

GP-18-07 THE HYPOTHYROIDISM ALTERS CIRCADIAN CLOCK EXPRESSION IN ANTERIOR PITUITARY GLAND



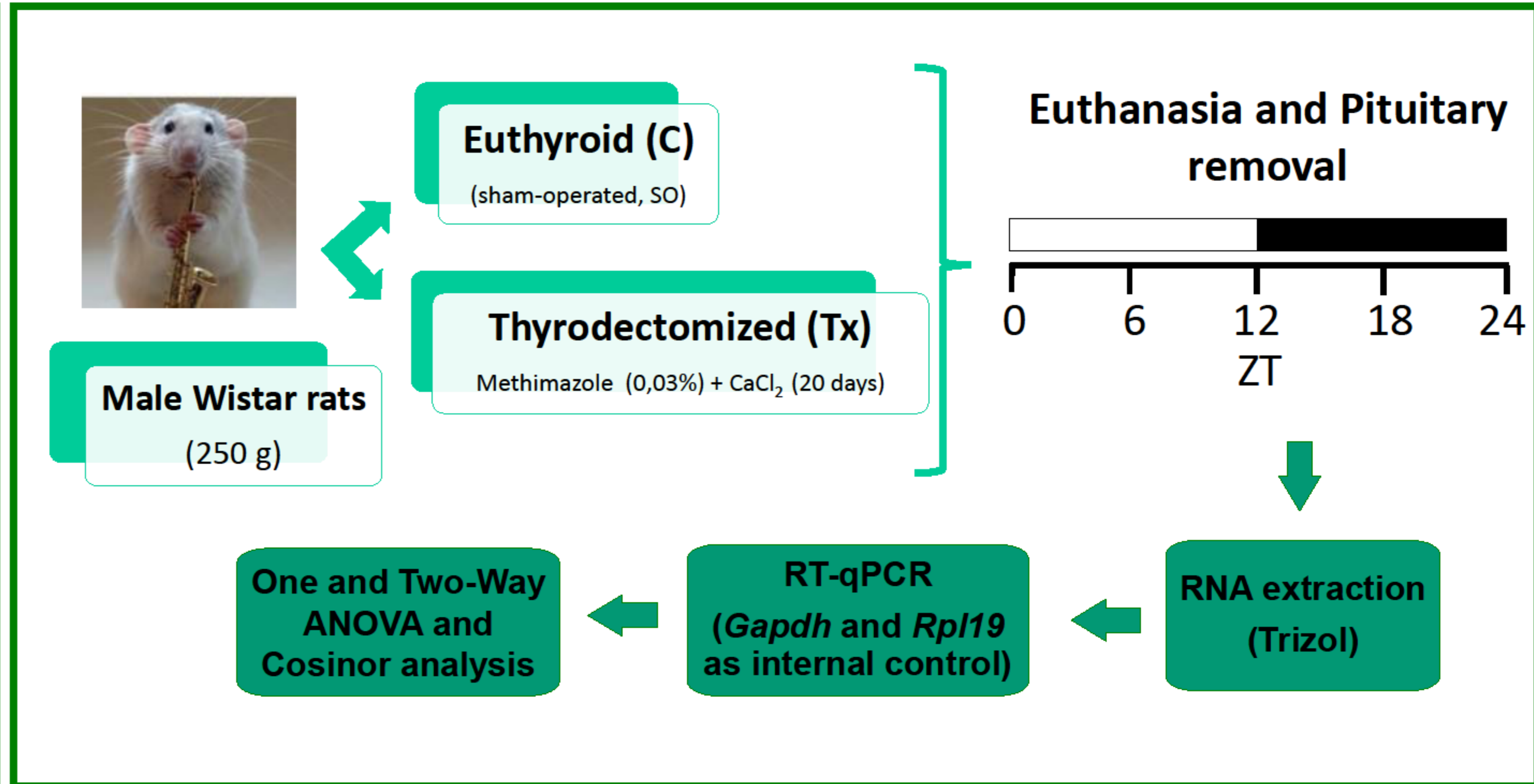
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CONTEXT AND OBJECTIVES

The anterior pituitary gland occupies a central position in the hypothalamus-pituitary-glands axes and secretes hormones involved in reproduction, growth and metabolism. The plasma concentrations of pituitary hormones present fluctuations during the 24 h and are markedly altered during the hypothyroidism.

The presence of an intra-pituitary circadian oscillator might be related to these oscillations; however, the molecular mechanism and the consequences of the hypothyroidism are still unknown. The purpose of the present study was to investigate the expression of *Bmal1*, *Per2*, *Dbp*, *Nr1d1*, *Rora* and *Dio2* during the adult hypothyroidism.

