ESTRADIOL REGULATES NOS ACTIVITY VIA ESTRADIOL RECEPTORS

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AIM: To determine the activity of nitric oxide synthase (NOS, the enzyme involved in the synthesis of nitric oxide NO) and the effect of estradiol (E_2) administration.

MATERIAL AND METHODS: Male Wister rats, aged 2.5 months were injected with 17□estradiol (5mg/kg, i.p.) for 24hr. After 24hr of treatment, we measured NOS activity in the blood plasma samples, with use of the Griess reagent,

RESULTS: Prolonged treatment with E_2 stimulated NOS activity. The concentration of NOS is significantly higher in E_2 treated (E_2=148 ± 74nM/ml) than in control rats (Con=30± 5 nM/ml). To determine whether this stimulatory activity of E_2 is acting through E_2 receptors, we treated rats with an anti-estrogen Tamoxifen (TX) (20mg/kg, i.p.) which works by competing with estrogen to bind to estrogen receptors. Indeed, this treatment prevented the stimulatory effect of E_2 on NOS activity. (E_2+TX =25± 6 nM/ml).

CONCLUSION: These results indicate that E_2 acts through E_2 receptors to up-regulate NOS activity.