P-80

Deficiency of a Novel Redox Protein, TRP14, Causes Renal Damage in Aged Mice

Sunjoo Park, Su-Youn Lee, Woojin Jeong, Sue Goo Rhee, Ki-Hwan Han

Department of Anatomy, Ewha Womans University
Division of Life and Pharmaceutical Sciences , Ewha Womans University

We recently identified and characterized a 14-kDa redox protein, named thioredoxin-related protein 14 (TRP14). Trp14 is highly expressed in the kidney. Oxidative stress is thought to contribute to the aging process. The purpose of this study was to examine the role of TRP14 in aged mice. Transgenic knockdown (KD) mice were generated by siRNA and kidney tissues were processed for immunohistochemistry and immunoblot analysis. Genetic ablation of TRP14 did not detectably alter renal function in young mice. However, in aged mice, Trp14 deficiency caused structural abnormality and impairment of renal function. Electron microscopy demonstrated severe mitochondrial damage and accumulation of numerous autophagic vacuoles in renal tubular profiles. Ratios of LC3 II to LC3 I and Atg5 expression increased in old TRP14 KD mice. These findings suggest that TRP14 may play an important role in autophagy-mediated tubular damage in aged kidney.

Key Words: 활성산수, 환원효소
Oxidative stress, Redox