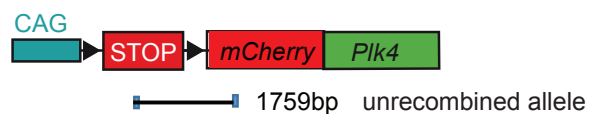
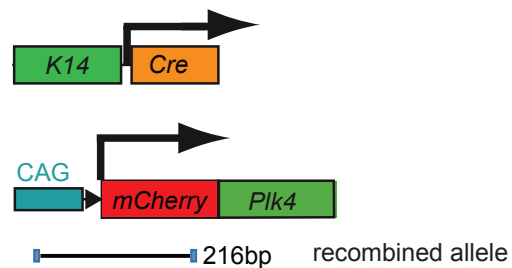


a

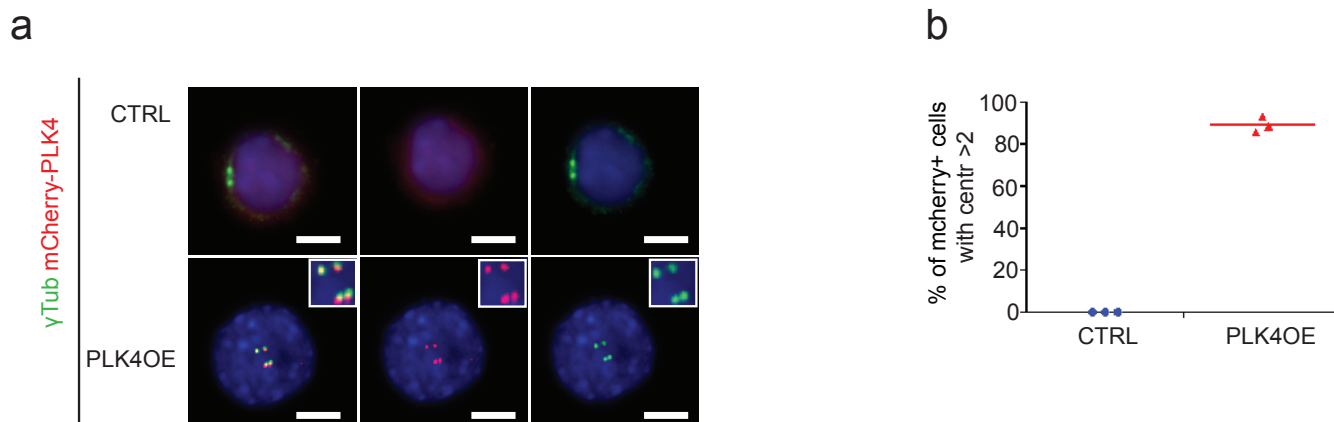


b



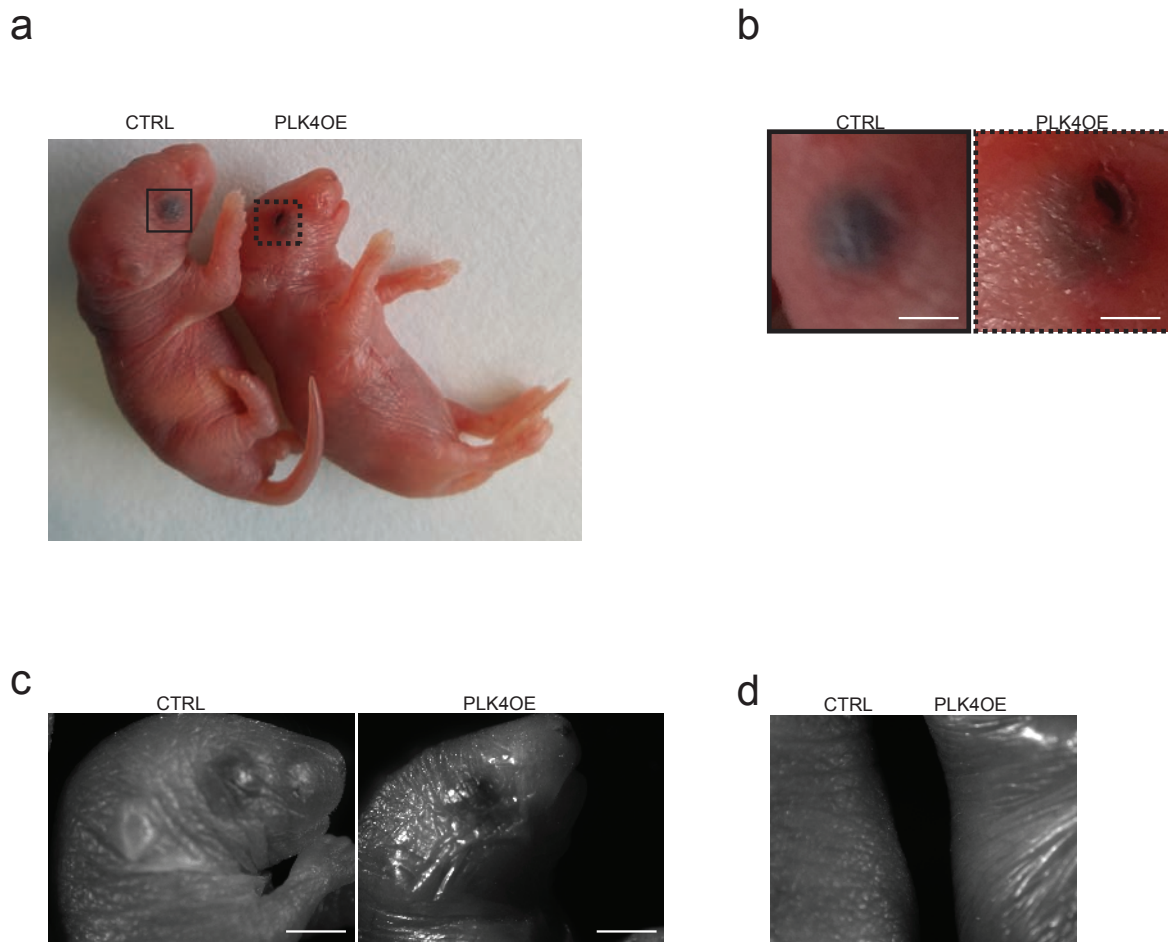
Supplementary Figure 1 Schematic representation of transgene recombination. (a) A loxp-STOP-loxp cassette prevents expression of *mCherry-Plk4* construct. (b) Upon initiation of *K14* expression in mouse

skin epidermis, Cre accumulates and recombines loxP sites and enables *Plk4* overexpression in mice older than E14. Unrecombined and recombined specific primers and PCR are detailed in Material and Methods.



