

9° WORKSHOP IN EMATOLOGIA TRASLAZIONALE

DELLA SOCIETÀ ITALIANA DI EMATOLOGIA SPERIMENTALE

Bologna, Aula "G. Prodi", 19-20 maggio 2025



**CD44 regulates monocyte and hematopoietic stem and progenitor
cell extravasation to promote extramedullary hematopoiesis in
myelofibrosis patients**

Camilla Tombari

Disclosures of Camilla Tombari

Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other

Myelofibrosis (MF)

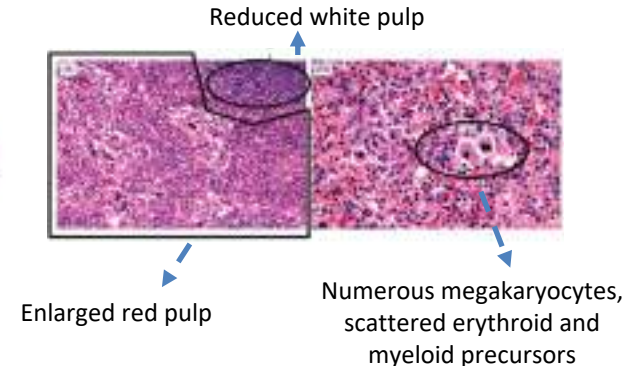
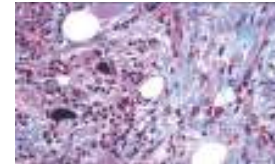
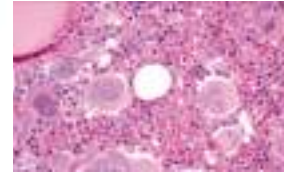
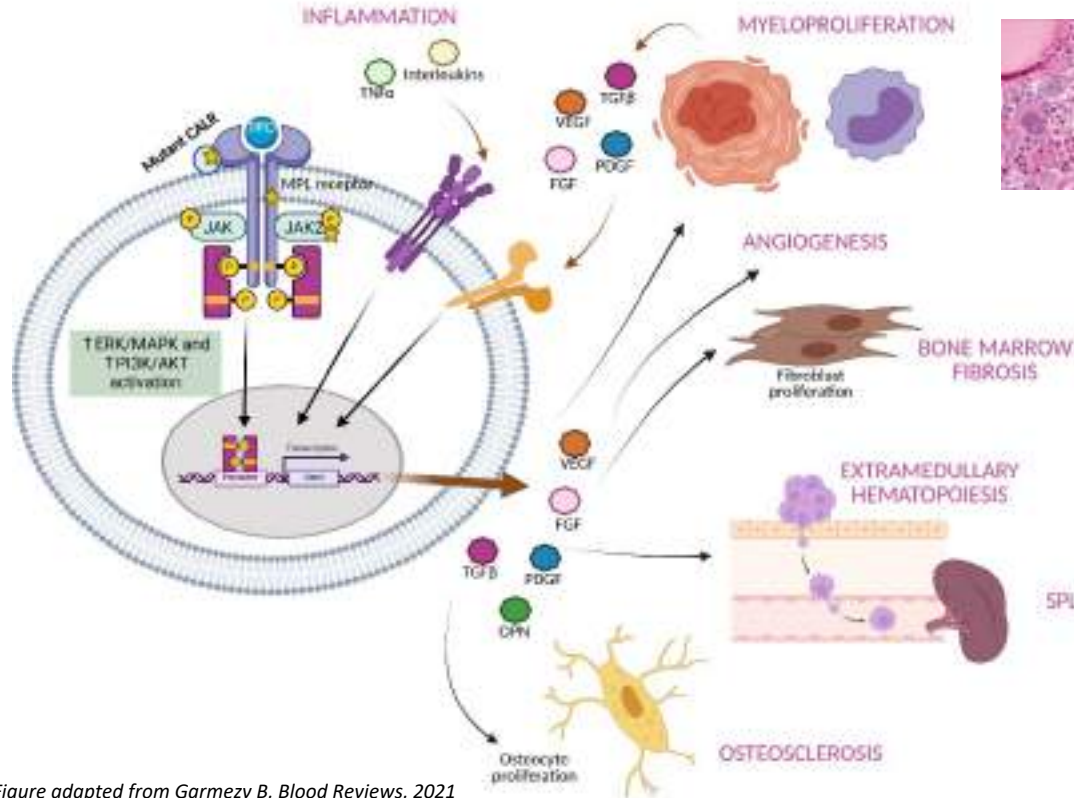


