



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

KSN SEOUL, KOREA
2026

The 46th Annual Meeting of the Korean Society of Nephrology



Jun 11 (Thu) – 14 (Sun), 2026

COEX, Seoul, Korea

Abstract Type : Poster exhibition

Abstract Submission No.: A-0294

Abstract Topic : Basic Research

Retrograde Ureteral Dosing in Nonhuman Primates for Drug Delivery to the Kidney

Kazuya Hokamura, Tae Kosugi, Mayumi Matsushita, Rintaro Fujii, MoMoko Amano, **Aldric Hama**, Takahiro Natsume

Department of Pharmacology, Hamamatsu Pharma Research, Inc, Japan

Objectives : For non-clinical testing, new renal disease treatment efficacy evaluation is hampered since these are usually systemically administered. A noninvasive method was developed to deliver treatments for preclinical evaluation to the kidneys in cynomolgus macaques.

Methods : Under general anesthesia, a veterinary endoscope (Karl Storz, Germany) was introduced via the urethra into the bladder, allowing visualization of the ureteral orifices of female cynomolgus macaques. A guidewire was then inserted into the ureteral orifice, followed by the advancement of a balloon catheter along the wire. The catheter tip was positioned near the renal pelvis, and its location was confirmed using a C-arm fluoroscope (GE, US). Iohexol contrast agent or about 1 ml of polystyrene fluorescent microspheres (diameter 25 nm, Lab261, USA) was injected through the catheter into the renal pelvis. Twenty-four to forty-eight hours after dosing of microspheres, kidneys were harvested to determine microsphere distribution.

Results : Fluoroscopic imaging confirmed positioning of the catheter tip near the renal pelvis. Fluorescent microspheres were found in the ipsilateral renal tubule epithelial cells and not in other cell types. Some microspheres were apparently observed in tubule cells in the contralateral un-injected kidney. Retro-ureter catheter insertion was achieved without complications in three macaques. The procedure was well tolerated in all subjects, with no significant bleeding during the procedure and no postoperative hemorrhage or health abnormalities observed.

Conclusions : Clinically utilized retrograde-ureter dosing, direct delivery of therapeutics to the kidney, was successfully scaled down for preclinical use in the cynomolgus macaque for safety and efficacy testing. This preclinical method enables drug administration directly to the kidney in contrast to standard dosing via a systemic route, with distribution, using microspheres, apparently limited to the kidneys.