

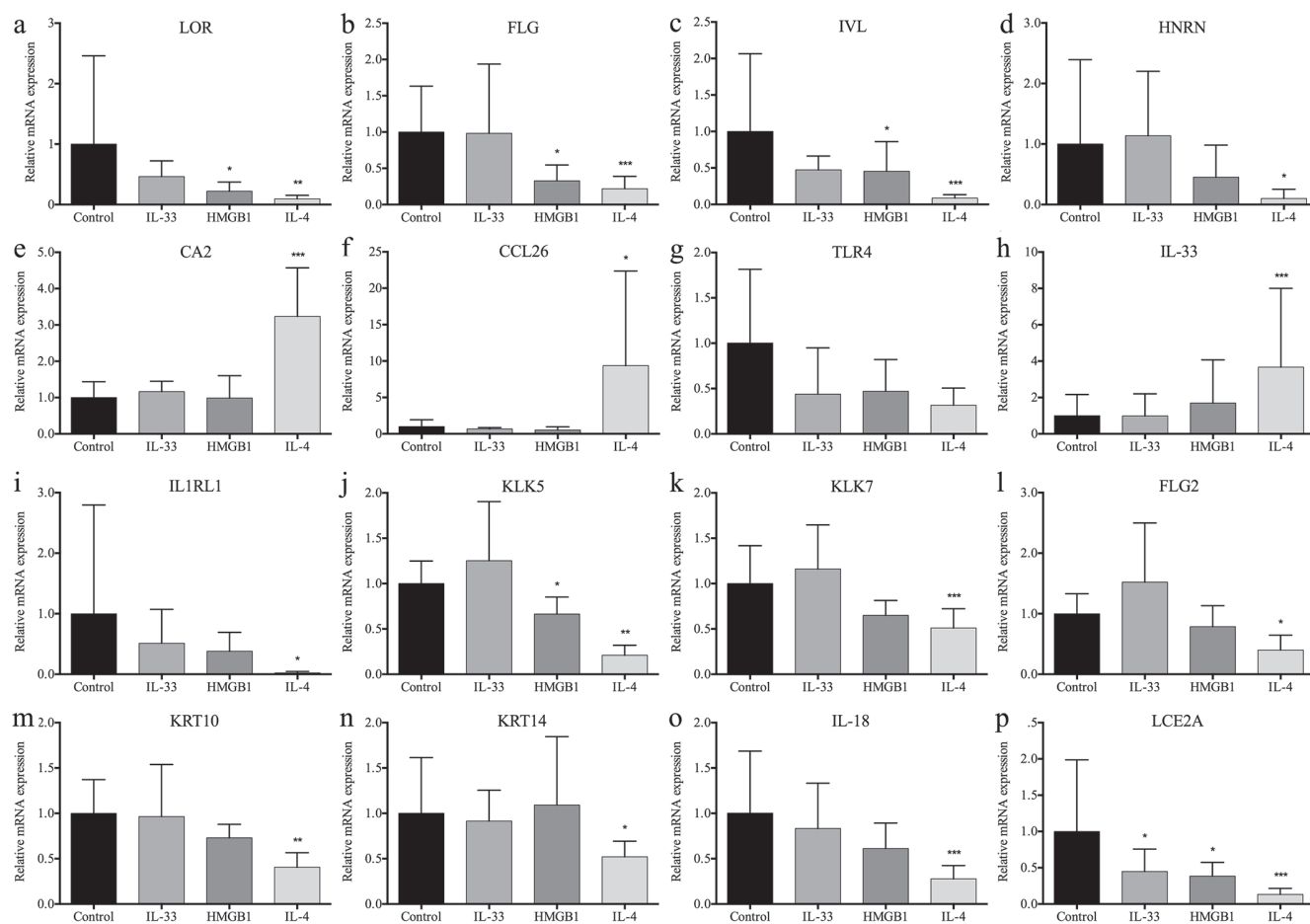


Fig. S1. mRNA expression profiles in human epidermis equivalents (n=7). (a) LOR: loricrin, (b) FLG: flaggrin, (c) IVL: involucrin, (d) HNRN: hornerin, (e) CA2: carbonic anhydrase II, (f) CCL26: chemokine (C-C motif) ligand 26, (g) TLR4: toll-like receptor 4, (h) IL-33: interleukin-33, (i) IL1RL1: interleukin-1 receptor-like 1 (ST2), (j) KLK5: kallikrein 5, (k) KLK7: kallikrein 7, (l) FLG2: filaggrin 2, (m) KRT10: keratin 10, (n) KRT14: keratin 14, (o) IL-18: interleukin-18, (p) LCE2A: late cornified envelope 2A. HMBG1: high mobility group box 1 protein, IL-4: interleukin-4. Graphs show the relative (to unstimulated control) mean + standard deviation of measured mRNA levels. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ compared with control.

