

## **Supplementary information**

# **PGC-1 $\alpha$ Promotes Ureagenesis in Mouse Periportal Hepatocytes through SIRT3 and SIRT5 in Response to Glucagon**

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## Supplementary Figures

**Table S1. qPCR Primer**

Gene	Forward, 5'-3'	Reverse, 5'-3'	Reference
<i>OTC</i>	TCCTGCTCAACAAGGCAGCTCTTA	TCACGGCCTTTCAGCTGTACTTGA	Walters et al. (2010)
<i>CPS1</i>	TGAGACAGGCCAAAGAGATTGGGT	TGCTCCTGGCCATTGTAGGTAACA	Walters et al. (2010)
<i>Sirt3</i>	GCTGCTTCTGCGGCTCTATAC	GAAGGACCTTCGACAGACCGT	Kong et al. (2010)
<i>Sirt5</i>	CTCCGGGCCGATTCATTTCC	GCGTTCGCAAAACACTTCCG	Buler et al. (2014)
<i>PEPCK</i>	CATATGCTGATCCTGGGCATAAC	CAAACCTCATCCAGGCAATGTC	Lin et al. (2004)
<i>G6Pase</i>	ACACCGACTACTACAGCAACAG	CCTCGAAAGATAGCAAGAGTAG	Lin et al. (2004)
<i>PGC-1<math>\alpha</math></i>	GCAGGTCGAACGAAACTGAC	CTCAGCCTGGGAACACGTTA	Buler et al. (2014)
<i>18S</i>	CGCCGCTAGAGGTGAAATTC	CCAGTCGGCATCGTTTATGG	Buler et al. (2014)

OTC, ornithine transcarbamoylase; CPS1, carbamoyl phosphate synthetase 1; Sirt3, sirtuin 3; Sirt5, sirtuin 5; PEPCK, phosphoenolpyruvate carboxykinase; G6Pase, glucose-6-phosphatase; PGC-1 $\alpha$ : peroxisome proliferator-activated receptor gamma coactivator 1-alpha; 18S, 18S ribosomal RNA.

### Supplemental References

1. Walters, M. W. & Wallace, K. B. Urea cycle gene expression is suppressed by PFOA treatment in rats. *Toxicol Lett* **197**, 46-50 (2010).
2. Kong, X. *et al.* Sirtuin 3, a new target of PGC-1alpha, plays an important role in the suppression of ROS and mitochondrial biogenesis. *PloS One* **5**, e11707 (2010).
3. Buler, M., Aatsinki, S. M., Izzi, V., Uusimaa, J. & Hakkola, J. SIRT5 is under the control of PGC-1 $\alpha$  and AMPK and is involved in regulation of mitochondrial energy metabolism. *FASEB J* **28**, 3225-3237(2014).

4. Lin, J. *et al.* Defects in adaptive energy metabolism with CNS-linked hyperactivity in PGC-1 $\alpha$  null mice. *Cell* **119**, 121-135 (2004).