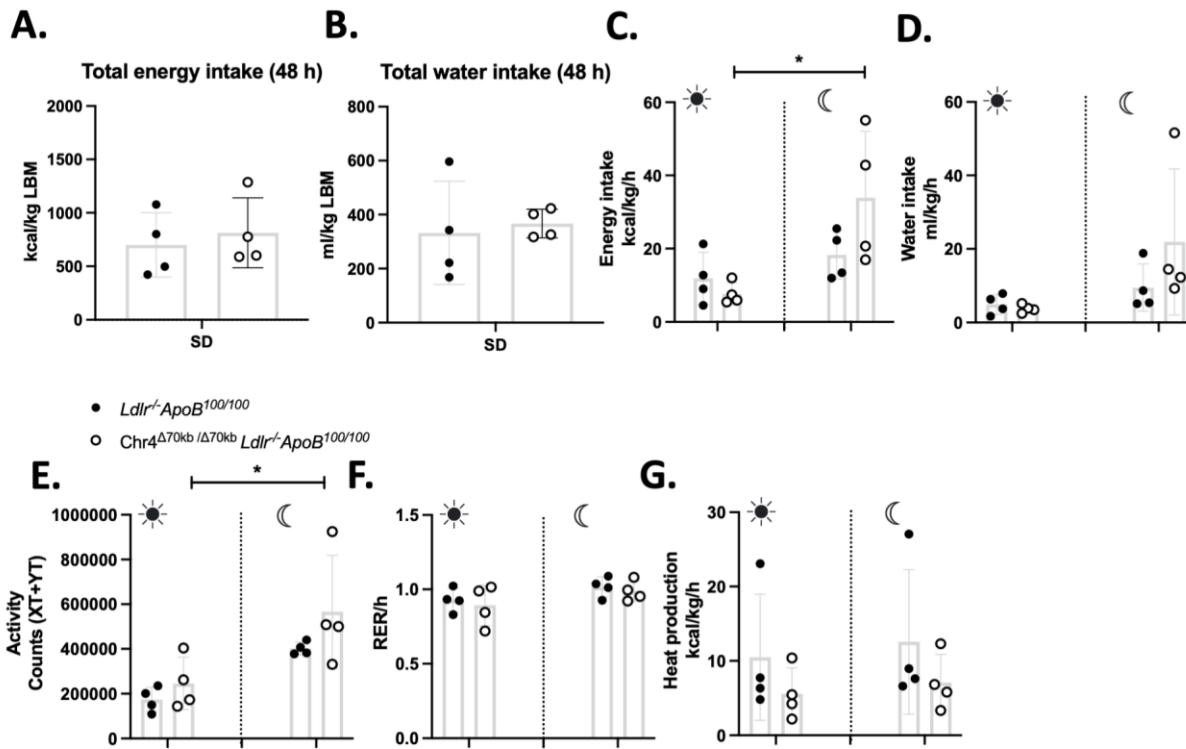


**Supplemental Table S1.** *A list of pre-designed and custom qPCR and ddPCR assays used.*

Species	Target	Manufacturer	Product code	
<i>Mus musculus</i>	<i>Cdkn2a</i>	Integrated DNA Technologies	Mm.PT.58.43961185	
<i>Mus musculus</i>	<i>Cdkn2b</i>	Integrated DNA Technologies	Mm.PT.58.7138437	
<i>Mus musculus</i>	<i>Fasn</i>	Integrated DNA Technologies	Mm.PT.58.14276063	
<i>Mus musculus</i>	<i>Il6</i>	Integrated DNA Technologies	Mm.PT.58.10005566	
<i>Mus musculus</i>	<i>Insr</i>	Integrated DNA Technologies	Mm.PT.58.9275253	
<i>Mus musculus</i>	<i>Sirt1</i>	Integrated DNA Technologies	Mm.PT.7263242	
<i>Mus musculus</i>	<i>Sreb1</i>	Thermo Fisher Scientific	Mm00550338_m1	
<i>Mus musculus</i>	<i>Sreb2</i>	Thermo Fisher Scientific	Mm01306293_m1	
<i>Mus musculus</i>	<i>Ppargc1a</i>	Integrated DNA Technologies	Mm.PT.58.17390716	
<i>Mus musculus</i>	<i>Mlxip1</i>	Integrated DNA Technologies	Mm.PT.56a.33592172	
<i>Mus musculus</i>	<i>Slc2a2</i>	Integrated DNA Technologies	Mm.PT.58.45872027	
<i>Mus musculus</i>	<i>Slc2a4</i>	Thermo Fisher	Mm0124550_m1	
<i>Mus musculus</i>	<i>Ucp2</i>	Integrated DNA Technologies	Mm.PT.58.11226903	
<i>Homo sapiens</i>	<i>HPRT1</i>	Integrated DNA Technologies	Hs.PT.58v.45621572	
<b>Custom assays</b>	<b>Target</b>	<b>Manufacturer</b>		
	ANRIL			
<i>Homo sapiens</i>	Exon 5-6	Integrated DNA Technologies	Primer 1	5'-GCCACCAGATATATGTTATCTGTGCTTA-3'
			Primer 2	5'-TAGAAAGCAGTACTGACTCGGGAA-3'
				5'-/5SUN/AG CAT CAC T/ZEN/G TTA GGT GTG
			Probe	CTG GA/3IABkFQ/-3'

