

# FLUORIDE INDUCE APOPTOSIS IN MC3T3-E1 OSTEOBLASTS THROUGH ALTERING THE ROS LEVEL AND MITOCHONDRIAL MEMBRANE POTENTIAL

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**SUMMARY:** This research involves an investigation of the relationship between the level of ROS, mitochondrial membrane potential and the apoptosis in MC3T3-E1 osteoblasts (OB) by the administration of varying concentrations of fluoride (F). Sodium fluoride (NaF) at concentrations of 0, 1, 5, 10, and 30 mg/L was administered to cultured OB. Through HE staining and DAPI staining to observe the effect of fluoride on OB apoptosis. And the ROS and mitochondrial membrane potential (MMP) rates in OB were analyzed with a Fluorescence Activated Cell Sorter (FACS) by labeling probes DCFH-DA and JC-1 after F treatment of 72 h. There is a pronounced negative effect of long term NaF treatment on OB survival. These negative effects included apoptosis, increasing the ROS level and decreased mitochondrial membrane potential. Our result demonstrated that fluoride-induced osteoblast apoptosis is mediated by direct effects of fluoride on the level of ROS and mitochondrial membrane potential.

Keywords: fluoride; MC3T3-E1 osteoblasts; ROS; mitochondrial membrane potential

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