

EP-864 CIRCADIAN CLOCK EXPRESSION IN ANTERIOR PITUITARY GLAND IS ALTERED IN DIFFERENT THYROID CONDITIONS.

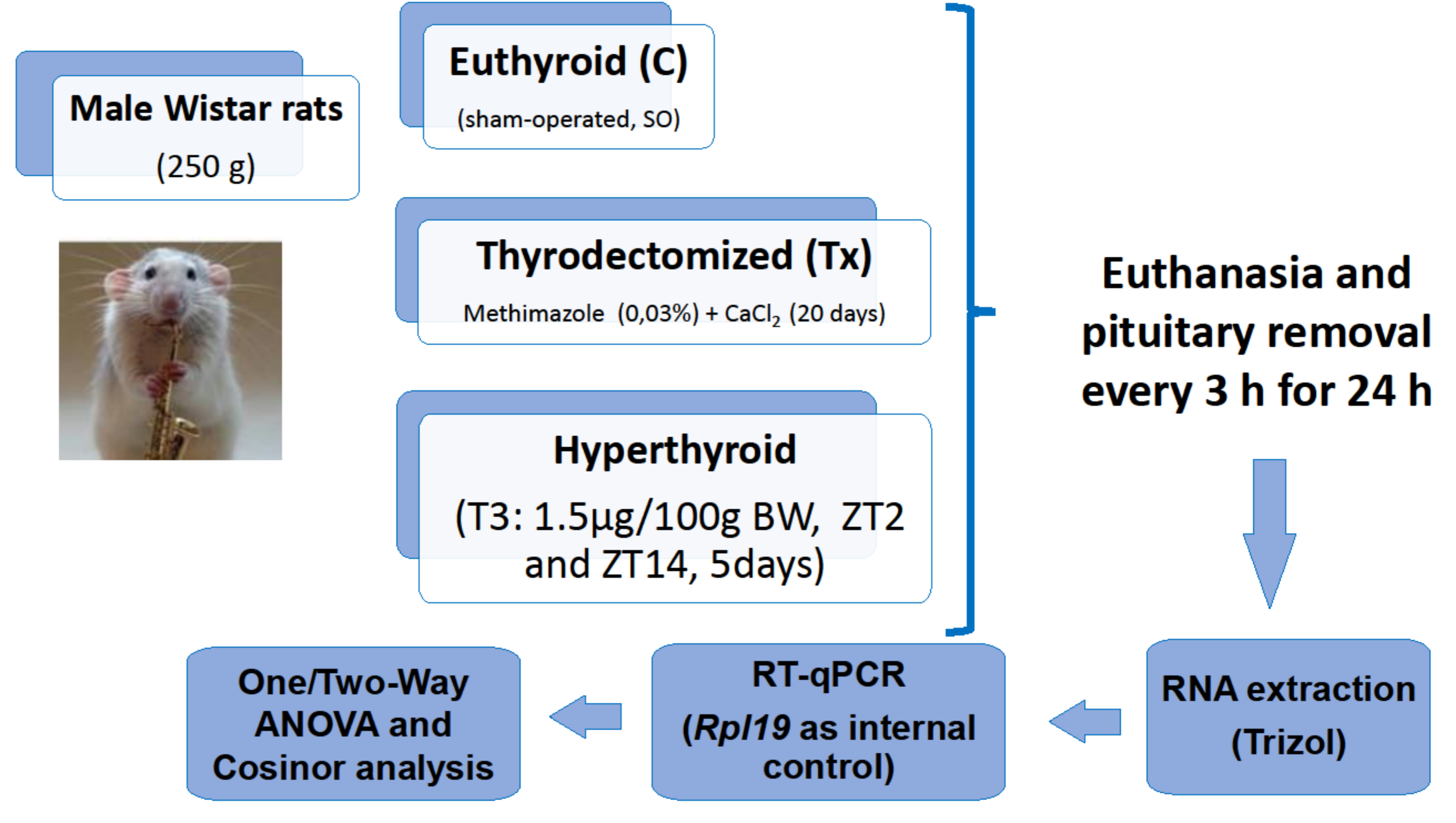


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CONTEXT AND OBJECTIVES

The hypo and hyperthyroidism alter the synthesis/secretion of pituitary hormones, which in normal conditions present fluctuations in serum concentration during the 24 h period. An intrinsic pituitary circadian clock might be related to these oscillations; however, the possible interaction between thyroid hormonal conditions and circadian clock gene expression in anterior pituitary is still unknown. The purpose of this study was to investigate the expression of core clock components as *Bmal1*, *Per2* and *Clock*, as well as *Tshb*, *Prl*, *Lhb* and *Dio2* as markers of thyrotroph, lactotroph, gonadotroph function and thyroid hormone action, respectively, during hypo and hyperthyroidism in rats.

