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## Supporting Figure Legends

**Supplemental Figure 1. *In situ* hybridization of *Spry1*.** (A-C) sectional *in situ* hybridization of *Spry1* in E11.5 (A), E13.5 (B), and E14.5 (C) kidneys showing that *Spry1* is expressed in both UB and NPC. UB, ureteric bud. NPC, nephron progenitor cells.

**Supplemental Figure 2. Lineage analysis of *Fgf20<sup>Cre</sup>*.** (A) Sectional view of a whole P0 kidney labeled with tdTomato showing high efficiency of Cre recombinase. (B-D) co-labeling Six2 (B), FoxD1 (C), and DBA (D) with tdTomato in P0 *Fgf20<sup>Cre/+</sup>;ROSA<sup>tdTomato/+</sup>* kidneys showing that tdTomato labels nephron progenitors but not stromal progenitor or ureteric buds. Scale bar, 100µm.

**Supplemental Figure 3. *Fgf9* and *Fgf20* are not required for cell death and proliferation of E10.5 nephron progenitors.** (A-D) Six2 staining of E10.5 *Fgf9* and *Fgf20* compound mutant kidneys. (E-H) Six2 and EdU staining of E10.5 *Fgf9* and *Fgf20* compound mutant kidneys. (I-L) Pax2 and TUNEL staining of E10.5 *Fgf9* and *Fgf20* compound mutant kidneys. (M-O) Quantifying the number of nephron progenitors (M), proliferation index (N), and cell death index (O) of *Fgf9* and *Fgf20* compound mutant kidneys showing no changes in all genotypes. Data is shown with mean±S.D. Scale bar, 100µm.

**Supplemental Figure 4. *Fgf9* and *Fgf20* regulate genes required for renal branching.** (A-H) *Ret* *in situ* hybridization of E10.5 (A-D) and E11.5 (E-H) *Fgf9* and *Fgf20* compound mutant embryos showing renal branching is delayed in E11.5 *Fgf9<sup>+/-</sup>;Fgf20<sup>-/-</sup>* and regressed in *Fgf9<sup>-/-</sup>;Fgf20<sup>-/-</sup>*. (I-L) *Gdnf* *in situ* hybridization of E11.5 *Fgf9* and *Fgf20* compound mutant embryos showing that *Gdnf* expression was decreased in *Fgf9<sup>+/-</sup>;Fgf20<sup>-/-</sup>* and diminished in *Fgf9<sup>-/-</sup>;Fgf20<sup>-/-</sup>*. (M-P) *Etv4* *in situ* hybridization of E11.5 *Fgf9* and *Fgf20* compound mutant embryos showing that *Etv4* expression was decreased in *Fgf9<sup>+/-</sup>;Fgf20<sup>-/-</sup>* and diminished in *Fgf9<sup>-/-</sup>;Fgf20<sup>-/-</sup>*. (Q-S) *Etv5* *in situ* hybridization of E11.5 *Fgf9* and *Fgf20* compound mutant embryos showing that *Etv5* expression was decreased in *Fgf9<sup>+/-</sup>;Fgf20<sup>-/-</sup>* and diminished in *Fgf9<sup>-/-</sup>;Fgf20<sup>-/-</sup>*. Scale bar, 500µm.

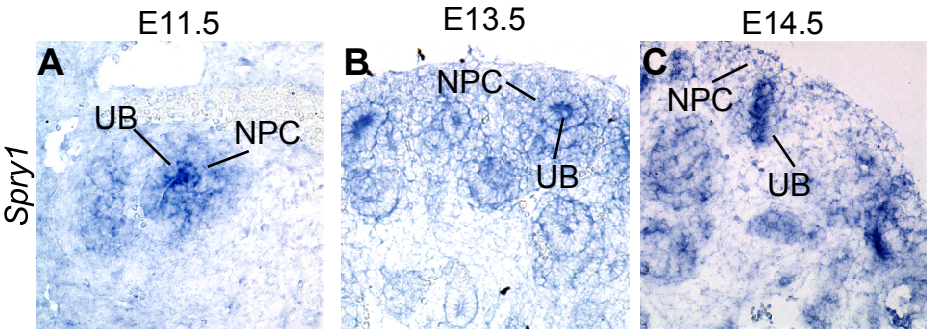
**Supplemental Figure 5. *Fgf20* does not affect renal phenotypes caused by loss of *Fgf8*.** (A-C) *Wnt9b* *in situ* hybridization of E14.5 *Fgf8* and *Fgf20* compound mutant kidneys showing no changes in all genotypes. (D-F) *Wnt4* *in situ* hybridization of E14.5

