# Supplementary Fig. S1



**Supplementary Fig. S1: Characterization of cervical epithelium in HPV16<sup>tg/+</sup> mice.** Note: 
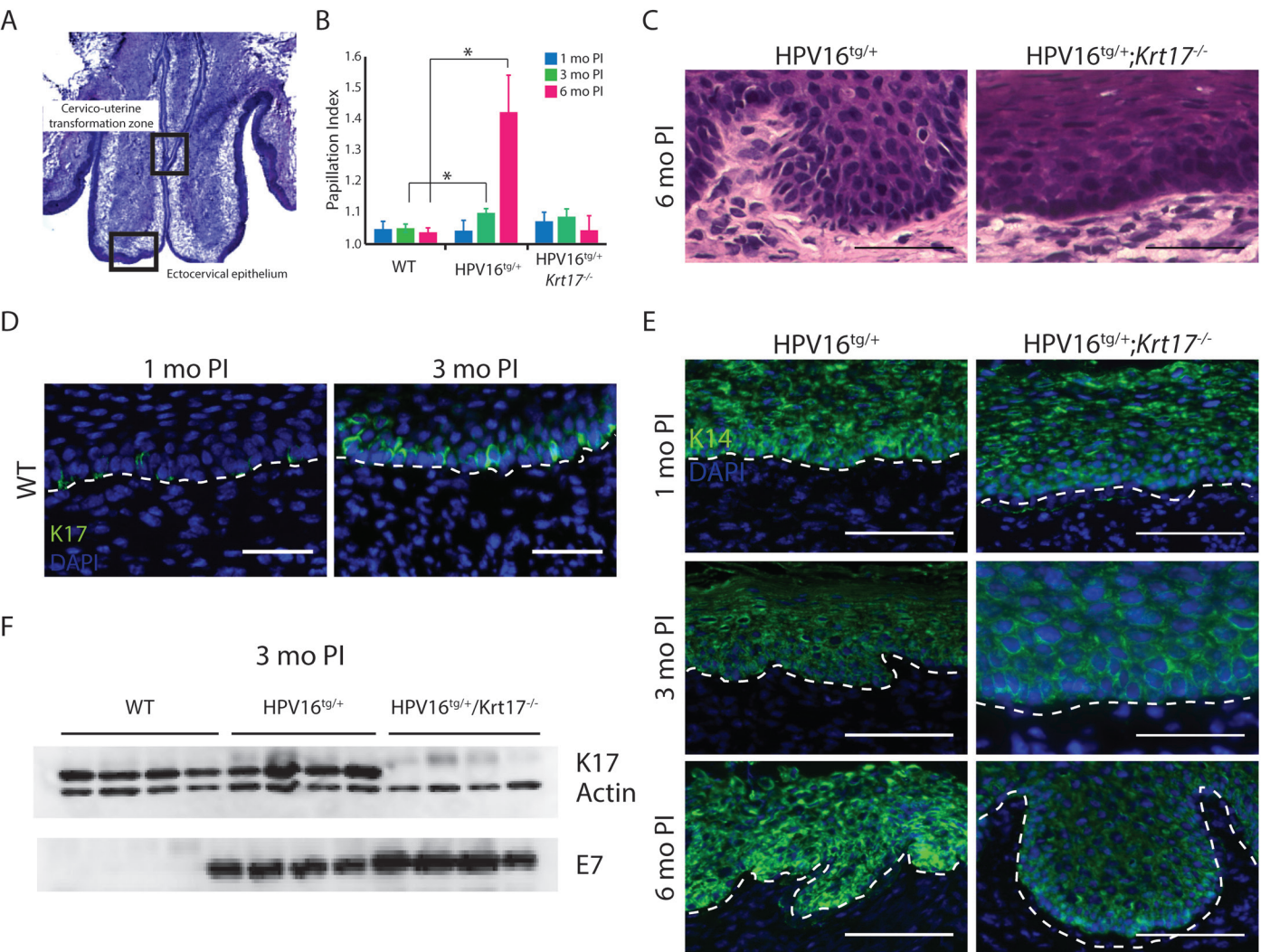
**Supplementary Fig. S1: Characterization of cervical epithelium in HPV16$^{tg/+}$ mice. A)** Reconstructed image from low-magnification (5x) micrographs covering the entire mouse cervix. Boxed regions highlight the cervico-uterine transformation zone and ectocervical epithelium. **B)** Quantitation of epithelial papillation in transformation zone epithelia for WT, HPV16$^{tg/+}$, and HPV16$^{tg/+}$;$Krt17^{-/-}$ mice at 1-, 3-, and 6-mo post-implantation. Error bars are s.e.m. *p<0.05 (Student's T-test). **C)** H&E staining of transformation zone epithelium for HPV16$^{tg/+}$ and HPV16$^{tg/+}$;$Krt17^{-/-}$ mice at 6-mo post-implantation. Bar = 100 μm. This panel accompanies Fig. 1A. **D)** Immunostaining for K17 in transformation zone epithelium of WT mice at 1-mo (left) and 3-mo (right) post-implantation. Nuclei are stained with DAPI (blue). Dotted line separates epithelium (above line) from underlying stroma (below line). Bar = 100 μm.
