SUPPLEMENTAL FIGURE LEGENDS

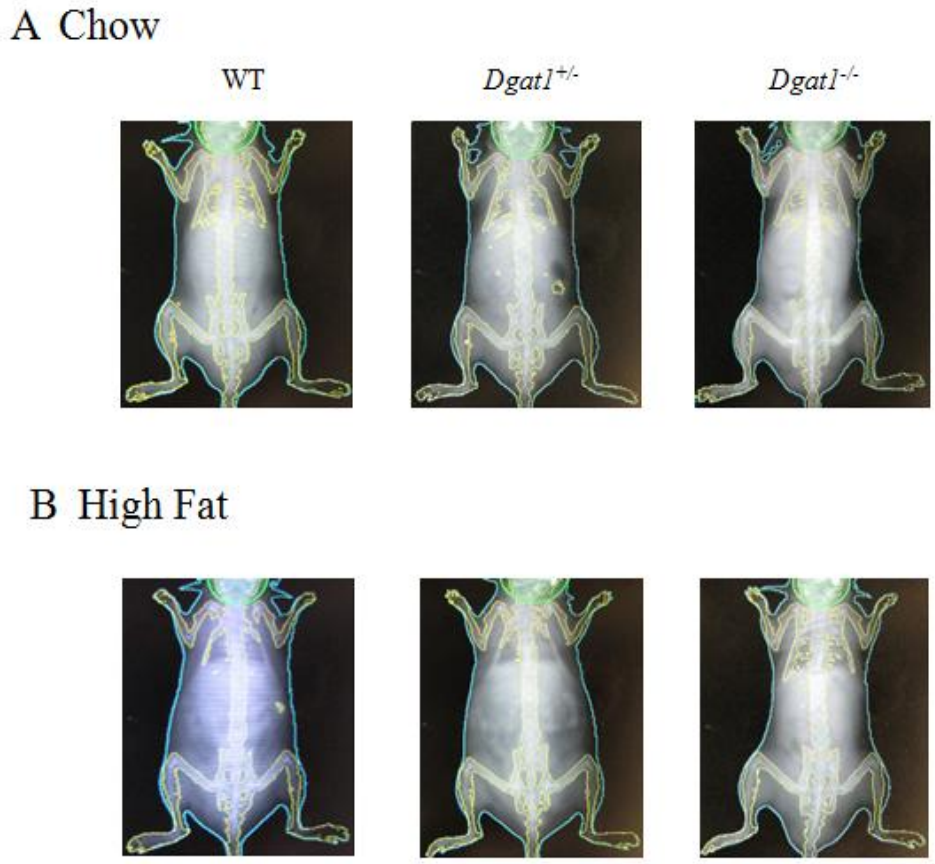
**Supplemental Figure 1.** DEXA Photos and mRNA levels involved in heart failure from *Dgat1*$^{-/-}$ mice. DEXA photos of chow-fed WT, *Dgat1*$^{+/-}$ and *Dgat1*$^{-/-}$ mice (A) and of high fat-fed WT, *Dgat1*$^{+/-}$ and *Dgat1*$^{-/-}$ mice (B) (n=5). *Anf* and *Bnp* mRNA levels in WT, *Dgat1*$^{+/-}$ and *Dgat1*$^{-/-}$ mice (*n* = 5) (C and D).

**Supplemental Figure 2.** Western blots for AKT and mTOR. Western blots for p-AKT(ser473) , total AKT, p-mTOR(ser2448) and total mTOR in high fat-fed hearts (A) and chow-fed soleus (B) from WT, *Dgat1*$^{+/-}$*, and Dgat1*$^{-/-}$ *mice.*

