

82. GLUCOCORTICOID NUCLEAR BINDING TO HYPOTHALAMUS AND ANTERIOR PITUITARY IN INTACT (N) COMPLETE HYPOTHALAMIC DEAFFERENTATED (CHD) AND INDOMETHACIN (IM) PRETREATED MALE RATS Weidenfeld, J., Siegel, R.A., Conforti, M., Chen, M. and Chowers, I. - Laboratories of Experimental Endocrinology and Neurophysiology, Hadassah University Hospital and Zondek Institute-Department of Medicine, Bikur Cholim Hospital, affiliated with the Hebrew University-Hadassah Medical School, Jerusalem, Israel

Hypothalamic slices and adenohipophyseal lobes taken from adrenalectomized N, CHD or IM pretreated male rats were incubated in Krebs ringer-bicarbonate buffer in the presence of either  $2 \cdot 10^{-8}$   $^3\text{H}$ -corticosterone (CS) or  $^3\text{H}$ -dexamethasone (Dex) with or without  $10^{-5}\text{M}$  of the unlabeled steroid for 30 min. at  $25^\circ$ . In N rats hypothalamic and adenohipophyseal nuclear binding were 200 fmol (CS)/mg prot. and 160 fmol (Dex)/mg prot. respectively. In CHD rats the hypothalamic nuclear binding was markedly reduced (by approximately 50%) but remained unchanged in the anterior pituitary. Pre-treatment with the prostaglandins inhibitor -IM (5 mg/100 g BW) markedly reduced the hypothalamic and adenohipophyseal nuclear binding of CS and Dex respectively.

These results suggest: (1) that CNS sites outside the medial basal hypothalamus are important for the regulation of CS binding in the hypothalamus (2) the binding of glucocorticoids in both the hypothalamus and the anterior pituitary is modulated by the presence of prostaglandins.

83. THE INVOLVEMENT OF GONADAL AND ADRENAL STEROIDS IN MODULATION OF AGGRESSIVE BEHAVIOR IN A MARMOSSET MONKEY.

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The marmoset monkey *Saguinus fuscicollis*, a native of the Amazon river basin rain forest, lives in family troops containing only one dominant ( $\alpha$ ) breeding couple and their subdominant descendents and non-related individuals. The  $\alpha$ -male and  $\alpha$ -female defend their territory against intruding conspecifics very furiously. This specific aggressive behavior pattern, as some more aggression-related behaviors, is not lost following gonadectomy. To study whether replacement of gonadal steroids by adrenal ones occurs in this context, 10 castrated males were bled immediately after aggressive encounters with a strange conspecific, and under non-stressful conditions ( $n = 4$  each). Resting castrated monkeys have higher plasma cortisol levels (3.3  $\mu\text{g}/\text{ml}$ ) than intact (1.7  $\mu\text{g}/\text{ml}$ ; the highest resting levels recorded for any primate); they retain one-half of their plasma androstenedione (63.8 vs. 127.8  $\text{ng}/\text{ml}$ ) and all the estrone (5.6  $\text{ng}/\text{ml}$ ), but lose their testosterone (26.4  $\text{ng}/\text{ml}$ ) and estradiol (175  $\text{pg}/\text{ml}$ ) titers. Following the aggressive encounters, cortisol and androstenedione have risen significantly (to 4.3  $\mu\text{g}/\text{ml}$  and 81.2  $\text{ng}/\text{ml}$ , respectively). Injection of dexamethasone lowered the cortisol and androstenedione to undetectable levels, concomitant with some reduction in overt aggressiveness. We conclude that part of the control of aggressive behavior in the marmoset monkey is mediated by adrenocortical steroids.

84. EFFECTS OF HERBICIDES ON THE MODE OF ANDROGEN ACTION AT CALF PITUITARY LEVEL

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Effects of herbicides, atrazine and prometryne, on the crucial enzymic systems and on binding of androgens to their receptors at calf pituitary level were studied. Testosterone /T/ was mainly converted into 5 $\alpha$ -dihydrotestosterone /DHT/ and 5 $\alpha$ -androstano-3 $\alpha$ ,17 $\beta$ -diol at female calf pituitary level, while in male T was converted mainly to androstenedione and further on to androstanoedione. Atrazine inhibits the enzymic activity at calf male and female pituitary up to 50%. The microcalorimetric method was used to study the specific reaction between DHT, T and progesterone /P/ and their receptors at calf male and female pituitary, in the absence and in the presence of atrazine and prometryne. Binding of DHT and P to male and female calf pituitary cytosol was found as an exothermic reaction. The presence of herbicides in the reaction media exerted decrease of the molar enthalpy change values, for 9 to 90%. T binding to cytosol receptors either at male or female calf pituitary was indicated as an endothermic process. The presence of herbicides increases the molar enthalpy changes more in females than in males, but in both sexes the increase was to the endothermic direction.