Supplementary Materials:

1. External Appearance and Pathological Changes in Mouse Skin After UV Irradiation

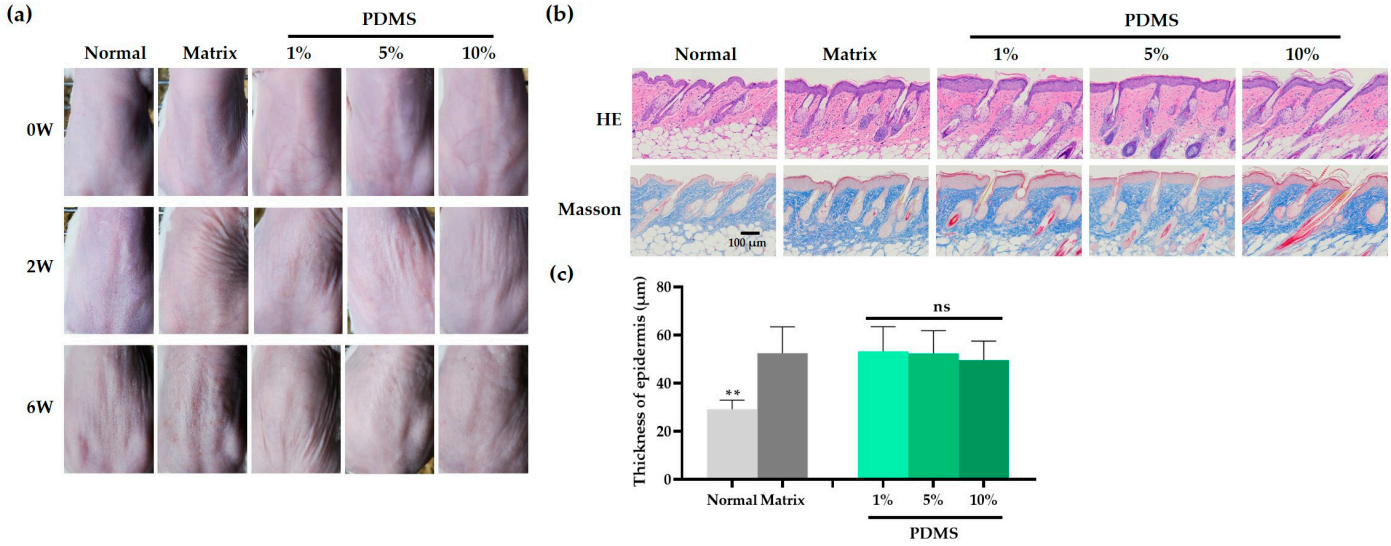


Figure S1 *Effect of PDMS on skin appearance of UV - Irradiated mice. (a) Characteristics of mouse skin after oxidative damage. (b) HE & Masson staining of skin sections induced by UV. Scale bar = 100 μm. (c) Thickness of epidermal skin. n = 3, mean ± SD, **p < 0.05, **p < 0.01, ***p < 0.001 vs. Matrix.*

2. Changes of AGEs content in mice skin after ultraviolet irradiation

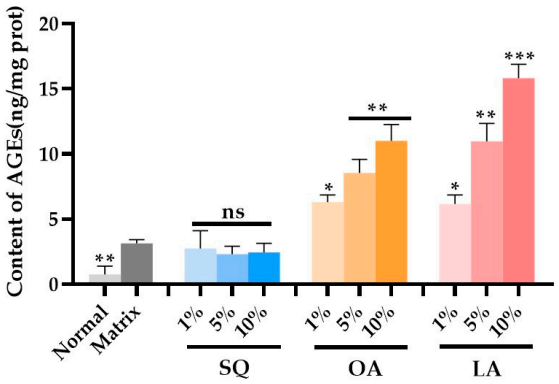


Figure S2 Changes of AGEs content in mice skin after ultraviolet irradiation. n = 3, mean ± SD, *p < 0.05, **p < 0.01, ***p < 0.001 vs. Matrix.

3. Expression of genes involved in sz95 lipid secretion

Cell culture and drug administration were carried out as described in Sections 2.3. After 72 - hour drug administration, the cell plates were collected for QPCR analysis . The primer sequences are displayed below (Table S1):

Table S1. The primer sequences of SREBP1, ACD1, ACC, PPARγ.

