

Development of the Mammalian Kidney.

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Authors: Andrew P McMahon

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Public Summary:

The basic unit of kidney function is the nephron. In the mouse, around 14,000 nephrons form in a 10-day period extending into early neonatal life, while the human fetus forms the adult complement of nephrons in a 32-week period completed prior to birth. This review discusses our current understanding of mammalian nephrogenesis: the contributing cell types and the regulatory processes at play. A conceptual developmental framework has emerged for the mouse kidney. This framework is now guiding studies of human kidney development enabled in part by in vitro systems of pluripotent stem cell-seeded nephrogenesis. A near future goal will be to translate our developmental knowledge-base to the productive engineering of new kidney structures for regenerative medicine.

Scientific Abstract:

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