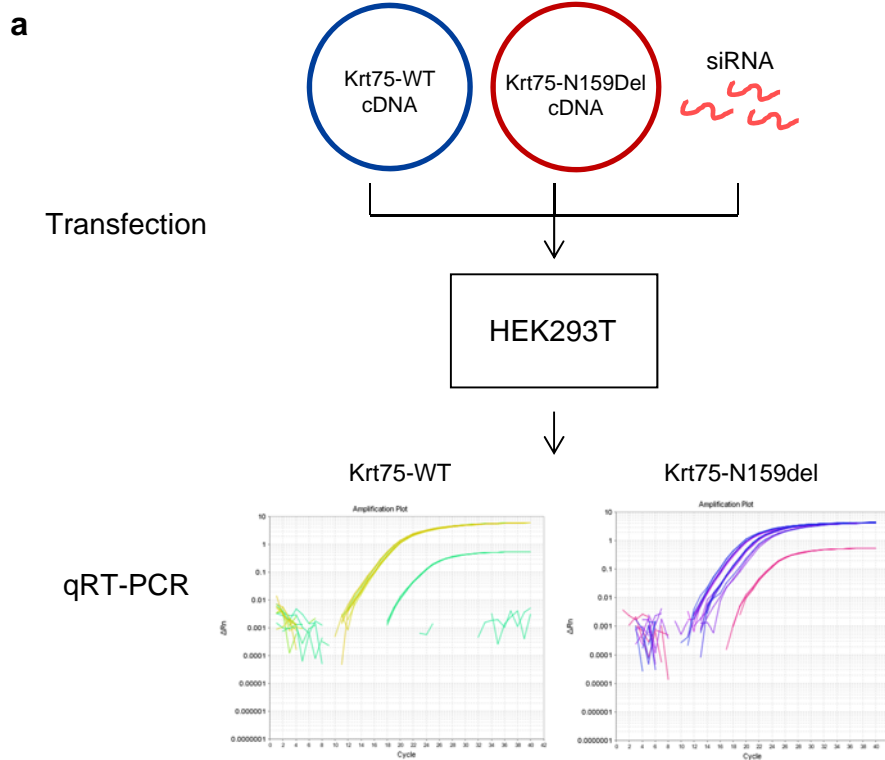


Fig. S1



b

Primers:
 Krt75-F: 5'-gggtgcggaaagaagaacg-3'
 Krt75-R: 5'-aggttctgtctgactgtcctagagc-3'

Probes:
 Krt75-WT: FAM-TGAACAACAAGTTCGC
 Krt75-N159del: HEX-CTCTGAACAAGTTCGC

Supplemental Figure S1. Screening procedure of siRNA. (a) Outline of co-transfection and qRT-PCR. (b) Sequence of primers and probes used in qRT-PCR.

Fig. S2

a

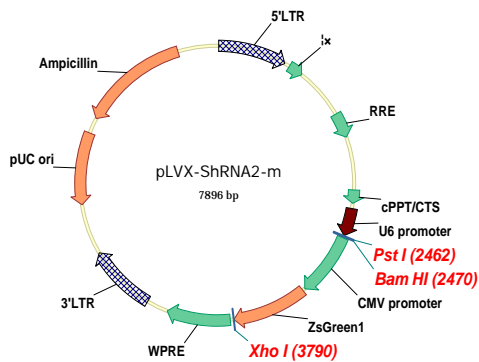
Krt75-N159del-6 shRNA:

5' - CGCGTTCAAGACTCTGAACAAGTTTTCAAGAGAACTTGTTTCAGAGTCTTGATTTTTAT-3'

Krt75-N159del-6S shRNA:

