Supplemental Figure Legends

Supplemental Figure 1 Effects of mouse visceral ATFs on fine structures of HL-1 cells by electron microscopy at 1 week in culture. HL-1 cells cultured alone (A) have many Golgi apparatuses, rough endoplasmic reticulum and mitochondria in the cytoplasm, whereas HL-1 cells cultured with ATFs (B) gain many fine lipid droplets (L) in the cytoplasm.

Supplemental Figure 2 Effects of mouse visceral ATFs on fine structures of HL-1 cells by electron microscopy at 1 week in culture. HL-1 cells cultured alone (A) organize Z band-like structures (arrows) more prominently than HL-1 cells cultured with ATFs (B). Notice that endocrine granules (arrowheads in A) are detected in HL-1 cells cultured without ATFs.

Supplemental Figure 3 Effects of FATP1, FATP4 and CD36 antibodies, and the fatty acid palmitate on the morphology and lipid accumulation of HL-1 cells cultured with and without ATFs, respectively, at 3 days. The treatment of 25 μg/ml FATP1 (A), FATP4 (B) or CD36 antibody (C) does not abolish the ATF-induced morphology of HL-1 cells in the cocultures of ATFs and HL-1 cells. These antibodies also do not abolish the ATF-induced lipid accumulation of the cells (D). This suggests that the ATF-induced morphology and lipid accumulation of HL-1 cells may require some unknown factors except for FATP1, FATP4 and CD36, although ATFs allow HL-1 cells to increase the expression of FATP4 and CD36 together with their morphological change. The fatty acid, palmitate, at concentration of 100 μM attenuates the stratification of HL-1 cells alone similarly to ATFs, but the magnitude of the palmitate-induced lipid accumulation is greatly less than that of the ATF-affected lipid accumulation (E). H&E staining, A, B, C and upper panel of E. Oil red O staining, lower panel of E.

Supplemental Figure 4 Effects of HL-1 cells on morphology and adipokine production of mouse visceral ATFs at 1 week in culture. Many spindle-shaped cells develop from ATFs cultured alone (A1), while their development from ATFs cultured with HL-1 cells is clearly inhibited (A2). Spindle-shaped cells
express CD44 in green (A3). The same cells also express CD105 in red (A4). On the same spindle-shaped cells, CD44 and CD105 are merged, suggesting that these CD44+/CD105+ spindle-shaped cells in yellow (A5) are MSC-like cells. Lipid droplets (red) of preadipocytes are confirmed by oil red O staining (A6). The numbers of CD44+/CD105+ MSC-like cells (B) and preadipocytes (C) in the coculture of HL-1 cells and ATFs are significantly lower than those of MSC-like cells and preadipocytes in the cultures of ATFs alone. Adipokine production is measured in the supernatants of ATFs cultured with or without HL-1 cells by ELISA. Adiponectin production of ATFs cultured with HL-1 cells is significantly higher than that of ATFs cultured alone (D). Leptin production of ATFs cultured with HL-1 cells is significantly lower than that of ATFs cultured alone (E). These adipokines are undetectable in HL-1 cells cultured alone (* in D and E). A,1 and 2, H&E staining. A, 3, 4 and 5, immunofluorescence.
Supplemental Fig. 1
Supplemental Figure 2

A

HL-1 alone

B

HL-1 + ATF

N

1 μm
Supplemental Fig. 3
Supplemental Figure 4