

Expression of Luteinizing Hormone(LH) Subunit Genes in Rat Digestive Tract

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Though the exact roles and their regulation mechanisms are totally ambiguous, several lines of evidence clearly indicate the mammalian digestive tract expresses some hormones which are originally classified as reproductive modulator. The present study was to test the possibility whether LH, a critical hormone in reproduction, is expressed in the digestive tract of rat, and if yes, whether the expression is regulated in certain physiological conditions.

Adult male rats(Sprague-Dawley strain) were sacrificed, then salivary gland, esophagus, stomach, large and small intestine were collected. Total RNAs were extracted immediately from the tissues and applied to RT-PCRs for detecting the transcripts for common alpha($C\alpha$), LH beta (LH- β) subunit, and LH receptor. To evaluate the physiological relevance of the local LH, fasting and recovery animal model was employed. Briefly, rats were only fasted for 48h(Fasted), and fasted for 45h and refed for 3h(Refed). Control group was given free access to rat chow. Using total RNAs from several digestive organs, the transcriptional activities of genes for $C\alpha$, LH- β and GnRH were evaluated by semi-quantitative RT-PCRs.

$C\alpha$, LH- β and GnRH were expressed in all the tested tissues, and irLH molecules were found in the sections of salivary glands. The expression levels of $C\alpha$ in submaxillary glands, stomach and large intestine were increased in the refed group compared with the fasting group. LH- β expression level was decreased in the submaxillary glands from refed group, but increased in the stomach from the fasting group. The expression of LH- β in small intestine was the highest in the refed group. GnRH expression was increased in stomach from refed group. GnRH expression levels in small and large intestine were showing

similar tendency to that of LH- β .

These results suggest that LH or LH-like molecule might exist in digestive tract and have somewhat physiological function according to nutrient status.

Key words) *Rat, Digestive tract, LH, Nutrient status*