

No. 0730

## Analysis of Ghrelin Functions on Salt Sensitive Hypertension

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### Summary

Ghrelin is an endogenous ligand for the growth hormone secretagogue receptor that is synthesized predominantly in the stomach. Previous studies demonstrated that ghrelin stimulates growth hormone release, food intake, and fat deposition. In addition, although some reports indicated that ghrelin directly or indirectly regulates blood pressure, the detailed mechanism is unknown. Then, to investigate ghrelin roles on vasoregulation, we generated ghrelin-deficient (*ghrl*<sup>-/-</sup>) mice. Unexpectedly, *ghrl*<sup>-/-</sup> mice exhibited normal growth, cumulative food intake, reproduction, histological characters, and serum parameters. There were no differences in feeding patterns between wild-type (WT) mice and *ghrl*<sup>-/-</sup> mice. However, we found that ghrelin deficiency might cause autonomic nervous dysfunctions due to the impaired circadian autonomic nervous rhythmicity. *Ghrl*<sup>-/-</sup> mice lacked both a clear circadian rhythm and a stable baseline in blood pressure and heart rate. Since thermoregulation also regulates by autonomic nervous activity, we investigated body temperature in *ghrl*<sup>-/-</sup> mice. *Ghrl*<sup>-/-</sup> mice lacked a clear circadian rhythm and a stable baseline in body temperature. Thus, ghrelin is secreted in high pressure induced by salt and might be required to maintain autonomic nervous system homeostasis.