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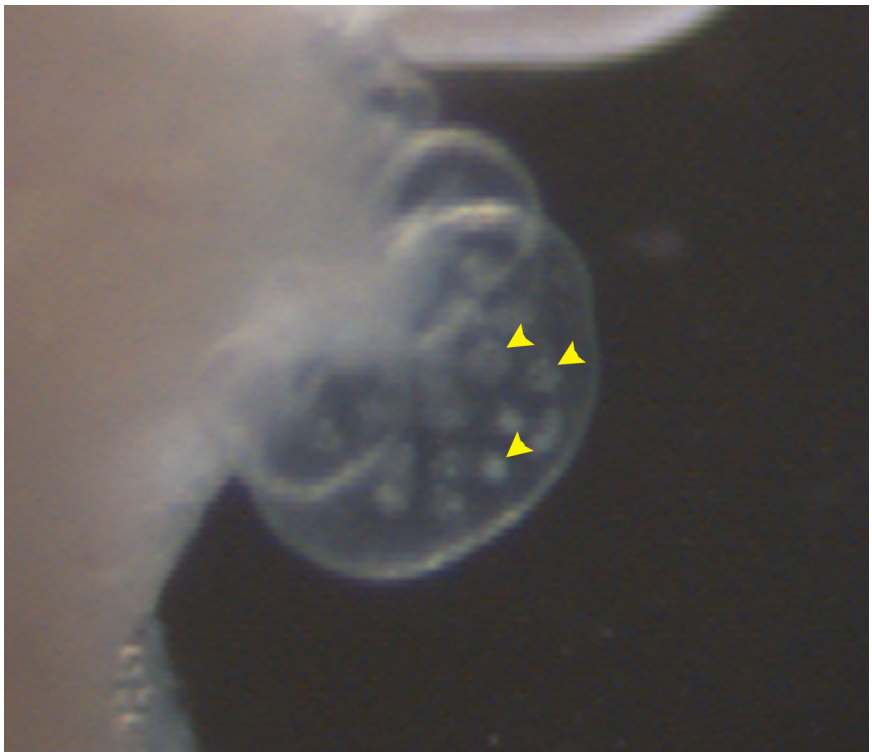
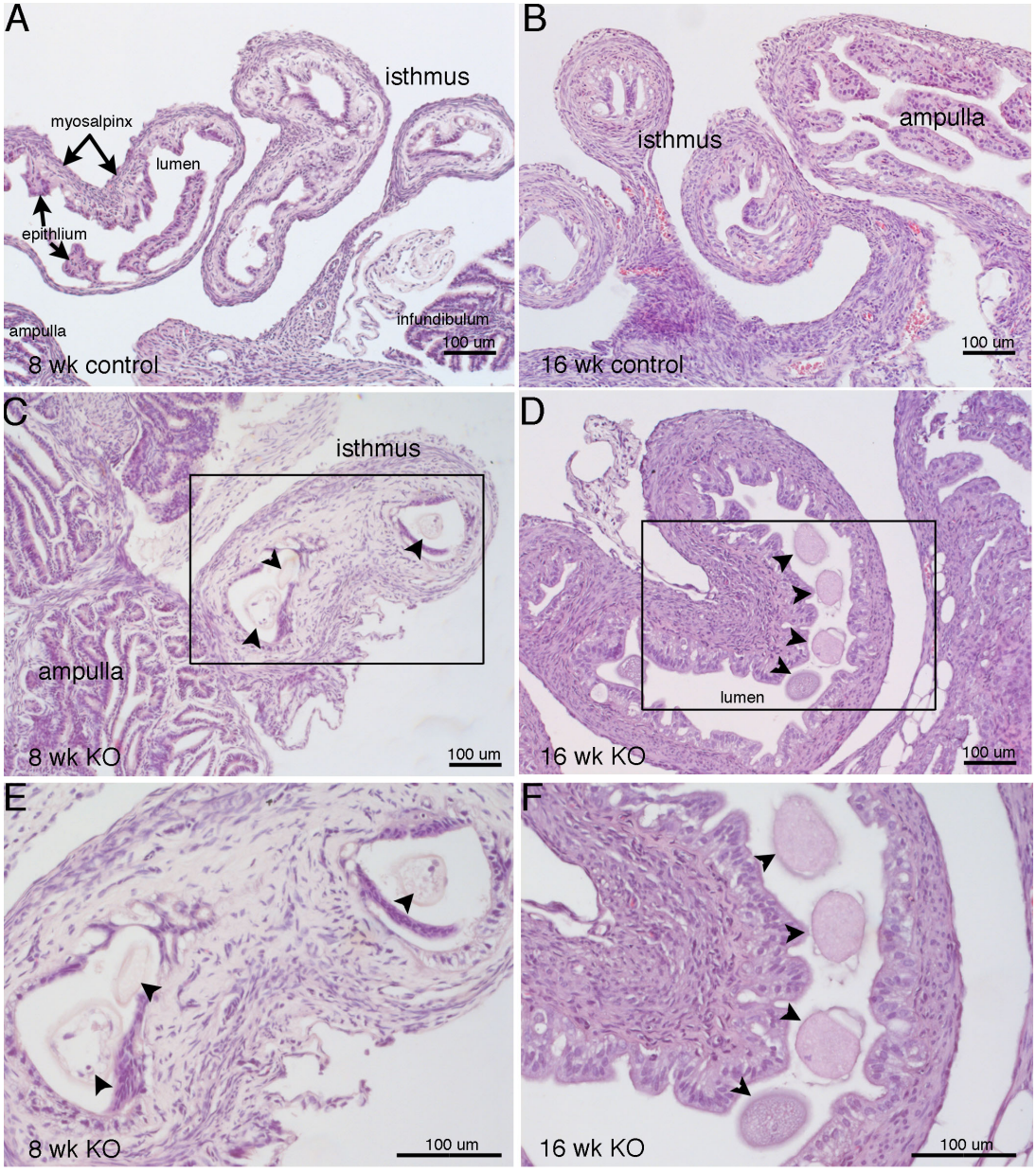
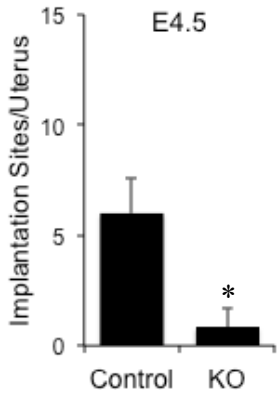
Rodriguez et al., Supplemental Data



