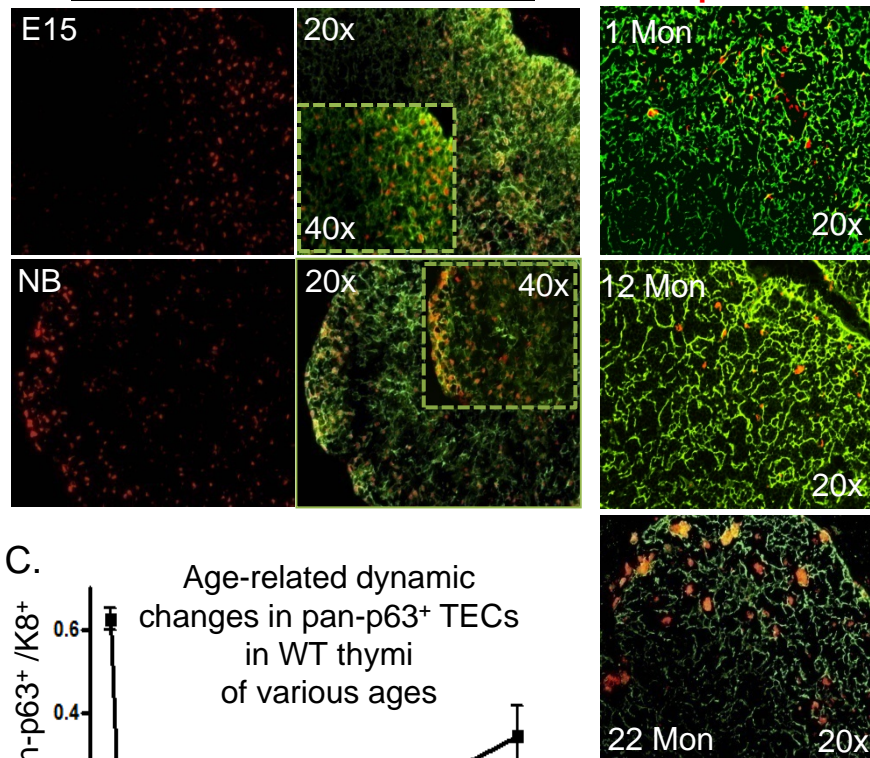
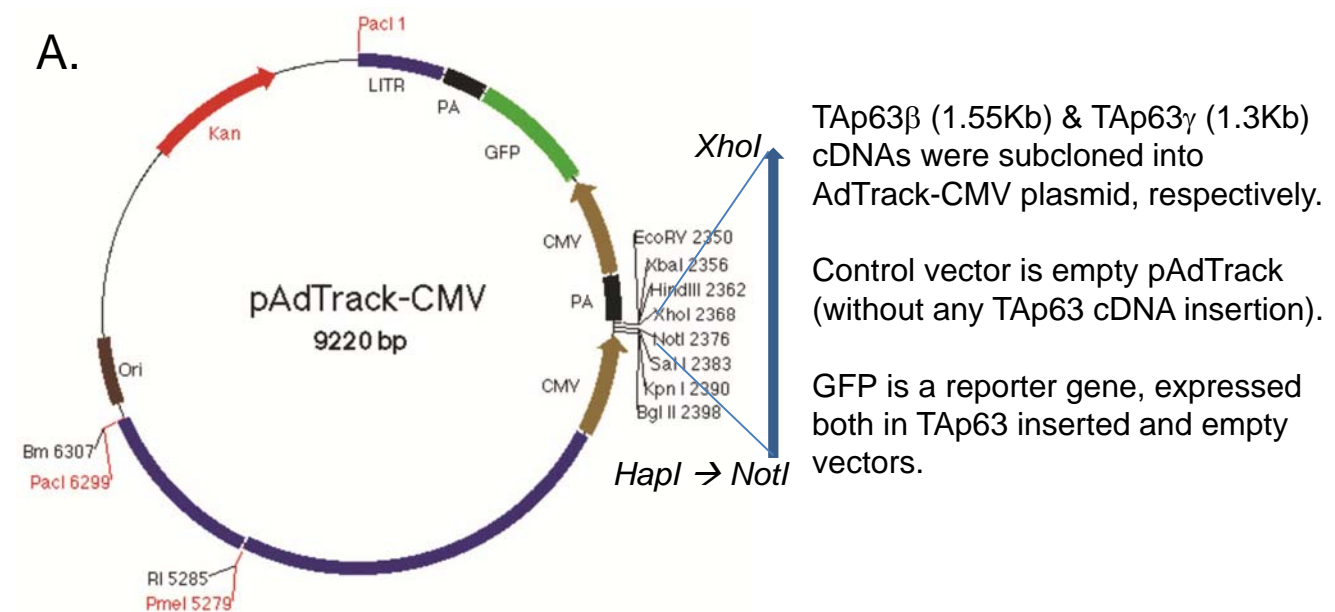


