Supporting Information

Table S1: List of used fly stocks

Genotype	Internal stock number	Reference / External stock number	Comments
w ¹¹¹⁸	MGF1638	derived from VDRC#60000	Genetically matched control
<i>w¹¹¹⁸; Akh^A</i> /TM3, <i>Ser¹</i> floating	MGF1629	[1]	Akh loss-of-function mutant
w^{1118} ; $AkhR^{1}$	MGF1634	[1]	<i>AkhR</i> loss-of-function mutant
w ¹¹¹⁸ ; UAS-Akh	MGF1633	derived from BDSC#27343	Driver-dependent <i>Akh</i> gain-of-function effector line
w^{1118} ; AkhR RNAi / TM3, Ser ¹	MGF1635	derived from VDRC#9456	Driver-dependent AkhR loss-of-function effector line
w ¹¹¹⁸ ; daughterless- GeneSwitch	MGF1663	[2]	Drug-inducible ubiquitous driver line
<i>w</i> *; P{Switch1} <i>FBI-26</i> ; UAS-GFP	RKF1045	[3]	Drug-inducible fat body-specific driver line

Table S2: List of used oligonucleotide primers

Gene	Primer pair	Internal nr.	Reference/source
Dsk	F: CCGATCCCAGCGCAGACGAC R: TGGCACTCTGCGACCGAAGC	JBO877 JBO878	[4]
sNPF	F: CCCGAAAACTTTTAGACTCA R: TTTTCAAACATTTCCATCGT	JBO837 JBO838	[5]
NPF	F: GCGAAAGAACGATGTCAACAC R: TGTTGTCCATCTCGTGATTCC	YXO1067 YXO1068	[6]
CCHa2	F: CCCGTCAGGTGCTTTACAAA R: CGGAATTGGCCAAGGGATAA	YXO1075 YXO1076	this study
Tk	F: ACAAGCGTGCAGCTCTCTC R: CTCCAGATCGCTCTTCTTGC	YXO1059 YXO1060	[7]
Crz	F: GACTCACGGATCTCTACGATTTG R: TCTACTCGGTTGGCATTGAAG	YXO1071 YXO1072	this study
Lst	QuantiTect Primer#QT00948185	RKO1106	Qiagen
ImpL2	F: AAGAGCCGTGGACCTGGTA R: TTGGTGAACTTGAGCCAGTCG	YXO1042 YXO1043	[8]
Ilp2	F: ACGAGGTGCTGAGTATGGTGTGCG R: CACTTCGCAGCGGTTCCGATATCG	JBO875 JBO876	[9]
Ilp3	QuantiTect Primer#QT00961737	RKO968	Qiagen
Ilp5	F: GAGGCACCTTGGGCCTATTC R: CATGTGGTGAGATTCGGAGCTA	JBO886 JBO887	[10],
Ilp6	F: CGATGTATTTCCCAACAGTTTCG R: AAATCGGTTACGTTCTGCAAGTC	RKO884 RKO885	[11]
Thor	F: CATGCAGCAACTGCCAAATC R: CCGAGAGAACAAACAAGGTGG	JBO753 JBO754	[12]
tobi	QuantiTect Primer#QT00982646	RKO969	Qiagen
Act5C	F: GTGCACCGCAAGTGCTTCTAA R: TGCTGCACTCCAAACTTCCAC	RKO744 RKO745	[13]
RpL32	QuantiTect Primer#QT00985677	RKO977	Qiagen

Details on the capillary feeding (CAFE) assay

A custom-made CAFE system (Version 2.1; R. Kühnlein and Workshop of MPIbpc) apparatus was made based on cell culture plates (24-well format, Greiner Bio One) as follows: The bottom part of the wells was removed and replaced by metallic grids, which allow exchange of air and water vapors, but prevent escape of flies. A silicon layer and an acrylic glass plate were fixed on the polystyrene lid and these three layers were perforated by a borehole in the center of each well to enable stabile insertion and exchange of 5μ l glass capillaries during the feeding experiment. More details are available on request.