METHODS



RESULTS

The expression of *Bmal1*, *Per2*, *Dbp*, *Nr1d1*, *Rora* and *Dio2* presented a circadian pattern in anterior pituitary of C rats and the peak of *Per2*, *Dpb*, *Rora* and *Dio2* expression occurred at ZT 12, while for *Bmal1* was ZT 0/24. In the hypothyroid animals, the circadian pattern of *Bmal1*, *Rora* and *Dio2* was lost and the acrophase of *Per2*, *Dbp* and *Nr1d1* was advanced about 2.5 h, 3 h and 45 min, respectively. Tx also reduced Mesor values of *Dbp* and *Nr1d1*.

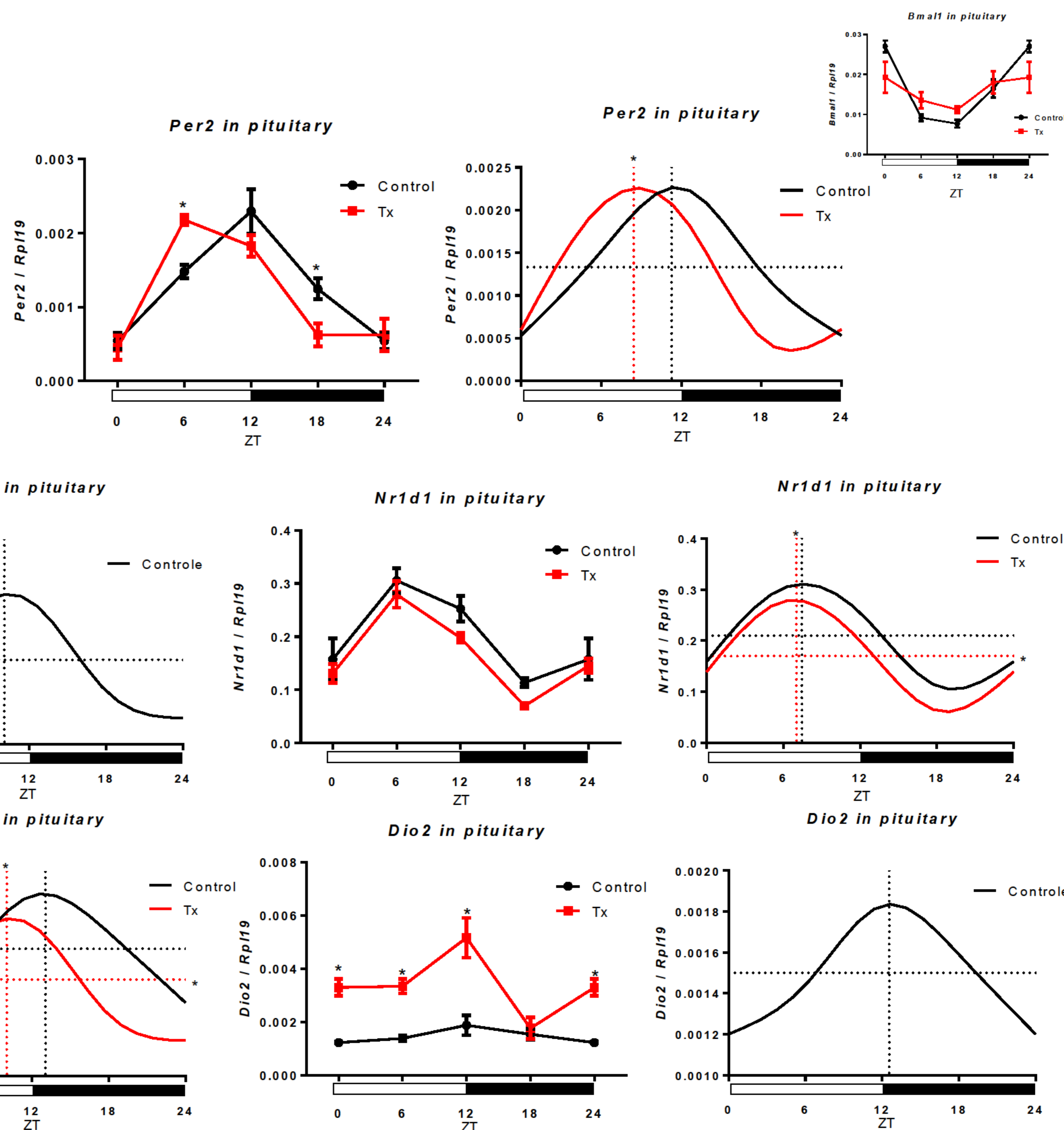


Figure legend – Expression and cosinor curve of *Per2*, *Bmal1*, *Rora*, *Nr1d1*, *Dbp* and *Dio2* in pituitary of Control and Thyrotoxic (Tx). The statistical analysis performed was One-way ANOVA, $P < 0.05$, for both groups in all cases, and Two-way ANOVA, $*P < 0.05$ vs Control at respective ZTs. $n = 5/\text{ZT}/\text{group}$. ZT = Zeitgeber Time.

Our studies reveal that the expression of core clock and clock-controlled genes in anterior pituitary gland are changed during the hypothyroidism and might contribute directly or indirectly to the altered hormonal pattern of secretion observed in this pathological condition. Further studies are in progress to assess this issue.

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