

Supplemental Figure Legends

Figure S1 Expression of Lef1 in the renal cortex of controls and *Wnt7b* mutants. (A) Lef1 expression in the control and *Wnt7b* mutant cortex at E15.5. (a–k) Lef1 is expressed in 1–3 layers of cells surrounding the UB in the control cortex. (l–v) In *Wnt7b* mutants, Lef1 expression in this domain is unaltered in the outer cortex, but reduced in the deep cortex close to the medulla. Scale bar=10 μm for panels a–e, g–k, l–p, and r–v. Scale bar=100 μm for panels f and q. (B) Lef1 expression at E14.5. (a–k) peri-UB cells surrounding the UB trunk of control kidneys express Lef1 strongly. (l–v) In *Wnt7b* mutants this expression is unchanged in the outer cortex, but reduced in the deep cortex adjoining the pelvis. Scale bar=10 μm for panels a–e, g–k, l–p, and r–v. Scale bar=100 μm for panels f and q.

Figure S2. A network of capillaries surrounding the E15.5 UB in the nascent renal medulla. (A) An extensive network of Pecam-positive endothelial cells surrounding the UB at E15.5. (B) Transmission electron microscopy (TEM) of a capillary vessel (highlighted in yellow) containing erythrocytes in the lumen (red asterisks) and in close contact with mural cells (yellow asterisks). Scale bar=5 μm . (C) Cell-cell junctions (red arrow) are visible between the endothelial cells (EC). Endothelial cells and mural cells (M) interact through cytoplasmic extensions (yellow arrow).

Figure S3. PDGFR β and Desmin expression in the kidney.

(A) PDGFR β exhibits multiple levels of expression in the E15.5 kidney. PDGFR β expression in the cortical interstitium is higher than that in the medulla. In the medulla, PDGFR β expression in cells surrounding the UB is higher than basal levels, but lower than that in cells surrounding the loops of Henle. Scale bar= 100 μm . (B) Desmin expression is unchanged in *Wnt7b* mutants. The boxes indicate the regions magnified in Figure 2A. Scale bar= 100 μm . (C) In *Wnt7b* mutants, PDGFR β expression surrounding the loops of Henle is unchanged. Scale bar=10 μm .

Figure S4. PDGFR β expression is not changed in E15.5 *p57kip2* mutants.

(A) The global view of PDGFR β expression (red) in the E15.5 control and *p57Kip2* mutant kidneys. Scale bar=100 μm . (B) Expression of PDGFR β in the mural cells surrounding the medullary UB epithelium is unchanged in *p57Kip2* mutant kidneys. Scale bar=5 μm .

Figure S5. Transmission electron micrographs of the forming peri-UB capillaries in the E15.5 nascent renal medulla. (A) Early stages of peri-UB capillary development showing endothelial cells (EC) with lateral junctions (arrowheads) and a slit between luminal membranes. (B) A lumenized peri-UB capillary with lateral junctions and a visible lumen, often with Erythrocyte (Er) inside. Scale bar=5 μm .

Figure S6. No lumen formation defect in *Wnt7b* mutant kidneys at E14.5. (A–B, and H–I) Transmission electron micrographs showing normal endothelial organizations in *Wnt7b* mutants. EC, endothelial cells. Arrowheads point to cell-cell junctions. Brackets mark the slits. (C–G and J–N) The VE-cadherin expression pattern in the peri-UB region in the deep cortex of *Wnt7b* mutants is similar to that of controls. Scale bar=5 μm .

Figure S7. The integrity of peri-UB capillaries in the *Wnt7b* mutant nascent medulla is not compromised. (A) The normal ZO-1 expression pattern in the peri-UB endothelial cells in the *Wnt7b* mutant nascent renal medulla. Scale bar=5 μm . (B) Fluorescent Dextran injected into the blood circulation is retained at similar intensity in the peri-UB capillaries of *Wnt7b* mutant nascent renal medulla as in those of controls. Scale bar=10 μm .

