

**PENGARUH FREEZE DRIED BOVINE BONE XENOGRAFT TERHADAP
SEKRESI TNF- α PADA HUMAN PERIPHERAL BLOOD MONONUCLEAR CELLS
(hPBMCs)**

**FREEZE DRIED BOVINE BONE XENOGRAFT EFFECT ON THE SECRETION OF
TNF- α IN HUMAN PERIPHERAL BLOOD MONONUCLEAR CELLS (hPBMCs)**

ABSTRACT

Background: Teeth extraction is a common practice in the field of dentistry. Teeth loss can cause negative effects for the patient in the form of a reduction in alveolar bone dimensions. To overcome these problems, the clinician can use alveolar bone grafting procedures to stimulate wound healing and stabilize the dimensions of the alveolar bone. Freeze-dried bovine bone xenograft (FDBX) is a graft derived from bovine bones, and processed by means of freeze-drying or also called lyophilization. Implantation of bone graft at the alveolar bone defect will trigger the body's immune response. However, excessive/prolonged inflammation can cause resorption of the graft. Tumor Necrosis Factor- α is a cytokine which is released rapidly after trauma or infection and is one of the most abundant mediators in inflamed tissue. The immune system and immune response play a very important role in the concept of bone healing. Peripheral Blood Mononuclear Cell (PBMCs) is a critical component of the immune system to fight infection and immune response to foreign substances. **Objective:** This study aims to evaluate TNF- α secretion in human peripheral blood mononuclear cells (hPBMCs) induced by freeze-dried bovine bone xenograft (FDBX) on the 24 hours, 72 hours, and 120 hours. **Method:** The sample was divided into two groups, a control group and a treatment group. In treatment groups, hPBMC culture was induced by FDBX-conditioned medium 2.5% dilution and TNF- α secretion of the cells after one, three, five days were evaluated. In control groups, TNF- α secretion of the hPBMC culture after one, three, five days were evaluated. Replication of each sample group consisted of five samples. ELISA reader is used to measure the secretion of TNF- α . **Result:** The amount of TNF- α secretion in hPBMCs cultures after FDBX 2.5% induction on the first day (24 hours), third day (72 hours), and fifth day (120 hours) is significantly different. **Conclusion:** FDBX induce increased TNF- α secretion in hPBMCs cultures. The amount of TNF- α secretion was highest on the 24 hours, and start to decline after 72 hours, and 120 hours.

Keywords: TNF- α , FDBX, hPBMCs