



KEY WORDS

- ✓ BALB/c
- √ HIF-1α
- ✓ Mammary tumor
- ✓ Ozone
- ✓ Paclitaxel
- ✓ VEGF-A

CONTACT

E-MAIL:

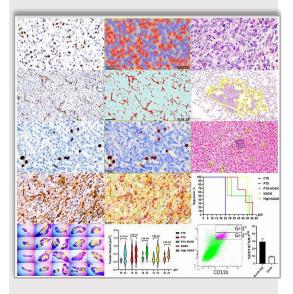
zehraavci07@gmail.com

THESIS SUPERVISOR

TELEPHONE: (+90 224) 294 1305

E-MAIL:

ozyigit@uludag.edu.tr



INVESTIGATION OF THE EFFECTS OF PACLITAXEL AND OZONE USE ON HIF-1 α AND VASCULOGENESIS IN MAMMARY TUMOR FORMATION IN DOGS: EXPERIMENTAL MOUSE MODEL

ZEHRA AVCI KUPELI

ORCID: 0000-0003-1853-4679
BURSA ULUDAG UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCEINCES
VETERINARY PATHOLOGY DEPARTMENT
PhD PROGRAM

GRADUATION DATE: 09.02.2024

SUPERVISOR

PROF. DR. M. OZGUR OZYIGIT ORCID: 0000-0003-0682-8127 BURSA ULUDAG UNIVERSITY GRADUATE SCHOOL OF HEALTH SCIENCES VETERINARY PATHOLOGY DEPARTMENT BURSA – TÜRKİYE



THESIS ABSTRACT

Breast tumors are one of the most common types of cancer. Triple-negative breast cancer (TNBC) does not respond to hormonal therapies because estrogen, progesterone and HER2 receptors are missing or produced at low levels. The tumor microenvironment is hypoxic due to rapid tumor growth and inadequate blood perfusion. Over time, the amount of HIF-1 α increases and initiates the transcription of a number of genes, including VEGF-A, which promotes vasculogenesis, which plays an important role in tumor growth and metastasis.

In a mouse model of 4T1 breast tumor, PTX and ozone administration for treatment was positively associated with anti-tumoral immune responses in high-dose ozone-treated patients, suggesting that a decrease in Ki67 expression level may suppress tumor cell proliferation. While both immune and mRNA expression of HIF-1 α decreased in low dose ozone, its effect on the vascular system remains unclear.

APPLICATION AREAS OF THE THESIS RESULTS

TNBC is a common subtype of mammary tumor with a poor prognosis in humans and dogs. It does not respond to hormonal therapy. In dogs, most treatment approaches are performed in combination with surgery and chemotherapy, but there is no standardized treatment protocol. Ozone therapy may be effective in eliminating the hypoxic environment in the tumor microenvironment and limiting tumor proliferation and may be used as an adjunctive therapy in combination with other treatment approaches.

ACADEMIC ACTIVITIES

Avci Kupeli Z., Etgu O., Sabanci A. U., Yoyen Ermis D., Oral H. B., & Ozyigit M. O. (2022). Effects of paclitaxel (Pax) and nanobubble ozone stored niosomes (NOSN) combination on 4T1 breast cancer related immune responses, 5th International Molecular Immunology and Immunogenetics Congress (MIMIC-V)

Avci Kupeli Z., Etgu O., Sabanci A. U., Yoyen Ermis D., Oral H. B., & Ozyigit M. O. (2023). Investigation of the effects of paclitaxel and ozone applications on tumor proliferation and vasculogenesis in an experimental mouse mammary cancer model, 11th National 2nd International Congress of Veterinary Pathology

Avci Kupeli Z., Etgu O., Sabanci A. U., Yoyen Ermis D., Oral H. B., & Ozyigit M. O. (2023). Paklitaksel ve nano-kabarcık ozon depolanan niozom solüsyonunun 4T1 meme kanseri modelinde miyeloid kökenli baskılayıcı hücrelerin tümör anjiyogenezi ve proliferasyonu üzerindeki etkisinin incelenmesi, 26. Ulusal İmmünoloji Kongresi

Avci Kupeli Z., Akkoc A., Yavas O, & Saricetin A. (2020). A case of calcinosis circumscripta in a Belgian malinois dog, 10th National and 1st International Veterinary Pathology Congress