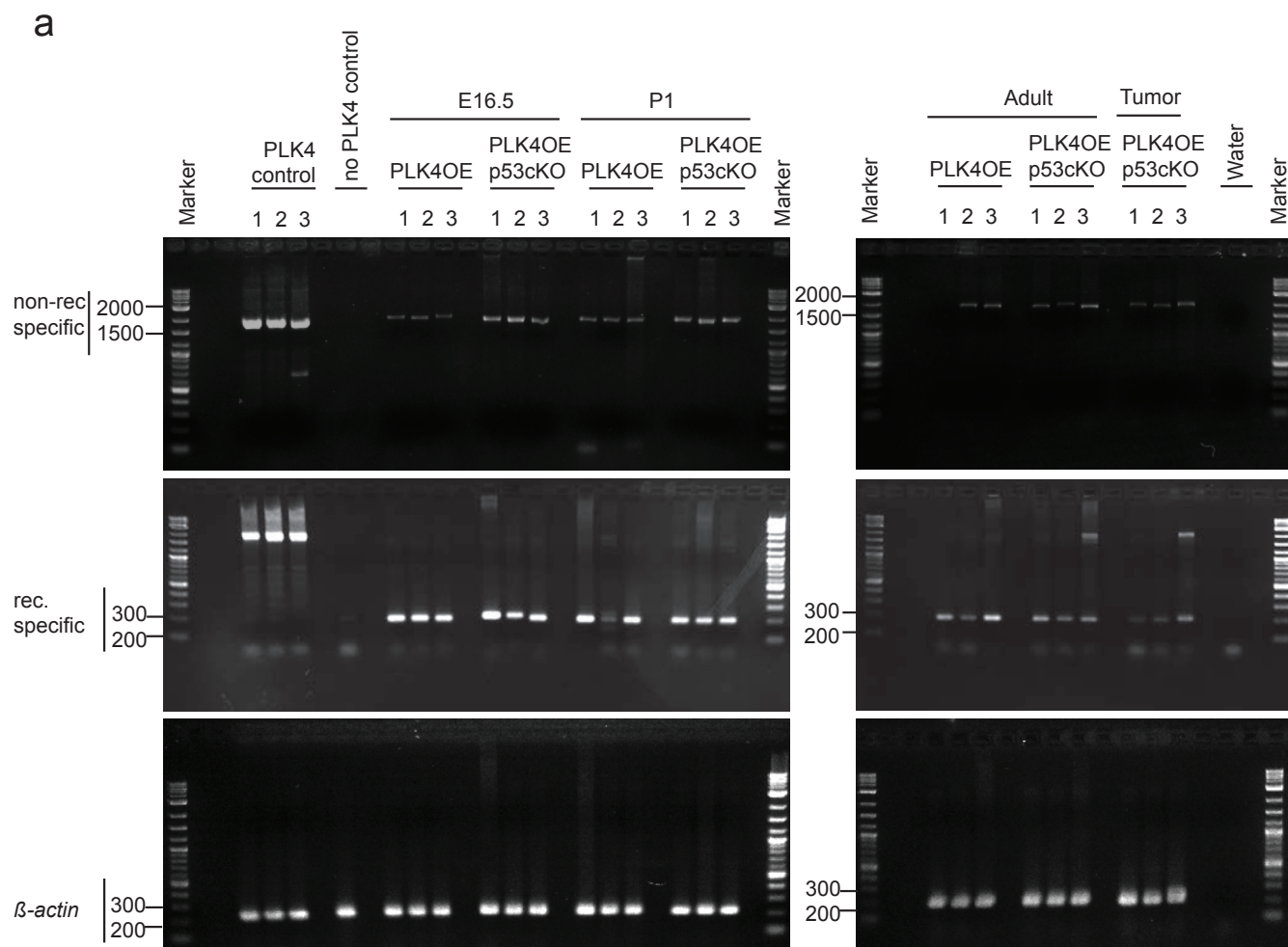
Supplementary Figure 2 mCherry-Plk4 localizes to centrosomes in mouse skin epidermis and causes centrosome supernumerary. **(a)** Keratinocytes extracted from E16.5 embryos were stained for centrosome marker γ -tubulin. mCherry-Plk4 co-localizes with γ -tubulin, insets show higher magnification of the same

image for co-localization. **(b)** Quantification of percentage of cells mCherry positive and cells with >2 centrosomes. Data represent the mean of $n=3$ mice. (≥ 30 cells per mouse were counted) Nuclei were stained with DAPI and white scale bars represent 5 μm . Source data are available in Supplementary Table 1.



