RECEPTORS FOR ESTRADIOL 17 IN THE OVIDUCT OF THE SKATE, RAJA ERINACEA.

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Although estrogens have been definitively identified as products of the skate and dogfish ovary (Callard, G.V., Petro and Ryan, Endocrinology 103:2283-2290, 1978) and plasma levels of estradiol 1% correlate well with advancing follicular development (Koob, Tsang and Callard, Biol. Reprod. 35:267-275, 1986; Tsang and Callard, Gen. Comp. Endocrinol. 66:182-189, 1987), reproductive tract receptors have not been identified in oviparous elasmobranchs. Here we report preliminary data on the characteristics of an estradiol 17 receptor in the oviduct of Raja erinacea. Cytosolic and nuclear extracts were obtained by differential ultracentrifugation and salt extraction techniques previously reported (Riley, Heisermann, McPherson and Callard, J. Steroid Biochem. 26:41-47, 1987). The receptor which saturates between 4.0 and 5.0 nM estradiol 17¢ (Fig. 1) has high affinity (Fig. 2; Scatchard analysis: $K_d 7 \times 10^{-10}$ M) and low capacity (B_{max} 1-3 × 10⁻¹ M). The receptor is specific for estradiol 17¢ and the synthetic estrogen diethylstilbestrol (DES), while progestins and androgens compete poorly (estradiol 17/2, 100% > DES, 94% > estriol, 79% > estrone, 41% > corticosterone, 40% > testosterone, 23% > progesterone, 24% > dihydrotestosterone, 18%). Association time for the nuclear receptor at 22°C was between 45 minutes and 1 hour and was stable at 4 hours. DEAE-Sepharose chromatography of cytosol and nuclear receptor forms revealed that the receptor elutes as one peak at a KCI concentration of 0.13 M.

This is the first demonstration of an estrogen receptor in the oviduct of an oviparous elasmobranch, although G.V. Callard and Mak (Proc. Natl. Acad. Sci. U.S.A. 82:1336-1340, 1985) have reported an estrogen receptor in the oviduct of the dogfish, *Squalus acanthias*. It is thus likely that the reported variations in oviduct and shell gland size in *Raja erinacea* which correlate well with ovarian follicular growth and plasma estradiol values (Koob, Tsang, Laffan and Callard, The Bulletin (MDIBL) 22:97-99. 1982) are dependent upon this receptor.

Supported by NSF DCB-8606344 to I.P.C.



Figure 2. Scatchard analysis of data from nuclear extracts ($K_{\rm d}$ = 6.7 x 10⁻¹⁰M).