FIGURE S1

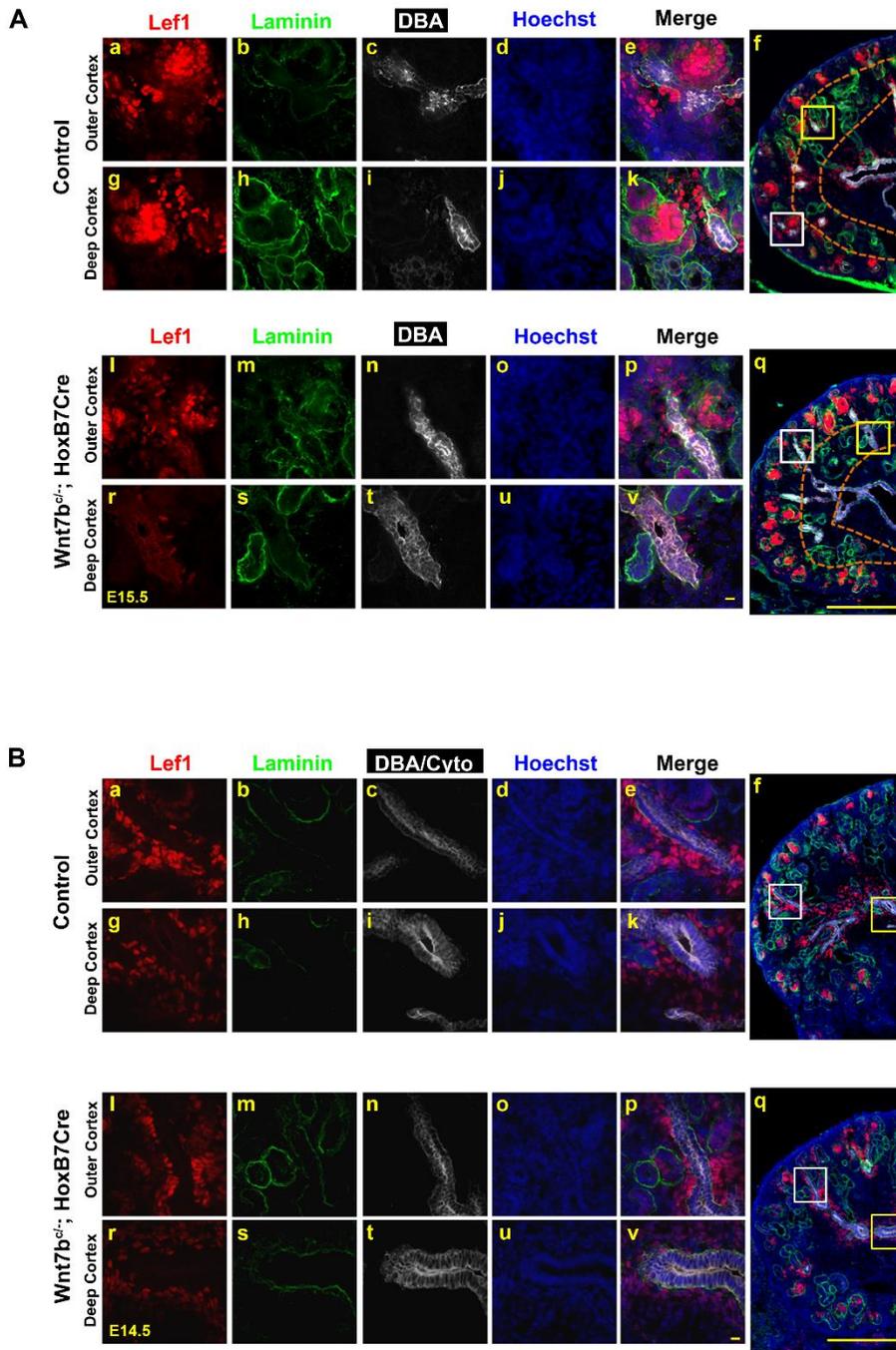


FIGURE S2

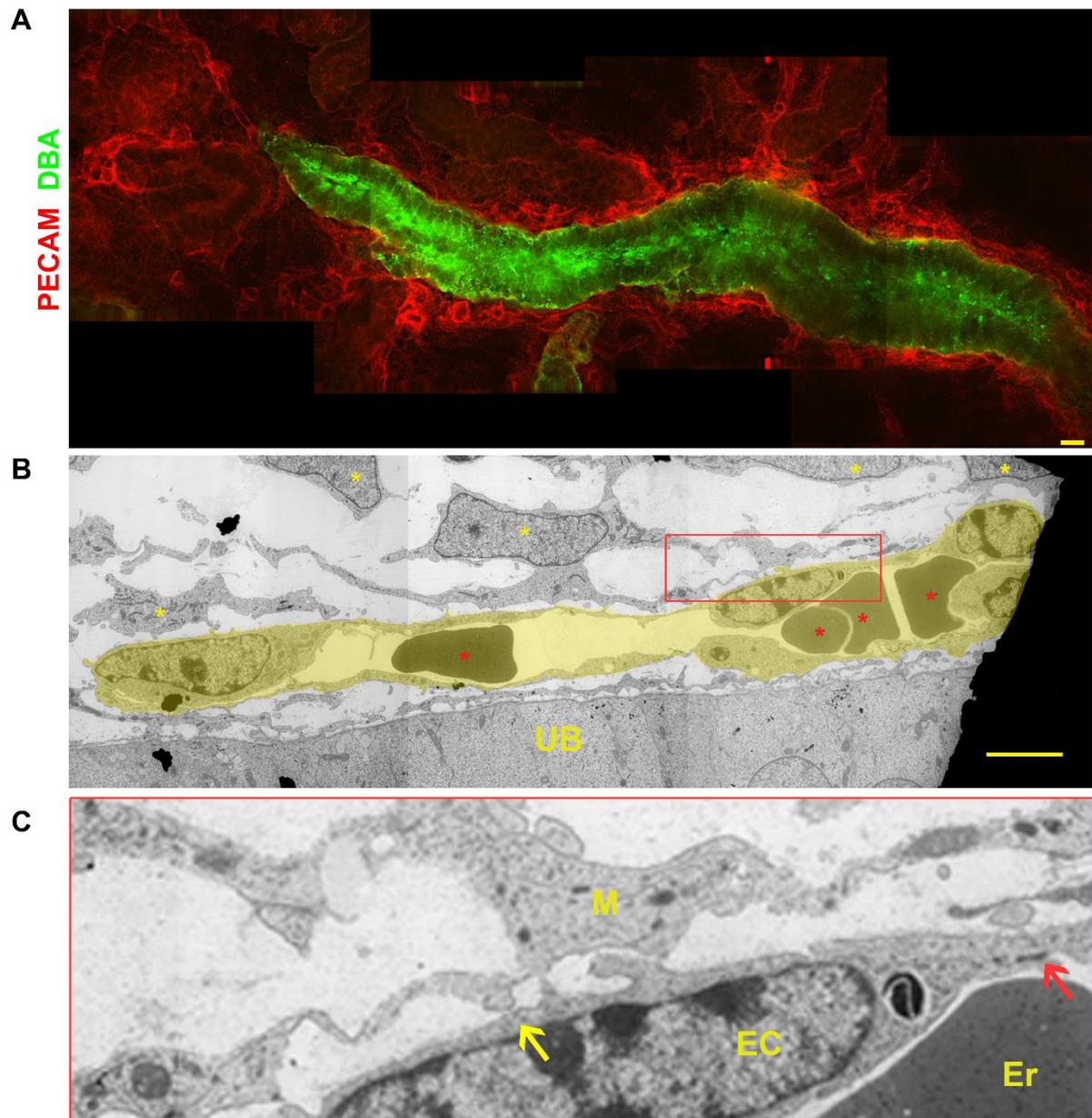
