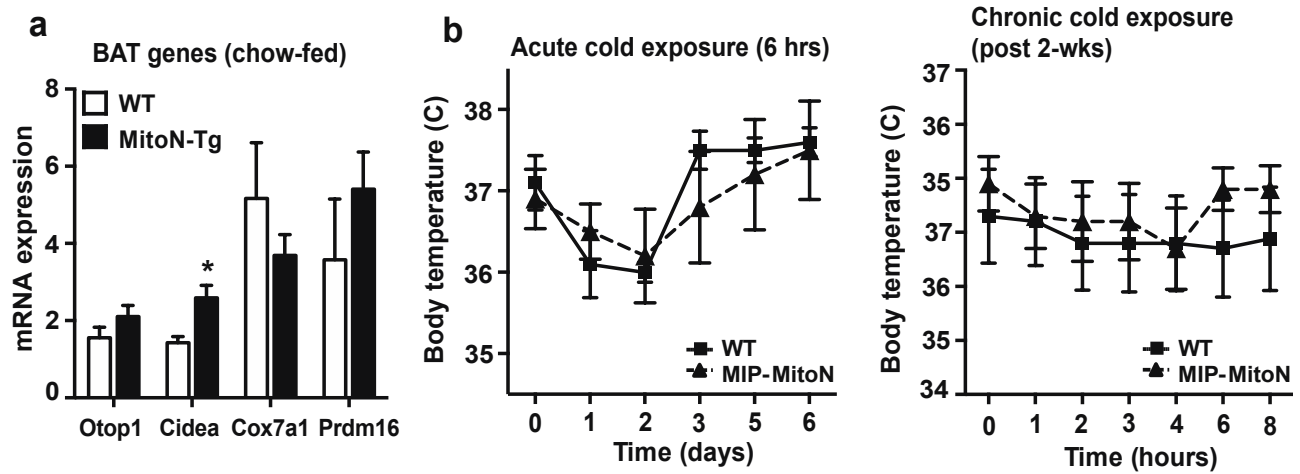


## Supplementary Information

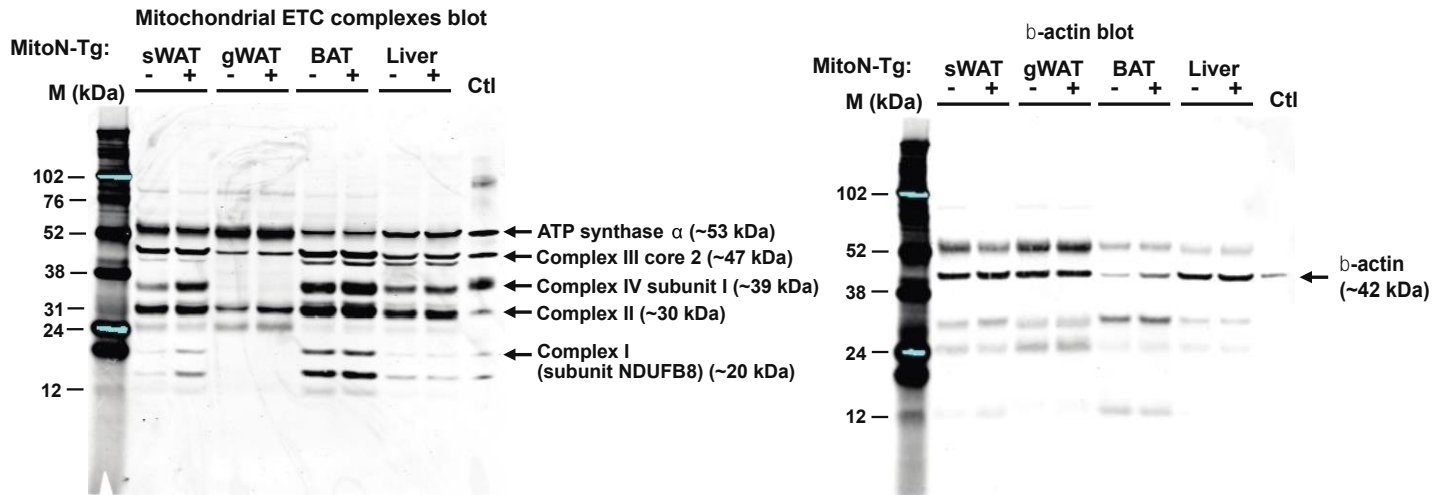
### Supplementary Figure 1



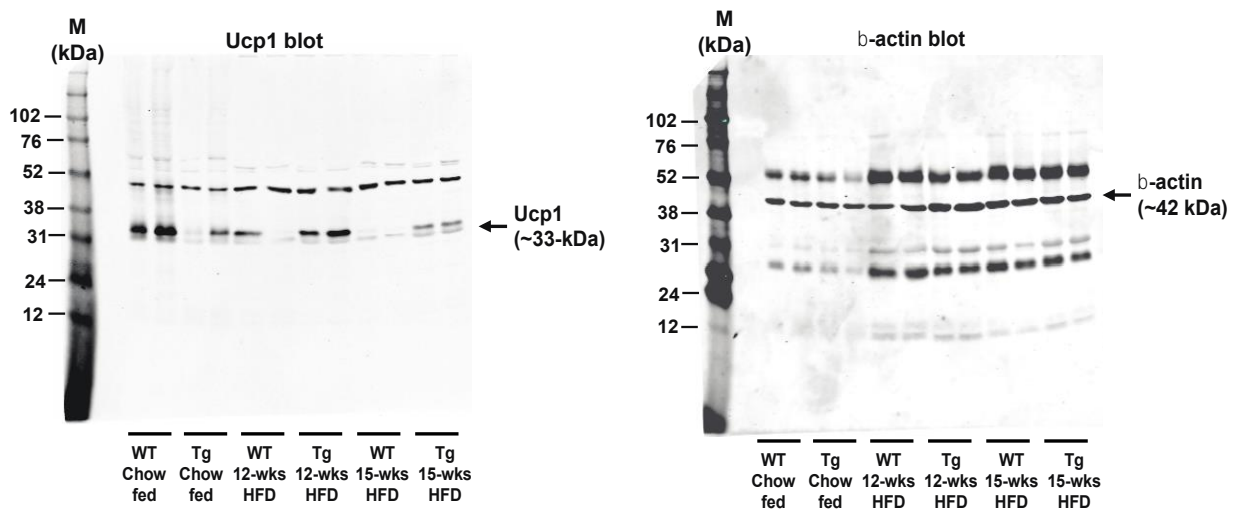
**Supplementary Figure 1.** (a) BAT-marker gene expression levels (*Otop1*, *Cidea*, *Cox7a1* and *Prdm16*) in WT sWAT and *MitoN-Tg* sWAT derived from mice that were fed a chow-diet. Data represents mean  $\pm$  s.e.m (n = 5 per group). Student's *t*-test, \* $P < 0.05$ . (b) Body-temperature ( $^{\circ}\text{C}$ ) of WT mice and *MitoN-Tg* mice either in an acute setting of cold-exposure (6 hours at  $6^{\circ}\text{C}$ ) under chow-fed conditions (left panel), or in a chronic setting of cold-exposure (2-weeks at  $6^{\circ}\text{C}$ ) under HFD-fed conditions (right panel). Data represents mean  $\pm$  s.e.m (n = 5 per group).

