

Estrogen and progesterone receptor isoforms expression in the stomach of Mongolian gerbils

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Gerbils were treated with estradiol and E2+ progesterone. Stomach proteins were immunoblotted for Estrogen-alpha, ER-beta, progesterone receptor-A, PR-B. ER-alpha, PR-A and PR-B were detected. PR isoforms were not regulated by hormones. E2 down-regulated ER-alpha in corpus. This suggests that E2 and P4 actions in stomach are mediated by their nuclear receptors.

We have previously shown that E2 and P4 have clear and distinct effects on inflammatory response and gastric epithelial changes during early H. pylori infection. Recently, Ohtani et al., have shown a protective role of E2 administration in H. pylori-infected InGas mice. Other studies have demonstrated that E2 and P4 have anti-ulcerative effects in murine gastric mucosa. ER and PR have been reported in human, mouse and rat stomach. However, there is no information to date of their expression and regulation in Mongolian gerbil stomach.

A research article to be published on October 7,2008 in the *World Journal of Gastroenterology* addresses this question. The research team led by Dr. Camacho-Arroyo from Universidad Nacional Autónoma de México used commercially available antibodies to detect estrogen and progesterone receptors isoforms in female gerbil stomach.

They also evaluated the effects of E2 and E2+P4 in the regulation of these receptors. As it has been previously reported that stomach has

steroidogenic activity, and that both estradiol (E2) and progesterone (P4) play differential roles in response to gastric injury and *H. pylori* infection, it was important to be able to detect these proteins in Mongolian gerbils stomach.

Specific bands for estrogen receptor (ER)-alpha (68 kDa), progesterone receptor (PR)-A (85 kDa) and PR-B (120 kDa) were detected, unfortunately they were unable to detect ER-beta isoform. The identity of the receptors was defined by using rat uteri samples along with the Mongolian gerbil uteri. This is important because Mongolian gerbils sex steroid receptors have not been sequenced at the gene or protein levels. The detection of these receptors with antibodies raised against other specie receptors suggests high conservation of the specific epitopes among species. The validation of commercially available antibodies for ER and PR in Mongolian gerbils adds applicability to the results of this study.

The regulation of ER and PR by E2 and P4 was first defined in target organs in the reproductive tract, and after several studies, there is enough evidence that this regulation is tissue specific and it is associated to the function of E2 and P4 in every particular tissue. ER and PR expression regulation in Mongolian gerbils has not been reported previously. The lack of regulation of ER and PR in gerbil uteri deserved further investigation. The differential regulation in gastric antrum and corpus suggests differential roles of these receptors in the different gastric mucosa. This study raises interesting questions to be addressed in future research.

Source: World Journal of Gastroenterology

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