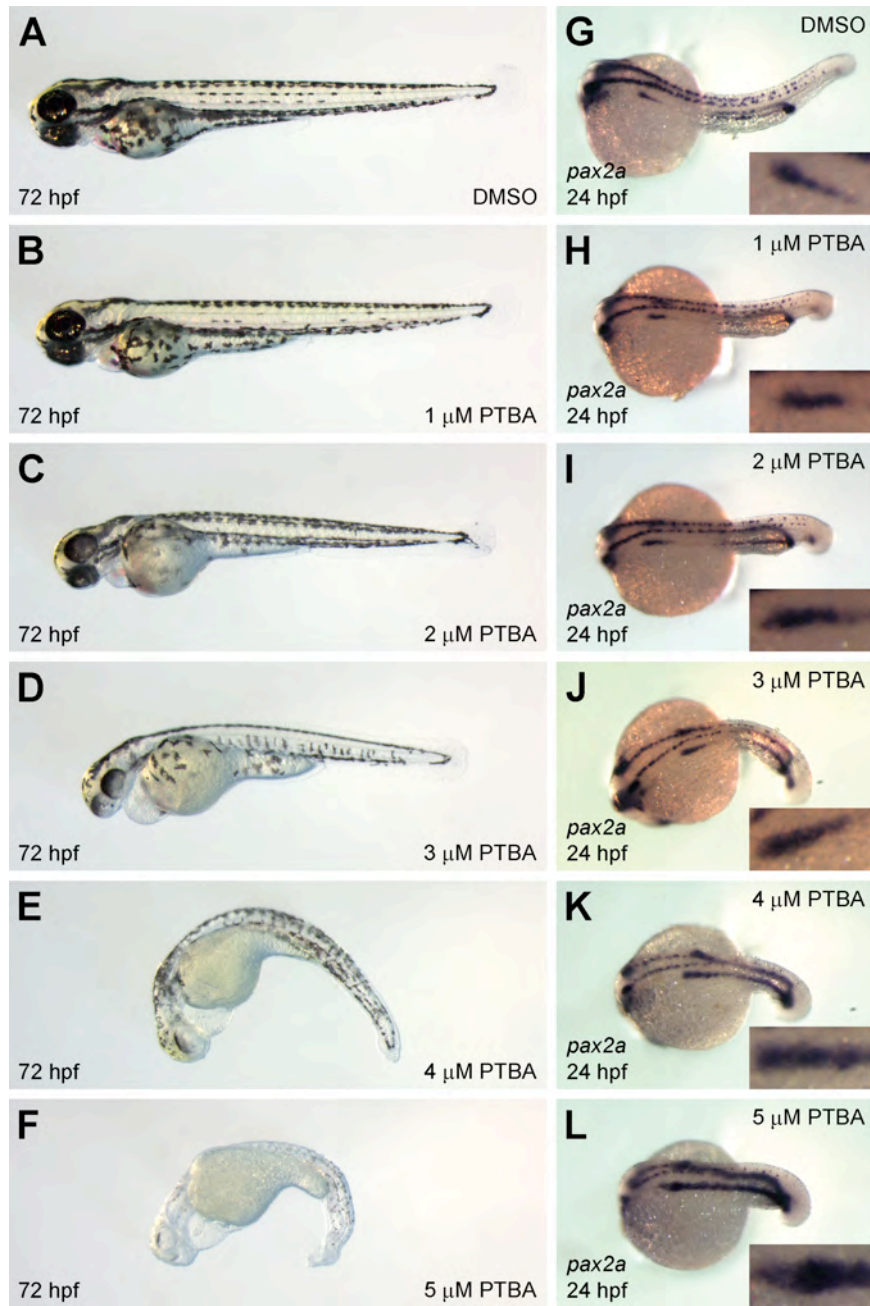
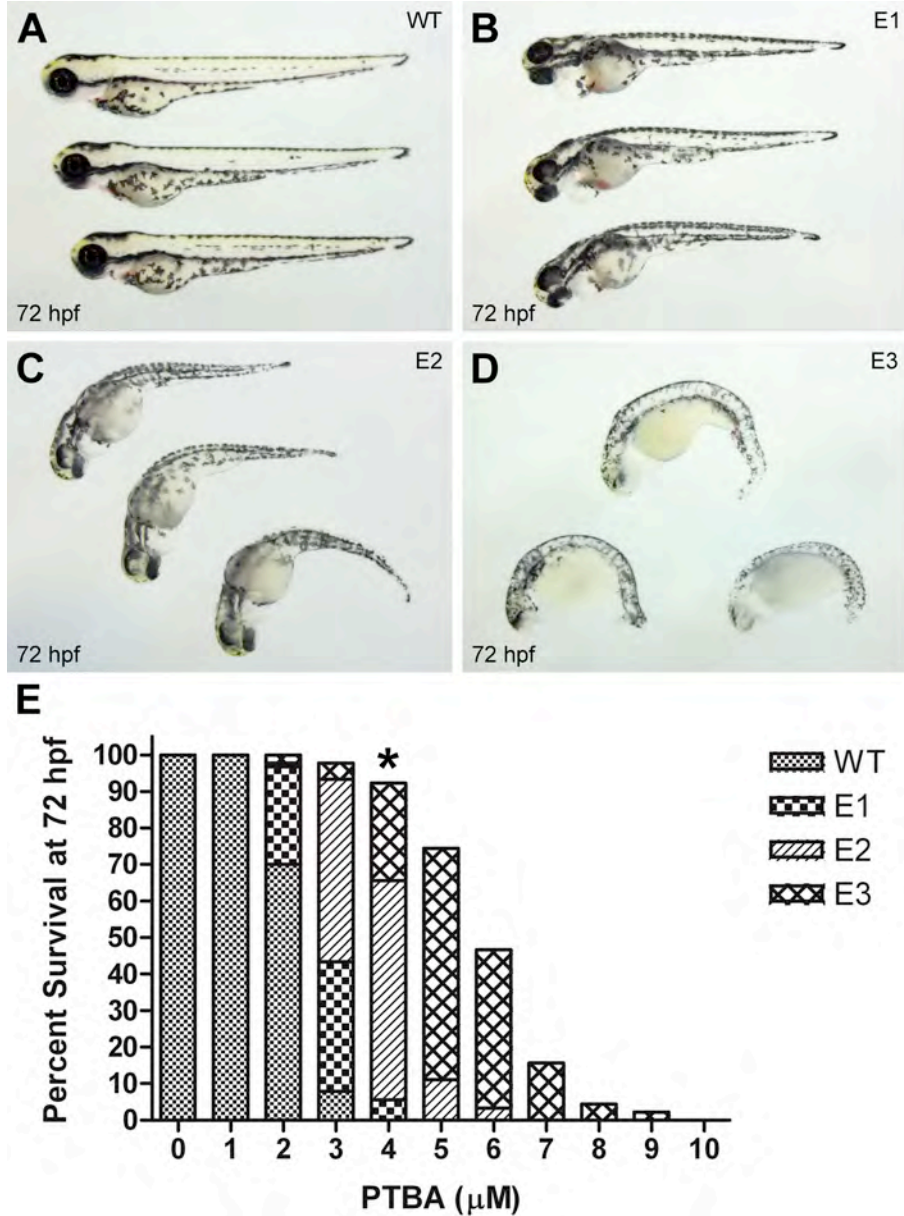


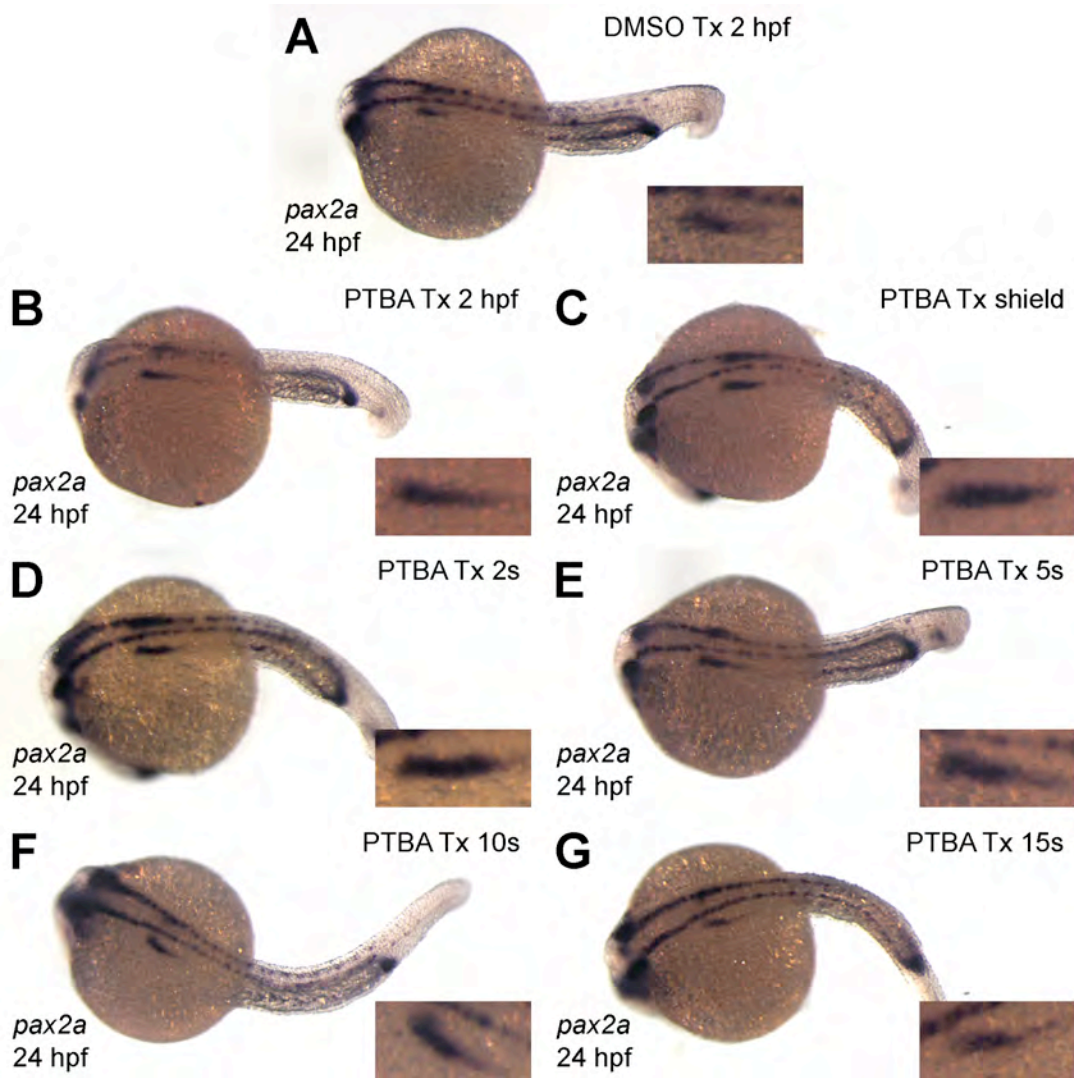
## SUPPLEMENTAL FIGURES



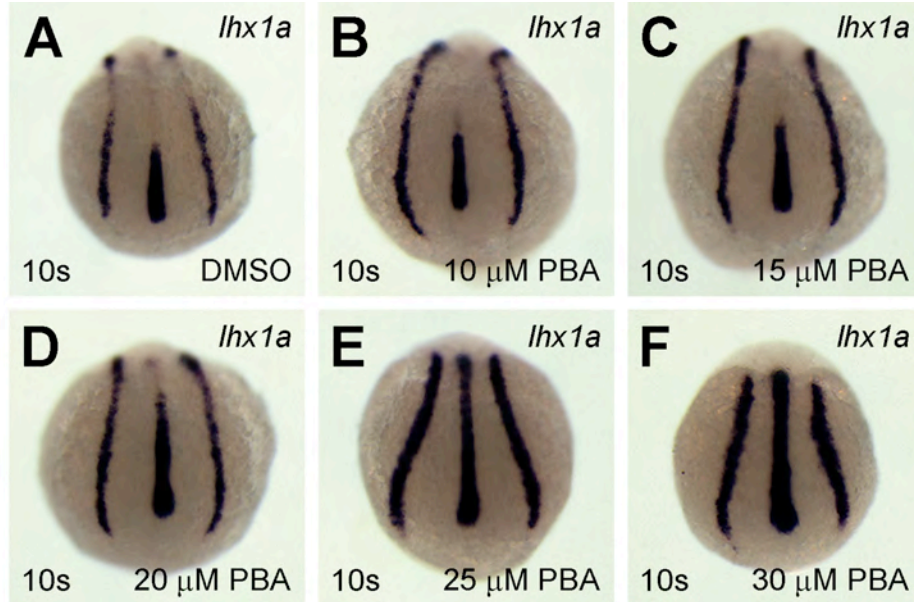
**Supplemental Figure 1.** PTBA causes larval edema commensurate with embryonic expansion of the kidney field. Representative examples of 72 hpf larvae treated from 2 hpf with: 0.5% DMSO (A,  $n = 90$ ), 1  $\mu\text{M}$  PTBA (B,  $n = 90$ ), 2  $\mu\text{M}$  PTBA (C,  $n = 90$ ), 3  $\mu\text{M}$  PTBA (D,  $n = 