**Supplementary Data**

**Supplementary Figure 1: Proliferation of Mss51-disrupted cells (red) compared to control (black)**. Cells were plated at indicated densities in 96-well plates and proliferation was measured over 1.5 days using the alamarBlue assay (Life Technologies, n = 12).

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**Supplementary Figure 2: PGC1 expression.** PGC1a mRNA expression was measured in control and Mss51-disrupted myotubes through the first 6 days of differentiation. Expression was normalized to expression levels in proliferating (Day 0) control cells using reference genes TBP and Tfam (n=3). \* *p* < 0.05.

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**Supplementary Figure 3: Expression of several metabolic proteins in control versus Mss51-disrupted myotubes.** Protein levels were compared by Western blot in control and Mss51-disrupted myotubes differentiated for 6 days.

