

Volume 79, Issue 2  
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Lijun Tan, Yijin Ren, Jun Wang, Lingyong Jiang, Hui Cheng, Andrew Sandham, Zhihe Zhao (2009) Osteoprotegerin and Ligand of Receptor Activator of Nuclear Factor. The Angle Orthodontist: Vol. 79, No. 2, pp. 292-298.

Original Articles

## Osteoprotegerin and Ligand of Receptor Activator of Nuclear Factor kappaB Expression in Ovariectomized Rats during Tooth Movement

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### Abstract

**Objective:** To test the null hypothesis that increased tooth displacement in ovariectomized rats is not related to differential expressions of OPG and RANKL in the periodontium.

**Materials and Methods:** Eighty-four 12-week female rats were used; half were ovariectomized and half were not. Three months later, the maxillary first molar was moved mesially. Groups of rats were sacrificed at days 0, 1, 3, 5, 7, 10, and 14 after activation. Tooth movement was measured at each time point. OPG and RANKL expressions were examined through immunohistochemistry.

**Results:** Ovariectomized and nonovariectomized rats showed three-phase tooth movement. In both groups, OPG expression increased at the tension area and RANKL increased at the pressure area. The OPG/RANKL ratio coincided with tooth movement, especially in the linear phase from 7 to 14 days.

**Conclusions:** The null hypothesis is rejected. The increased rate of tooth movement in ovariectomized rats was related to differential expressions of OPG and RANKL.

**Keywords:** [Tooth movement](#), [RANKL](#), [OPG](#), [Ovariectomy](#), [Periodontal ligament](#)

Accepted: April 2008;

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An International Journal of Orthodontics and Dentofacial Orthopedics


A Publication of the Edward H. Angle Society of Orthodontists and  
the EH Angle Education and Research Foundation

Volume 79 (6)

November 2009

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Frequency: Bimonthly

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