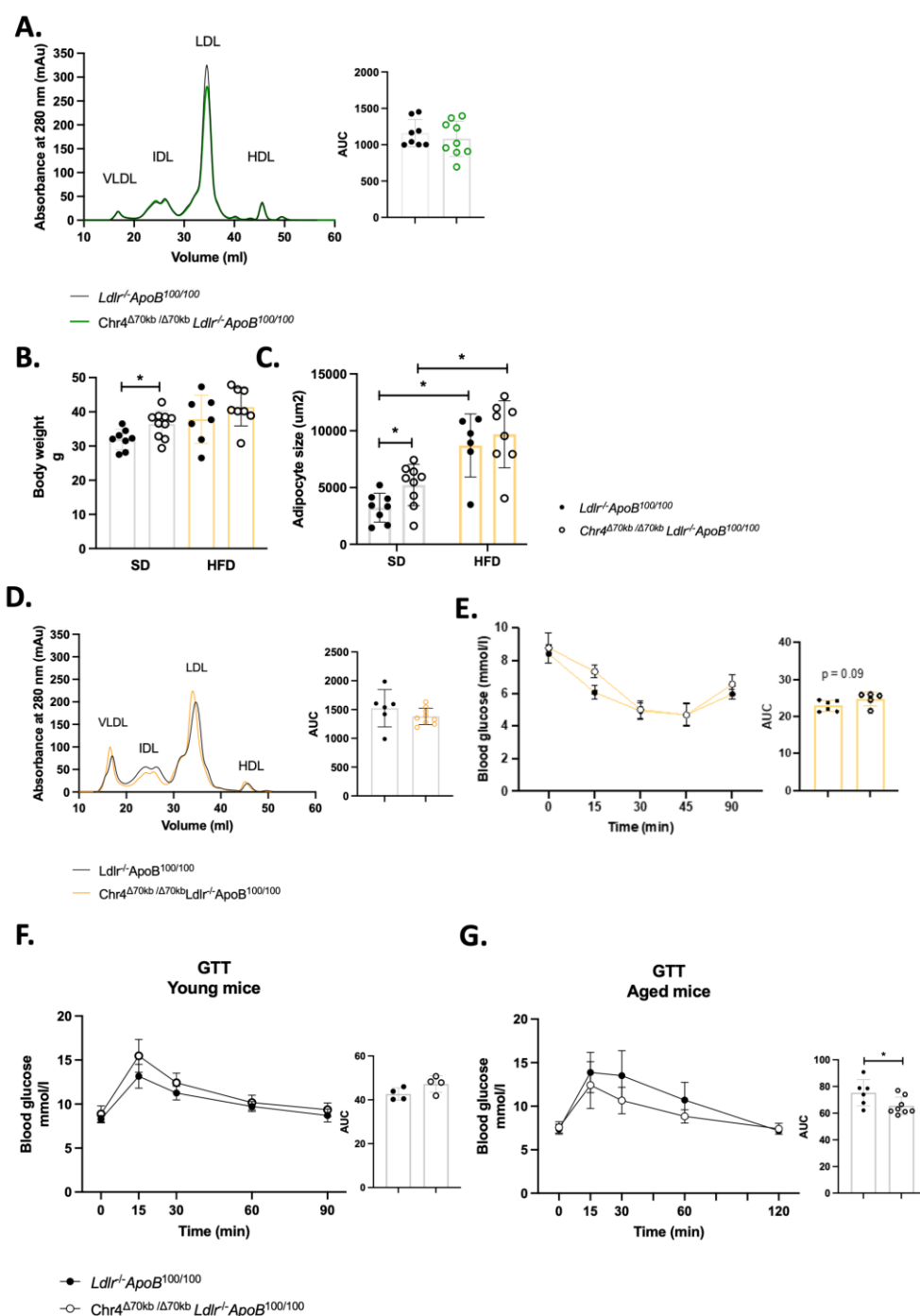


**Supplemental Figure S1. Basal metabolic rate of the mice was not affected by the *Chr4*<sup>Δ70/Δ70</sup>.**

A) Total 48 h energy and B) water intake, and average hourly C) energy intake, D) water intake, E) activity, F) heat production and G) respiratory exchange ratio (RER) of *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=4) and *Chr4*<sup>Δ70/Δ70</sup> (n=4) mice in light (☀) and dark (☾) hours over 48 hours follow up period.

RER = 1 Glucose is the primary energy source of an animal. RER = 0,7 fatty acids are the primary energy source. RER values in between suggest mixed fuel source.

All parameters have been normalized to lean body mass (LBM) measured by MRI. Asterisk (\*) indicates statistical significance. Difference in means between *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> and *Chr4*<sup>Δ70/Δ70</sup> groups and between light and dark hours was measured by using 2-way ANOVA with Tukey's multiple comparisons test, and the difference was considered statistically significant when adjusted P < 0.05.



**Supplemental Figure S2. *Chr4*<sup>Δ70/Δ70</sup> did not have effect on body weight gain, plasma lipoprotein profile, or insulin resistance after prolonged HFD in mice.