**E)** Immunostaining for K14 in transformation zone epithelium of HPV16$^{tg/+}$ (top) and HPV16$^{tg/+}$;$Krt17^{-/-}$ (bottom) mice at 1-, 3-, and 6-mo post-implantation. Nuclei are stained with DAPI (blue). Dotted line separates epithelium (above line) from underlying stroma (below line). Bar = 100 μm. **F)** Immunoblots for K17, Actin, and HPV E7 in cervical tissue of WT, HPV16$^{tg/+}$, and HPV16$^{tg/+}$;$Krt17^{-/-}$ mice at 3-mo post-implantation. Each lane represents a distinct biological replicate.
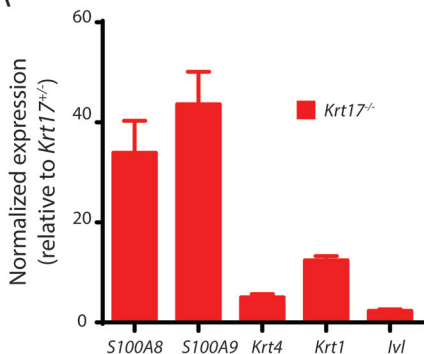
# Supplementary Fig. S2
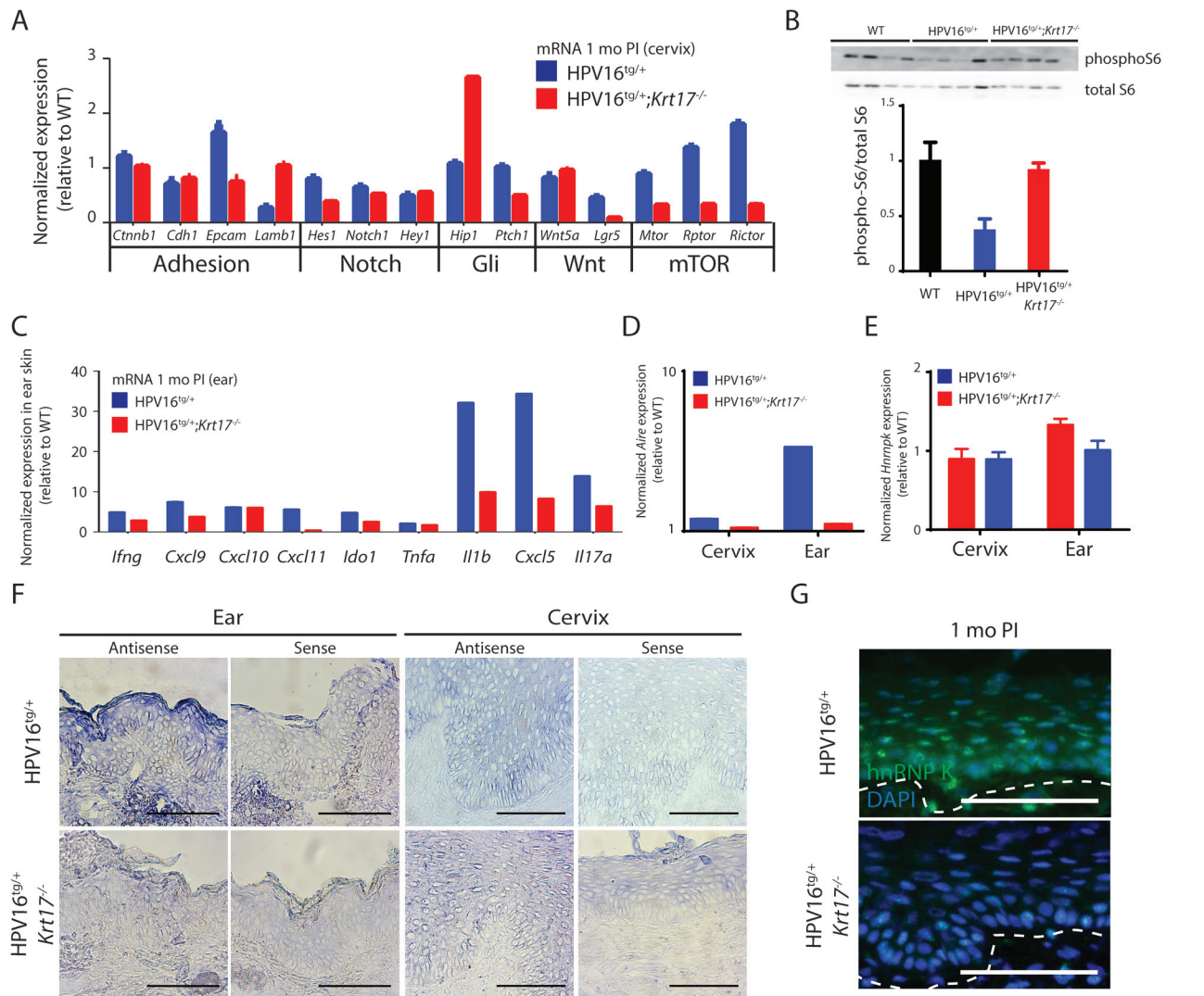


**Supplementary Fig. S2: Assessment of Aire and hnRNP K in cervical and ear tissues.**
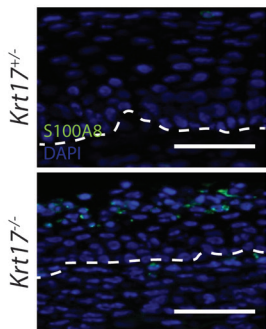**A)** Normalized expression for gene transcripts associated with adhesion, Notch, Gli, Wnt, and mTOR signaling in cervical tissue of HPV16[tg/+] and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Error bars are s.e.m. **B)** Immunoblots for phospho-S6 and total S6 in cervical tissue of WT, HPV16[tg/+], and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Each lane represents a distinct biological replicate. Densitometric quantification of phospho-S6/total S6 shown below. **C)** Normalized expression for inflammation associated gene transcripts in ear tissue of HPV16[tg/+] and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Error bars are s.e.m. This panel accompanies Fig. 3B. **D)** Normalized expression for Aire transcript in cervical and ear tissues of HPV16[tg/+] and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Error bars are s.e.m. **E)** Normalized expression for *Hnrnpk* transcript in cervical and ear tissues of HPV16[tg/+] and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Error bars are s.e.m. **F)** RNA *in situ* hybridization for *Aire* gene transcript in ear (left) and cervical (right) tissues of HPV16[tg/+] and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Signals from both antisense and sense probes are shown. Bar = 100 μm. **G)** Immunostaining for hnRNP K in transformation zone epithelium of HPV16[tg/+] and HPV16[tg/+];*Krt17*^{-/-} mice at 1-mo post-implantation. Nuclei are stained with DAPI (blue). Dotted line separates epithelium (above line) from underlying stroma (below line). Bar = 100 μm.