A. **Pan-p63** (4A4) **Pan-p63** vs. **K8** B. **Pan-p63** vs. **K8**



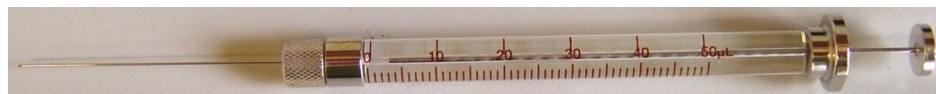
**Supplemental Fig. S1. Age-related dynamic changes in the percentage of pan-p63+ TECs in WT murine thymi of various ages.** Representative immunofluorescence (IF) staining of freshly isolated thymic tissues at various ages from embryonic (A) and postnatal (B) wild-type (WT) mice with pan-p63+ TECs (red) versus K8+ counterstained TECs (green). (C) Summary of the ratios of % pan-p63+ versus % K8+ TECs in thymi of various ages, analyzed by Image-J software. Each data point includes 3-5 animals.



**B.** Injection at 3 locations with a total of 25 $\mu$ l solution during suprasternal notch surgery

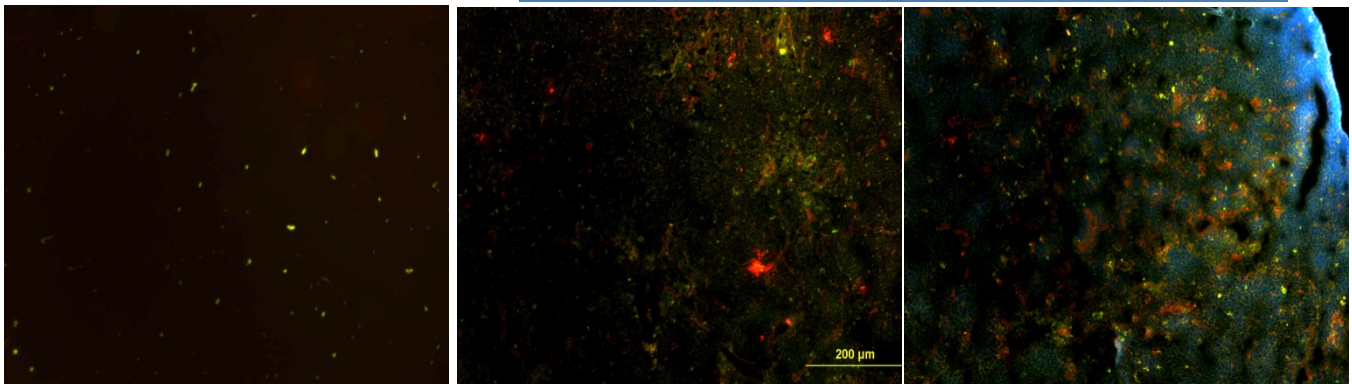


Young murine thymus



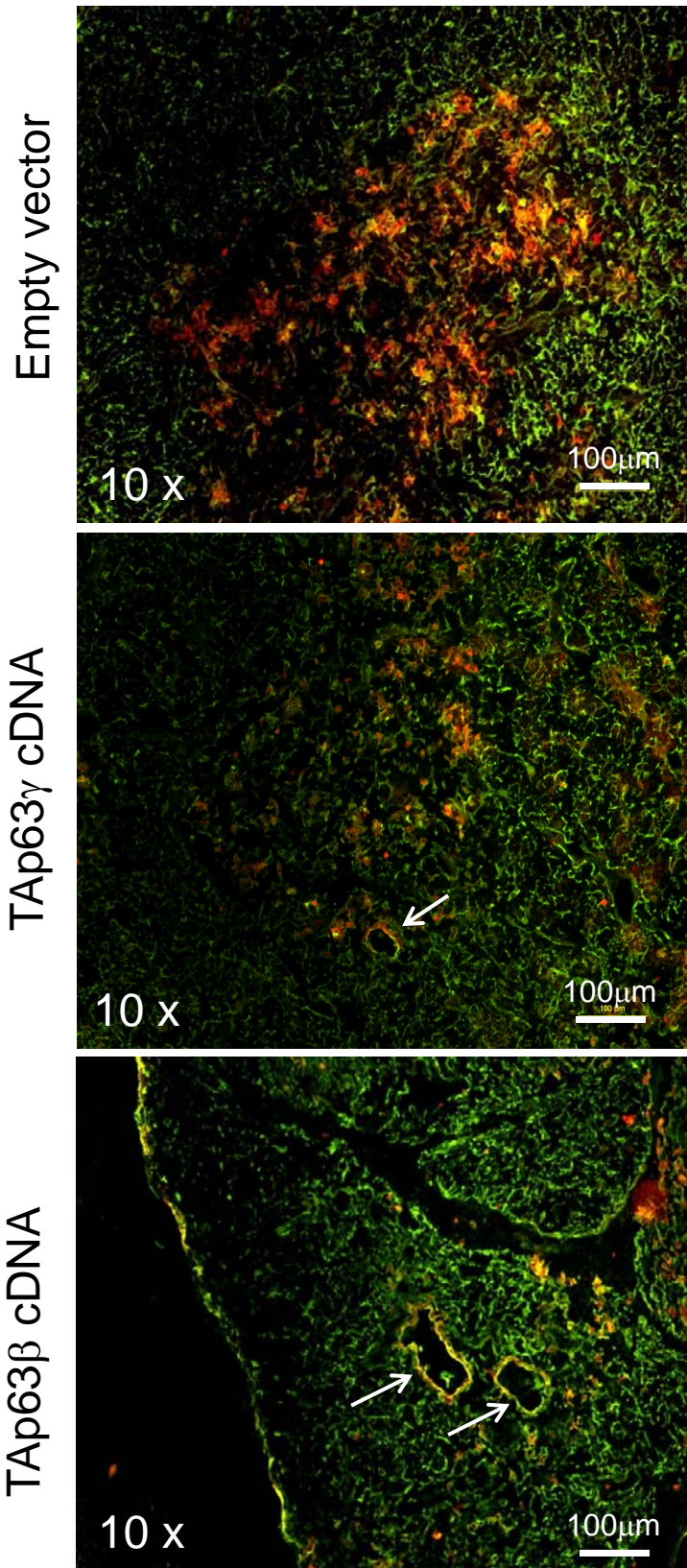
**C.** Non injected thymus

TAp63 vector injected thymuses

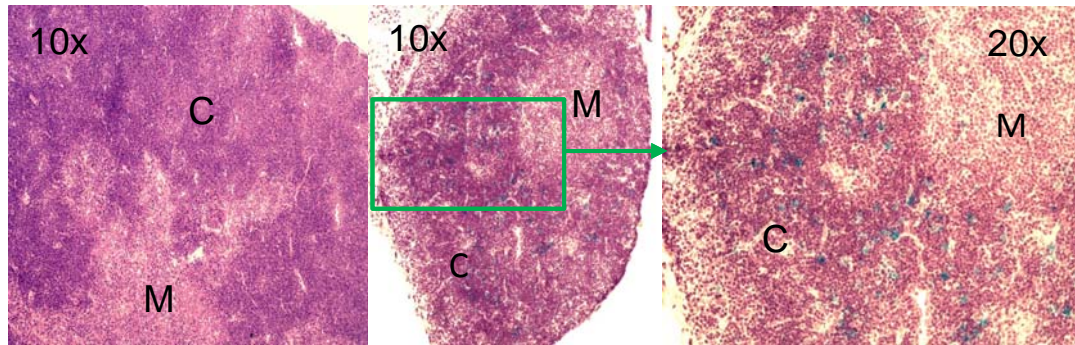


**Supplemental Fig. S2.** Diagrammatic intrathymic injection of TAp63 cDNAs. **(A)**, TAp63 cDNAs sub-cloned from retroviral MSCV2.2 vector into adenovirus pADTrack vector driven by a strong CMV promoter. **(B)**, Schematic diagram of injection; **(C)**, Representative immunofluorescence staining of injected thymic tissue frozen sections, 4 weeks after