Supplemental Material

Figure legends

Figure S1. Generic strategy for exon deletion in *COL7A1* cDNA. As *COL7A1* mutations in RDEB are largely familial [28], our first aim was to develop a strategy that can be used to delete any disease-related exons from *COL7A1*. Low expression of collagen VII and variable efficiency of AONs make testing of collagen VII functionality after exon skipping or exon deletion in patient cells challenging. To overcome this hurdle we designed a strategy that promotes strong expression of the internally deleted collagen VII variant, which facilitates characterization of its functionality. (**a**) Small fragments of *COL7A1* cDNA were obtained by digestion with restriction enzymes and ligated into a new vector (1). Deletion was performed by two PCRs with overlapping primers surrounding the target exon (in orange): one from the beginning of the cDNA (in green) to the 5' of the target exon, and a second from the 3' of target exon to the end (in blue) (2). An overlap PCR was then used to fuse the two products, (3), and the exon deleted product was inserted into a new vector (4). Finally, this product was extracted and ligated together with the rest of *COL7A1* into pcDNA3.1 (5). The strategy we devised here allows generation of internally deleted collagen VII variants in only a few steps that make efforts for characterization of exon skipped or exon deleted collagen VII feasible in a limited time. (**b**) Sanger sequencing of exons surrounding exon 13 and 105, respectively, before and after deletion from the corresponding mutant constructs.

Figure S2. Collagen VII variants retain ability to bind laminin 332. Various concentration of WT, Δ13 or Δ105 collagen VII were used (0.27 to 70 nM) to bind a

surface coated with 250 ng of laminin 332. The data were normalized to the maximal signal recorded. Kd values show no significant difference between the collagen VII variants and reveal that binding of collagen VII to laminin 332 is not disturbed by deletion amino acids encoded by exon 13 or 105.

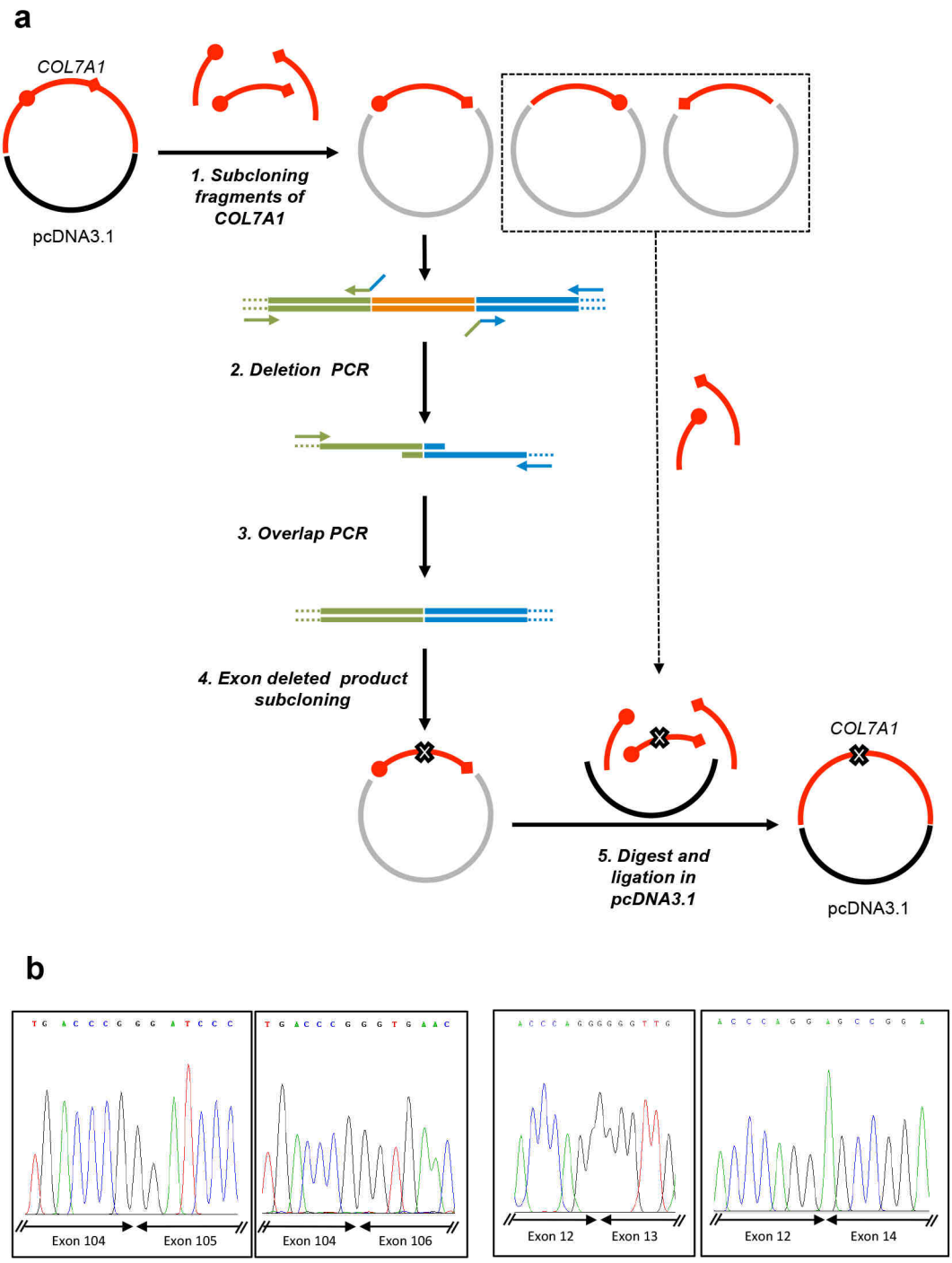
a
COL7A1
pcDNA3.1
1. Subcloning fragments of COL7A1
2. Deletion PCR
3. Overlap PCR
4. Exon deleted product subcloning
5. Digest and ligation in pcDNA3.1
COL7A1
pcDNA3.1
b
Exon 104
Exon 105
Exon 104
Exon 106
Exon 12
Exon 13
Exon 12
Exon 14

