NIGMS Science Advance

Project Title: Tyrosine Phosphatase SHP2 in Hematopoietic Stem Cell Property Maintenance

Institution and State: Rhode Island Hospital, Providence, Rhode Island

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Background: SHP2 appears to be critical in macrophage biology and mice lacking SHP2 expression develop osteoporosis (hardening of the bones) as they age

Advance: This work shows that SHP2 can selectively regulate cells (osteoclasts) that degrade bone. The osteoclast degradation of bone could be a major mechanism underlying osteoporosis. This work indicates that inhibiting SH2 could be a therapeutic strategy for treating osteoporosis.

How NIGMS Grant Enabled Advance: Critical in supporting the laboratory studies

Public Health Impact Statement: Osteoporosis is a major health problem in the country, this work could lead to effective therapy for osteoporosis

NIH Director's theme(s) relevance*: Work which could translate into therapy for a major disease.

Grant Support: COBRE grant

Publication Citation and Link (if applicable):
SHP2 regulates osteoclastogenesis by promoting preosteoclast fusion.
Zhou Y, Mohan A, Moore DC, Lin L, Zhou FL, Cao J, Wu Q, Qin YX, Reginato AM, Ehrlich MG, **Yang W**. FASEB J. 2015 Jan 15. pii: fj.14-260844. [Epub ahead of print]
PMID: 25593124 [PubMed - as supplied by publisher]

Key Words: SHP2, osteoporosis, macrophages

NIGMS Point of Contact:

*****NIH Director's Themes: Genomics, Translational Research, Health Care Reform, Global Health, Reinvigorating the Biomedical Community.*
http://nexus.od.nih.gov/all/2009/09/01/five-themes-for-the-nih-3/
http://news.sciencemag.org/funding/2010/02/nih-director-bends-budget-fit-five-themes