Antioxidant N-acetylcysteine blocks nerve growth factor-induced H2O2/ERK signaling in PC12 cells

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摘要

Abstract

We investigated whether H2O2, superoxide, and ERK participate in nerve growth factor (NGF)-induced signaling cascades and whether antioxidant N-acetylcysteine (NAC) regulates these NGF-induced responses. PC12 cells were cultured in medium containing NGF or vehicle with or without NAC pretreatment, and the intracellular H2O2 and superoxide levels and the amount of phosphorylated ERK were evaluated by flow cytometry and Western blotting, respectively. We found that NGF increased intracellular H2O2 concentration and activated ERK but failed to affect intracellular superoxide level. Moreover, NAC counteracted these NGF-induced responses. These findings demonstrate that NAC blocks the NGF-induced H2O2/ERK signaling in PC12 cells