Primer name	Primer sequence
SREBP1	F:5′- ACAGTGACTTCCCTGGCCTAT-3′
	R:5′- GCATGGACGGGTACATCTTCAA -3′
SCD1	F:5′- CGATATGCTGTGGTGCTTA-3′
	R:5′- AAGGAGTGGTGGTAGTTGT -3′
ACC	F:5′- CATGCGGTCTATCCGTAGGTG-3′
	R:5′- GTGTGACCATGACAACGAATCT -3′
PPARγ	F:5′- TTCGCAATCCATCGGCGAG -3′
	R:5′- CCACAGGATAAGTCACCGAGG -3′

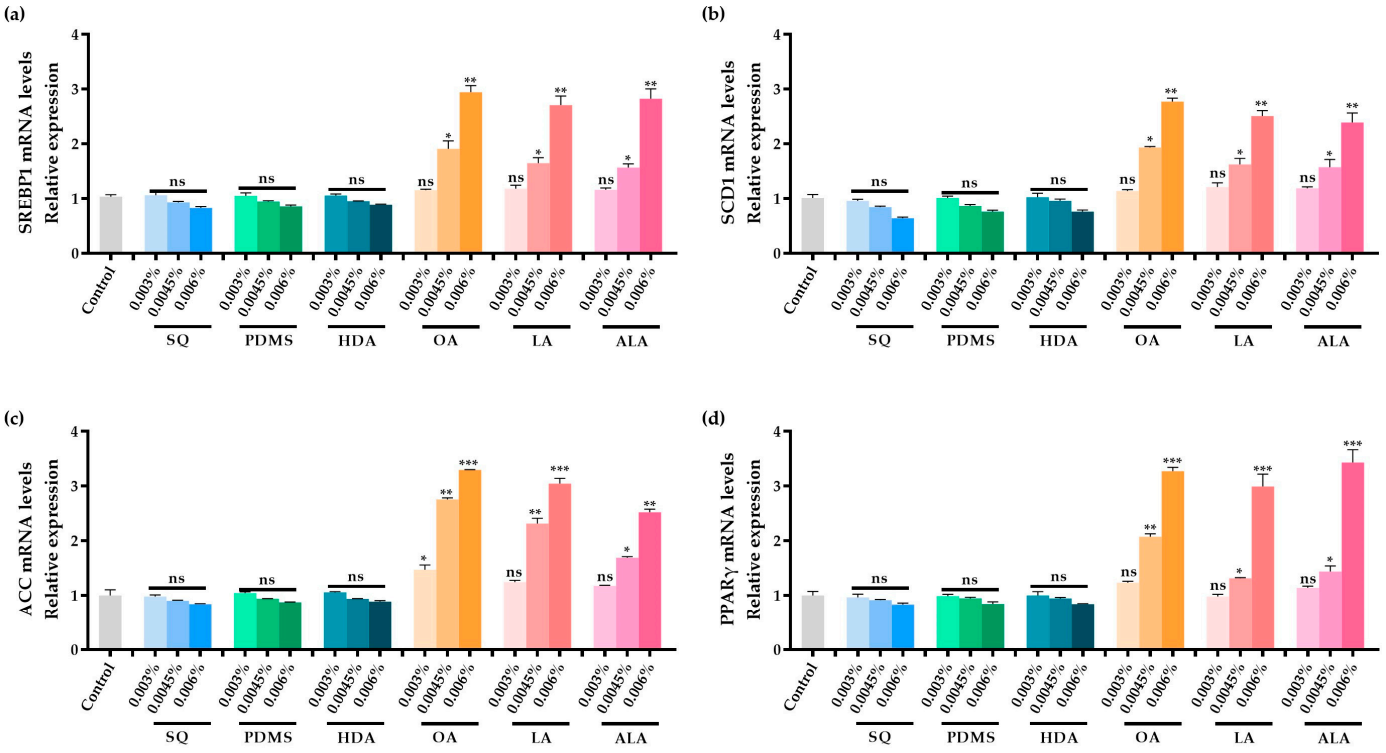


Figure S3. Effects of saturated hydrocarbon/unsaturated fatty acids on the expression of SREBP1, SCD1, ACC, and PPARγ genes in SZ95 cells. (a) SREBP-1 mRNA levels Relative expression. (b) SCD1 mRNA levels Relative expression. (c) ACC mRNA levels Relative expression. (d) PPARγ mRNA levels Relative expression. n = 3, mean ± SD, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ vs. Control.