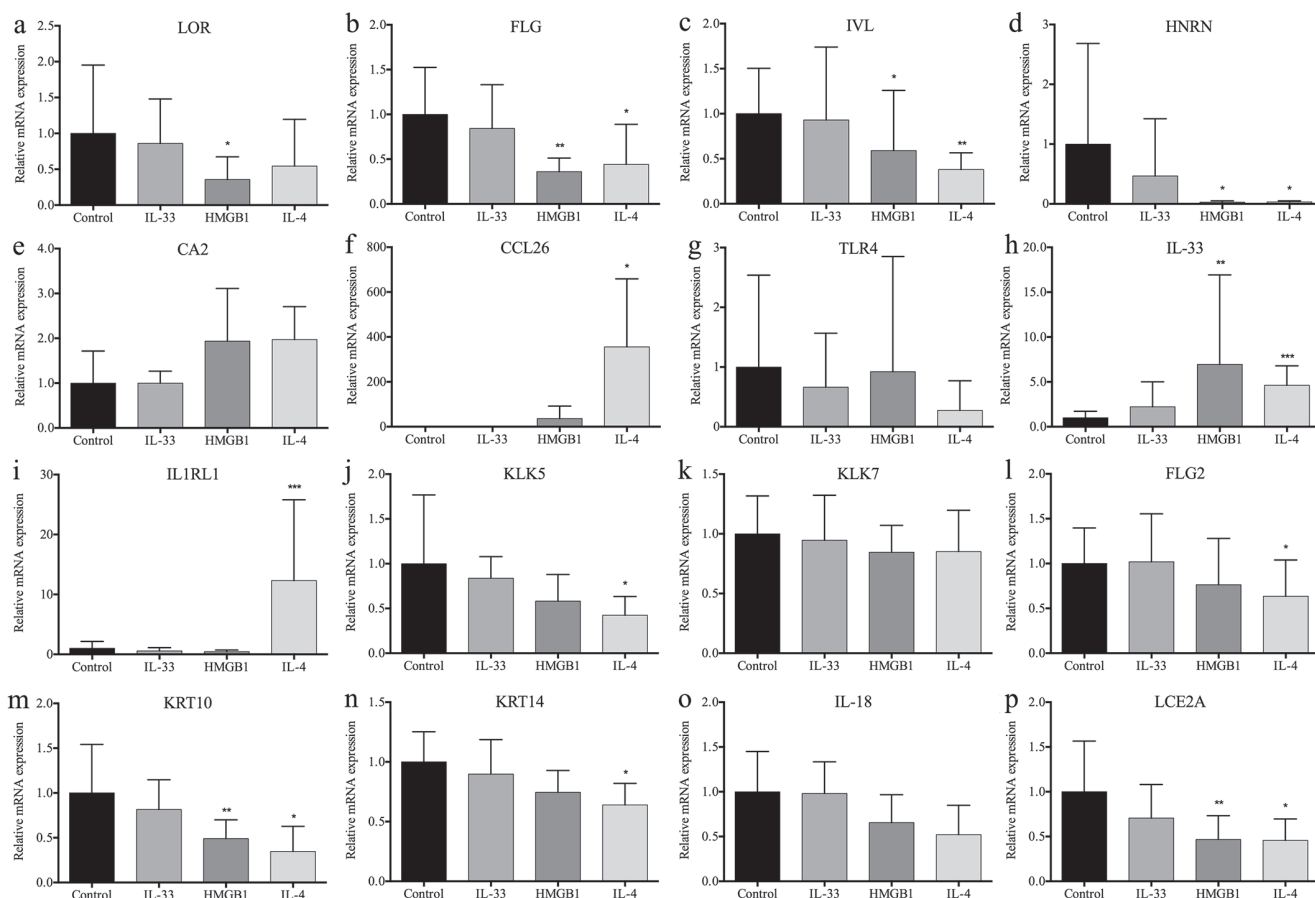


Fig. S2. mRNA expression profiles in human skin equivalents (n = 6). (a) LOR: loricrin, (b) FLG: filaggrin, (c) IVL: involucrin, (d) HNRN: hornerin, (e) CA2: carbonic anhydrase II, (f) CCL26: chemokine (C-C motif) ligand 26, (g) TLR4: toll-like receptor 4, (h) IL-33: interleukin-33, (i) IL1RL1: interleukin-1 receptor-like 1 (ST2), (j) KLK5: kallikrein 5, (k) KLK7: kallikrein 7, (l) FLG2: filaggrin 2, (m) KRT10: keratin 10, (n) KRT14: keratin 14, (o) IL-18: interleukin-18, (p) LCE2A: late cornified envelope 2A. HMBG1: high mobility