

# The Activity of Micronized Silver on Skin and Ear Infections



## Supporting Original Study 7

*In vitro* activity of micronized silver and a micronized silver-containing shampoo against *Staphylococcus pseudintermedius* and *Pseudomonas aeruginosa* biofilms

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The aim of this study was to determine the activity of micronized silver in plain solutions as well as a topical product used for skin and ear infections against *Staphylococcus pseudintermedius* and *Pseudomonas aeruginosa*

biofilms. Both canine pathogens have been shown capable of producing biofilm. The anti-biofilm activity of silver ions is a novel alternative in topical therapy against bacterial infection. Minimum biofilm eradication concentration (MBEC) values provide estimates on the concentration of an antimicrobial product required to eradicate bacterial biofilm. The MBEC values of MicroSilver alone and a 0.1% microsilver containing antiseptic antifungal shampoo (BioHex™ Shampoo VetBiotek™ Laboratories, Largo, FL, USA) against *P. aeruginosa* and *S. pseudintermedius* were determined utilizing the Calgary Biofilm Device (CBD), a reproducible assay of biofilm susceptibilities to antimicrobials. All concentrations of micronized silver (from 0.5% to 0.05%) eradicated biofilm in MBEC assays (MBEC < 0.05%). The study involving the shampoo also indicated that the shampoo eradicated biofilms. The results indicate that micronized silver and micronized silver containing topical products are effective at eradicating the biofilm in an established *in vitro* model for *P. aeruginosa* and *S. pseudintermedius*. Controlled *in vivo* studies should confirm the efficacy of silver containing topical products against skin and ear infections, particularly when biofilm related resistance is suspected or needs to be prevented.