*Fgf8* and *Fgf20* compound mutant embryos showing that *Wnt4* expression was diminished in *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/+</sup>* but not in *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/-</sup>*. Scale bar, 500µm.

**Supplemental Figure 6. *Fgf8* and *Fgf20* regulate genes required for renal branching.**

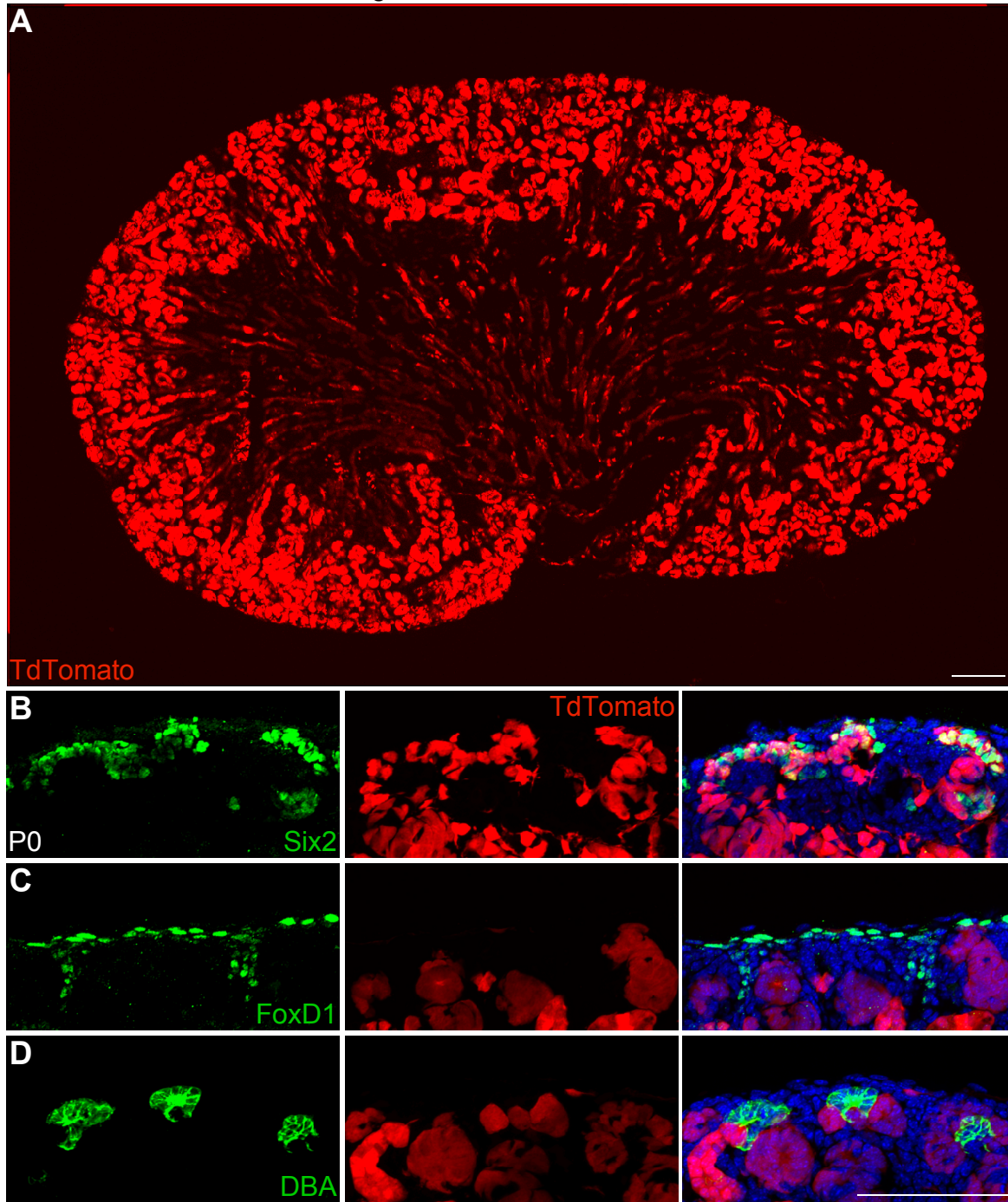
(A-D) *Pax2* *in situ* hybridization of E11.5 *Fgf8* and *Fgf20* compound mutant embryos showing that *Pax2* expression was decreased in both *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/+</sup>* and *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/-</sup>*. (E-L) *Ret* *in situ* hybridization of E11 (E-H) and E11.5 (I-L) *Fgf8* and *Fgf20* compound mutant embryos showing delayed ureteric bud bifurcation in *Fgf8<sup>fl/-</sup>;Fgf20<sup>Cre/+</sup>*, *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/-</sup>*, and *Fgf8<sup>fl/-</sup>;Fgf20<sup>Cre/-</sup>*. (M-P) *Gdnf* *in situ* hybridization of E11.5 *Fgf8* and *Fgf20* compound mutant embryos showing that *Gdnf* expression is decreased in *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/-</sup>* and diminished in *Fgf8<sup>fl/-</sup>;Fgf20<sup>Cre/-</sup>*. (Q-T) *Etv4* *in situ* hybridization of E11.5 *Fgf8* and *Fgf20* compound mutant embryos showing that *Etv4* expression is decreased in *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/-</sup>* and diminished in *Fgf8<sup>fl/-</sup>;Fgf20<sup>Cre/-</sup>*. (U-X) *Etv5* *in situ* hybridization of E11.5 *Fgf8* and *Fgf20* compound mutant embryos showing that *Etv* expression is decreased in *Fgf8<sup>fl/-</sup>;Fgf20<sup>Cre/+</sup>* and *Fgf8<sup>fl/+</sup>;Fgf20<sup>Cre/-</sup>* and diminished in *Fgf8<sup>fl/-</sup>;Fgf20<sup>Cre/-</sup>*. Yellow arrows point to metanephric zone. Scale bar, 500µm.

