

**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.