

ABSTRACT

Genetically modified mice comprising a nucleic acid sequence encoding a human M-CSF protein are provided. Also provided are genetically modified mice comprising a nucleic acid sequence encoding a human M-CSF protein that have been engrafted with human cells such as human hematopoietic cells, and methods for making such engrafted mice. These mice find use in a number of applications, such as in modeling human immune disease and pathogen infection; in *in vivo* screens for agents that modulate hematopoietic cell development and/or activity, *e.g.* in a healthy or a diseased state; in *in vivo* screens for agents that are toxic to hematopoietic cells; in *in vivo* screens for agents that prevent against, mitigate, or reverse the toxic effects of toxic agents on hematopoietic cells; in *in vivo* screens of human hematopoietic cells from an individual to predict the responsiveness of an individual to a disease therapy, *etc.*

[Figure 2A]