# Supplementary Fig. S3



**Supplementary Fig. S3: Differentiation of cervical epithelia occurs in non-transgenic, unimplanted, agedmice in the absence of K17.** **A**) Normalized expression for differentiation-associated gene transcripts in cervical tissue of *Krt17^{-/-}* mice relative to *Krt17^{+/-}* littermates. Error bars are s.e.m. **B**) Immunostaining for S100A8 in transformation zone epithelium of *Krt17^{+/-}* (top) and *Krt17^{-/-}* (bottom) mice. Nuclei are stained with DAPI (blue). Dotted line separates epithelium (above line) from underlying stroma (belowline). Bar = 100 μm.

**Table S1. List of qRT-PCR primers.**

| Target | Primer | Sequence (5'-->3') | Target | Primer | Sequence (5'-->3') |
|---|---|---|---|---|---|
| *18S* | Forward | CCTGTGCCTTCCTTGGA | *Inv* | Forward | ATGTCCCATCAACACACACTG |
| *18S* | Reverse | CATTCGAACGTCTGCCCTATC | *Inv* | Reverse | TGGAGTTGGTTGCTTTGCTTG |
| *Actb* | Forward | GGCTGTATTCCCCTCCATCG | *Krt1* | Forward | TGGGAGATTTTCAGGAGGAGG |
| *Actb* | Reverse | CCAGTTGGTAACAATGCCATGT | *Krt1* | Reverse | GCCACACTCTTGGAGATGCTC |
| *Aire* | Forward | AGGTCAGCTTCAGAGAAAACCA | *Krt4* | Forward | TCGGCAGCAGAAGTCTTTACA |
| *Aire* | Reverse | TCATTCCCAGCACTCAGTAGA | *Krt4* | Reverse | CAGCACCGTATCCTCCAACG |
| *Cdh1* | Forward | CAGGTCTCCTCATGGCTTTGC | *Krt10* | Forward | ACGAGAAGCATGGCAACTCAA |
| *Cdh1* | Reverse | CTTCCGAAAAGAAGGCTGTCC | *Krt10* | Reverse | GCTCATCCAGTACCCTGCG |
| *Ctnnb1* | Forward | ATGGACGTGGGCGAACTTTTA | *Krt17* | Forward | ACCATCCGCCAGTTTACCTC |
| *Ctnnb1* | Reverse | CGCCATCCCTGTCAATAATCTG | *Krt17* | Reverse | CTACCCAGGCCACTAGCTGA |
| *Cxcl10* | Forward | CCAAGTGCTGCCGTCATTTTC | *Lamb1* | Forward | AGACTTTGGGGGTTCATGTCA |
| *Cxcl10* | Reverse | GGCTCGCAGGGATGATTTCAA | *Lamb1* | Reverse | ATCGTCCCGTCTCCTTGTCA |
| *Cxcl11* | Forward | GGCTTCCTTATGTTCAAACAGGG | *Mmp13* | Forward | TGTTTGCAGAGCACTACTTGAA |
