

Expert Opinion

Bone marrow-targeted liposomal carriers

Keitaro Sou[†], Beth Goins, Babatunde O Oyajobi, Bruno L Travi & William T Phillips

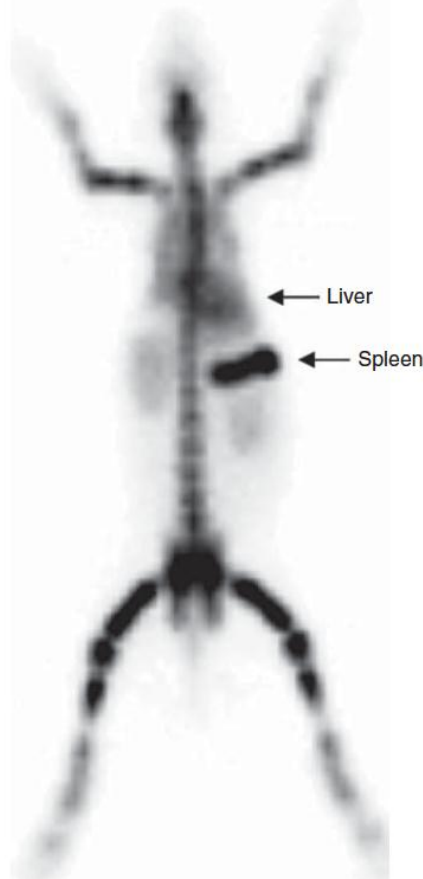
[†]Waseda University (TWIns), Center for Advanced Biomedical Sciences, Tokyo, Japan

1. Introduction

A. Rhesus monkey



B. Rabbit



Introduction: Bone marrow-targeted drug delivery systems appear to offer a promising strategy for advancing diagnostic, protective and/or therapeutic medicine for the hematopoietic system. Liposome technology can provide a drug delivery system with high bone marrow targeting that is mediated by specific phagocytosis in bone marrow.

Area covered: This review focuses on a bone marrow-specific liposome formulation labeled with technetium-99 m. Interspecies differences in bone marrow distribution of the bone marrow-targeted formulation are emphasized. This review provides a liposome technology to target bone marrow. In addition, the selection of proper species for the investigation of bone marrow targeting is suggested.

Expert opinion: It can be speculated that the bone marrow macrophages have a role in the delivery of lipids to the bone marrow as a source of energy and for membrane biosynthesis or in the delivery of fat-soluble vitamins for hematopoiesis. This homeostatic system offers a potent pathway to deliver drugs selectively into bone marrow tissues from blood. High selectivity of the present bone marrow-targeted liposome formulation for bone marrow suggests the presence of an active and specific mechanism, but specific factors affecting the uptake of the bone marrow mononuclear phagocyte system are still unknown. Further investigation of this mechanism will increase our understanding of factors required for effective transport of agents to the bone marrow, and may provide an efficient system for bone marrow delivery for therapeutic purposes.