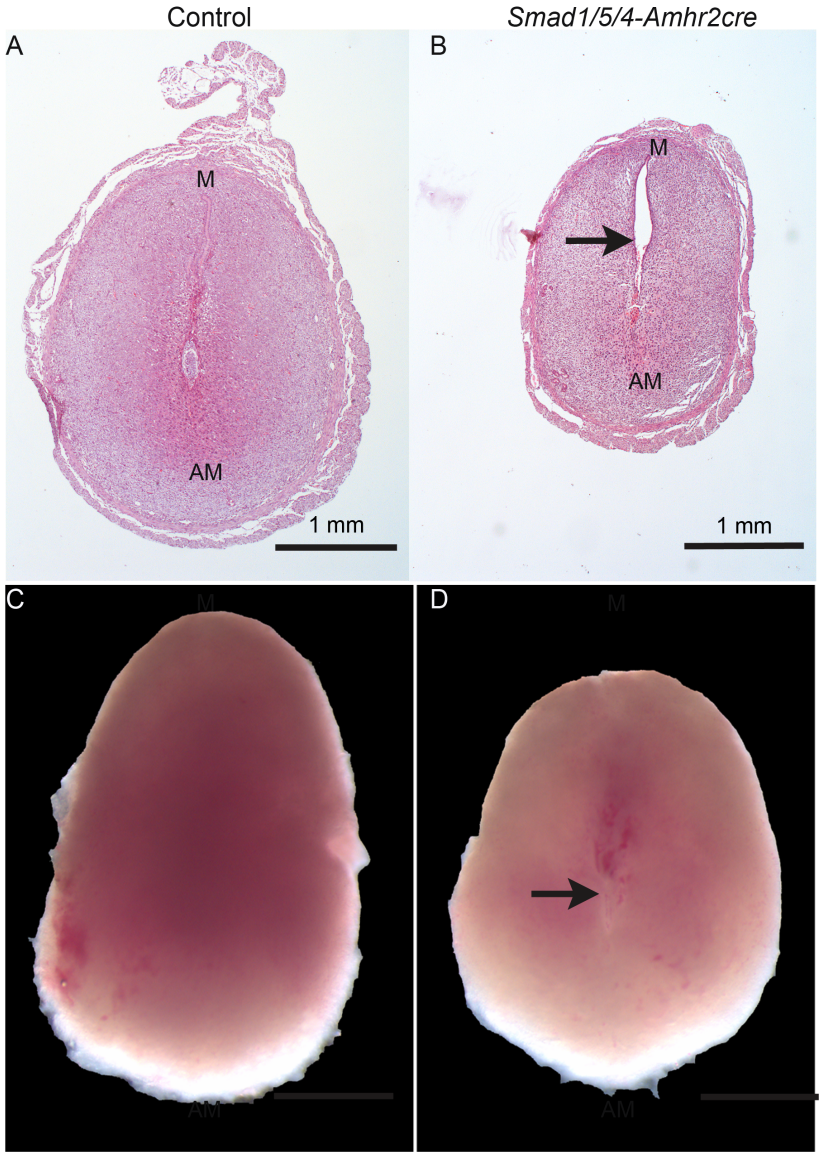
S1 Fig. Larger panel shown in Fig. 2B of the oviduct diverticuli of *Smad1/5/4-Amhr2cre* KO from the manuscript. The diverticuli contain cell debris and large round structures (arrowheads) that are likely degenerating oocytes/embryos. Such diverticuli have been previously shown to collect oocytes/embryos (Ref. 33).