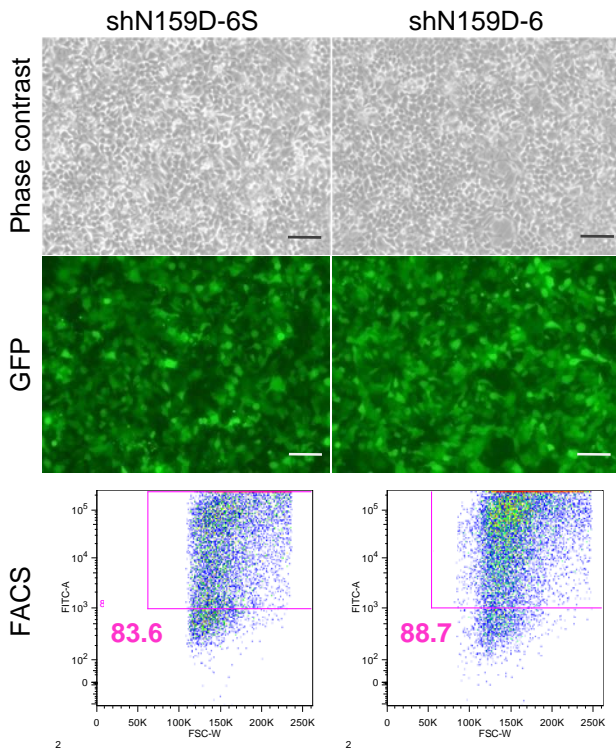
5' - CGCGTGCACATACTGAAGTTCTAATTCAAGAGATTAGAACTTCAGTATGTGCTTTTTAT-3'