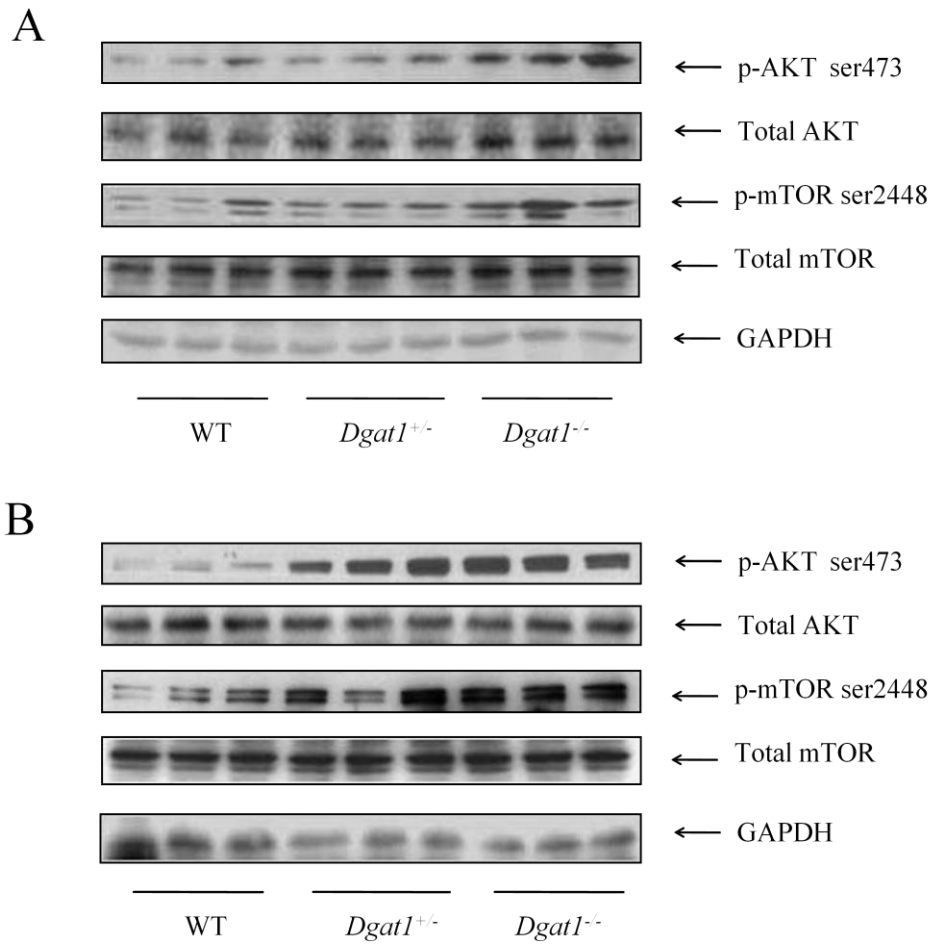
**Supplemental Figure 3.** Western blots for PPARα, β and γ. Western blots for PPARα, β and γ in chow-fed hearts from WT, *Dgat1*$^{+/-}$*, and Dgat1*$^{-/-}$ *mice.*

**Supplemental Figure 4.** Lipid uptake in DGAT1i pretreated AC16 cardiomyocytes. AC16 cardiomyocytes were pretreated with 5mM DGAT1i for 4 hrs and then incubated for 15 min with 0.5mM palmitic acid containing 9,10-[$^{3}$H]palmitic. [$^{3}$H] absorbed by cells was counted. (*P<0.05, n=6)