Figure adapted from Garmezy B, Blood Reviews, 2021

Bone Marrow biopsies pictures from Rumi E., Cazzola M., Blood, 2017

Spleen biopsies pictures from Naeim et al., Atlas of Hematopathology, 2018

Myelofibrosis (MF)

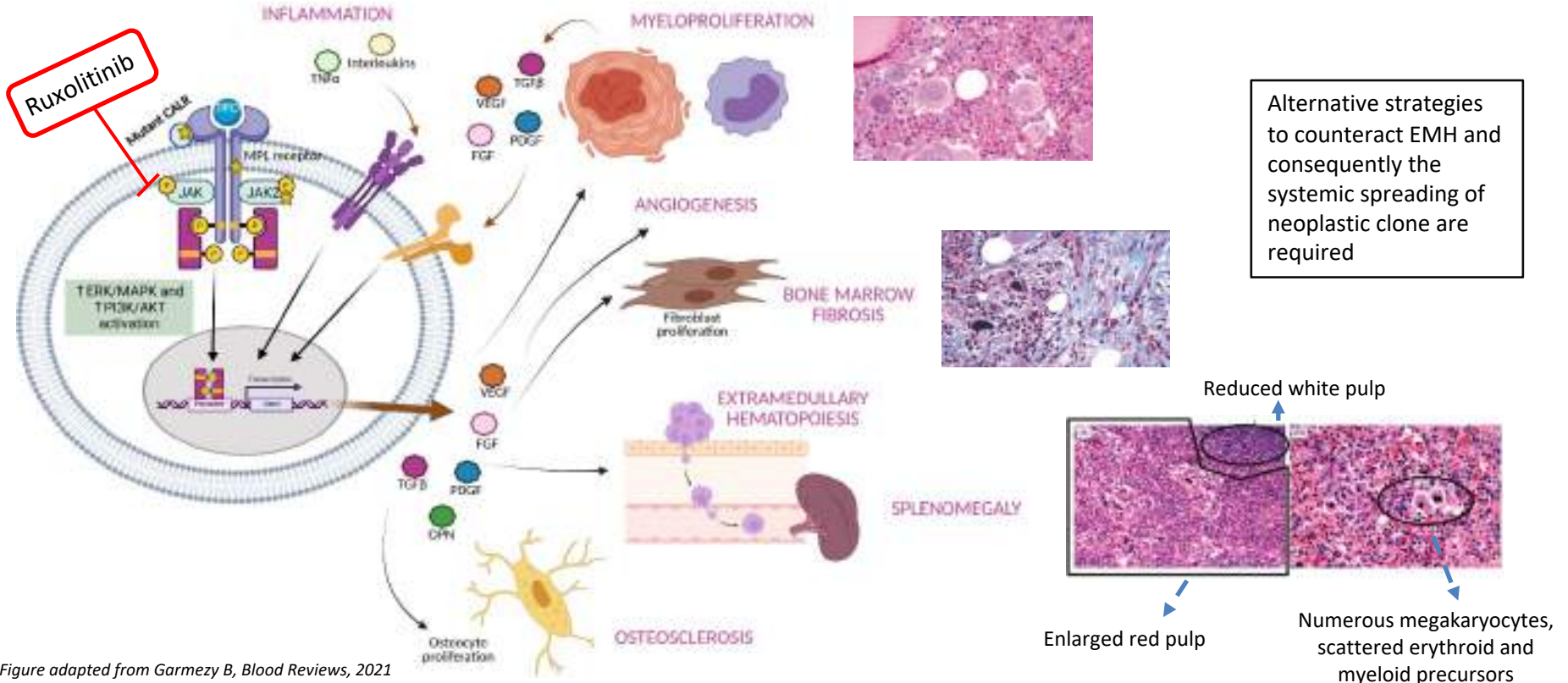
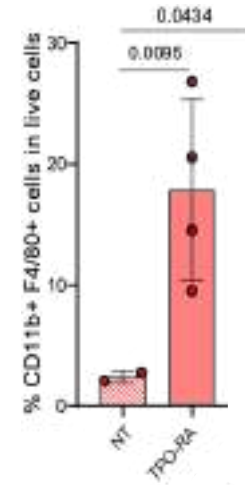
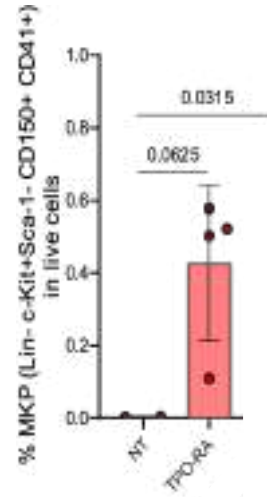