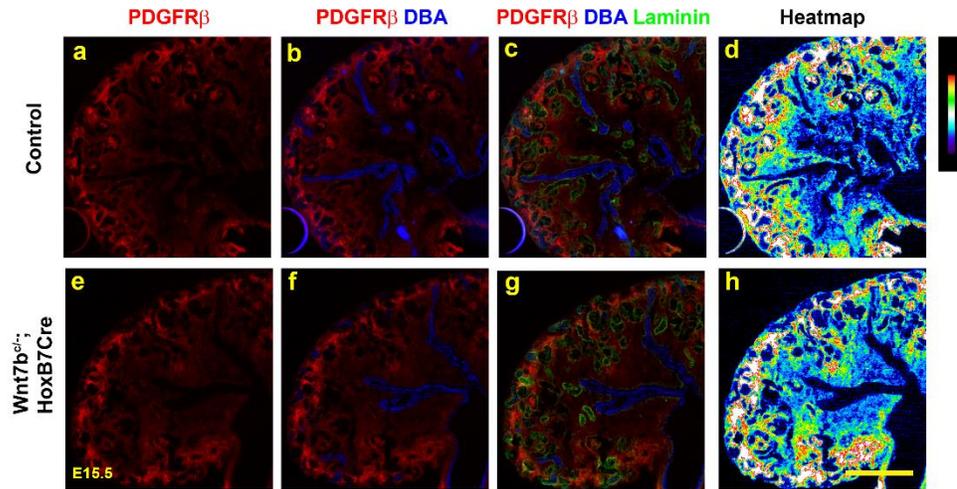
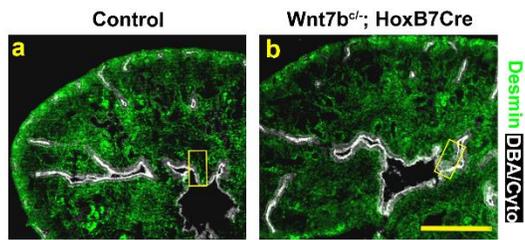


