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Indoxyl sulfate induced apoptosis in C2C12 cells

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Objectives: Background & Aims: Indoxyl sulfate is a well-known uremic toxin and associated with skeletal muscle atrophy in chronic kidney disease. However, there are few studies regarding precise molecular mechanism. The aim of the study was to identify indoxyl sulfate induced apoptosis as a molecular mechanism.

Methods: Methods: Mouse C2C12 myoblast were purchased and cultured in Dulbecco's modified eagle medium. After cell adhesion, cultured medium was changed containing with uremic toxins and cultured for 3~48 hr. Reactive oxygen species (ROS) production and CCK assays were performed. Tunnel staining, phase contrast microscopy, and flowcytometry were also performed.

Results: Results: ROS production was increased as dose of indoxyl sulfate increased. Apoptosis was increased as dose of indoxyl sulfate increased. In addition, tunnel stained cell count increased as dose of indoxyl sulfate. Cell confluence decreased as dose of indoxyl sulfate. Flowcytometry using Annexin V and PI showed that proportion of double positive cell increased as dose of indoxyl sulfate.

Conclusions: Conclusion: Our results demonstrate that indoxyl sulfate is associated with apoptosis of myoblast through ROS production.