Supplementary references

[1] Gáliková, M., Diesner, M., Klepsatel, P., Hehlert, P., Xu, Y., Bickmeyer, I., Predel, R., Kühnlein, R. P. Energy Homeostasis Control in Drosophila Adipokinetic Hormone Mutants. *Genetics* 2015, *201*, 665–683.

[2] Tricoire, H., Battisti, V., Trannoy, S., Lasbleiz, C., Pret, A.-M., Monnier, V. The steroid hormone receptor EcR finely modulates Drosophila lifespan during adulthood in a sex-specific manner. *Mech. Ageing Dev.* 2009, *130*, 547–552.

[3] Suh, J. M., Zeve, D., McKay, R., Seo, J., Salo, Z., Li, R., Wang, M., Graff, J. M. Adipose is a conserved dosage-sensitive antiobesity gene. *Cell Metab.* 2007, *6*, 195–207.

[4] Williams, M. J., Goergen, P., Rajendran, J., Zheleznyakova, G., Hägglund, M. G., Perland, E., Bagchi, S., Kalogeropoulou, A., Khan, Z., Fredriksson, R., Schiöth, H. B. Obesity-linked homologues TfAP-2 and Twz establish meal frequency in Drosophila melanogaster. *PLoS Genet.* 2014, *10*, e1004499.

[5] Hong, S.-H., Lee, K.-S., Kwak, S.-J., Kim, A.-K., Bai, H., Jung, M.-S., Kwon, O.-Y., Song, W.-J., Tatar, M., Yu, K. Minibrain/Dyrk1a regulates food intake through the Sir2-FOXO-sNPF/NPY pathway in Drosophila and mammals. *PLoS Genet.* 2012, *8*, e1002857.

[6] Shankar, S., Chua, J. Y., Tan, K. J., Calvert, M. E. K., Weng, R., Ng, W. C., Mori, K., Yew, J. Y. The neuropeptide tachykinin is essential for pheromone detection in a gustatory neural circuit. *Elife* 2015, *4*, e06914.

[7] Song, W., Veenstra, J. A., Perrimon, N. Control of lipid metabolism by tachykinin in Drosophila. *Cell Rep.* 2014, *9*, 40–47.

[8] Kwon, Y., Song, W., Droujinine, I. A., Hu, Y., Asara, J. M., Perrimon, N. Systemic organ wasting induced by localized expression of the secreted insulin/IGF antagonist ImpL2. *Dev. Cell* 2015, *33*, 36–46.

[9] Baumbach, J., Hummel, P., Bickmeyer, I., Kowalczyk, K. M., Frank, M., Knorr, K., Hildebrandt, A., Riedel, D., Jäckle, H., Kühnlein, R. P. A Drosophila in vivo screen identifies store-operated calcium entry as a key regulator of adiposity. *Cell Metab.* 2014, *19*, 331–343.

[10] Broughton, S. J., Piper, M. D. W., Ikeya, T., Bass, T. M., Jacobson, J., Driege, Y.,

Martinez, P., Hafen, E., Withers, D. J., Leevers, S. J., Partridge, L. Longer lifespan, altered metabolism, and stress resistance in Drosophila from ablation of cells making insulin-like ligands. *Proc. Natl. Acad. Sci. U S A* 2005, *102*, 3105–3110.

[11] Grönke, S., Clarke, D.-F., Broughton, S., Andrews, T. D., Partridge, L. Molecular evolution and functional characterization of Drosophila insulin-like peptides. *PLoS Genet*. 2010, *6*, e1000857.

[12] Fuss, B., Becker, T., Zinke, I., Hoch, M. The cytohesin Steppke is essential for insulin signalling in Drosophila. *Nature* 2006, *444*, 945-948.

[13] Bauer, R., Voelzmann, A., Breiden, B., Schepers, U., Farwanah, H., Hahn, I., Eckardt, F., Sandhoff, K., Hoch, M. Schlank, a member of the ceramide synthase family controls growth and body fat in Drosophila. *EMBO J.* 2009, *28*, 3706–3716.