DISTINGUISHED LECTURE in BIOLOGICAL ENGINEERING

“Bone Marrow Adiposity and Myelopoiesis in PPARγ Null Mice”

Monday – May 19, 2014 – 1:30 p.m.  
(please mind the atypical time!)

EPFL – room SV 1717a

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host: Prof. Olaia Naveiras

Abstract

Bone physiology and hematopoiesis are intimately linked. Adult hematopoiesis takes place in the bone cavity, where a variety of cells and molecular contacts create a niche allowing hematopoietic stem cells (HSCs) to undergo cell division and differentiation in a highly regulated manner. Adipocytes are also present in the bone marrow and their contribution to the stem cell niche has been proposed. The nuclear receptor Peroxisome proliferator-activated receptor-γ (PPARγ) is critically required for adipocyte differentiation. PPARγ activation also acts on bone physiology via inhibition of osteoblast formation and promotion of adipocyte differentiation from common mesenchymal progenitors. To explore the systemic and local importance of adipose tissue, we generated a mouse model carrying a constitutive deletion of PPARγ, which is totally deprived of any form of adipose tissue. As a result, deletion of PPARγ and/or lack of adiposity in the bone marrow cavity activates long-term HSCs (LT-HSCs) and promotes myelopoiesis from bone marrow progenitors. This is accompanied by severe extramedullary hematopoiesis (EMH). Data emphasizing the role of bone marrow adiposity in setting the appropriate bone marrow microenvironment for bone homeostasis and hematopoiesis will be presented.

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