b



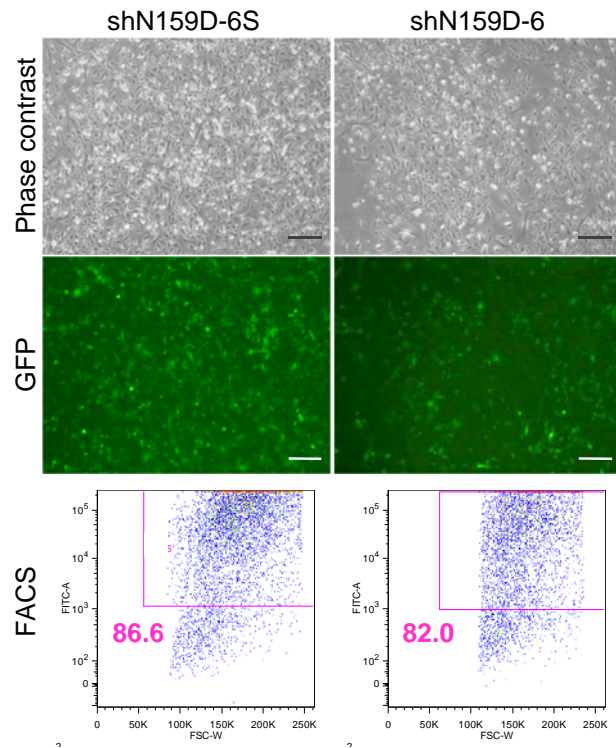
c

HEK293T



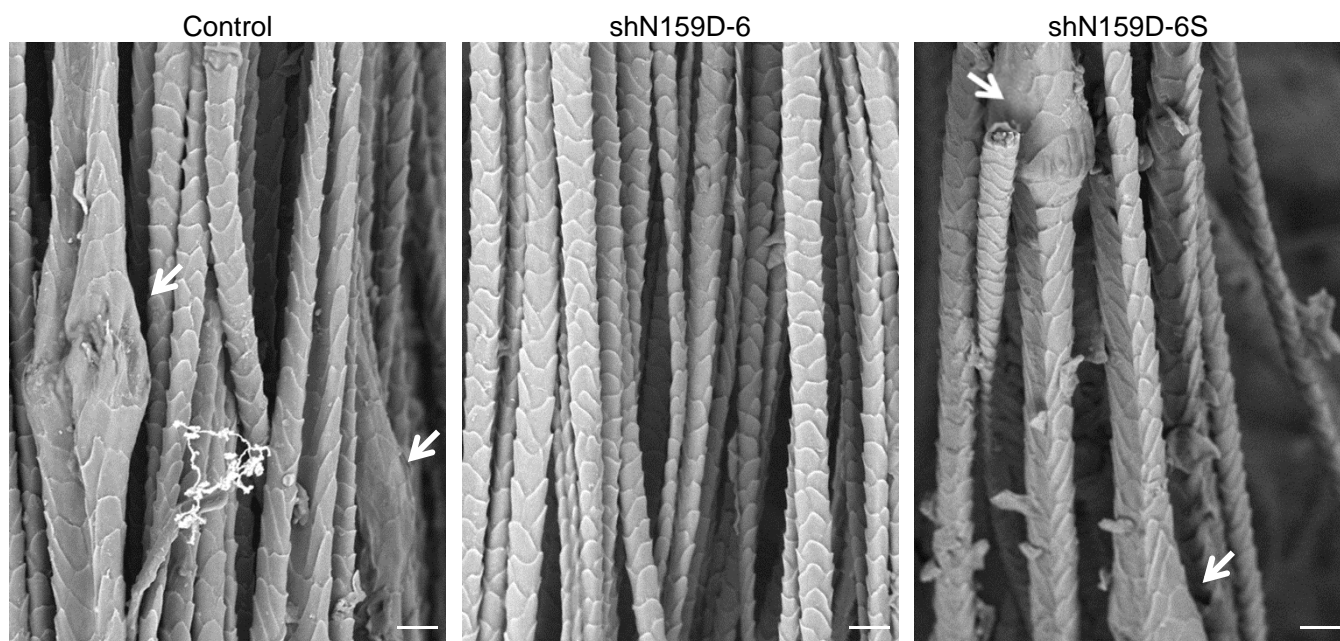
d

Primary Keratinocytes



Supplemental Figure S2. Construction of lentiviral vector and viral infection. (a) Sequence of oligos (sense) used in cloning shRNAs into pLVTHM lentiviral vector. (b) Map of lentiviral transferring vector. shRNA was inserted between Pst I and BamH I sites. (c–d) Infection of HEK293T (b) and primary keratinocytes isolated from mutant *Krt75* mice (c) at 48 hours post-infection. FACS analyses showed that >82% cells were infected with lentivirus. Scale bar: 100 μ m.

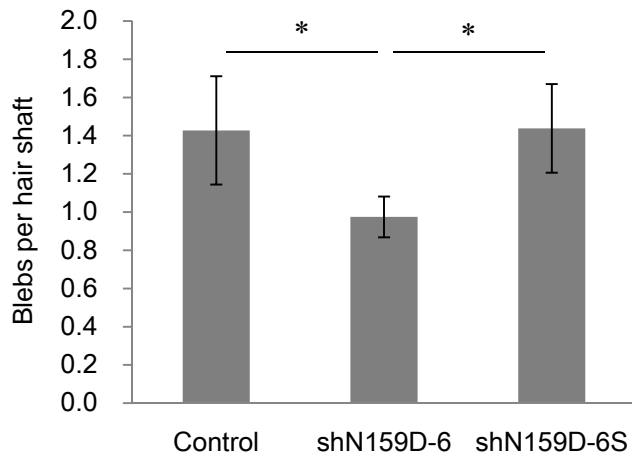
Fig. S3



Supplemental Figure S3. Examination of hair shaft by scanning electron microscopy.