88$ ), 4  $\mu\text{M}$  PTBA (E,  $n = 83$ ), 5  $\mu\text{M}$  PTBA (F,  $n = 67$ ). Corresponding *in situ* hybridization for *pax2a* in 24 hpf embryos treated from 2 hpf with: 0.5% DMSO (G,  $n = 54$ ), 1  $\mu\text{M}$  PTBA (H,  $n = 48$ ), 2  $\mu\text{M}$  PTBA (I,  $n = 52$ ), 3  $\mu\text{M}$  PTBA (J,  $n = 49$ ), 4  $\mu\text{M}$  PTBA (K,  $n = 44$ ), 5  $\mu\text{M}$  PTBA (L,  $n = 43$ ). Insets contain enlargements of *pax2a* in the lower kidney field.



**Supplemental Figure 2.** PTBA elicits concentration-dependent effects on larval edema and survival. Embryos were treated with 0 to 10 μM PTBA from 2 hpf, and larvae were scored at 72 hpf using a phenotype-based classification system. Wild-type (WT): no visible edema or developmental delay (A). Edemic 1 (E1): pericardial edema evident, may exhibit slight developmental delay, little or no axis curvature, axis length normal (B). Edemic 2 (E2): pericardial edema evident, slight to moderate developmental delay, axis curvature, axis length normal or slightly reduced (C). Edemic 3 (E3): pericardial edema evident, moderate to severe developmental delay, gross axis curvature frequently accompanied by tail kink, axis noticeably shortened (D). (E) Graph of observed phenotypes after treatment with 0 to 10 μM PTBA (*n* = 90 per concentration). Asterisk denotes the concentration where PTBA begins to exhibit a significant effect (*p* < 0.05) on survival as determined by two-tailed Fisher’s exact test in comparison with the 0 μM PTBA treatment group.

