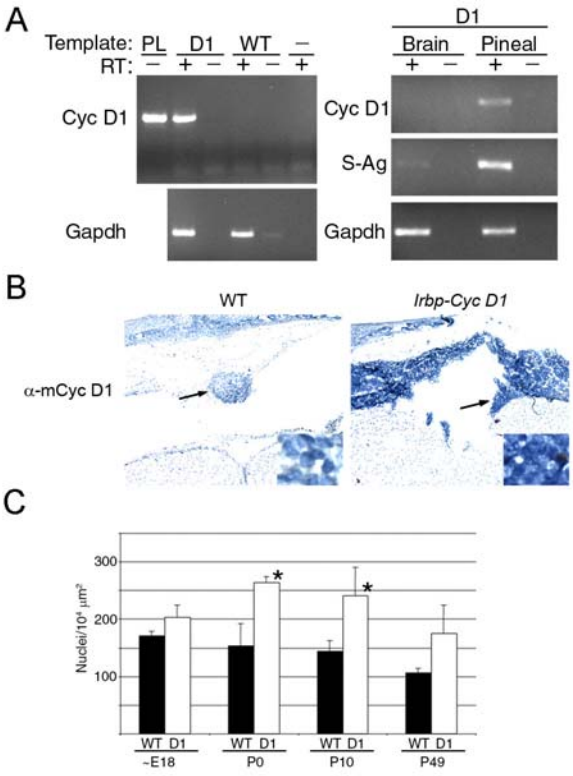
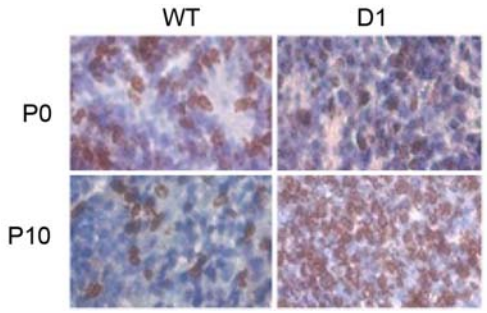
Supplemental Figure 1



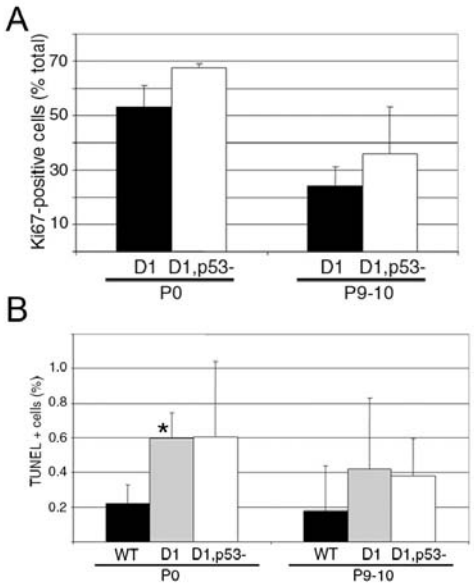
Legend: (A) Representative photographs of ethidium bromide-stained agarose gels following electrophoresis of the indicated RT-PCR products from transgenic (D1) or wild type (WT) pineal gland or brain, as indicated. Primers were specific for transgenic cyclin D1, S-antigen (a pinealocyte marker) or Gapdh (a loading control). Negative control included mRNA processed without the reverse transcriptase enzyme (RT -); positive control included amplification of the plasmid DNA (Pl) used to make the transgenic mouse. (B) Representative photomicrographs show staining for mouse Cyclin D1 in pineal gland (arrow) from P10 wild type and transgenic mice. Original magnification: 40x and 400x (inset). (C) Quantitative analysis of cell density in pineal gland of wild type (black bars) and transgenic (white bars) mice of the indicated ages. Values represent mean and standard deviation of measurements from 3 – 6 separate mice. * signifies $p <$ 0.05 as compared to wild type.