Supplemental Figure 1

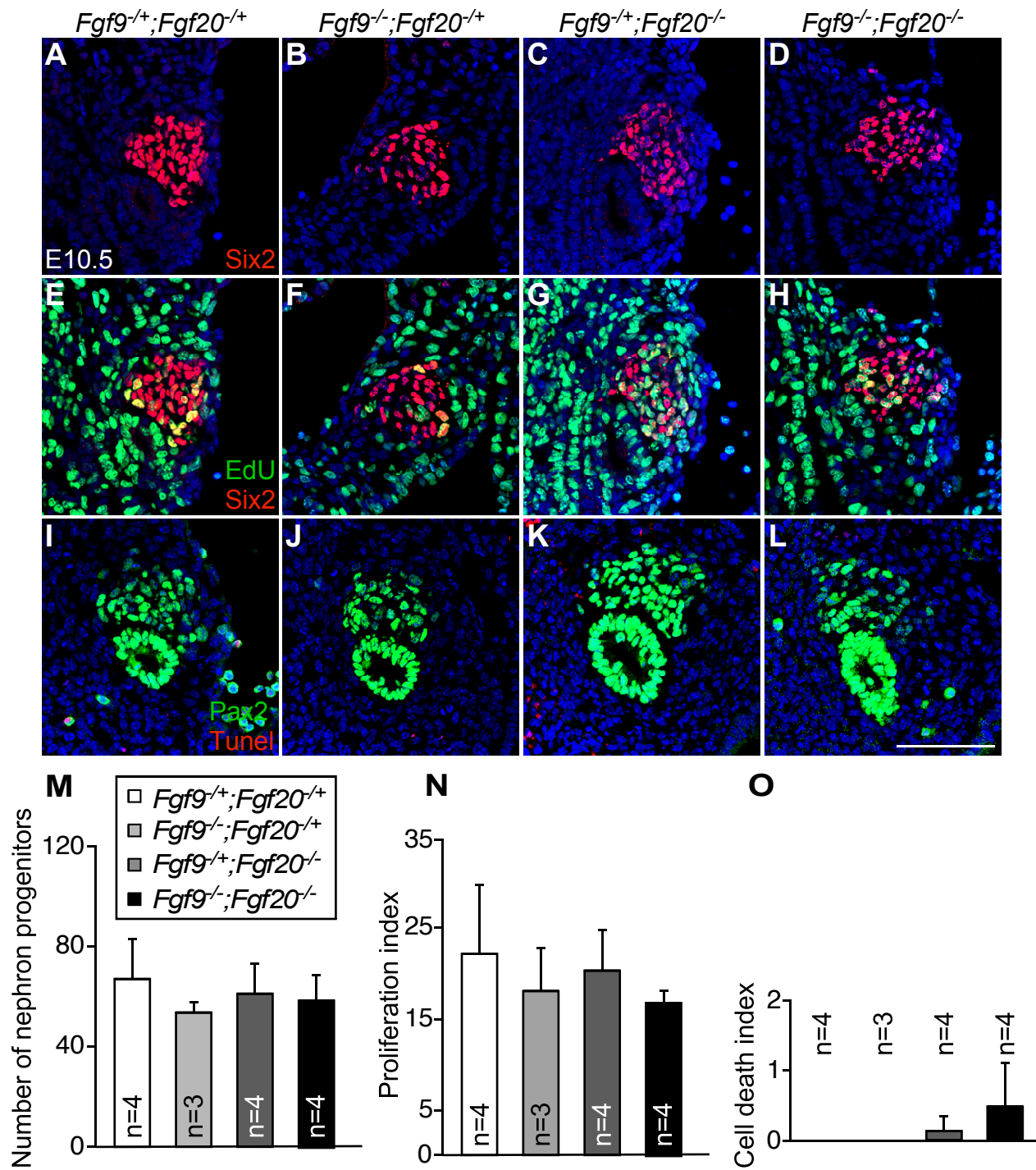




*Fgf20<sup>Cre/+</sup>; ROSA<sup>tdTomato/+</sup>*

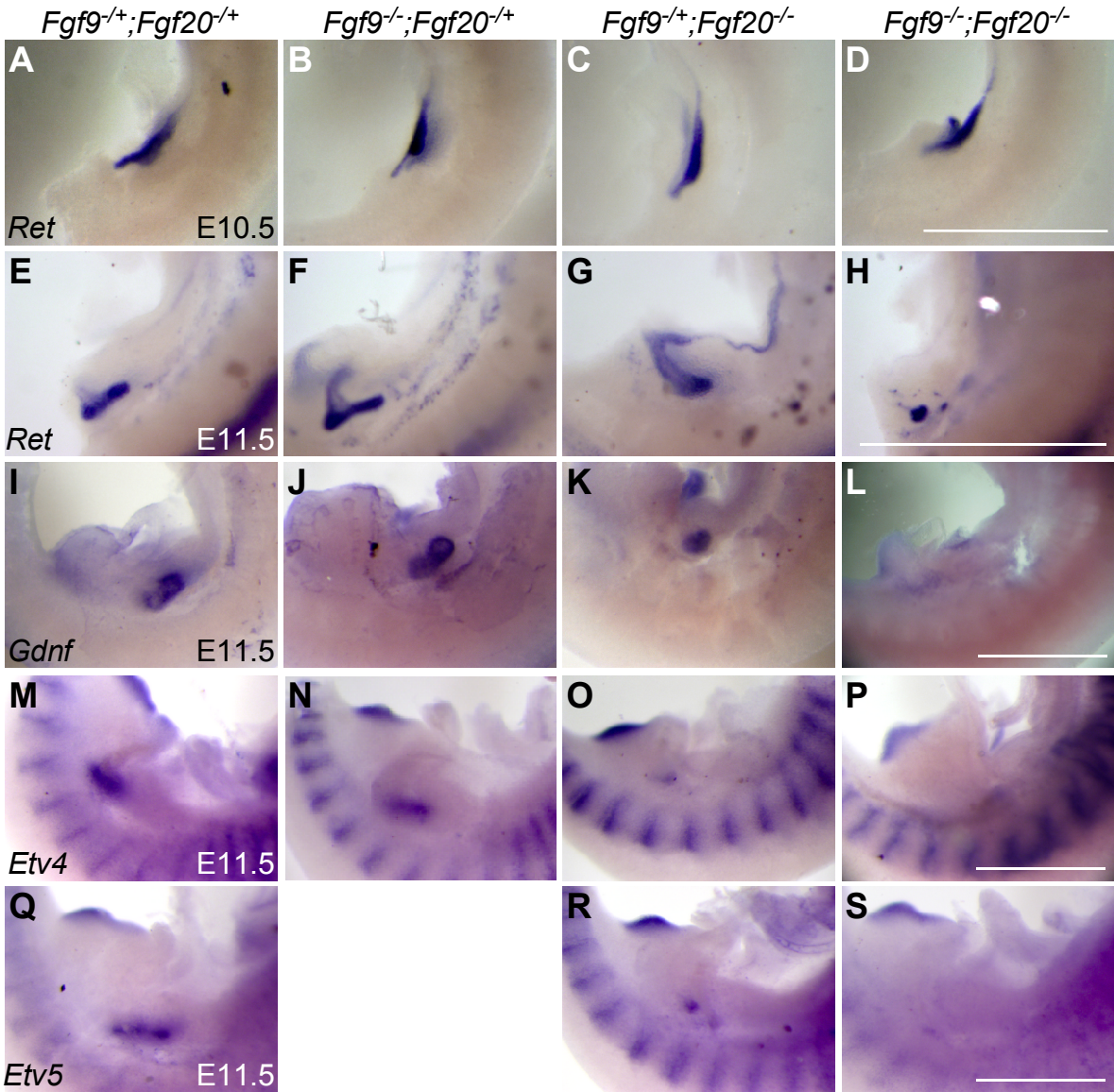