**

**A)** Plasma lipoprotein profile of aged *Chr4*<sup>Δ70/Δ70</sup> (n=9) and *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=8) mice on standard diet. **B)** Bodyweight and **C)** adipocyte size of aged *Chr4*<sup>Δ70/Δ70</sup> (n=10) and *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=8) mice on SD and HFD (n=8+6-7). **D)** Plasma lipoprotein profile of aged *Chr4*<sup>Δ70/Δ70</sup> (n=9) and *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=6) mice on HFD. **E)** Insulin tolerance test of aged *Chr4*<sup>Δ70/Δ70</sup> (n=6) and *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=6) mice on HFD. **F)** Glucose tolerance test of young *Chr4*<sup>Δ70/Δ70</sup> (n=4) and *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=4) mice on SD. **G)** Glucose tolerance test of aged *Chr4*<sup>Δ70/Δ70</sup> (n=8) and *Ldlr*<sup>-/-</sup>*ApoB*<sup>100/100</sup> (n=6) mice on SD

Asterisk (\*) indicates statistical significance. For graphs A, D, E, F and G, area under the curve (AUC) was first determined for each individual animal and difference in mean between groups was measured by using *t*-test. For graphs B-C, difference between SD and HFD groups was measured with ANOVA and Tukey's multiple comparisons test, and between SD with *t*-test. Differences were considered statistically significant when P or adjusted P < 0.05.