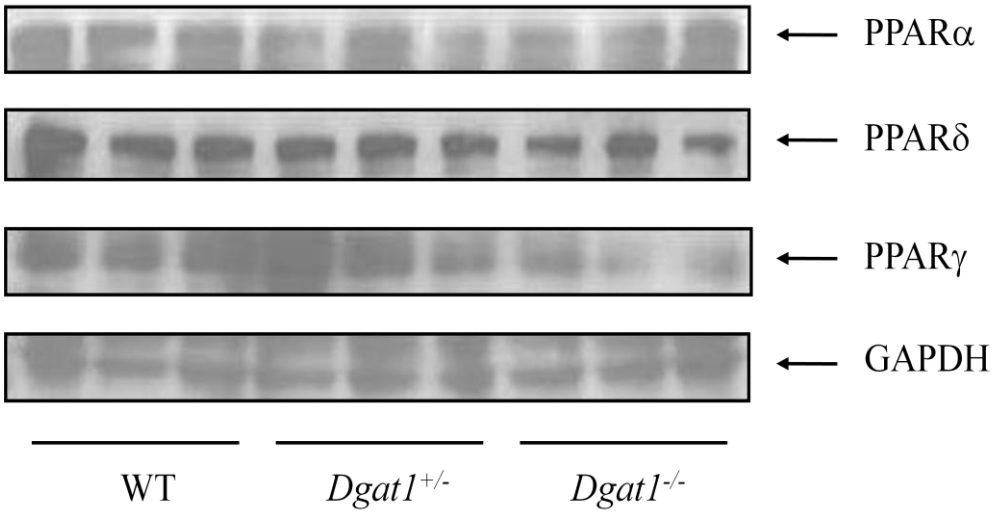
Supplemental Figure 1



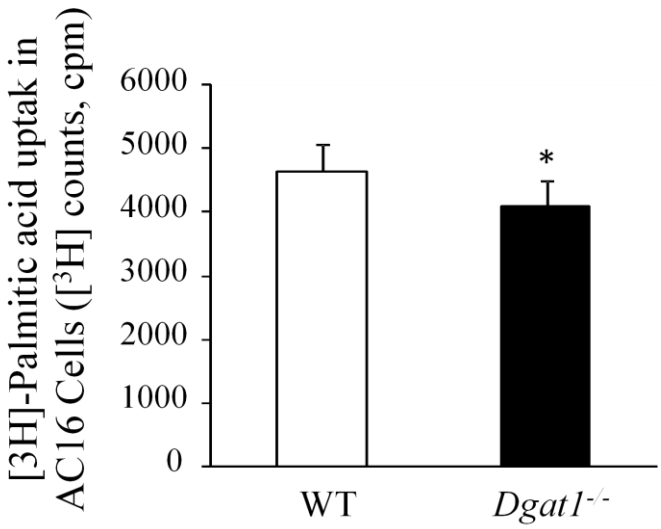
Supplemental Figure 2



Supplemental Figure 3



Supplemental Figure 4



Supplemental Table 1

A. Primers of real-time PCR for mouse tissue

| Gene | Forward primer | Reverse primer |
|---|---|---|
| *Dgat2* | cagcaagaagtttcctggcat | cctcccaccacgatgatgat |
| *Ppara* | tgcagagcaaccatccaga | acccgttaattaatggcgaat |
| *Ppard* | gcctcgggcttccactac | agatccgatcgcacttctca |
| *Pparg* | gagtgtgacgacaagatttg | ggtgggccagaatggcatct |
| *Pgc1a* | taggcccaggtacgacagc | gctctttgcggtattcatcc |
| *Aco1* | atcacgggcacttatgc | tctcacggatagggaca |
| *Cpt1a* | ctccgagctcagtgaggacctaaag | caaataccactgcaatttgtg |
| *Cpt1b* | gatgtttgcagagcacggca | ccaggtacctgctcacggta |
| *Pdk4* | gaccgcttagtaacac | gtaacggggtccactg |
| *Cd36* | aatggcacagacgcagcct | ggttgtctggattctgga |
| *Lpl* | tctgtacggcacagtgg | cctctcgatgacgaagc |
| *Atgl* | cgccttgctgagaatcaccat | agtgagtggctggtgaaaggt |
| *Anf* | ggaaatgggatagaggtcaggtg | gtgattaaaccggcaagcaaggc |
| *Bnp* | aggtttgctatctggca | atgtcgaagtttaaggctctgga |
| *Hnf4a* | agaatgaccctgaagcaccagg | gccagaggtctgtgaaacaagg |
| *Glut1* | tcgtaacgaggagaaccg | ggccgtgttgacgata |
| *Glut4* | agagtctaaagcgcct | ccgagaccaacgtgaa |
| *b-actin* | aggcccagagcaagagaggta | ggggtgttgaaggtctcaaaca |

B. Primers of real-time PCR for AC16 human cardiomyocytes

| Gene | Forward primer | Reverse primer |
|---|---|---|
| *Ppara* | ctgtcgggatgtcacacaac | ccgcaaacacctactggatt |
| *Ppard* | gctgtgcaggagatcacaga | gggctccataaagtcaccaa |
| *Pparg* | actgagttcgccaagagcat | gcgttgaacttgacagcaaa |
| *Pdk4* | gagaggtggagcatttctcg | cagaatgttggcgagtctca |
| *Cd36* | attggtcaagccagct | tgtaggctcatccactac |
| *Cpt1b* | tgaccaaagaagcagcaatg | agcatacccaacaccaaagc |
| *Atgl* | gcagtttcctgctgaaggtc | gctcgtccttggagttgaag |
| *b-actin* | gacaggatgcagaaggagattact | tgatccacatctgctggaaggt |

Supplemental Table 2

Plasma glucose, TG , TC, FFA concentrations in *Dgat1* $^{+/-}$ *and Dgat1* $^{-/-}$ mice

| Items | Chow | | | High Fat | | |
|---|---|---|---|---|---|---|
| | WT | *Dgat1*$^{+/-}$ | *Dgat1*$^{-/-}$ | WT | *Dgat1*$^{+/-}$ | *Dgat1*$^{-/-}$ |
| Glucose (mg/dl) | 187±42 | 178±20 | 166±31 | 232±59 | 227±65 | 211±42 |
| TG (μmole/ml) | 16.1±2.8 | 16.7±1.5 | 15.4±1.5 | 18.3±1.9 | 17.8±2.6 | 16.3±1.1$^{\#}$ |
| TC (μmole/ml) | 17.8±1.8 | 17.2±2.1 | 18.1±2.2 | 24.6±3.7* | 25.7±2.9* | 23.0±1.4** |
| FFA (μmole/ml) | 1.2±0.2 | 1.1±0.1 | 1.2±0.3 | 2.1±0.2* | 2.3±0.4* | 2.0±0.1** |

*P<0.05, **P<0.01 *vs* chow-fed WT, $^{\#}$P<0.05 *vs* high fat-fed WT (n=4-5).

Supplemental Table 3

Muscle gene expression in *Dgat1* $^{+/-}$ *and Dgat1* $^{-/-}$ mice

| Gene | Genotype | | |
|---|---|---|---|
| | WT | *Dgat1*$^{+/-}$ | *Dgat1*$^{-/-}$ |
| *Ppara* | 100±25 | 79±50 | 28±11** |
| *Ppard* | 100±39 | 67±20 | 35±19* |
| *Pparg* | 100±32 | 60±32 | 42±13* |
| *Cd36* | 100±27 | 48±24 | 21±11** |
| *Lpl* | 100±45 | 65±33 | 45±18* |
| *Atgl* | 100±57 | 43±23 | 29±9* |
| *Pdk4* | 100±61 | 69±19 | 23±12* |
| *Aox* | 100±12 | 76±28 | 52±22* |
| *Cpt1b* | 100±35 | 54±35 | 33±6* |

*P<0.05 *vs* WT , **P<0.01 *vs* WT (n = 5-6)