

SUPPLEMENTARY MATERIAL

LEGENDS

Figure S1. Palmitoleic acid induces AMPK activation. Liver phosphorylation of AMPK (p-thr172) normalized by the respective total protein (AMPK) and by β -tubulin (D). Wild-type (WT) mice fed with a standard diet (SD) or high-fat diet treated with oleic acid (HFD OA) or palmitoleic acid (HFD POA) (n=4). Data are presented as the mean \pm SEM. *p<0.05, **p<0.01, ***p<0.001 vs. WT SD; #p<0.05 HFD POA vs. HFD OA. (One-way ANOVA followed by Bonferroni correction).

Figure S2. POA was successfully incorporated into liver but lipidomic does not show a clear segregation of the HFD-fed mice with or without POA treatment. Full panel of fatty acids species, measured by gas chromatography (GC), incorporated into the liver of wild-type (WT) mice fed with a standard diet (SD), high-fat fed mice treated with oleic acid (HFD OA) or palmitoleic acid (HFD POA) (A) (n=5); liver content of total fatty acids ($\mu\text{m}/\text{mg}$ of liver) (first graph), palmitoleic acid (C16:1,n-7) (second graph), total lipid species of saturated acid (third graph), total lipid species of monounsaturated n-9 fatty acids (MUFA n-9) (fourth graph), total lipid species of polyunsaturated n-6 fatty acids (PUFA n-6) (fifth graph), and Docosahexaenoic acid (C22:6, n-3) (sixth) estimated by GC (B) (n=5); full panel of liver lipid species obtained by lipidomic (C) (n=5). The data are presented as the mean \pm SEM (n=5). *p<0.05, **p<0.01, ***p<0.001 ****p<0.0001 vs. indicated groups. (One-way ANOVA followed by Bonferroni correction).

Figure S3. Palmitoleic acid does not change PPAR- α and PPAR β expression in liver of HFD-fed WT mice (A) liver protein levels of peroxisome proliferator activated receptor (PPAR)- α and PPAR- β normalized by the respective β -tubulin levels (n=4). Data are presented as the mean \pm SEM. *p<0.05 vs. indicated groups. (One-way ANOVA followed by Bonferroni correction).

Figure S4. Liver of mice fed with a HFD without daily gavage of OA or POA exhibited higher levels of palmitic (C16:0) and lower oleic acid (C18:1n-9). Full panel of fatty acids species, measured by gas chromatography (GC), incorporated into the liver of wild-type (WT) mice fed with a standard diet (SD), high-fat fed mice without treatment (HFD), treated with oleic acid (HFD OA) or palmitoleic acid (HFD POA) (A) (n=4-5). The data are presented as the mean \pm SEM. *p<0.05, **p<0.01, ***p<0.001 groups vs. SD; #p<0.05, ##p<0.01, ###p<0.001 groups vs. HFD, \$p<0.05, HFD OA vs. HFD POA. (One-way ANOVA followed by Bonferroni correction).