

NIGMS Science Advance

Project Title: Cycling Marrow Stem Cells: Implications for Purification and Fate Determination

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

PI Name: Laura R Goldberg

Background: Previous work had suggested that primitive marrow stem cells were a non-cycling cell population and could be purified to homogeneity. These purified stem cells have been the object of a large amount of experimental work to define their characteristics and regulation. This is particularly important in the fields of marrow cell transplantation and gene therapy

Advance: The present work is seminal in that it indicates that the marrow stem cells are cycling and thus cannot be purified by present approaches. This indicates that decades of research on marrow stem cells have been irrelevant and points the way to studies to truly understand marrow stem cells. This will impact significantly on the fields of stem cell transplantation and gene therapy

How NIGMS Grant Enabled Advance: Supported directly the laboratory work

Public Health Impact Statement: A critical insight into stem cell biology

NIH Director's theme(s) relevance*: Will alter the approaches to stem cell transplant and gene therapy

Grant Support: COBRE grant

Publication Citation and Link (if applicable): [The murine long-term multi-lineage renewal marrow stem cell is a cycling cell.](#)

Goldberg LR, Dooner MS, Johnson KW, Papa EF, Pereira MG, Del Tatto M, Adler DM, Aliotta JM, Quesenberry PJ.

Leukemia. 2014 Apr;28(4):813-22. doi: 10.1038/leu.2013.252. Epub 2013 Aug 30.

PMID:

23989430

[PubMed - indexed for MEDLINE]

Key Words: cell cycle, marrow stem cells, stem cell transplantation

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>