Supplementary Materials:

**Figure S1 Administration method of Trehalose in experimental mouse model of silicosis.** Trehalose (2 g/kg body weight) or saline was given to C57BL/6 mice by daily intraperitoneally (i.p.) administration to C57BL/6 mice after saline or CS injection for 7 days model mice. For 56 days model mice, after 7 days i.p. administration, mice were administered 3 times per week (n=14 per group).

**Figure S2 Transfection efficiency of TFEB knockdown and overexpression lentivirus (A)** Immunoblotting analysis of TFEB knockdown transfection efficiency (B) Immunoblotting analysis of TFEB overexpression transfection efficiency (n=3). **, P < 0.01. Data are shown as mean ± SD.
Figure S3 Viability of MH-S incubated with different concentrations of BAF (A), CQ (B), 3MA (C) was detected by the CCK-8 assay (n=4-6). Compared with Ctrl. *, P < 0.05; **, P < 0.01. Data are shown as mean ± SD.

Figure S4 Effects of CS and/or Tre on cell viabilities in MH-S cells after 12 h treatment. Cells were incubated with a range of Tre concentrations (0, 1, 5, 10, 50, 100 and 200 mmol/L) and/or 50 μg/cm² CS for 12 h to determine the cell survival. White, different concentrations of trehalose. Black, cells were treated with 50 μg/cm² CS and different concentrations of trehalose (n=4). Compared with Tre (0 mmol / L) *, P < 0.05; **, P < 0.01; compared with CS (50 μg/cm²) + Tre (0 mmol/L) #, P < 0.05; ##, P < 0.01. Data are shown as mean ± SD.
Figure S5 A&B MH-S cells were exposed to CS (50 μg/cm²) with or without Bafilomycin A1 (10 nmol/L) or CQ (2 μmol/L), immunoblotting analysis of LC3II (n=4). *, P < 0.05; **, P < 0.01. Data are shown as mean ± SD.

Figure S6 (A) Immunoblotting analysis of protein CTSB in BALF at day 7 and 56 after CS and Tre administration (n=4-5). (B) Immunoblotting analysis of protein CTSB in cell supernatant after CS and Tre treatment 12h (n=3). (C) Immunoblotting analysis of protein Cas3 in BALF at day 7 and 56 after CS and Tre administration (n=4-5). (D) Immunoblotting analysis of protein Cas3 in cell supernatant after CS and Tre treatment 12h (n=3).

Figure S7 Animals body weights after CS and Tre administration (n=10). Compared with Ctrl group. *, P < 0.05; **, P < 0.01. Data are shown as mean ± SD.