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The synergic effect of antibiotics is dependent of oxidative stress genes in Pseudomonas aeruginosa

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Pseudomonas aeruginosa is a Gram-negative opportunistic pathogen commonly found in Cystic fibrosis, infected wound of the diabetic foot among others. Clinical management of such infection depends deeply on the antibiotic therapy. Antibiotic response is dependent, among several other factors, to the response to host stress conditions, such as low-grade inflammation, metabolic conditions and oxidative stress and to social bacteria response such as quorum sensing and biofilm formation. P. aeruginosa, in particular strain PAO1 is also a biological model for studying bacterial biofilm formation. The present study aims to understand the antibiotic synergic response (ampicillin, ceftazidime, ciprofloxacin) in biofilm formation / degradation of 10 PAO1 oxidative gene mutants. Viability was measured by means of Erythrosin B and biofilm formation was measured by Crystal Violet assay. PAO1 GRLX, SEPHS 1, Rub A1, where the strains with a most pronounced biofilm formation and combination of ceftazidme::ciprofloxacin were most efficient in this biological model. The results are interesting, and although they are encouraging, they should be taken with caution.