Supplementary Figure 1

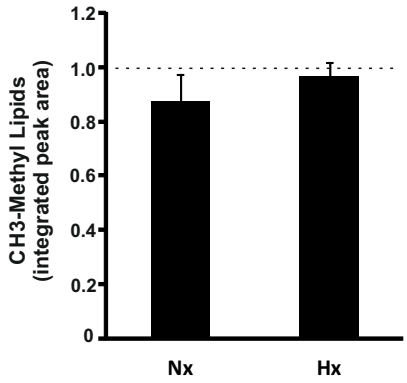

Figure S1. NMR analysis of lipid extracts revealed similar incorporation of [^{13}C] in normoxia (Nx) and hypoxia (Hx). Quantification of CH3-methyl lipids was calculated as: Peak area/number of cells * 10^5.

Supplementary Figure 2

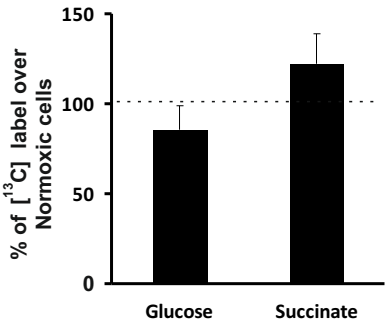

Figure S2. Mass Spectrometry metabolic profiling of aqueous extracts revealed no differences in the percentage of [^{13}C]-labeled metabolites in normoxia (Nx) and hypoxia (Hx).

Supplementary Figure 3

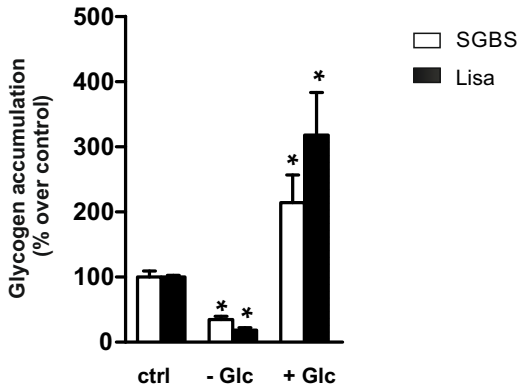

Figure S3. Glycogen content is dynamically regulated in human adipocytes. Fully differentiated SGBS and Lisa-2 adipocytes were cultured in the presence (ctrl) or in the absence of glucose (-Glc), following 24 hour-incubation with 20mM glucose and 10 nM ins (+Glc) for 24 hours, and glycogen content was determined.