| *Cxcl11* | Reverse | GCCGTTACTCGGGTAAATTACA | *Mmp13* | Reverse | CAGTCACCTCTAAGCCAAAGAAA |
| *Cxcl5* | Forward | TCCAGCTCGCCATTCATGC | *Mmp9* | Forward | CTGGACAGCCAGACACTAAAG |
| *Cxcl5* | Reverse | TTGCGGCTATGACTGAGGAAG | *Mmp9* | Reverse | CTCGCGGCAAGTCTTCAGAG |
| *Cxcl9* | Forward | TCCTTTTGGGCATCATCTTCC | *Mtor* | Forward | CAGTTCGCCAGTGGACTGAAG |
| *Cxcl9* | Reverse | TTTGTAGTGGATCGTGCCTCG | *Mtor* | Reverse | GCTGGTCATAGAAGCGAGTAGAC |
| *Epcam* | Forward | GCGGCTCAGAGAGACTGTG | *Notch1* | Forward | GATGGCCTCAATGGGTACAAG |
| *Epcam* | Reverse | CCAAGCATTTAGACGCCAGTTT | *Notch1* | Reverse | TCGTTGTTGTTGATGTCACAGT |
| *Flg* | Forward | ATGTCCGCTCTCCTGGAAAG | *Patch1* | Forward | CTTCCACCCACAGCTCCTCC |
| *Flg* | Reverse | TGGATTCTTCAAGACTGCCTGTA | *Patch1* | Reverse | GGGAAGGCTACTGGCCGG |
| *Hes1* | Forward | CCAGCCAGTGTCAACACGA | *Rictor* | Forward | GCTGCGCTATCTCATCCAAGA |
| *Hes1* | Reverse | AATGCCGGGAGCTATCTTTCT | *Rictor* | Reverse | CTTTCTGACTAAGCGAAGGGC |
| *Hey1* | Forward | GCGCGGACGAGAATGGAAA | *Rptor* | Forward | TGTGAGAAAATCGAAGGCTCC |
| *Hey1* | Reverse | TCAGGTGATCCACAGTCATCTG | *Rptor* | Reverse | TTTGCACCGATGGTTTCCAGA |
| *Hip1* | Forward | CCACTTGATTGAACGCCTGTA | *S100a8* | Forward | AAATCACCATGCCCTCTACAAG |
| *Hip1* | Reverse | ACTCGCAGTCATCCATAGCCT | *S100a8* | Reverse | CCCACTTTTATCACCATCGCAA |
| *Hnrnpk* | Forward | ACTGATGAGATGGTTGAATTGCG | *S100a9* | Forward | ATACTCTAGGAAGGAAGGACACC |
| *Hnrnpk* | Reverse | CTGGCATTGTAGTCTGTACGG | *S100a9* | Reverse | TCCATGATGTCATTTATGAGGGC |
| *Ido1* | Forward | GCTTTGCTCTACCACATCCAC | *Sfn* | Forward | TTGGCTGAACAGGCCGAAC |
| *Ido1* | Reverse | CAGGCGCTGTAACCTGTGT | *Sfn* | Reverse | GTAAGCTACGGAAAGCAGGTTT |
| *Ifng* | Forward | ATGAACGCTACACACTGCATC | *Tgfb* | Forward | CTCCCGTGGCTTCTAGTGC |
| *Ifng* | Reverse | CCATCCTTTTGCCAGTTCCTC | *Tgfb* | Reverse | GCCTTAGTTTGGACAGGATCTG |
| *Il1b* | Forward | GAAATGCCACCTTTTGACAGT | *Tnfa* | Forward | CTGAACTTCGGGGTGATCGG |
| *Il1b* | Reverse | CTGGATGCTCTCATCAGGACA | *Tnfa* | Reverse | GGCTTGTCACTCGAATTTTGAGA |
| *Il17a* | Forward | TTTAACTCCCTTGGCGCAAAA | | | |
| *Il17a* | Reverse | CTTTCCCTCCGCATTGACAC | | | |