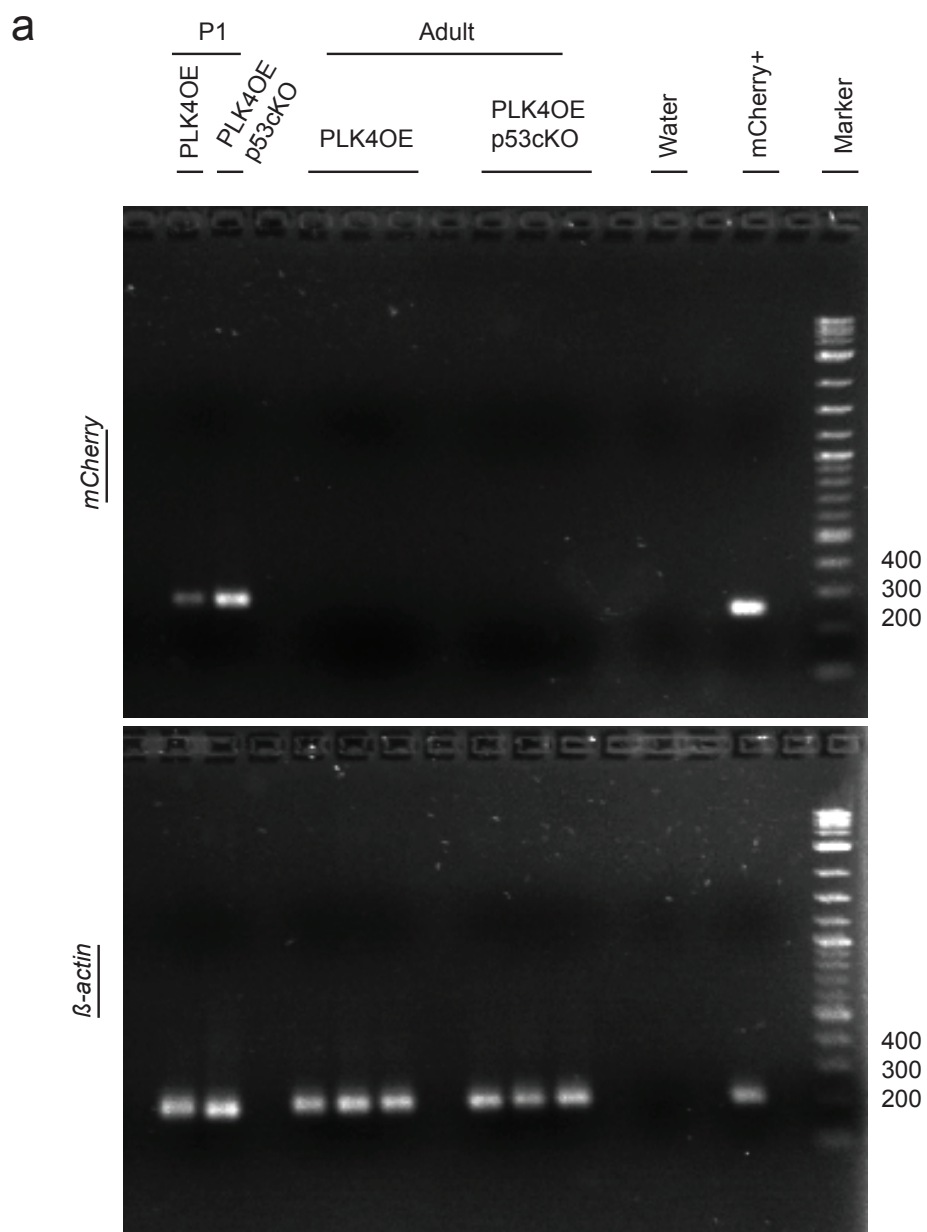
Supplementary Figure 3 Plk4 overexpression causes skin development defects. (a) Newborn PLK4OE mice show shiny skin and open eyes. (b) Close up image of (a) reveals incomplete eyelid formation in PLK4OE

but not control mice. (c,d) Macroscopic image of newborn mice show that only PLK4OE but not control mice display shiny face (c) and back skin (d).



Supplementary Figure 4 PCR of recombined and unrecombined Plk4 transgene. (a) Recombination of the transgene was detected by genomic PCR only in double transgenic mouse at E16.5, P1, adult and in different tumors

but not in control mice or *CRE* negative mice, non-recombined allele was detected by a primer designed specifically to amplify the cells which did not recombine the transgene. β -actin was used as a loading control.



Supplementary Figure 5 Expression of *mCherry-Plk4* mRNA is lost in adult mice. **(a)** Expression of *mCherry-Plk4* was tested by RT-PCR in P1 and adult mice. Only P1 but not adult PLK4OE and PLK4OE/p53cKO mice show amplification of the RT product. β -actin was used as a loading control.

Supplementary Table 1 Source data and statistical analysis. Values represented in Fig. 1-6 and Fig. S2b and statistical analysis are shown in each sheet.