Supplemental Figure 2



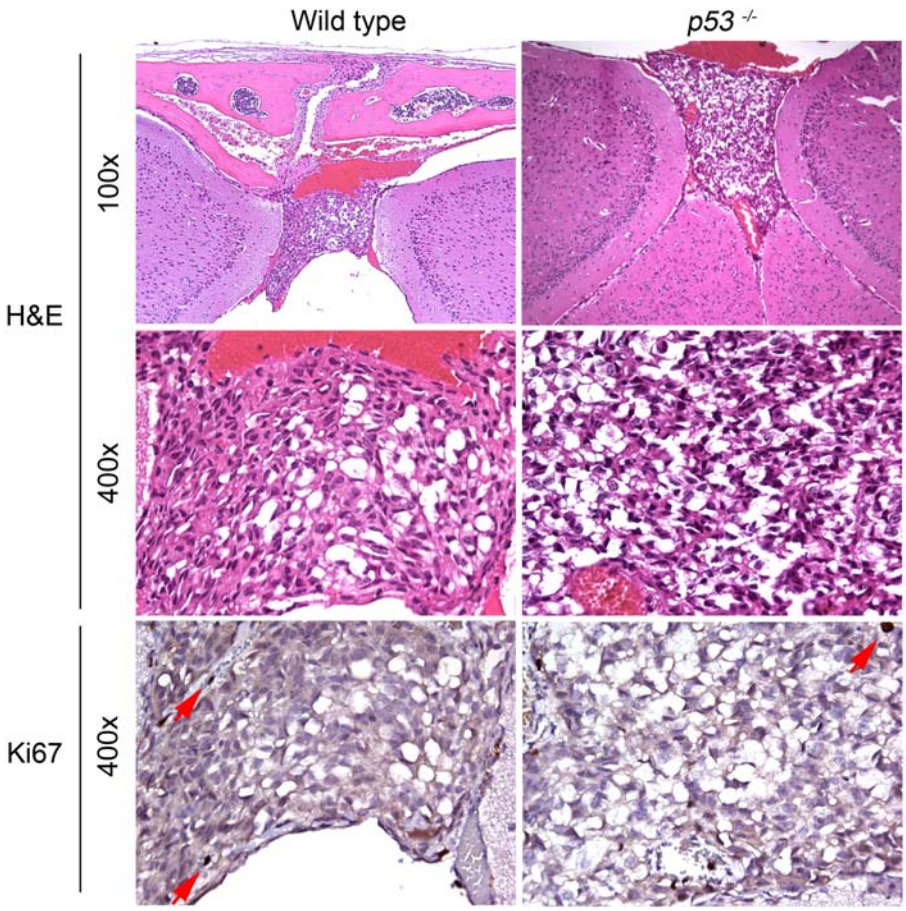
Legend: Representative photomicrograph of pineal gland tissue taken from wild type and *Irbp-Cyclin D1* mice at P0 and P10 months and stained with antibodies to detect human the cell proliferation marker, Ki67. Original magnification: 400x.

Supplemental Figure 3



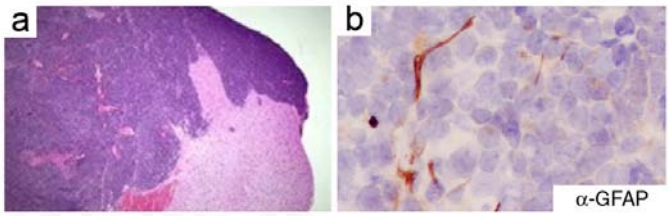
Legend: (A and B) Quantitative analysis of Ki67-positive (A) and TUNEL-positive (B) cells (expressed as percent total cells) in the pineal gland taken from mice the indicated genotypes at P0 or P9-10.. Quantitative data expressed as mean and standard deviation from 3 – 6 separate mice. * signifies $p < 0.05$ in D1 versus wild type.

Supplemental Figure 4



Legend: Representative photomicrographs showing pineal gland morphology by H&E stain and cell proliferation by Ki67 stain in the pineal gland taken from two month old wild type and *p53* $^{-/-}$ mice as indicated. Note that only occasional pinealocytes are Ki67-positive at this time, irrespective of the genotype.