4. Effects of PDMS, HDA and ALA on lipid droplet synthesis and lipid metabolism in SZ95 cells

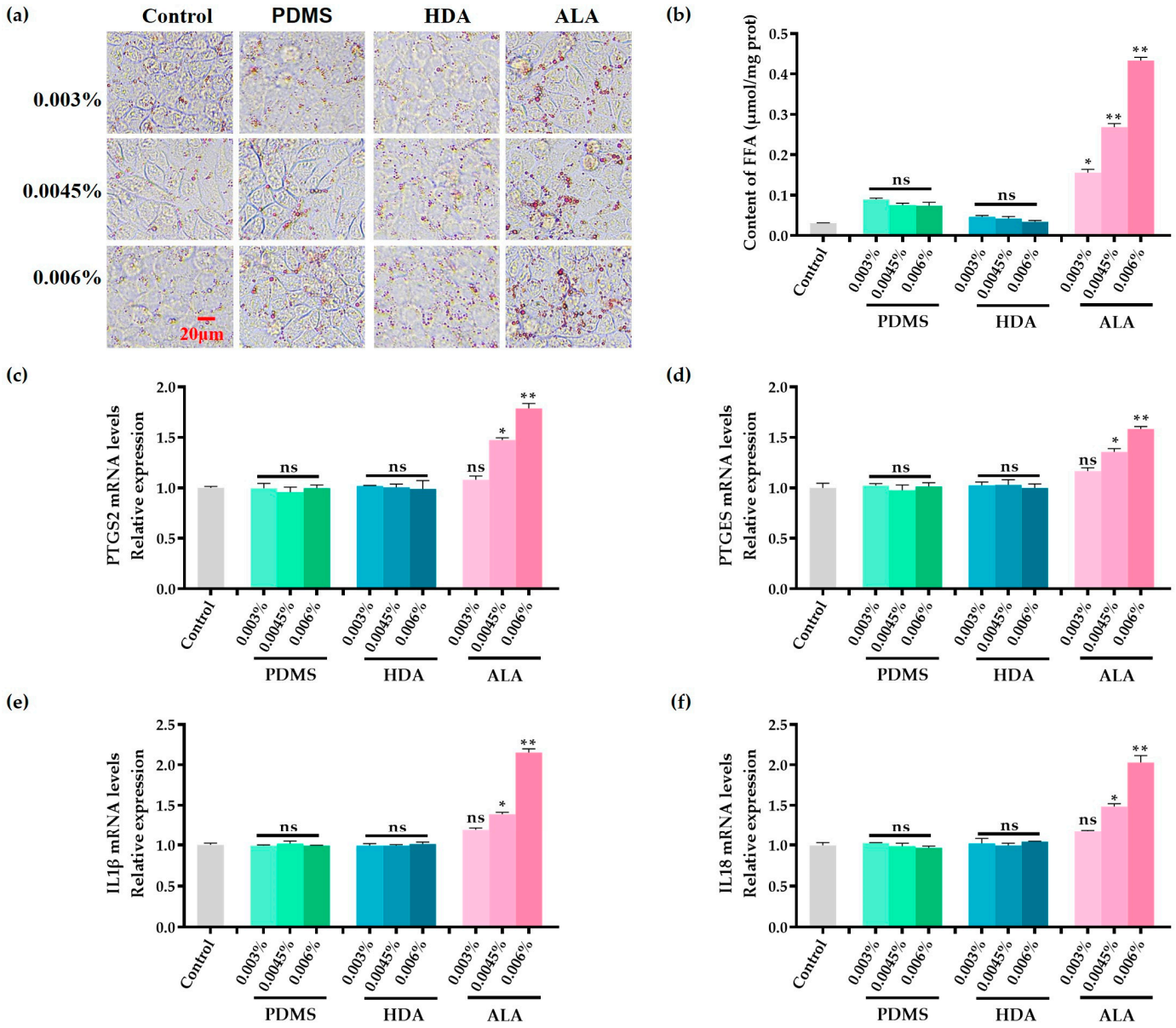


Figure S4. Effect of different concentrations of PDMS, HDA and ALA on lipid droplet synthesis and Lipid metabolism in SZ95 cells. (a) Oil red O staining of intracellular lipid droplets in SZ95 cells. Scale bar = 20 μm. (b) Detection of total free fatty acids in SZ95 cells. (c) PTGS2 mRNA levels Relative expression. (d) PTGES mRNA levels Relative expression. (e) IL1β mRNA levels Relative expression. (f) IL18 mRNA levels Relative expression. n = 3, mean ± SD, $^{**}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ vs. Control.

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