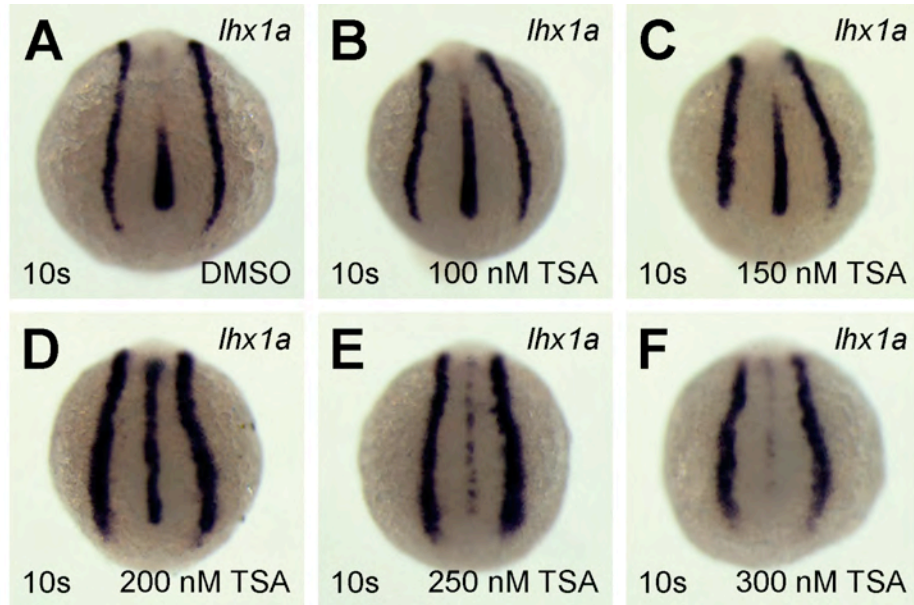


**Supplemental Figure 3.** Effects of temporal PTBA treatments on the kidney field. *In situ* hybridization for *pax2a* in 24 hpf embryos treated with 0.5% DMSO (A,  $n = 132$ ) from 2 hpf or 3  $\mu$ M PTBA from: 2 hpf (B,  $n = 67$ ), shield (C, 6 hpf,  $n = 100$ ), 2 somites (D, 10.7 hpf,  $n = 71$ ), 5 somites (E, 11.7 hpf,  $n = 87$ ), 10 somites (F, 14 hpf,  $n = 89$ ), 15 somites (G, 16.5 hpf,  $n = 72$ ). Insets contain enlargements of *pax2a* in the lower kidney field.

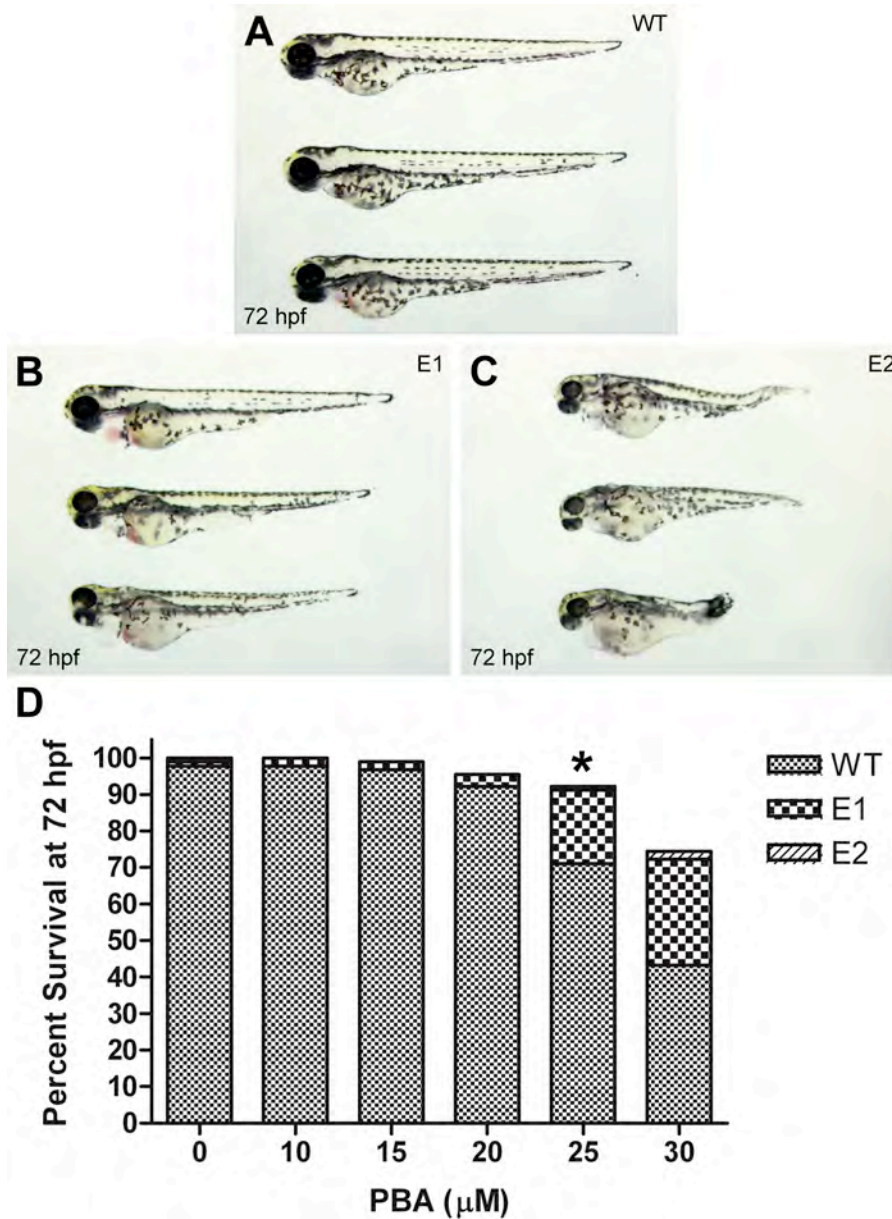


**Supplemental Figure 4.** Treatment with PBA, a carboxylic acid HDACi and analog of PTBA, expands renal progenitor cells. *In situ* hybridization for *lhx1a* in 10 somite embryos treated from 2 hpf with: 0.5% DMSO (A,  $n = 59$ ), 10  $\mu\text{M}$  PBA (B,  $n = 58$ ), 15  $\mu\text{M}$  PBA (C,  $n = 60$ ), 20  $\mu\text{M}$  PBA (D,  $n = 59$ ), 25  $\mu\text{M}$  PBA (E,  $n = 58$ ), 30  $\mu\text{M}$  PBA (F,  $n = 53$ ).

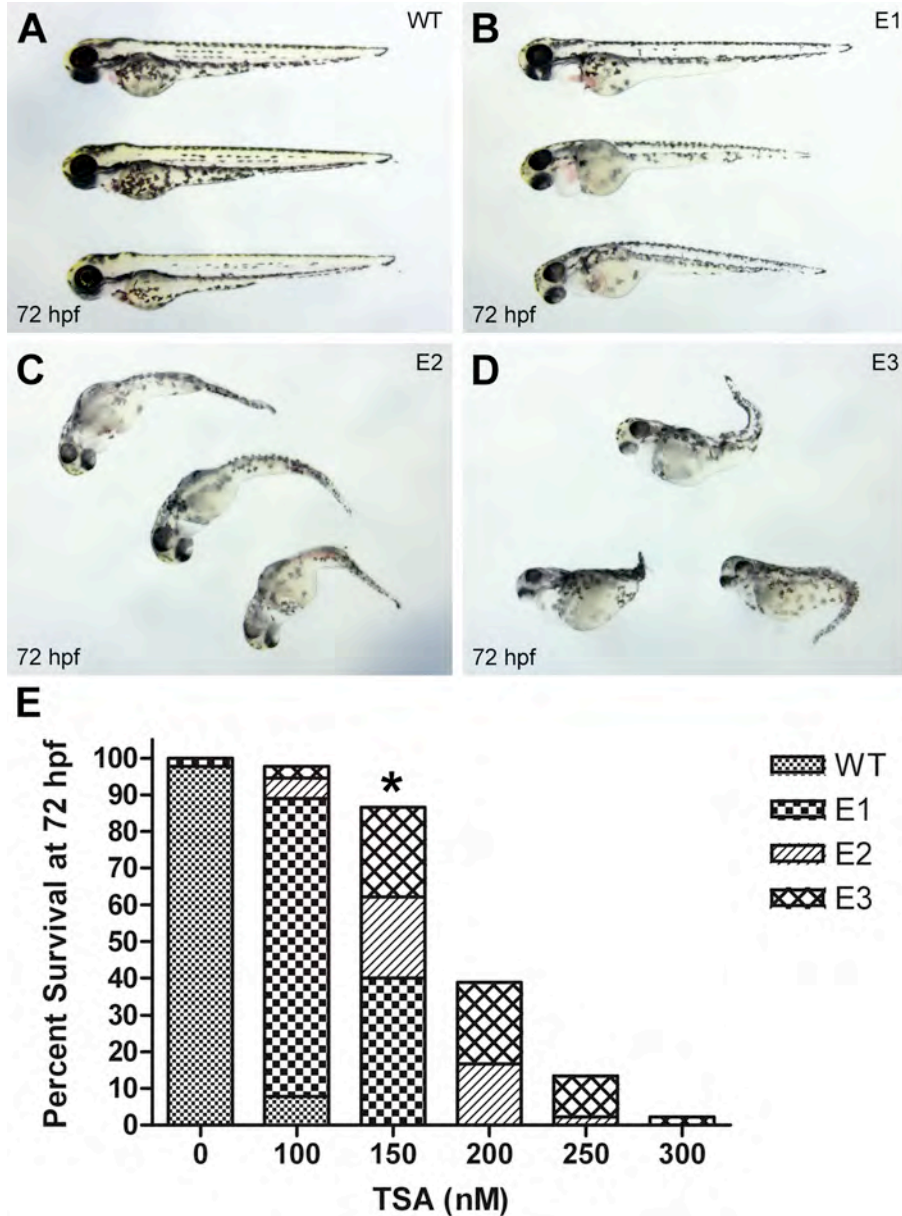