## Supplementary Figure 2

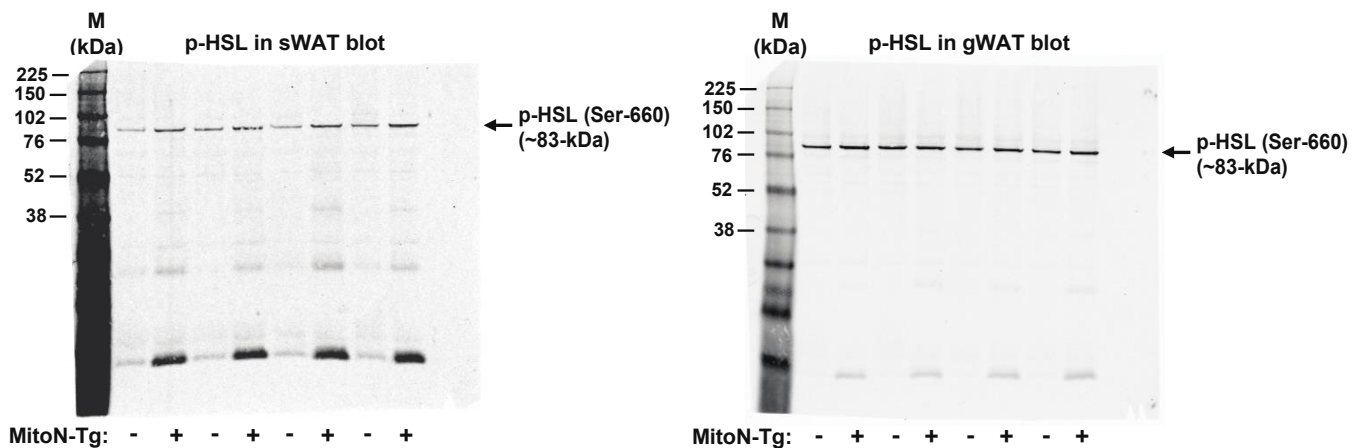
**a** Uncropped immunoblots of mitochondrial ETC complexes and b-actin in sWAT, gWAT, BAT and liver tissues (from Figure 1e)



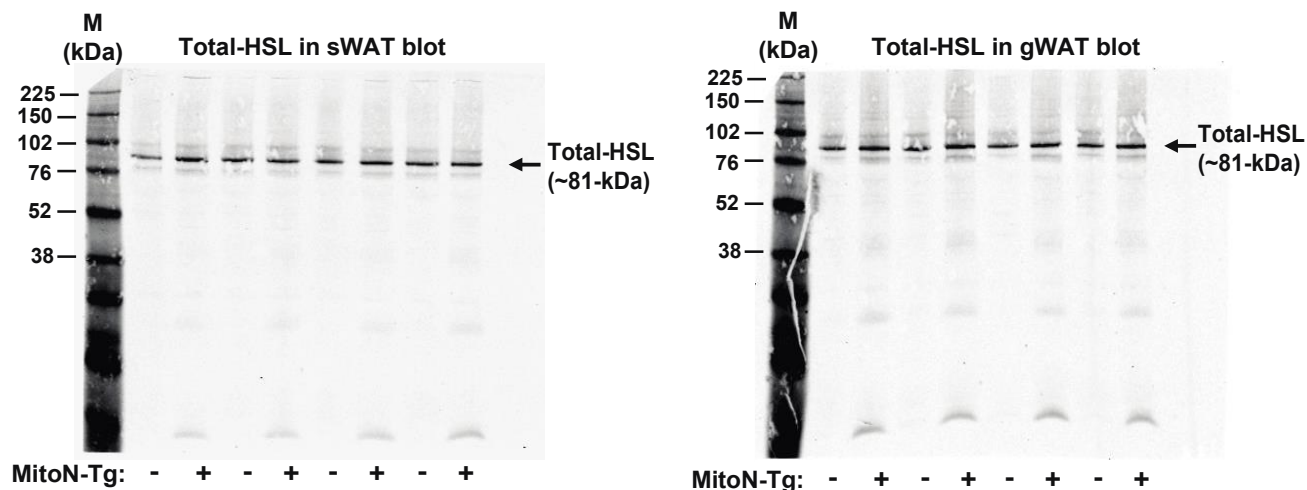
**b** Uncropped immunoblots of Ucp1 and b-actin in sWAT (from Figure 1f)



