

		loss-of-function			gain-of-function / overexpression			
gene	human ortholog(s)/functional homolog	starvation	lipids	sugar	starvation	lipids	sugar	references
<i>dilp 2,3,5</i> <sup>A</sup>	<i>insulin/IGFs</i>	resistant	↑	↑				(Broughton et al., 2005; Rulifson et al., 2002)
<i>chico</i>	<i>IRS1-4</i>		↑	no effect				(Bohni et al., 1999)
<i>dFOXO</i>	<i>FOXO1, 3a, 4</i>					↑	↑	(Luong et al., 2006)
<i>Akh</i> <sup>A</sup>	<i>glucagon</i>	resistant	no effect	↓		↓	↑	(Grönke et al., 2007; Isabel et al., 2005; Kim and Rulifson, 2004; Lee and Park, 2004)
<i>akhr</i>		resistant	↑			↓		(Grönke et al., 2007)
<i>brummer</i>	<i>ATGL</i>	resistant	↑	no effect (glycogen)		↓	no effect (glycogen)	(Grönke et al., 2005)
<i>Lsd2</i>	<i>Perilipin/ADRP</i>	sensitive	↓		resistant	↑		(Grönke et al., 2003; Teixeira et al., 2003)
<i>adipose</i>	<i>WD40 and tetratricopeptide repeats</i>	resistant	↑	↓ glycogen		↓		(Hader et al., 2003; Teague et al., 1986)
<i>melted</i>	<i>HGNC/KIAA1692</i>		↓	no effect				(Teleman et al., 2005b)
<i>dTOR*</i>	<i>TOR</i>	no effect	↓	↓				(Luong et al., 2006; Teleman et al., 2005b)
<i>4E-BP</i>	<i>4E-BP</i>	sensitive	↓			↑		(Teleman et al., 2005a)
<i>Lk6</i>	<i>Mnk1/Mnk2</i>	resistant	↑		resistant	↑		(Reiling et al., 2005)
<i>dSREBP</i>	<i>SREBP-1a/SREBP-2</i>		FAs↓					(Kunte et al., 2006)
<i>enigma</i>	<i>Acyl-CoA dehydrogenases</i>		↓					(Mourikis et al., 2006)
<i>miR-14</i>			↑			↓		(Xu et al., 2003)
<i>miR-278</i>			↓	↑				(Teleman et al., 2006)
<i>expanded</i>	<i>FERM domain proteins</i>					↓		(Teleman et al., 2006)
<i>dUCP5</i>	<i>UCP5/BMCP1</i>	sensitive	depleted upon starvation	↓				(Sanchez-Blanco et al., 2006)
<i>dATF-2</i> <sup>i</sup>	<i>NPDC-1</i>	sensitive	↓	no effect	resistant	↑		(Okamura et al., 2007)
<i>desat1*</i>	<i>SCD1</i>		↓					(Ueyama et al., 2005)
<i>Cyp4g1</i>	<i>lipid ω-hydrolases</i>		ratio↑					(Gutierrez et al., 2007)
<i>swiss cheese</i>	<i>NTE</i>		↓					(Muhlig-Versen et al., 2005)
<i>bubblegum</i>	<i>VLCFA acyl-CoA synthetase</i>		VLCFAs↑					(Min and Benzer, 1999)
<i>NPC1a</i>	<i>NPC1</i>		chol ↑					(Fluegel et al., 2006)
<i>NPC1b</i>	<i>NPC1L1</i>		↓ chol. absorp.					(Voght et al., 2007)

**Table 1. Summary of *Drosophila* metabolic mutants.** Effects of loss-of-function and gain-of-function or overexpression studies are summarized with regard to starvation responses and levels of lipids or carbohydrates (sugar). Lipids refers to TAG, except as listed. Genes include those covered in the text as well as *enigma*, *dUCP5*, *dATF-2*, *desat1*, *Cyp4g1*, *swiss cheese*, and *bubblegum*, which were not discussed. The human sequence ortholog, or functional homolog, is listed for each gene. <sup>A</sup> = ablated tissue of expression; \* = hypomorphic allele; <sup>i</sup> = RNAi knockdown; blank cells = not determined.