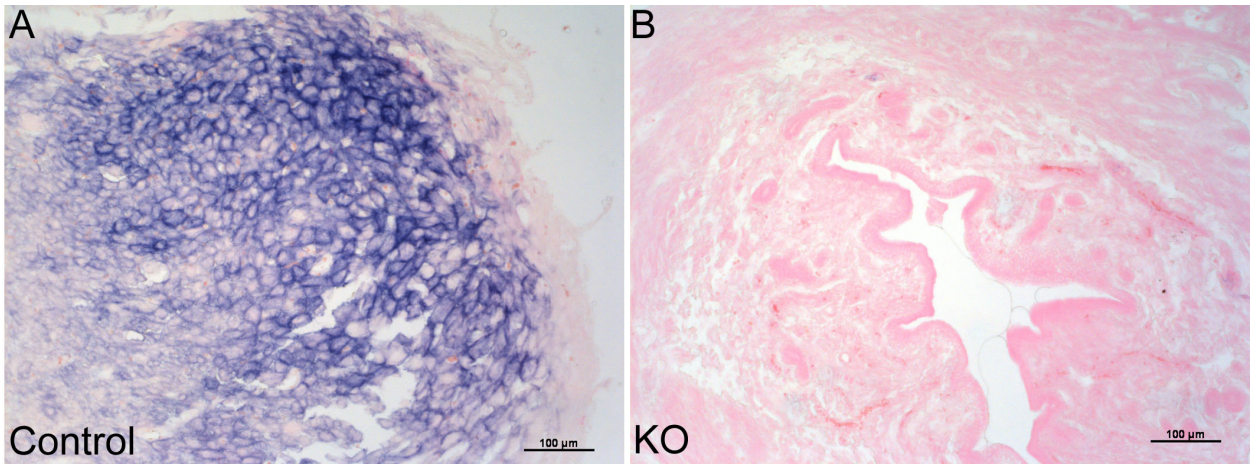
S2 Fig. Additional histology of control and *Smad1/5/4-Amhr2cre* oviducts. Tissue sections were stained with H&E in 8 and 16 wk old control (A, B) and *Smad1/5/4-Amhr2cre* KO (C-F) mice. (A) There is an obvious thickening of the walls of *Smad1/5/4-Amhr2cre* oviducts at 8 wk (C) and 16 wk (D). In addition, oocytes were frequently observed within different regions of the oviduct in *Smad1/5/4* (arrowheads in C-F), but only rarely in the control oviducts. The boxed regions in panels C, D are shown as higher magnifications in panels E, F, respectively. Scale bar is 100 μm.



