramistin is more active against Gram positive bacteria, whereas non-fermenters are intrinsically resistant. The range of MICs against fungi was 1.56-25 mg/L with the geometric mean of 3.13 mg/L; with *Aspergillus spp.* and dermatophytes being less susceptible. Miramistin showed potent *in vitro* activity against intrinsically polyene and azole resistant fungal isolates. Antiseptic does not discriminate between bacterial and fungal isolates with different mechanisms of resistance, and was active against fluconazole, posaconazole, and amphotericin B resistant isolates. In *Galleria* model miramistin provided survival benefits in *C. albicans* and *A. fumigatus* infection. Miramistin was tolerable to McCoy cell lines at concentrations up to 100 mg/L and safe systemically at the dose 2000 mg/kg. The limit of tolerability for topical used was not achieved in insect models.

Conclusions: These findings support further investigations of Miramistin as a topical antiseptic suggesting its possible use for superficial fungal infections.

