

Manuscript Type: Article

2-O-digalloyl-1,3,4,6-tetra-O-galloyl-β-D-glucose isolated from *Galla Rhois* suppresses osteoclast differentiation and function by inhibiting NF-κB signaling

Hye Jung Ihn^{a,1}, Tae Hoon Kim^{b,1}, Kiryeong Kim^c, Gi-Young Kim^d, You-Jin Jeon^d, Yung Hyun Choi^e, Jong-Sup Bae^f, Jung-Eun Kim^g, Eui Kyun Park^{c,*}

^aInstitute for Hard Tissue and Bio-tooth Regeneration (IHBR), Kyungpook National University, Daegu 41940, Republic of Korea

^bDepartment of Food Science and Biotechnology, Daegu University, Gyeongsan 38453, Republic of Korea

^cDepartment of Oral Pathology and Regenerative Medicine, School of Dentistry, IHBR, Kyungpook National University, Daegu 41940, Republic of Korea

^dDepartment of Marine Life Sciences, School of Marine Biomedical Sciences, Jeju National University, Jeju 63243, Republic of Korea

^eDepartment of Biochemistry, College of Korean Medicine, Dong-Eui University, Busan 47227, Republic of Korea

^fCollege of Pharmacy, CMRI, Research Institute of Pharmaceutical Sciences, Kyungpook National University, Daegu, 41566, Republic of Korea

^gDepartment of Molecular Medicine, School of Medicine, Kyungpook National University, Daegu, 41944, Republic of Korea

Running title: DTOGG suppresses osteoclastogenesis and function

Keywords: hydrolysable tannins, 2-O-digalloyl-1,3,4,6-tetra-O-galloyl-β-D-glucose, osteoclast differentiation, bone resorption

***Corresponding author:**

Eui Kyun Park, PhD. Tel: +82-53-420-4995, e-mail: epark@knu.ac.kr.

¹ **These authors contributed equally to this work.**

