

### **P3.08.**

#### **Effects of nesfatin-1 on energy expenditure**

Könczöl, K.<sup>1</sup>; Zelena, D.<sup>2</sup>; Pintér, O.<sup>2</sup>; Varga, J.<sup>2</sup>; Palkovits, M.<sup>1</sup>; Tóth, Z.<sup>1\*</sup>

*1: Neuromorphological and Neuroendocrine Reserch Group, Department of Anatomy, Histology and Embriology, Semmelweis University and the Hungarian Academy of Sciences, Budapest, Hungary*

*2: Institute of Experimental Medicine, Hungarian Academy of Sciences, Budapest, Hungary*

Nesfatin-1 is an anorexigenic peptide, reduces food intake, and plays a role in stress reaction. To investigate other functions mediated by nesfatin-1 and examine the time course of effects, we performed telemetric experiments and measured food intake, core body temperature, locomotor activity, and heart rate (HR) of rats for 48 h after icv administration of 5nmol nesfatin-1. Nesfatin-1 reduced nocturnal food intake for 2 days applied either during the day or at night. Nesfatin-1 raised body temperature immediately after nighttime application, and produced a small and belated elevation applied during the day. In both cases, body temperature of treated rats was markedly higher than that of controls during the light phases of the 48h lasting observation period, together with a reduced amplitude of the diurnal temperature rhythm. After daytime drug application HR elevated transiently. There was no change in locomotion. Serotonin and thyrotropin-releasing hormon (TRH) expressing caudal raphe neurons may act as premotor neurons that activate autonomic preganglionic efferents and regulate heat production in brown adipose tissue in rats. We colocalised nesfatin-1 and TRH in neurons of nucleus raphe pallidus and obscurus suggesting a possible site for nesfatin-1 to interact with the thermoregulatory system. In summary, nesfatin-1 has a long term influence on energy expenditure by reducing food intake and affecting heat production.

*Supported by: ETT 495/09, Bolyai fellowship (Tóth ZE).*