**Supplementary Figure 5.** Treatment with TSA, a hydroxamic acid HDACi, expands renal progenitor cells. *In situ* hybridization for *lhx1a* in 10 somite embryos treated from 2 hpf with: 0.5% DMSO (A,  $n = 60$ ), 100 nM TSA (B,  $n = 57$ ), 150 nM TSA (C,  $n = 57$ ), 200 nM TSA (D,  $n = 52$ ), 250 nM TSA (E,  $n = 42$ ), 300 nM TSA (F,  $n = 40$ ).



**Supplemental Figure 6.** PBA elicits concentration-dependent effects on larval edema and survival. Embryos were treated with 0-30  $\mu\text{M}$  PBA from 2 hpf, and phenotypes were scored at 72 hpf using the classification system described in Supplemental Figure 1. Examples of treated larvae classified as WT (A), E1 (B), E2 (C). No E3 larvae were observed in response to PBA treatment at the listed concentrations. (D) Graph of observed phenotypes after treatment with 0-30  $\mu\text{M}$  PBA ( $n = 90$  per concentration). Asterisk denotes the concentration where PBA begins to exhibit a significant effect ( $p < 0.05$ ) on survival as determined by two-tailed Fisher's exact test in comparison with the 0  $\mu\text{M}$  PBA treatment group.



**Supplemental Figure 7.** TSA elicits concentration-dependent effects on larval edema and survival. Embryos were treated with 0-300 nM TSA from 2 hpf, and phenotypes were scored at 72 hpf using the classification system described in Supplemental Figure 1. Examples of treated larvae classified as WT (A), E1 (B), E2 (C), E3 (D). (E) Graph of observed phenotypes after treatment with 0-300 nM TSA ( $n = 90$  per concentration). Asterisk denotes the concentration where TSA begins to exhibit a significant effect ( $p < 0.05$ ) on survival as determined by two-tailed Fisher's exact test in comparison with the 0 nM TSA treatment group.