appear to be involved in the regulation of the oestrous cycle. The estimation of corticoid levels may be useful to determine whether stress has resulted from the handling of the experimental animals and sample collection.

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Ontogenic development of the renal ornithine decarboxylase response to testosterone

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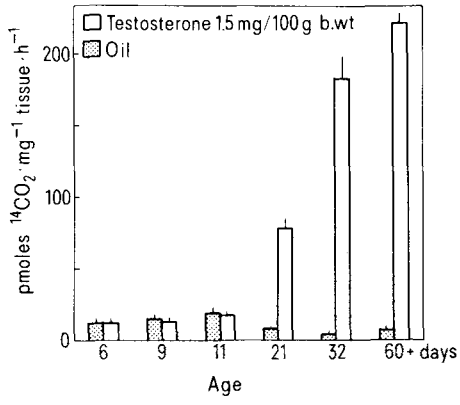
Summary. In neonatal mice, renal ornithine decarboxylase was not altered by testosterone injection, in contrast to adult mice in which the enzyme was greatly elevated following treatment with testosterone.

Ornithine decarboxylase (ODC, EC 4.1.1.17) is the rate-limiting enzyme in the biosynthesis of the polyamines, a group of aliphatic cations frequently associated with cellular profileration[1]. Numerous studies have demonstrated that ODC activity and polyamine concentrations are highest during rapid growth of regenerating tissues and during embryonic development of various animals[1]. In rat embryos ODC activity peaks on fetal days 12–15 and then declines to very low levels[2]. Intracellular polyamine concentrations follow this pattern closely.

ODC activity is hormonally sensitive and responds quickly, usually within 4 h to either peptide or steroid hormonal stimulation[3]. In the murine kidney testosterone propionate (TP) elicits an increase in ODC activity greatly exceeding that for other renotropic agents[4]. Ontogenic patterns of response to hormonal stimulation are exhibited by several renal enzymes[5], but such a pattern has not been demonstrated for ODC. We have therefore examined the renal ODC response to TP injections in neonatal and adult mice. ODC activity, as measured by in vitro production of $^{14}CO_2$ from DL-(1-^{14}C)-ornithine[4], was increased 2000% in the kidneys of adult male Nya: NYLAR mice 15 h after a s.c. injection of TP (1.5 mg/100 g b. wt) suspended in sesame oil. At postnatal day 6, by contrast, there was no renal response to TP injection when compared with oil injected controls (fig.). The neonatal response to TP increased slightly during the suckling period but was not maximal until after puberty. Control ODC activity in the kidney peaked at 11 days and then declined to adult levels at weaning – a pattern comparable to that of other enzymes[6]. Rajerison et al. reported a similar developmental pattern for renal response to vasopressin[5]; however, the response to vasopressin increased progressively, and the kidney never failed to respond to the hormonal stimulus. The authors attributed this phenomenon to an ontogenic development of vasopressin binding sites in the young rats[5]. Our results suggest that the renotropic effects of TP may be similarly related to kidney maturational processes. These could involve receptor changes, as in the vasopressin study, or a temporal deficit of intracellular effectors, such as cAMP[7]. Future studies are planned to clarify this relationship.



Effect of s.c. injection of testosterone propionate on renal ODC. Values are mean ± SEM for 8 mice in each group.

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