Supplementary Figure 4

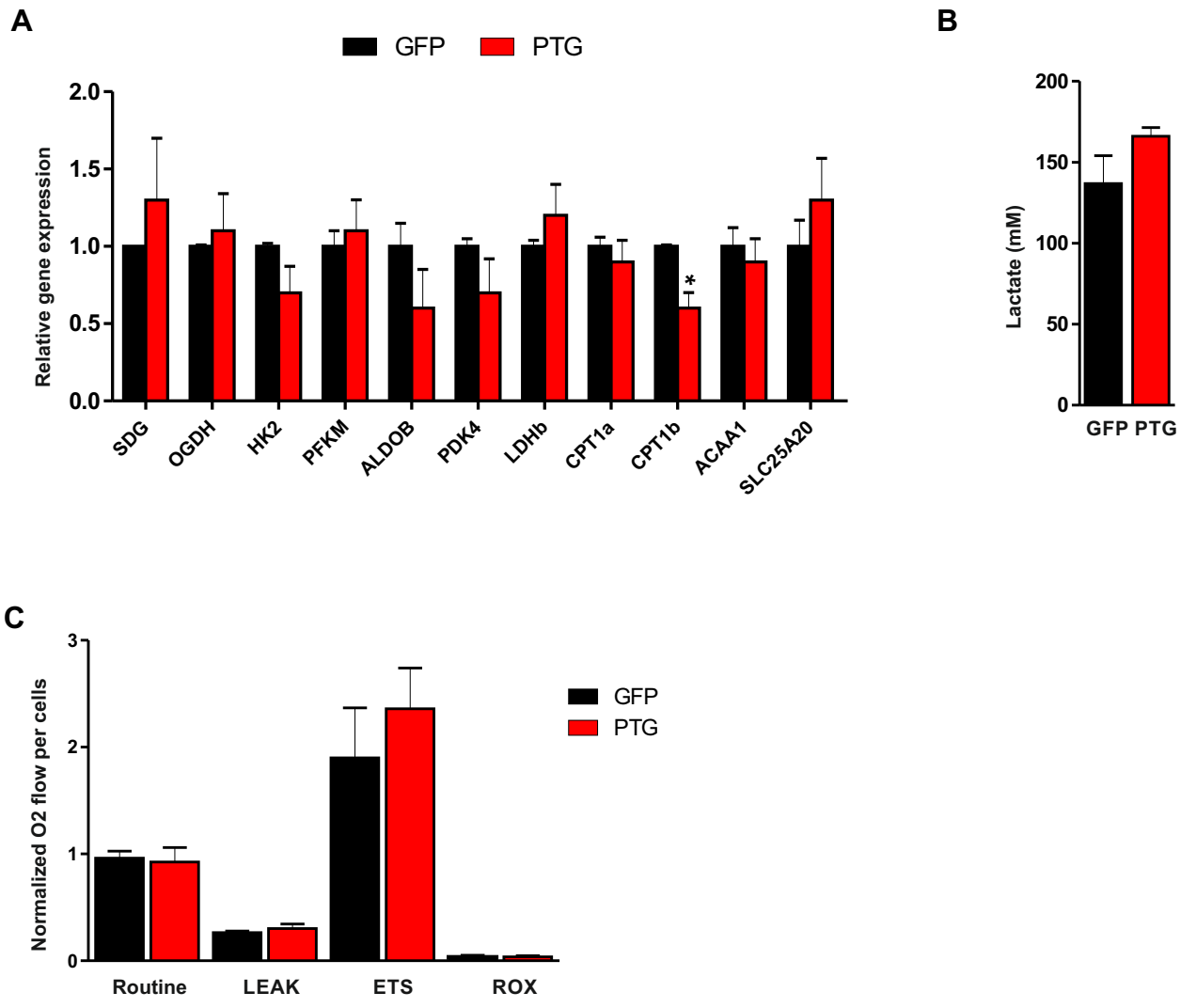

Figure S4. PTG overexpression does not impact mitochondria. Differentiated SGBS cells were transduced with Ad-GFP or Ad-PTG and **(A)** Cell extracts were subjected to gene expression analysis with a range of metabolic markers (n=4). Data are expressed as mean ± SEM. *p< 0.05. **(B)** Lactate concentration was measured from the conditioned medium of SGBS infected cells (n=3). **(C)** High-resolution mitochondrial respirometry (n=8).

Supplementary Figure 5

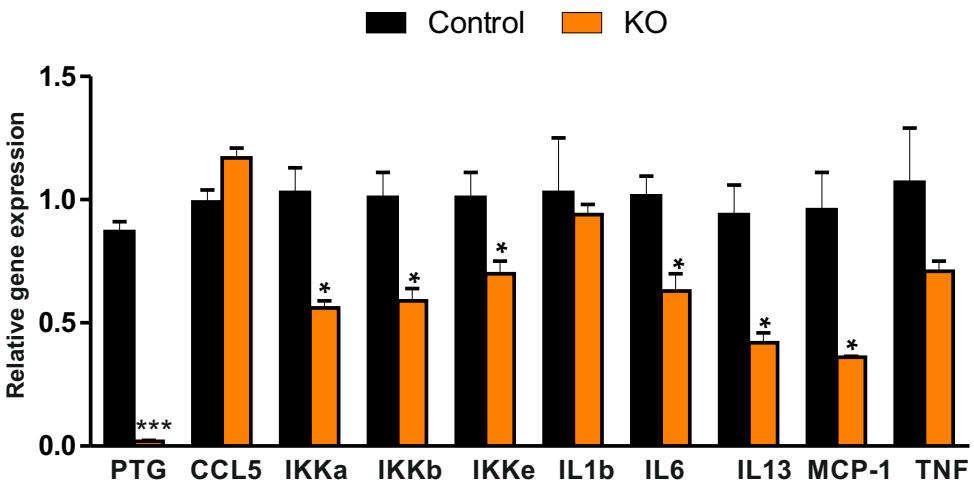

Figure S5. PTG deletion alters inflammatory gene expression profile in adipose tissue. Genes expression analysis of inflammatory markers from 12-weeks-old male control (n=3) and PTG-KO (n=3) mice. Data are expressed as mean± SEM. * $p< 0.05$; *** $p< 0.001$.

Supplementary Figure 6

Figure S6. Insulin sensitivity in lean patients is not associated with changes in glycogen-related gene expression. Representative immunoblotting of GBE1, PPP1R3E and GS protein in SAT from lean patients classified according to insulin resistance assessed by HOMA-IR. GAPDH was used as a loading control. Quantification is shown (n=3).

Supplementary Figure 7

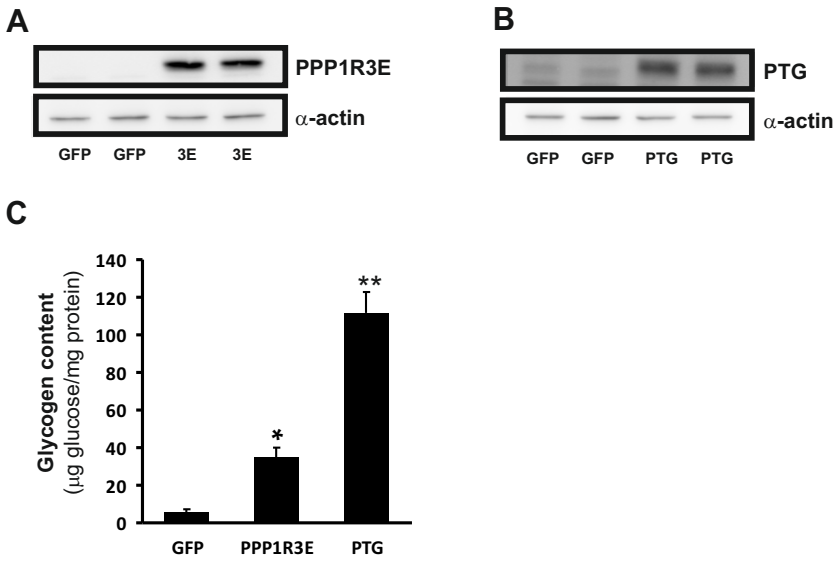

Figure S7. PPP1R3E and PTG overexpression. SGBS cells were transduced with Ad-GFP, Ad-3E or Ad-PTG, followed by incubated in medium with 25mM glucose for 24h. Western blot analysis on total cell extracts hybridized with antibodies against **(A)** PPP1R3E or **(B)** PTG. α-Actin was used as loading control. **(C)** Glycogen content was assessed from two experiments performed in triplicate. Mean±SEM. *p< 0.001; ** p< 0.0001 .