Supplemental Figure 3

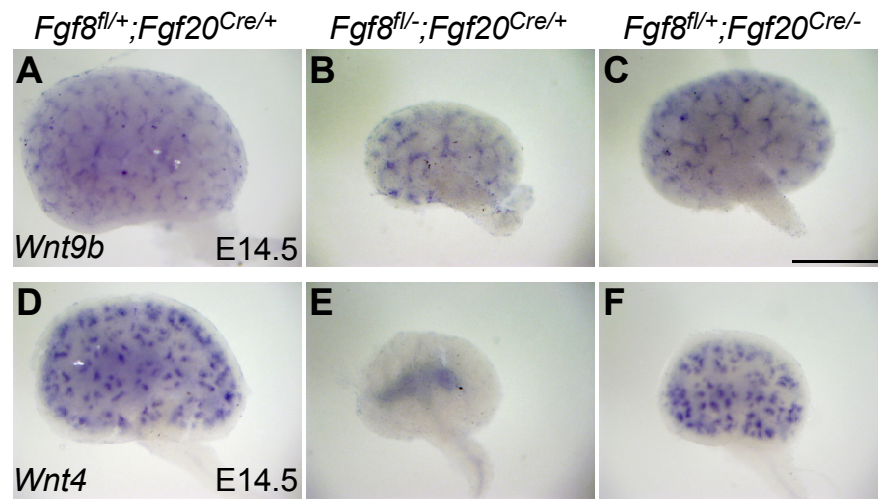




Supplemental Figure 4



Supplemental Figure 5





Supplementary Figure 6