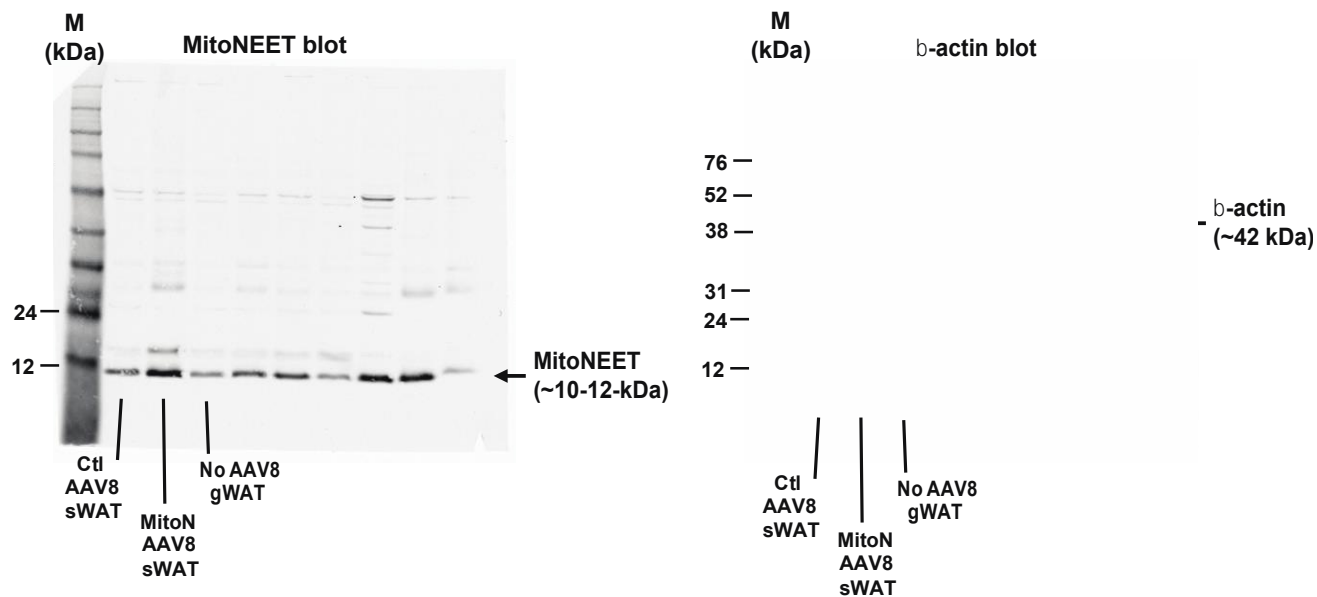
**c** Uncropped immunoblots of p-HSL in sWAT and gWAT (left) (from Figure 3h)



**d** Uncropped immunoblots of total-HSL in sWAT and gWAT (right) (from Figure 3h)



**e** Uncropped immunoblots of MitoNEET and  $\beta$ -actin in Ctl-AAV8 and MitoN-AAV8 infected sWAT, and non-infected gWAT (from Figure 6a)



**Supplementary Figure 2. Uncropped immunoblots.** (a) Immunoblot for mitochondrial electron transport chain (ETC) complexes (left panel) and  $\beta$ -actin (right panel) protein expression levels in sWAT, gWAT, BAT and liver tissues derived from WT mice and *MitoN-Tg* mice (from Figure 1e). (b) Immunoblots for Ucp1 (left panel) and  $\beta$ -actin (right panel) expression levels in sWAT from WT mice and *MitoN-Tg* mice fed either chow-diet or HFD (12-weeks or 15-weeks HFD) (from Figure 1f). (c) Immunoblots for  $\beta$ -3 stimulated protein expression of phospho-HSL (p-HSL) (Serine

(Ser)-660) in sWAT and gWAT derived from WT and *MitoN-Tg* mice (from Figure 3h). **(d)** Immunoblots for  $\beta$ -3 stimulated protein expression of total-HSL in sWAT and gWAT from WT and *MitoN-Tg* mice (from Figure 3h). **(e)** Immunoblots for mitoNEET (left panel) and  $\beta$ -actin (right panel) sWAT infected with either Ctl-AAV8 or MitoN-AAV8, in addition to uninfected gWAT (from Figure 6a). M = Molecular-weight marker (kDa).