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Oxidative stress genes involved in the virulence-dependent susceptibility to antibiotics in Pseudomonas aeruginosa

Pedro Barata Coelho[3,4], Ruben Fernandes[1,2], Carina Silva[1], Marco Oliveira[1], Marlene Veiga[1], Sara Sá[1], André Vieira[3], Carla Guedes[1], Pilar Bayilina[1,2]
(1) Centro Hospitalar Universitário do Porto, Patologia Clinica, Porto, Portugal
(2) Escola Superior de Saúde (ESS) do Politécnico do Porto, Portugal
(3) Centro Hospitalar Universitário do Porto, Patologia Clinica, Porto, Portugal
(4) Faculdade de Ciências da Saúde da Universidade Fernando Pessoa, Porto, Portugal

Pseudomonas aeruginosa is a Gram-negative opportunistic pathogen which rarely causes disease in healthy people. P. aeruginosa, in particular strain PAO1 is also a biological model for studying virulence and bacterial social traits, such as quorum sensing, SOS response among other. Antibiotic response is dependent, among several other factors, to the response to environmental stress conditions. The present study aims to understand the role of 10 PAO1 oxidative gene mutants in the response to antibiotic stress in elastase, protease and pyocyanin-dependent virulence factors. PAO1 was stressed to several antibiotics (penicilins, cephalosporins, macrolides, and quinolones), and the virulence proteins were measured by means of spectroscopic methods. Viability was measured by means of Erythrosin B. PAO1 GGT, GLO1, RubA2, GSH A mutants were the most susceptible to the production of virulence-dependent factors.

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