Epidermal SIRT1 loss disrupts skin barrier integrity and sensitizes mice to epicutaneous allergen challenge

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Supplemental Information:

Supplemental Tables: Table S1: related to Figures 2 and 5

Supplemental Figures: Fig. S1-S2

Fig. S1, related to Fig. 1

Fig. S2, related to Fig. 2

Fig. S3, related to Fig. 6

Supplemental Table S1: related to Figures 2 and 5

Table S1: Genes that are up- or down-regulated in siSIRT1 NHEK cells as compared with NC control cells by greater than two fold.

Genes	Fold (siSIRT1/NC)
Ribosomal protein L4 (RPL4)	0.33
Filaggrin	0.41
Glycoprotein (transmembrane) nmb (GPNMB)	0.44
Cyclin-dependent kinase inhibitor 1C (p57)	0.46
Lymphocyte antigen 6 complex, locus D (E48)	0.46
MDC1	0.46
CYP1B1	0.48
Lymphocyte antigen (HLA-G3)	0.49
Cyclin L1 (CCNL1)	2.73

Supplemental Figures: legends

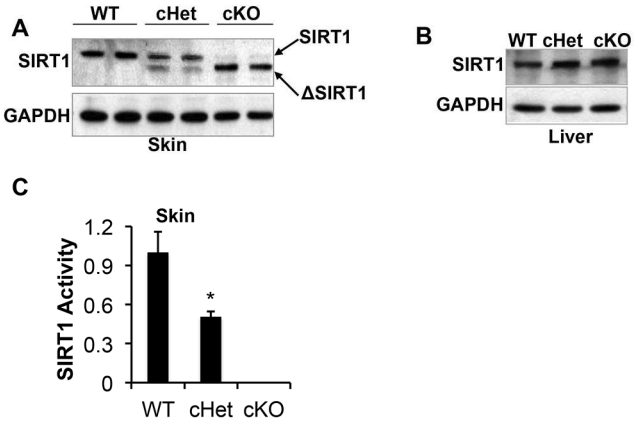
Fig. S1, related to Figure 1. SIRT1 protein level and activity in skin from SIRT1 WT, cHet, and cKO mice. A-B, Immunoblot analysis of SIRT1 and GAPDH in skin (A) and liver (B) from WT, cHet and cKO mice at 4-6 weeks of age. The upper band in the SIRT1 blot in A shows the wild-type SIRT1 protein (SIRT1), whereas the lower band shows the nonfunctional truncated protein results from the excision of the conserved Sir2 motif of the SIRT1 catalytic domain (ΔSIRT1). C, Fluorometric assay of SIRT1 activity in the skin from WT, cHet, and cKO mice (n =3) at 4-6 weeks of age. From *Ming M, Soltani K, Shea CR, Li X, He YY. Dual role of SIRT1 in UVB-induced skin tumorigenesis. Oncogene. 2014:doi: 10.1038/onc.2013.583. [Epub ahead of print]*. PMCID: PMC3465498.

Fig. S2, related to Figure 2. Effect of SIRT1 knockdown in the mRNA levels of epidermal differentiation genes, filaggrin, involucrin, keratin 14, keratin 5, desmoglein 1, desmoglein 2, desmoglein 3, KLK5, KLK7, KLK8, KLK10, KLK11, KLK12, KLK13, matriptase, and SPINK5.

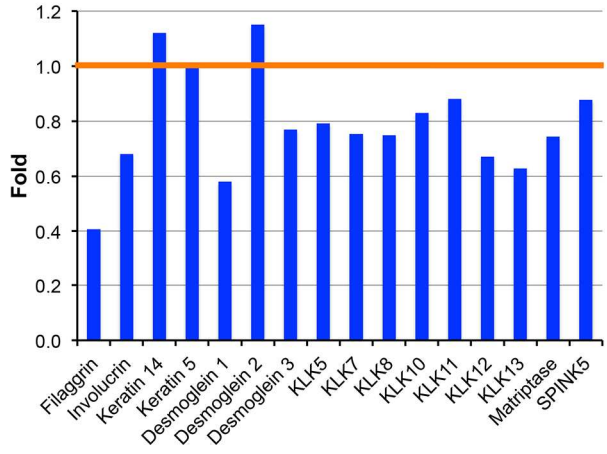
Fig. S3, related to Figure 6. Role of AKT in AhR regulation of filaggrin. A, Immunoblot analysis of filaggrin, CYP1B1, p-AKT, AKT, and GAPDH in HaCaT cells treated with BaP (10 μM) for 48h. B, Immunoblot analysis of filaggrin, p-AKT, AKT, CYP1B1, and GAPDH in HaCaT cells treated with vehicle (V), BaP (10 μM), LY (10 μM), or the combination of BaP and LY. C, Immunoblot analysis of filaggrin, p-AKT, AKT, CYP1B1, and GAPDH in HaCaT cells transfected with siRNA targeting AKT1 (siAKT1) or negative control (NC) and then treated with vehicle (V) or BaP (10 μM).

Ming *et al* Supplemental Figure S1: related to Figure 1

From Ming M, Soltani K, Shea CR, Li X, He YY. Dual role of SIRT1 in UVB-induced skin tumorigenesis. Oncogene, In press, 2014. PMCID: PMC3465498.



Ming *et al* Supplemental Figure S2: related to Figure 2



Ming *et al* Supplemental Figure S3: related to Figure 6