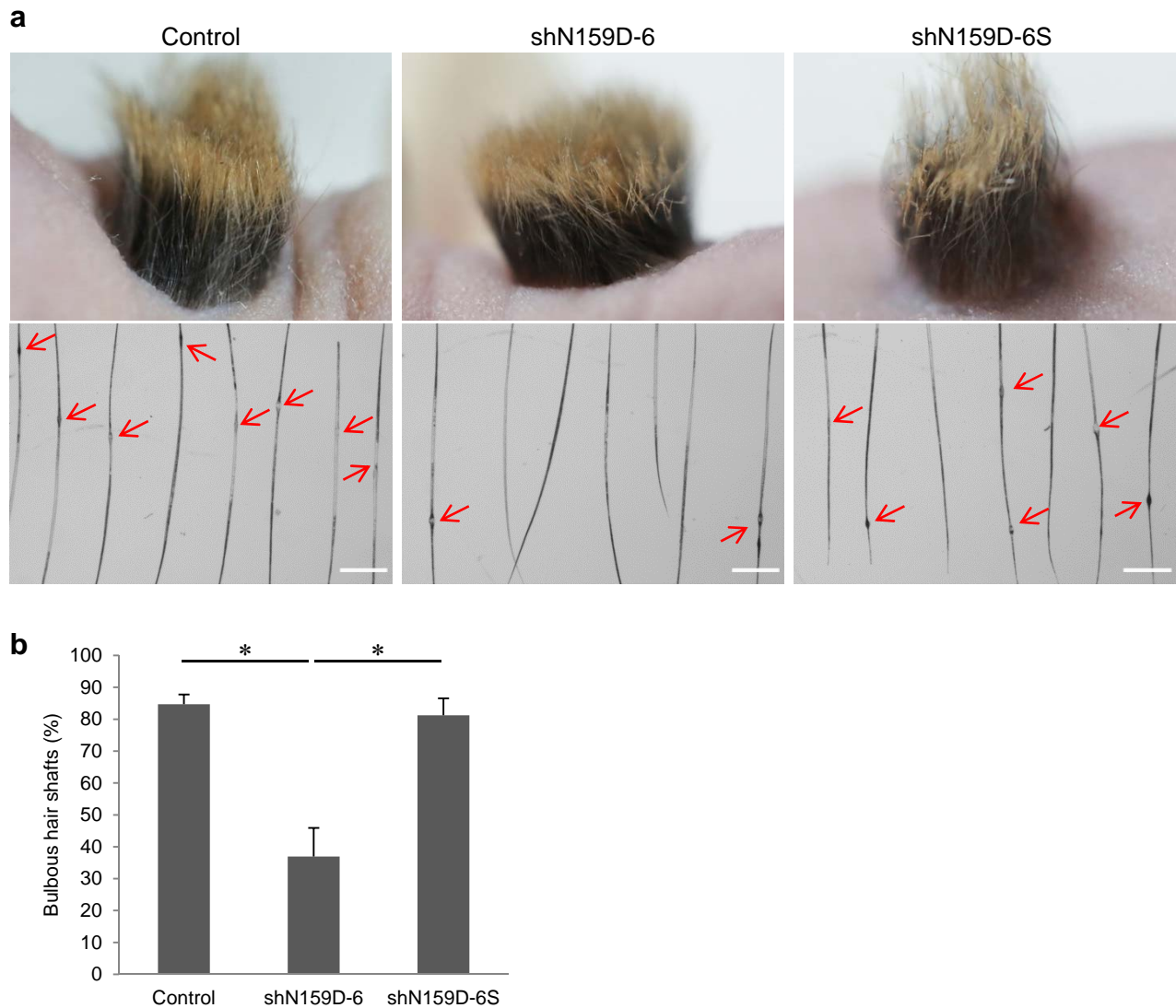
Representative micrographs of hair regenerated with homozygous mutant *Krt75* keratinocyte progenitor cells that were not infected with lentiviral vector (Control), shD159D-6 lentiviral vector, or scrambled (shD159D-6S) lentiviral vector. Arrows point to blebs characteristic of mutant *Krt75* mice. Scale bar: 20 μm .

Fig. S4



Supplemental Figure S4. Number of blebs per hair shaft at one month post-grafting. Hair regenerated with non-infected cells (Control), shN159D-6 lentiviral vector infected cells, and scrambled (shN159D-6S) lentiviral vector-infected cells contained 1.43 ± 0.28 , 0.97 ± 0.11 , and 1.44 ± 0.23 blebs per hair shaft, respectively, at one-month after grafting. Asterisk, $P < 0.01$.

Fig. S5



Supplemental Figure S5. Phenotypes of hair regenerated with shRNA-modified homozygous mutant *Krt75* keratinocyte progenitor cells at 3 months post-grafting. (a) Representative appearance of hair regenerated with non-infected cells (a, Control), shN159D-6 lentiviral vector-infected cells (b), and scrambled (shN159D-6S) lentiviral vector-infected cells (c) at three months of grafting. Arrows point to bulbous lesions along the hair shaft. (b) Quantification of hair shafts containing blebs. Asterisk, $P < 0.05$. Scale bar: 500 μm .