group box 1 protein, IL-4: interleukin-4. Graphs show the relative (to unstimulated control) mean + standard deviation of measured mRNA levels. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ compared with control.

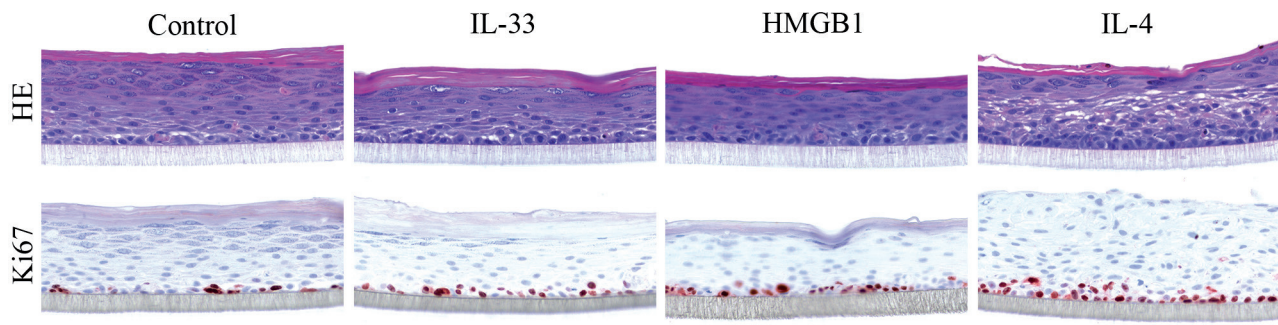


Fig. S3. Epidermal morphology and Ki67-positivity of human epidermis equivalents (n = 7). Representative immunohistochemical Ki67 and haematoxylin & eosin (H&E) stainings upon interleukin (IL)-33 (100 ng/ml), high mobility group box 1 protein (HMGB1) (100 μ M) or IL-4 (50 ng/ml) stimulation. Scale bar: 100 μ m.

