KEY WORDS

- ✓ Premature Ovarian Insufficiency
- ✓ DHEA
- ✓ Hypothalamus
- ✓ Brain
- ✓ Neuropeptide

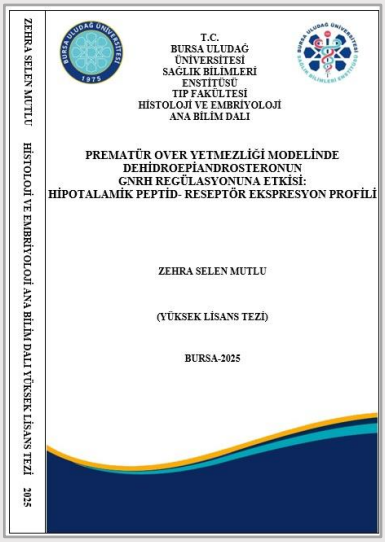
CONTACT

E-MAIL:
selenmutlu@uludag.edu.tr

THESIS SUPERVISOR

TELEPHONE:
(0224) 295 25 25

E-MAIL:
cihancakir@uludag.edu.tr



THE EFFECT OF DEHYDROEPIANDROSTERONE ON GNRH REGULATION İN A PREMATURE OVARIAN INSUFFICIENCY MODEL: HYPOTHALAMIC PEPTIDE-RECEPTOR EXPRESSION PROFILE

Zehra Selen MUTLU
0000-0002-2370-4698
BURSA ULUDAG UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCEINCES
HISTOLOGY AND EMBRYOLOGY DEPARTMENT- REPRODUCTIVE BIOLOGY AND CLINICAL EMBRYOLOGY MSc PROGRAM

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SUPERVISOR

Asst. Prof. Dr. Cihan CAKIR
ORCID: 0000-0002-8332-7353
BURSA ULUDAG UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCIENCES
HISTOLOGY AND EMBRYOLOGY DEPARTMENT
BURSA – TURKIYE

THESIS ABSTRACT

Premature ovarian insufficiency (POI) is a significant clinical condition characterized by impaired ovarian function before the age of 40, leading to infertility. Dehydroepiandrosterone (DHEA) has the potential to improve ovarian function and increase in vitro fertilization (IVF) success rates in patients with POI.
In our study, it was found that alterations in the hypothalamic–pituitary–gonadal (HPG) axis observed in a VCD-induced POI rat model could be modulated by DHEA. DHEA was shown to influence neuropeptides that exert direct effects on the HPG axis; however, it had no significant effect on certain metabolically related peptides and receptors, such as melanocortin, leptin, dynorphin, and rfrp. These findings suggest that DHEA exerts selective effects on hypothalamic neuropeptide systems and may improve specific pathways involved in GnRH secretion. This sheds light on the potential mechanisms of DHEA in the treatment of POI and contributes to the growing body of knowledge in this field.

APPLICATION AREAS OF THE THESIS RESULTS

Our findings suggest that DHEA may serve as a potential agent in restoring homeostatic balance at the hypothalamic level, and indicate that neurosteroids such as DHEA may offer novel, pharmacologically targetable pathways for the treatment of premature ovarian insufficiency.

ACADEMIC ACTIVITIES

1. **Mutlu, S.,** Cakir, C., Kasapoglu, I., & Avci, B. (2024). Does size matter? The role of ovarian endometriomas in affecting ovarian function and ICSI outcomes. Reproductive BioMedicine Online. Advance online publication. https://doi.org/10.1016/j.rbmo.2024.104545
2. **Mutlu, Z.S.,** Cakir, C. (2024). Exploring the influence of various factors on oocyte maturation rates and clinical outcomes in ART cycles. Congress of the Federation of Women's Health Associations, Antalya, Turkiye
3. Cakir, A., Cakir, C., **Mutlu, Z.S.,** Ustunbas, E. (2025) The Effect of Uridine on Ferroptosis Pathways in Rats with Dehydroepiandrosterone-Induced Polycystic Ovary Syndrome Model