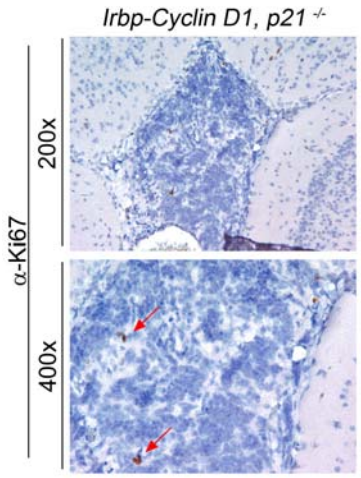
Supplemental Figure 5



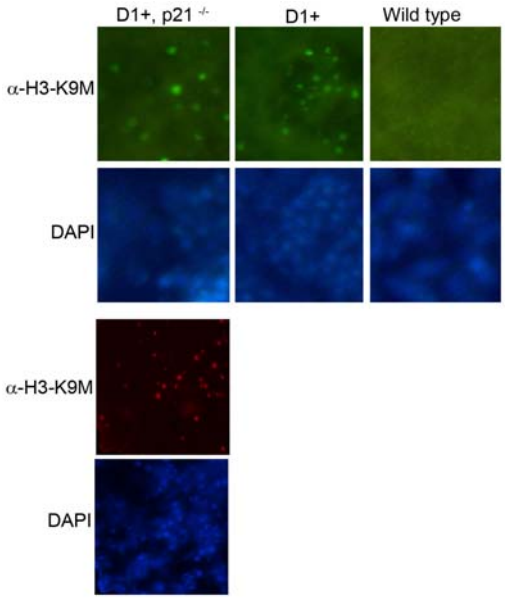
Legend: Representative photomicrographs of pineal gland PNET from *Irbp-Cyclin D1, p53* $^{-/-}$ mouse showing that the tumor is composed of densely-packed cells (a) and that occasional, non-tumor cells express Glial fibrillary acidic protein (GFAP). Original magnification 40x (a) and 400x (b).

Supplemental Figure 6

A

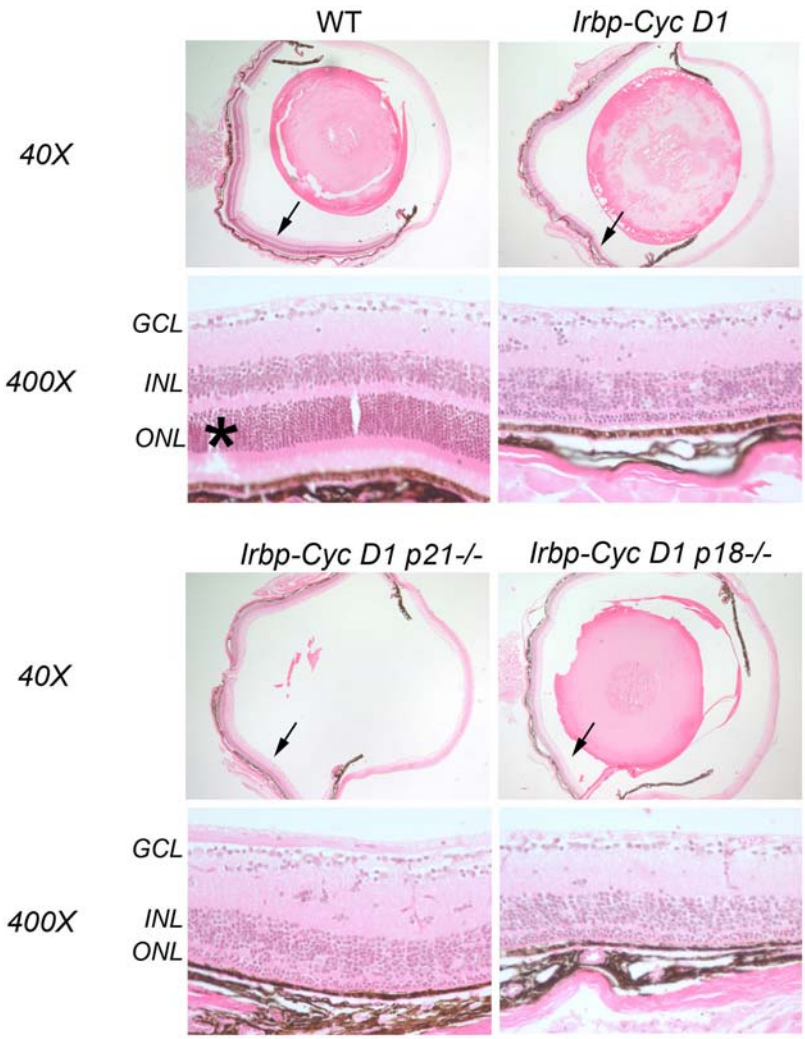


B



Legend: Representative photomicrographs of pineal gland tissue from *Irbp-Cyclin D1, p21 -/-* mouse, stained for the cell proliferation marker Ki67 (A) and senescence-associated H3-K9M foci (B). Arrows (A) indicate the rare proliferating cells.

Supplemental Figure 7



Legend: Representative photomicrographs of H&E stained sections of eyes taken from mice of the indicated genotypes. Note that the outer nuclear layer (ONL) (asterisk) is markedly diminished and inner nuclear layer (INL) is disorganized in *Irbp-Cyclin D1* mouse as previously reported (3); these changes are not influenced by presence or absence of *p21* or *Ink4c*. Tumor formation is not evident in the retina (arrow, top panels). Data are representative of 2 – 4 eyes of each genotype taken from 45 – 70 day old mice.