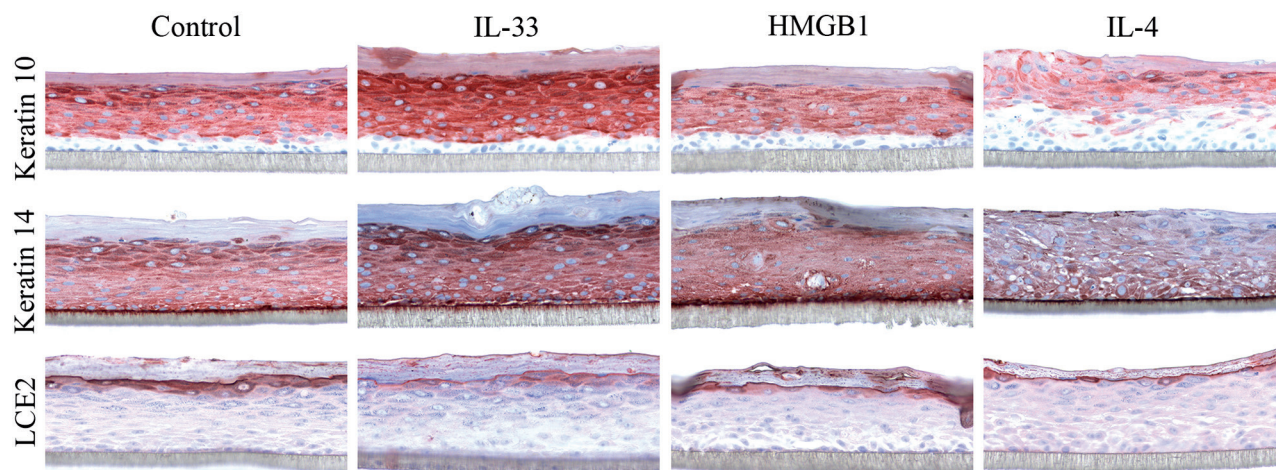


Fig. S4. The protein expression of late cornified envelope 2A protein, keratin 10 and keratin 14 in the upper epidermis of human epidermis equivalents (HEE) (n = 7). Representative LCE2A, keratin 10 and keratin 14 immunohistochemical stainings upon interleukin (IL)-33 (100 ng/ml), high mobility group box 1 protein (HMGB1) (100 μ M) or IL-4 (50 ng/ml) stimulation. No convincing reduction of LCE2A protein expression was observed from either stimulation. IL-4 stimulation resulted in a clear reduction of keratin 10 staining intensity in the HEE model, whereas keratin 10 and keratin 14 stainings in IL-33 and HGBM1 stimulated equivalents were inconclusive compared with unstimulated controls. Scale bar: 100 μ m.