FIGURE S3

A



B



C

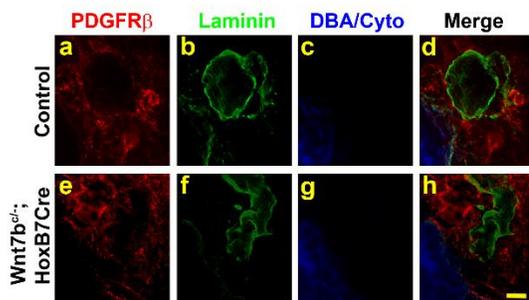


FIGURE S4

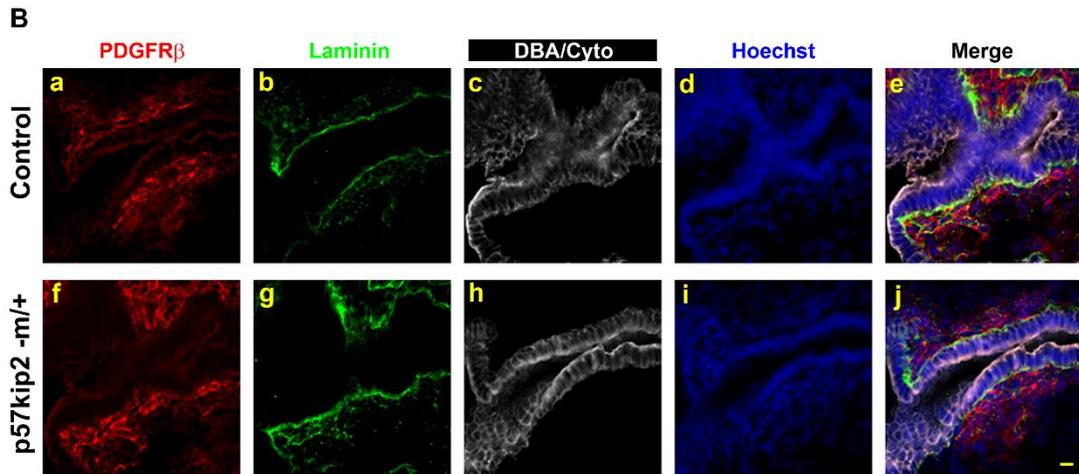
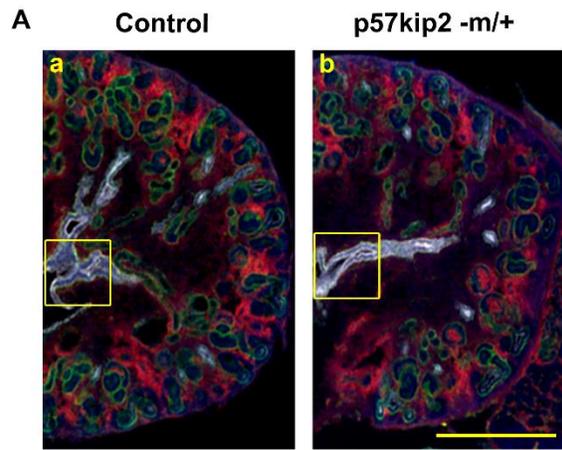


FIGURE S6

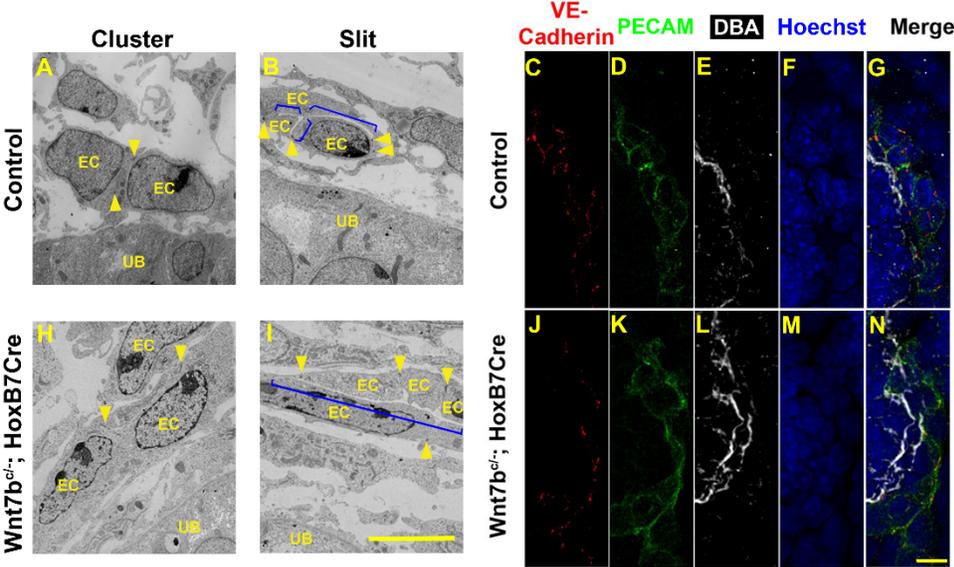


FIGURE S7

