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Data Article

Supporting data for the effect of gamma-secretase inhibitors in osteoclast differentiation and spreading

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ABSTRACT

The data in this article is related to the research article entitled "Notch2 signaling promotes osteoclast resorption via activation of PYK2" (Jin et al., 2016 [1]). To block Notch signaling activation, we used several gamma-secretase inhibitors (GSIs) and evaluate the inhibitory potential of GSIs on osteoclastogenesis. We measured the effect of GSIs on osteoclastogenesis and normal spreading of osteoclasts by using the mouse bone marrow-derived macrophages (BMMs) which may contributes to insight of physiological relevant of in vivo. This data article suggests valuable approach to GSIs treatment doses and potential of those in the osteoclast differentiation and spreading.
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Specifications Table

Subject area	Biology

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More specific subject area	Developmental biology
Type of data	Figure, Graph
How data was acquired	Cell culture, TRAP-stain, Microscope, OsteoMeasure XP program (version 1.01; OsteoMetrics).
Data format	Analyzed
Experimental factors	Bone marrow cells were obtained by flushing tibiae of mice and nonadherent cells were expanded for three days using M-CSF to generate Bone marrow-derived macrophage, a progenitor of osteoclast.
Experimental features	Bone marrow-derived macrophages were differentiated osteoclast with various dose and several gamma-secretase inhibitors in the presence of M-CSF and RANKL. Fully differentiated osteoclasts were TRAP-stained to measure osteoclast number and spreading.
Data source location	Seoul National University, Seoul, Republic of Korea
Data accessibility	Data with this article

Value of the data

- This data shows the effect of gamma-secretase inhibitors (GSIs) on osteoclast formation and normal spreading.
- Various doses of GSIs provide comparison of inhibitory potential on osteoclast differentiation and spreading.
- This data provides starting and target doses for several GSIs against osteoclast differentiation and spreading that offers valuable approach for investigation of Notch signaling and gamma-secretase involvement in osteoclast differentiation and cytoskeletal organization.

1. Data

This data provides supporting information of the role of Notch signaling on osteoclast differentiation and function [1]. Notch signaling has been shown to regulate osteoclastogenesis negatively by Notch1 or positively by Notch2 [2]. To investigate whether Notch signaling affects osteoclast differentiation and spreading, we assessed the inhibitory potential of four GSIs from BMM to mature osteoclast forming period.

2. Experimental design, materials and methods

2.1. Reagents

Recombinant human M-CSF and RANKL were purchased from PeproTech EC (London, UK). The gamma-secretase inhibitors, Dibenzazepin (PubChem CID: 11454028), L685,458 (PubChem CID: 5479543), Compound E (PubChem CID: 11306390) DAPT (PubChem CID:5311272) were purchased from Calbiochem-Merck Co (Darmstadt, Germany).

2.2. Cell culture

To obtain BMMs, bone marrow cells (BMCs) were collected by flushing tibiae from 5-week-old male ICR mice and red blood cells had been removed with ACK buffer (0.01 mM EDTA, 0.011 M

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