Figure S1

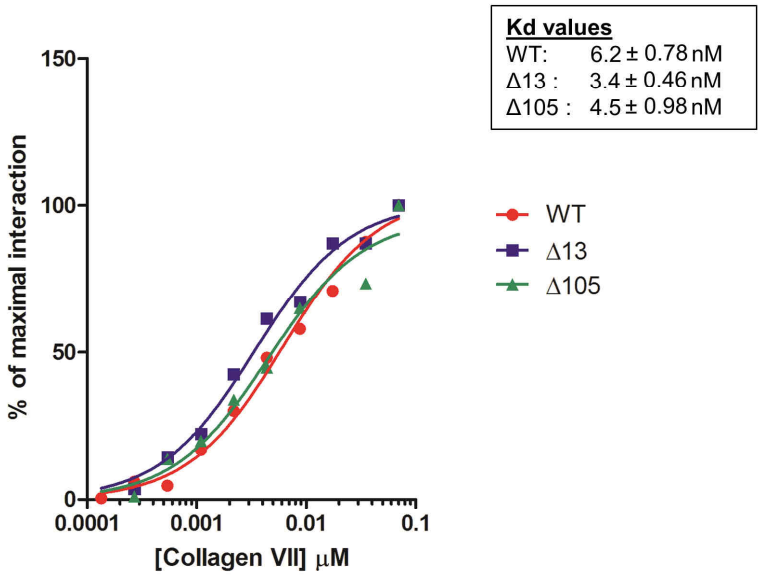
Kd values
WT: 6.2 ± 0.78 nM
Δ13 : 3.4 ± 0.46 nM
Δ105 : 4.5 ± 0.98 nM
WT
Δ13
Δ105
% of maximal interaction
150
100
50
0
0.0001
0.001
0.01
0.1
[Collagen VII] μM

Figure S2