Supporting Information

Hypothalamic Glucose-sensing: Role of Glia-to-Neuron Signaling

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Fig. 1S Endozepines: gliopeptides involved in hypothalamic glucose-sensing. (A) Immuno-localization of ODN/endozepines in the rat mediobasal hypothalamus. Top, labeling with ODN antibodies; middle, labeling with DARPP-32 antibodies; bottom, merge. Scale bars = 50 μm. (B) Icv injection of glucose stimulates the expression of DBI in the hypothalamus of fasted rats. Hypothalamic DBI mRNA levels from normally fed (Fed), overnight-fasted saline injected (Fast+Sal) or overnight-fasted glucose-injected (Fast+Glc) animals. Scale bars = 100 μm. (C) Schematic representation of the role of endozepines in the glia-to-neuron cross-talk within the arcuate nucleus (AN), in response to an increase of glucose levels. A central increase
of glucose (black dotted lines) concentration leads to the stimulation of DBI gene transcription and the release of ODN (red dotted lines) from hypothalamic glial cells (red cells). ODN, in turn, induces a stimulation of the MC3R/MC4R pathway, and consequently inhibits food intake and reduces blood glucose level. 3V, third ventricle; vs, vessels. Adapted from Diabetes [64], copyright 2013, with permission from the American Diabetes Association.