ABSTRACT

RESEARCH PAPER: Decreasing Streptococcus pyogenes intracellular infections in RAW 264.7 cells with ML141 and rifampin co-treatment

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PAGES: 7

Streptococcus pyogenes infections cause over 517,000 deaths per year. Treatments typically fail to eradicate S. pyogenes bacteria, resulting in recurrent infections. Therefore, we are investigating the effects of rifampin and ML141 co-treatment on S. pyogenes intracellular infections and toxicity of these treatments in RAW 264.7 cells. Rifampin is an antibiotic, whereas ML141 is a molecule that inhibits S. pyogenes invasion. Our experiments will be conducted by infecting RAW 264.7 cells with S. pyogenes bacteria and treating them with rifampin alone, ML141 alone, or rifampin with ML141 co-treatment. Also, cytotoxicity assays will be performed on rifampin and ML141 co-treatment, rifampin alone, and ML141 alone, using a flow cytometer. It is our hypothesis that rifampin and ML141 co-treatment will have the lowest S. pyogenes bacterial count. We also hypothesize rifampin and ML141 co-treatment will not be toxic. If both hypothesis are supported by the data S. pyogenes recurrent intracellular infections will be decreased. Furthermore, rifampin and ML141 co-treatment could be used as a better therapeutic approach for S. pyogenes recurrent infections.