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## JOURNAL ARTICLE

# Thyroid hormone receptors in neonatal, prepubertal, and adult rat testis

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Thyroid hormone (TH) is involved in the differentiation and development of rat testis, whereas its role in adult testis function is still undefined. The aim of our work has been to further analyze the presence in the testis of rats of various ages of messenger RNA (mRNA) coding the different TH receptor (TR) subtypes using a sensitive assay, such as reverse transcriptase-polymerase chain reaction (RT-PCR). To rule out the possibility of an "illegitimate transcription," we have analyzed both T3-binding capacity of adult rat testis and the presence in the same organ of TR proteins by immunohistochemistry, using specific antibodies directed against the various TR isoforms. Messenger RNA coding for TR alpha1 and alpha2 isoforms was clearly visible in gels prepared from RT-PCR samples obtained from the testis of rats of all ages, including adults, whereas mRNA for the TR beta1-beta2 was absent. The T3 maximal binding capacity (C<sub>max</sub>) by nuclear extracts of testicular homogenates gradually decreased from birth to adulthood, still remaining significantly detectable in adult testis, and represented approximately 1% of the C<sub>max</sub> observed in the liver. The immunostaining technique revealed an intense nuclear staining along the basement membrane of testicular tubules prepared from rats of all ages and incubated with an antipeptide antibody specific for TR alpha1 (alpha1-403). Staining with an antipeptide antibody specific for TR beta1 (beta-62) was never present. Our data show that mRNAs coding for the functional TR alpha1, and also for the still undefined alpha2, are present in the testis of rats of all ages. T3-binding activity and immunohistochemical studies confirmed that the message is translated into proteins. The transcriptional activity clearly decreased from birth to adulthood, but it still remained significantly present. The presence of a TR alpha1 message indicates that the adult rat testis may be directly responsive to T3 and, therefore, suggests an action of TH on rat testis that is not only developmental, but also metabolic.

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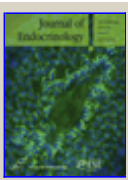
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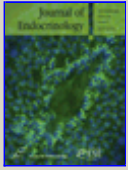
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