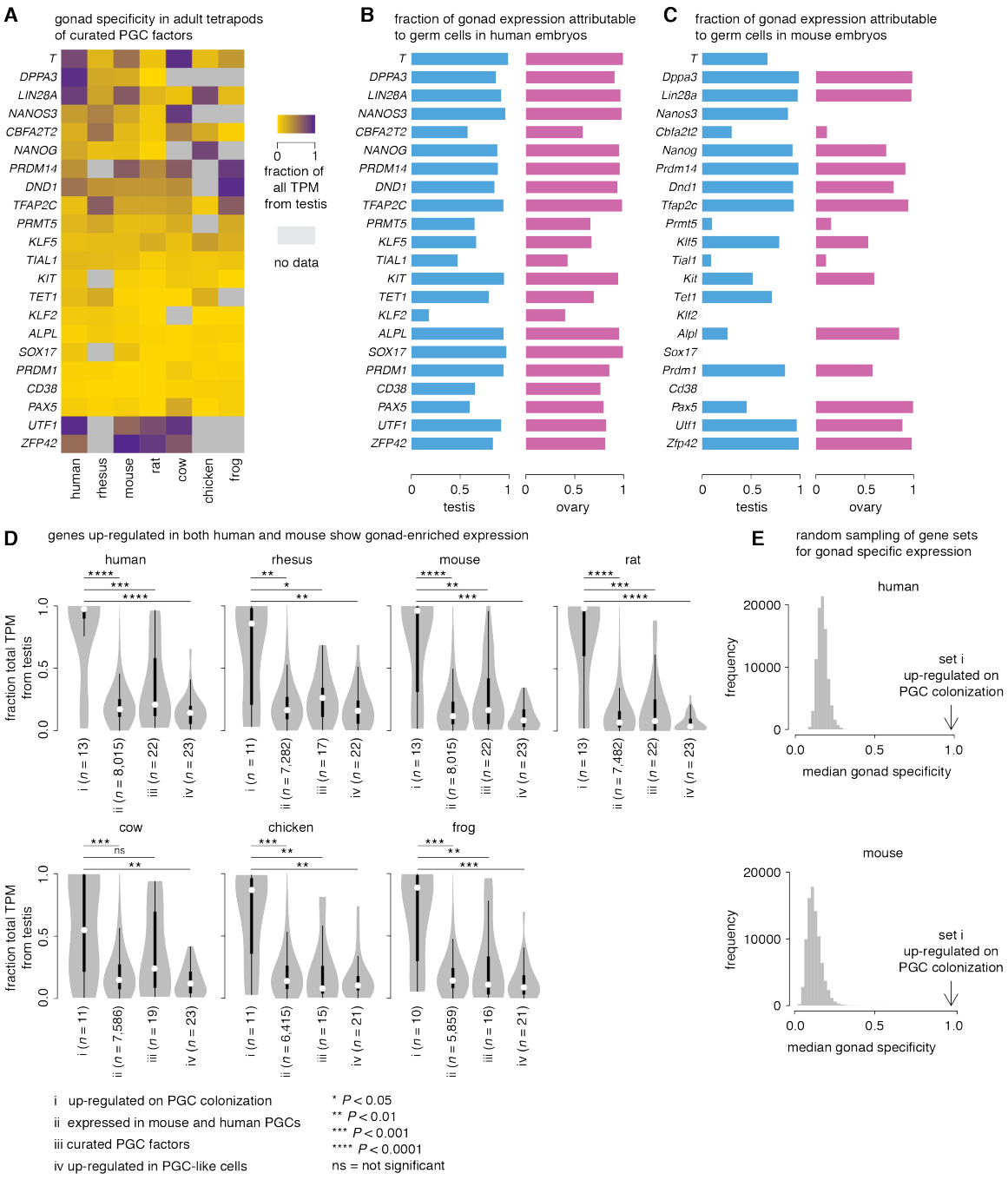

Fig. S2. The induced gonadal program distinguishes germ cells from other lineages.

(*A*) Heatmap; a curated set of PGC factors does not show significant enrichment for gonadal expression in tissues of adult tetrapods (n = 22). Specificity fraction is determined by calculating testis expression, divided by the sum of expression in all analyzed tissues, for each species. Genes with no annotated ortholog are shown in gray. (*B*) Germ cell expression of PGC factors in embryonic human testis and ovary, and (*C*) in E14.5 mouse testis and ovary by RNA-seq (see SI Materials and Methods). A ratio of 1 indicates germ cell-specific expression; 0 indicates somatic

cell expression. The curated set of PGC factors does not show clear germ cell specificity in the embryonic mouse. (*D*) Violin plots; black bar, interquartile range; circle, median value. Gonad-specific expression of the set of genes commonly upregulated in mouse and human in seven tetrapod species (left violin plot in each panel, set i, $n \leq 13$ orthologs), all genes commonly expressed in mouse and human migratory PGCs (set ii, $n \leq 8{,}015$), a curated set of PGCs factors (set iii, $n \leq 22$, see panel (*A*)), and factors expressed on PGC-like cell derivation (right, set iv, $n < 23$). * *P* value < 0.05, ** < 0.01, *** < 0.001, **** < 0.0001, ns = not significant by Wilcoxon rank-sum test. (*E*) Mean gonad specificity of 500,000 randomly sampled sets of 13 genes expressed in human and mouse PGCs, of which 86,500 sets met expression criteria similar to set i. Of these, the greatest specificity achieved in human was 0.44 (compared with 0.98 for set i) and the greatest specificity achieved in mouse was 0.57 (compared with 0.96 for set i).