

Table 1. Some examples of key genes involving metabolic processes whose expression is controlled by epigenetic mechanisms.

Gene symbol	Common gene name	Epigenetic mechanisms	Metabolic processes	References
LEP	Leptin	DNA methylation	Appetite regulation	Cordero et al. (2011)
NPY	Neuropeptide Y	DNA methylation	Appetite regulation	Kim et al. (2011)
POMC	Proopiomelanocortin	DNA methylation and histone acetylation and methylation	Appetite regulation	Stevens et al. (2011); Begum et al. (2012); Plagemann et al. (2009)
MC4R	Melanocortin 4 receptor	DNA methylation	Appetite regulation	Widiker et al. (2010)
IRS1	Insulin receptor	DNA methylation	Glucose homeostasis	Plagemann et al. (2010)
INS	Insulin	DNA methylation and histone acetylation	Glucose homeostasis	Kuroda et al. (2009); Mosley and Ozcan (2003)
ADIPOQ	Adiponectin	Histone acetylation	Adipogenesis	Sakurai et al. (2009)
UCP1	Uncoupling protein 1	DNA methylation	Adipogenesis	Shore et al. (2010)
TNF	Tumour necrosis factor alpha	DNA methylation	Insulin resistance	Cordero et al. (2011)
FTO	Fat mass and obesity associated	DNA methylation	Feeding and fasting regulation	Toperoff et al. (2012)
GLUT4	Insulin-responsive glucose transporter 4	Histone acetylation	Adipogenesis, glucose transport	Wheatley et al. (2011); Zheng et al. (2011b)
IGF2	Insulin-like growth factor 2	DNA methylation and histone acetylation and methylation	Glucose homeostasis	Gong et al. 2010); Zhou and Pan (2011)
CEBPA	CCAAT/enhancer binding protein (C/EBP), alpha	histone acetylation and methylation	Body weight homeostasis	Zheng et al. (2011a)
FASN	Fatty acid synthase	DNA methylation	Lipid storage	Lomba et al. (2010)
MTHFR	Methylenetetrahydrofolate reductase	DNA methylation	Vitamin metabolic process	Crider et al. (2011)
HIF1A	Hypoxia inducible factor 1	DNA methylation and histone acetylation and methylation	Hypoxia	Brigati et al. (2010)
SOD2	Superoxide dismutase 2, mitochondrial	DNA methylation	Oxidative Stress	Nanduri et al. (2012)
SOD3	Superoxide dismutase 3, extracellular	DNA methylation and histone acetylation	Oxidative Stress	Zelko et al. (2011)
IFNG	Interferon, gamma	DNA methylation	Inflammatory response	Bollati et al. (2011)
PPARA	Peroxisome proliferator-activated receptor- α	DNA methylation	Inflammatory response	Burdge et al. (2009); Lillycrop et al. (2008)
NR3C1	Glucocorticoid receptor	Histone acetylation	Inflammatory response, Stress	Weaver et al. (2004)