



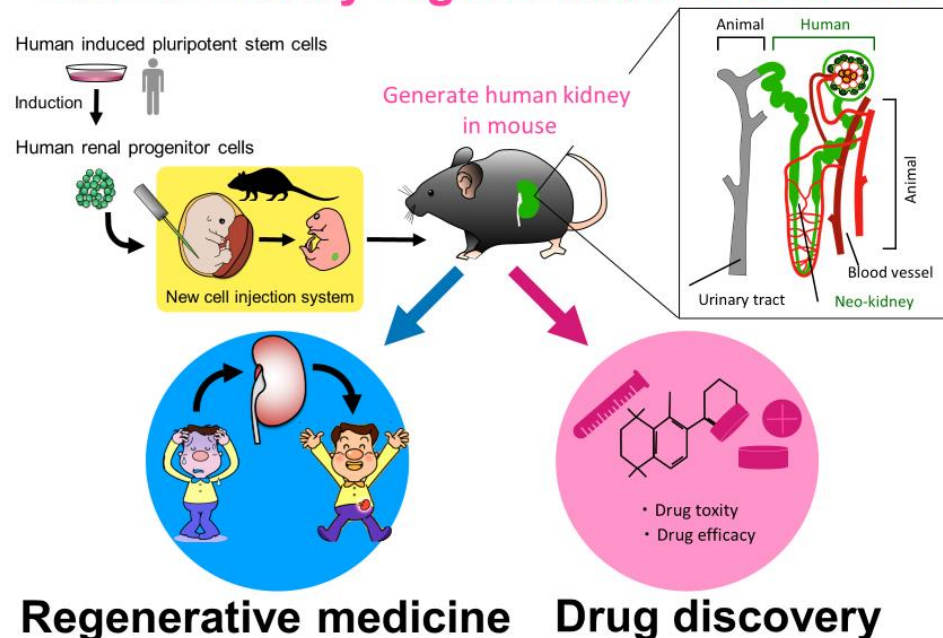
# Development of human kidney regeneration technology from iPS cell-derived progenitor cells using mouse nephrogenic niche

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One in eight people in Japan suffer from chronic kidney disease (CKD), which is considered to be the new national disease. 330,000 patients with CKD need to undergo hemodialysis three to five hours a day for three times a week. The development of regenerative medicine as a new treatment method is desired because of the great physical and mental burden associated with usual treatment. However, the kidney not only removes waste from the body but also plays many roles in bone health and in regulation of anemia. Thus, the kidney is a complex organ that is difficult to regenerate. We focused on kidney progenitor cells, which are unique to the kidney, and have developed a technology to regenerate a functioning kidney based on a completely novel concept. This method involves transplanting progenitors from the kidneys of fetal animals and regenerating functional nephrons from the transplanted cells. By using human induced pluripotent stem cells, we are promoting the application of this technology for renal failure treatment as well as drug discovery. With this development, we aim to accomplish a method of kidney regeneration at the earliest, so that it can be used as a treatment modality in patients with kidney failure.

## Human kidney regeneration in animals



■ URL: <https://jikei-kidneyht.jp/movie>