

**PENGARUH IRAMA SIRKADIAN TERHADAP JUMLAH OSTEOKLAS
TULANG ALVEOLAR MARMUT (*Cavia Cobaya*)**

***THE INFLUENCE OF CIRCADIAN RHYTHM TOWARDS THE NUMBER OF
OSTEOCLAST FORMATION ON MARMOTS' ALVEOLAR BONE***

ABSTRACT

Background: Light is one of the external stimuli that played an important role in mammal's circadian rhythm. The light-dark cycle in the environment could affect the secretion of melatonin from the pineal gland. Moreover, change of melatonin secretion could affect the bone resorption which is rolled by the numbers of osteoclast. **Purpose:** The aim of this study was to find the effect of circadian rhythm towards the number of osteoclast on marmots' alveolar bone. **Methods:** 24 marmots (*Cavia cobaya*) were divided into three groups. Group I (n=8) were exposed to constant light continuously; Group II or control group (n=8) were exposed to 12 hours light alternate with 12 hours dark environment and the third group, Group III (n=8) were placed in constant continuous darkness. Tooth separators were inserted in the marmots' upper teeth for 7 days. At the end of 21 days, the marmots were sacrificed and the maxillary alveolar bones were extracted for the microscopic examination using 400 x magnifications to look for the presence of osteoclast number. **Results:** There was osteoclast formation in one marmot in Group I (constant continuous light) but not in the other groups. **Conclusion:** The presence of light in the circadian rhythm does not influence the osteoclast formation in the marmots' alveolar bone.

Keywords: Melatonin, Circadian Rhythm, Osteoclast.