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Identification of potential inhibitors of *Pseudomonas aeruginosa* cholesterol oxidase activity

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Pseudomonas aeruginosa is a metabolically versatile bacterium that can cause a wide range of severe opportunistic infections with serious underlying medical conditions. These infections are characterized by an intense neutrophilic response resulting in significant damage to host tissues and often exhibit resistance to antibiotics leading to mortality (Shaan L. Gellatly 2013). One of the main pathogenesis factors of such pathogens is cholesterol oxidases.

Cholesterol oxidase (EC 1.1.3.6) is a flavin adenin dinucleotide (FAD)-dependent enzyme that in most cases catalyzes the oxidation of cholesterol (cholest-5-en-3 β -ol) using oxygen as an electron acceptor to form cholest-4-en-3-one (CEO) and hydrogen peroxide (Smith and Brooks 1974).

In current work, we performed new purified recombinant enzyme –the cholesterol oxidase of *Pseudomonas aeruginosa*, described its activity features and conducted an initial screening of the affinity of a series of modified steroids as substrates to the cholesterol oxidase. Our results show some perspective ways to inhibit cholesterol oxidative activity that may slow down the disease spreading or even stop it (Anna Brzostek 2007).

Presented results are obtained in the frame of Belarus-Serbia bilateral project "Target-specific screening of new activity modulators of human sterol-hydroxylases" (X18-SRBG002) which is being realized between Institute of Bioorganic Chemistry of NAS of Belarus and University of Novi Sad Faculty of Sciences.