METHODS



RESULTS

The expression of *Bmal1*, *Per2*, *Dio2*, *Prl* and *Lhb* presented a circadian rhythmicity in anterior pituitary of euthyroid rats. *Per2* and *Dio2* acrophases occurred around ZT 12, while *Bmal1*, *Lhb* and *Prl* were at ZT 0/24. In the hypo and hyperthyroid animals, the circadian expression of *Per2* and *Lhb* was abolished. *Bmal1* lost its circadian pattern of expression during hypothyroidism, while the hyperthyroidism reduced its amplitude and mesor values. *Prl* expression lost its circadian pattern of rhythmicity during hyperthyroidism, while the hypothyroidism reduced its amplitude and mesor values and delayed the acrophase. In hypothyroid animals the acrophase of *Dio2* was advanced and mesor was higher than in euthyroid rats, while in hyperthyroidism its circadian pattern was lost.

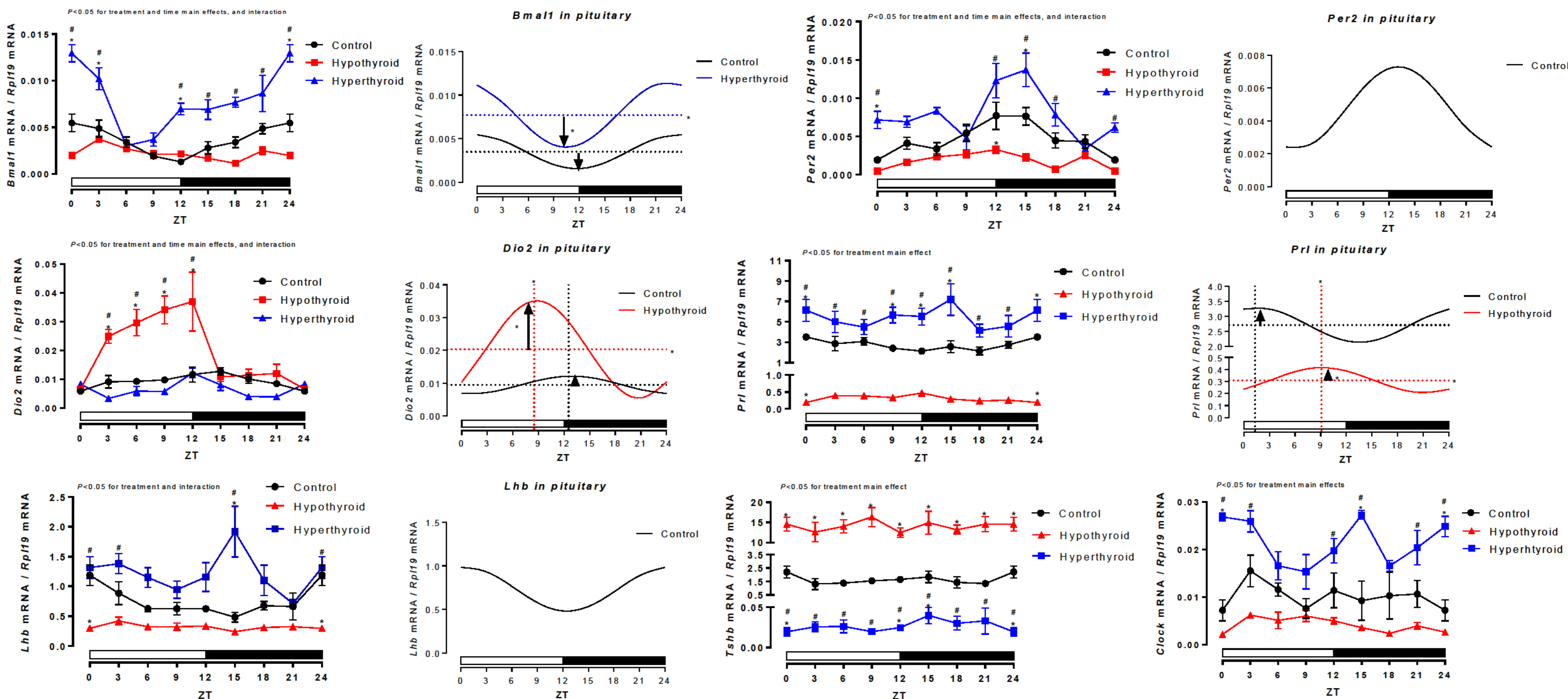


Figure legend – Expression and cosinor curve of *Bmal1*, *Per2*, *Dio2*, *Prl*, *Lhb*, *Tshb* and *Clock* mRNAs in pituitary of Control, Hypothyroid and Hyperthyroid animals. The statistical analysis performed was One-way ANOVA, $P < 0.05$, for both groups in all cases, and Two-way ANOVA, $*P < 0.05$ vs Control at respective ZTs, $\#P < 0.05$ in the comparison between Hypothyroid and Hyperthyroid at respective ZTs. $n = 6/\text{ZT}/\text{group}$. ZT=Zeitgeber Time.

Our study reveals that the expression of core clock components in anterior pituitary gland are altered during the hyper and hypothyroidism, which might contribute to the altered secretion of pituitary hormones observed in these pathological conditions.

* The preliminary results submitted to the abstract were confirmed after three repetitions and here we presented the final results.

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