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Increase urine volume by novel pendrin inhibitors in mice

Jae Young Choi

Yonsei University College of Medicine, South Korea

Objective: Pendrin, encoded by SLC26A4 is expressed in distal collecting tubule of kidney. Recent data support that pendrin also play an important role in Cl absorption in kidney. We found new pendrin inhibitors by high throughput chemical screening. We evaluated the effect of pendrin inhibitors in urine output, and urinary Na⁺/Cl⁻ excretion in mice.

Methods: After set up the screening system for pendrin inhibitors using pH sensitive dye and pendrin transfected cell line, we screened 65,000 small molecule. The effect of lead compounds on urine out-put and Na⁺/Cl⁻ excretion was checked in C57B6 mice in metabolic cage.

Results: Two novel compounds (PI-YS 01 and PI-YS-02) have inhibitory effect on Cl⁻/HCO₃⁻ exchange activity in pendrin infected cell line. These compounds also increase urine out-put in mice. In high Na diet mice, PI-YS-01 and PI-YS-02 increased urinary Na⁺/Cl⁻ excretion.

Conclusion: Pendrin inhibitors increased urine output and urinary Na⁺/Cl⁻ excretion. Our data suggest that pendrin can be a new target for anti-hypertensive drug

Biography

Jae Young Choi has completed his PhD from Yonsei University and Post-doctoral studies from Stanford University. He is presently working as a Professor in Clinical science department, Yonsei University College of Medicine. He has published more than 50 papers in reputed journals.

jychoi@yuhs.ac**Notes:**