the intrathymic injection. In order to tell auto-fluorescence from vector-produced GFP, slides were stained with anti-GFP (mouse monoclonal antibody), then Cy3 (red) conjugated anti-mouse secondary antibody. Therefore, the red spots in the images represent GFP expressed by vector, while green spots represent auto-fluorescence.

## Claudin-3+4 versus K8



**Supplemental Fig. S3. TAp63-induced cysts in the young thymus.** Intrathymically infused empty vector, and TAp63 $\gamma$ <sup>-</sup>,  $\beta$ <sup>-</sup> cDNA mediated morphological change (thymic cysts: arrows).



Control *FoxN1*<sup>flx/flx</sup>-only (without uCreER<sup>T</sup>) littermate thymus (TMx2)

Induced (TMx2) *FoxN1* deleted the newborn thymus of *FoxN1*<sup>flx/flx</sup>-uCreER<sup>T</sup>

**Supplemental Fig. S4. *FoxN1* deletion-induced senescent cell clusters in the newborn thymus.** Newborn mice were injected with tamoxifen twice (TM x 2) at day-1 and day-3. Two weeks after birth, an increase in senescent cell clusters (SA- $\beta$ -Gal staining and H&E counterstaining staining) was observed in *FoxN1*<sup>fllox</sup>-deleted thymus (middle and right panels), but not in *FoxN1*<sup>flx/flx</sup>-only (without uCreER<sup>T</sup>) littermate control (left-hand panel). C = cortex; M = medulla.