

HD-6: DEVELOPMENT OF THE URINARY TRACT

Reading: Larsen's Human Embryology: Chapter 10, pp 265-293.

Learning objectives

Kidney development

1. Know the components of the fetal urinary outflow tract and their cellular derivations.
2. Know the meaning of reciprocal signaling and the three major renal cell types that mediate these interactions.
3. Understand the basics of branching morphogenesis.
4. Understand the basics of nephron formation, and know the names of the various nephron progenitors.
5. Know the role of Ret signaling during branching morphogenesis.
6. Be able to provide examples of epithelial-mesenchymal signaling pathways that are important for renal development.

Lower urinary tract (ureter, bladder, ureter transposition)

1. Know how urogenital sinus forms and know the structures derived from the urogenital sinus in males and females.
2. Know what a transitional epithelium (urothelium) is.
3. Know what a flap valve is.
4. Know what the trigone is.
5. Know the difference between physical and functional obstruction
6. Know how the ureter separates from the Wolffian duct.
7. Know the old and new theories of ureter transposition.
8. Know the names of the sex ducts (we will use Mullerian aka paramesonephric) for female and Wolffian for male (aka Mesonephric, nephric) and their derivatives.
9. Understand the cell types required for mediating peristalsis in the ureter.