

11939-11

**Antimicrobial photodynamic therapy combined with antibiotics reduces resistance and aids elimination in four resistant bacterial strains**

Author(s): Jace A. Willis, Vsevolod Cheburkanov, Shaorong Chen, Texas A&M Univ. (United States); Giulia Kassab, Jennifer M. Soares, Instituto de Física de São Carlos (Brazil), Univ. de São Paulo (Brazil); Kate C. Blanco, Univ. de São Paulo (Brazil), Instituto de Física de São Carlos (Brazil); Vanderlei Salvador Bagnato, Instituto de Física de São Carlos (Brazil), Univ. de São Paulo (Brazil), Texas A&M Univ. (United States); Paul de Figueiredo, Vladislav V. Yakovlev, Texas A&M Univ. (United States)

 On demand starting 21 February 2022

Hide Abstract –

Antimicrobial photodynamic inactivation (aPDT) in combination with antibiotics leads to a significant reduction in antibiotic minimum inhibitory concentration (MIC). Four National Institute of Standards and Technology resistant bacterial strains are evaluated with four antibiotics in a combination treatment with aPDT. Treatment involves co-culture of antibiotics with 1.0  $\mu\text{M}$  MB and exposure to 0 to 18  $\text{J}/\text{cm}^2$  of light over 0 to 10 minutes. 12 of 16 strain-antibiotic combinations resulted in a mean reduction of antibiotic MIC, two of which are statistically significant. By fractional inhibitory concentration, nine combinations qualify as additive effects and one as synergistic.