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PII: S0306-4530(16)30602-3
DOI: http://dx.doi.org/doi:10.1016/j.psyneuen.2016.12.012
Reference: PNEC 3491

To appear in:

Received date: 22-8-2016
Revised date: 9-12-2016
Accepted date: 19-12-2016

Please cite this article as: Yam, K.Y., Naninck, E.F.G., Abbink, M.R., la Fleur, S.E., Schipper, L., van den Beukel, J.C., Grefhorst, A., Oosting, A., van der Beek, E.M., Lucassen, P.J., Korosi, A., Exposure to chronic early-life stress lastingly alters the adipose tissue and leptin system in mice.Psychoneuroendocrinology http://dx.doi.org/10.1016/j.psyneuen.2016.12.012

Exposure to chronic early-life stress lastingly alters the adipose tissue and leptin system in mice

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Highlights

- White adipose tissue (WAT) mass, plasma leptin levels and *leptin* mRNA expression in WAT are lastingly reduced after chronic early-life stress (ES).
- Brown adipose tissue mass and browning of WAT is increased after stress early in life.
- *Leptin receptor* expression is upregulated in the choroid plexus and unaffected in the hippocampus of ES-exposed adult offspring.
- ES-induced cognitive impairments correlate with reduced adiposity in male mice only.
- Exposure to moderate western-style diet results in higher body fat accumulations in offspring with a history of ES.

Abstract

Early-life stress (ES) increases the vulnerability to develop psychopathologies and cognitive decline in adulthood. Interestingly, this is often comorbid with metabolic disorders, such as obesity. However, it is unclear whether ES leads to lasting metabolic changes and to what extent this is associated with the ES-induced cognitive impairments.

Here, we used an established chronic ES mouse model (from postnatal day (P) 2 to P9) to investigate the short- and long-term effects of ES exposure on parameters of the adipose