

минесценции нейтрофилов крови кроликов, обсуждение результатов, подготовка статьи; А.Н.В.: измерение хемилюминесценции нейтрофилов, обработка результатов, подготовка статьи; Р.Д.И.: обсуждение результатов исследований, подготовка статьи.

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HYPOCHLOROUS ACID – A POTENTIAL SECONDARY MESSENGER IN THE PROCESS OF NEUTROPHILS' RESPIRATORY BURST DEVELOPMENT

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Hypochlorous acid and hypochlorite ions are formed in the halogenating cycle of myeloperoxidase, localized mainly in neutrophils, and play a primary role in antimicrobial protection. The paper presents the results of a study of the effect of exogenous HOCl/OCl⁻ in micromolar concentrations on the mechanisms of the “respiratory burst” formation by neutrophils stimulated to phagocytosis. It is shown that this oxidizer is capable of stimulating the functional activity of neutrophils, which is expressed in an increase in the yield of reactive oxygen and chlorine species (ROCS) and secretory degranulation of cells. Enhancement of the “respiratory burst” is associated with activation of NADPH oxidase, PI-3K, MAP kinase ERK1/2 and a decrease in the contribution of intracellular myeloperoxidase to ROCS production by neutrophils. It was found that HOCl/OCl⁻ in the studied concentrations is capable of inhibiting myeloperoxidase activity. It is suggested that hypochlorous acid should be considered as a new potential secondary messenger regulating neutrophil functions.

Keywords: hypochlorous acid, NaOCl, neutrophils, reactive oxygen and chlorine species, myeloperoxidase, secretory degranulation