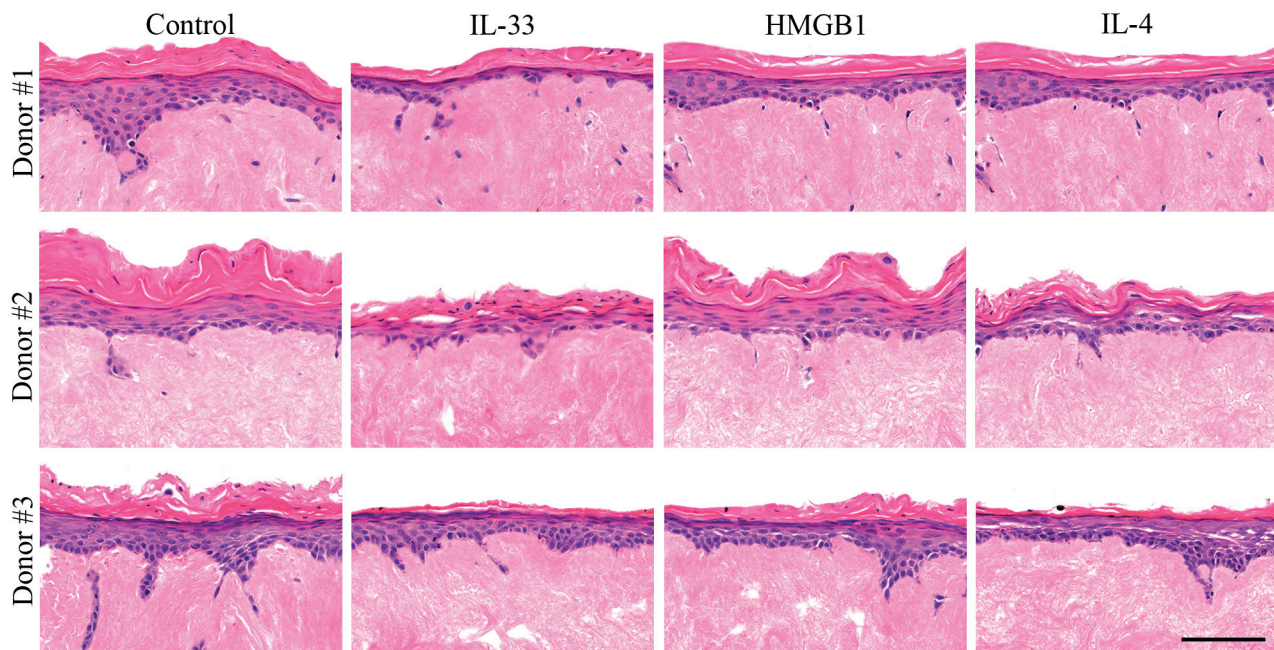


Fig. S5. Epidermal morphology of human skin equivalents (n = 6). Representative haematoxylin & eosin stainings upon IL-33 (100 ng/ml), high mobility group box 1 protein (HMGB1) (100 μ M) or interleukin (IL)-4 (50 ng/ml) stimulation. Scale bar: 100 μ m.

Table SI. Primer sequences of all genes examined by real-time quantitative PCR

HUGO gene symbol	Description of gene/protein	Forward primer	Reverse primer
<i>KRT10</i>	Keratin 10	tggtcaatgaaaagagcaagga	gggattgttcaaggccagtt
<i>KRT14</i>	Keratin 14	ggcctgctgagatcaaagactac	cactgtggctgtgagaatcttgtt
<i>MKI67</i>	Ki-67	aaaccaacaaagaggaacacaaatt	gtctggagcgagggatattc
<i>IVL</i>	Involucrin	acttatttcgggtccgctaggt	gagacatgtagaggagagagtaag
<i>LOR</i>	Loricrin	aggtaagacatgaaggattgcaa	ggcaccgatgggcttagag
<i>FLG</i>	Pro-filaggrin	acttactgagtttctctgatgggtatt	tccagacttgagggtcttttctg
<i>FLG2</i>	Filaggrin-2	accagggttcacttaacttgca	atgacatccactgtgtctggatc
<i>HRNR</i>	Hornerin	tacaaggcgctacactgtcatc	atctggatcgtttggattcttcag
<i>TLR4</i>	Toll-like receptor 4	ggtagtaattccatgggtgacta	ttccctctgactggaagct
<i>LCE2A</i>	Late cornified envelope 2A	ggacctgtcccagagtgtg	gatccaggatgggctcttg
<i>RPLP0</i>	Ribosomal phosphoprotein P0	caccattgaaatcctgagtgatgt	tgaccagccaaaggagaag
<i>CA2</i>	Carbonic anhydrase II	aacaatgggtcatgctttcaacg	tgtccatcaagtgaacccag
<i>KLK5</i>	Kallikrein 5	tgctctgacacagccttgct	gggtgggtcacaggaaacatcat
<i>KLK7</i>	Kallikrein 7	gcaccccgactccaagaa	cagggtacctctgcacaccaa
<i>IL-33</i>	Interleukin 33	ggaggcctgttactttaggagaga	aggcagcgagtaccagatgtc
<i>IL-18</i>	Interleukin 18	atcgcttctctcgcaaca	cattgccacaaagttgatgca
<i>IL1RL1</i>	Interleukin-1 receptor-like 1 (ST2)	tggtttaagaattgtcaggctcttc	gcgtcctcagtcacattatca
<i>CCL26</i>	Chemokine (C-C motif) ligand 26	cctgggtgcgaagctatgaa	ttgcctctttgttagtgaatatcac

HUGO; HUman Genome Organisation;