

## SUPPLEMENTARY MATERIALS

### miR-30c-1 inhibitor induces the senescence of hCECs

The number of SA- $\beta$ -gal positive cells increased in treated with miR-30c-1-3p inhibitor or miR-30c-1-5p inhibitor ( $p < 0.001$  for all; Supplementary Figure 1A–1B). Intracellular oxidative stress levels were elevated in treated with miR-30c-1-3p inhibitor or miR-30c-1-5p inhibitor ( $p < 0.001$  for all; Supplementary Figure 1C–1D). Cell viability decreased in treated with miR-30c-1-3p inhibitor or miR-30c-1-5p inhibitor ( $p = 0.004$  and  $<0.001$ ; Supplementary Figure 1E). BrdU proliferation rate decreased in treated with miR-30c-1-3p inhibitor or miR-30c-1-5p inhibitor ( $p = 0.001$  and  $<0.001$ ; Supplementary Figure 1F)

### TGF- $\beta$ 1 induces the senescence of hCECs

BrdU proliferation rate decreased at 24 h, 48 h, and 72 h compared with 0 h after TGF- $\beta$ 1 treatment ( $p = 0.026$ ,  $p = 0.047$ , and  $p = 0.023$ , respectively; Supplementary Figure 2A). Representative images of cell cycle analysis are shown in Supplementary Figure 2B. Cell cycle analysis showed that the number of cells in G0/G1

phase increased at 48 h and 72 h compared with 0 h ( $p < 0.001$  for both; Supplementary Figure 2C), while the number of cells in S phase decreased at 48 h and 72 h compared with 0 h ( $p = 0.005$  and  $p = 0.003$ , respectively; Supplementary Figure 2D), and the number of cells in G2/M phase decreased at 48 h and 72 h compared with 0 h ( $p = 0.006$  and  $p = 0.010$ , respectively; Supplementary Figure 2E). The number of SA- $\beta$ -gal positive cells increased at 24 h, 48 h, and 72 h compared with 0 h after TGF- $\beta$ 1 treatment ( $p < 0.001$ ,  $p < 0.001$ , and  $p < 0.001$ , respectively; Supplementary Figure 2F–2G). Cell size increased at 48 h and 72 h compared with 0 h ( $p = 0.005$  and  $p < 0.001$ , respectively; Supplementary Figure 2H–2I).

Intracellular oxidative stress levels were elevated by TGF- $\beta$ 1 at 48 h and 72 h compared with 0 h ( $p = 0.034$  and  $p = 0.001$ , respectively; Supplementary Figure 3A–3B). The pERK1/2 level increased over time after TGF- $\beta$ 1 treatment (Supplementary Figure 3C). The percentage of cells with depolarized mitochondrial membrane potential was elevated at 48 h and 72 h compared with 0 h ( $p = 0.002$  and  $p = 0.001$ , respectively; Supplementary Figure 3D–3E).