S3 Fig. Quantification of implantation sites at E4.5. 6-week old control (n=5) and *Smad1/5/4 Amh2rcre* KO (n=6) females were mated with wild type males. Female mice were given retro-orbital injections of Chicago blue dye to visualize implantation sites four days after the presence of a seminal plug was noted. Uteri were dissected and implantation sites counted. *Smad1/5/4 Amh2rcre* KO uteri contained significantly fewer implantation sites compared to control uteri (**P*<0.05)



S4 Fig. *Smad1/5/4-Amhr2cre* KO mice show uterine defects in luminal closure and decidualization. (A) H&E staining of a control implantation site at E5.5 displaying lumen closure and normal decidualization, while (B) the *Smad1/5/4-Amhr2cre* KO implantation site contains an unclosed uterine lumen (arrow). (C, D) Gross morphology of decidua isolated from E6.5 control and *Smad1/5/4-Amhr2cre* KO implantation sites. *Smad1/5/4-Amhr2cre* KO females fail to develop a fully formed decidua surrounding the embryo (arrow). AM, anti-mesometrium, M, mesometrium.



S5 Fig. *Smad1/5/4-Amhr2cre* KO mice do not under stromal cell differentiation during artificial decidualization. Stromal cell differentiation assayed by alkaline phosphatase staining in control (n=3) and *Smad1/5/4-Amhr2cre* KO (n=3) uteri that had undergone artificial decidualization. (A) The control uterus has robust blue staining indicating differentiation. (B) The *Smad1/5/4-Amhr2cre* KO uterus showed no alkaline phosphatase activity. Tissue is counterstained with nuclear fast red. Scale bar, 100 µm

Supplemental Table S1. List of primer sequences used for quantitative PCR.

Target Gene		Primer Sequence
Bmp2	Forward	5'- GGGACCCGCTGTCTTCTAGT
	Reverse	5'- TCAACTCAAATTCGCTGAGGAC
Ccne2	Forward	5'- GCTGATTCCTCCAGACAGTACA
	Reverse	5'- ATGTCAAGACGCAGCCGTTTA
Esr1	Forward	5'- GCTCCTAACTTGCTCCTGGAC
	Reverse	5'- CAGCAACATGTCAAAGATCTCC
Fkbp5	Forward	5'- TGAGGGCACCAGTAACAATGG
	Reverse	5'- CAACATCCCTTTGTAGTGGACAT
Gja1	Forward	5' ACAGCGGTTGAGTCAGCTTG
	Reverse	5'- GAGAGATGGGGAAGGACTTGT
Lefty	Forward	5'- AGCTCAAGGCAATTGTG
	Reverse	5'- CTTCACGCTGACAATC
Mcm5	Forward	5'- CAGAGGCGATTCAAGGAGTTC
	Reverse	5'- CGATCCAGTATTCACCCAGGT
Prl8a2	Forward	5'- CCTCATCACGTCTATACAT
	Reverse	5'- GCTGCATCAATTCCTG
Pgr	Forward	5'- CTCCGGGACCGAACAGAGT
	Reverse	5'- ACAACAACCCTTTGGTAGCAG
Ptgs2	Forward	5'- CCAGCACTTCACCCATCAGTT
	Reverse	5'- ACCCAGGTCCTCGCTTATGA
Wnt4	Forward	5'- AGACGTGCGAGAAACTCAAAG
	Reverse	5'- GGAACTGGTATTGGCACTCCT