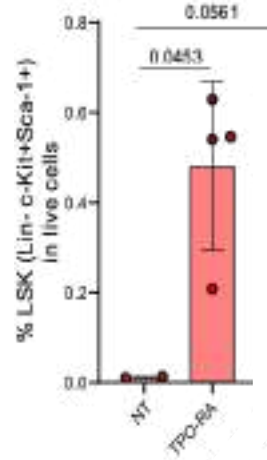
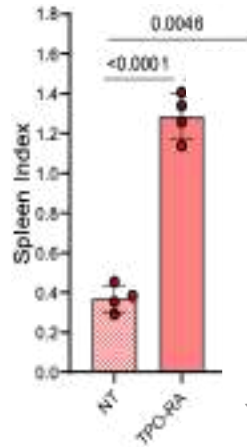
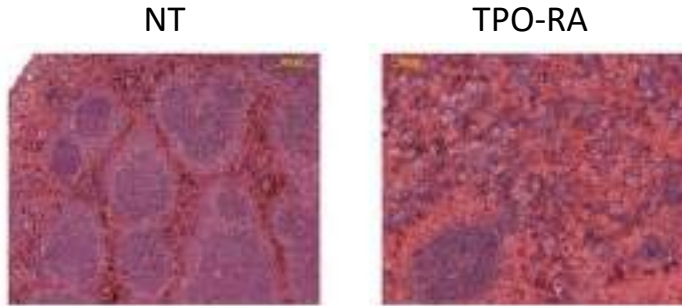
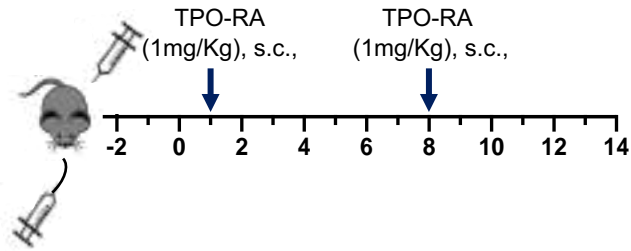


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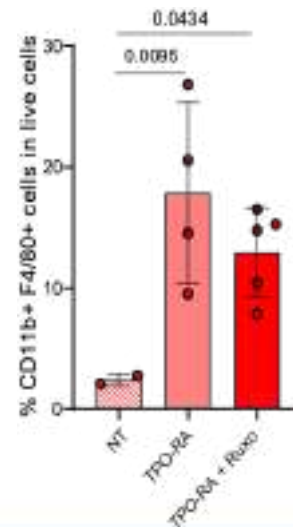
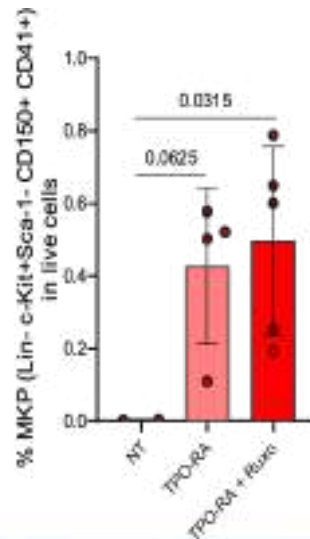
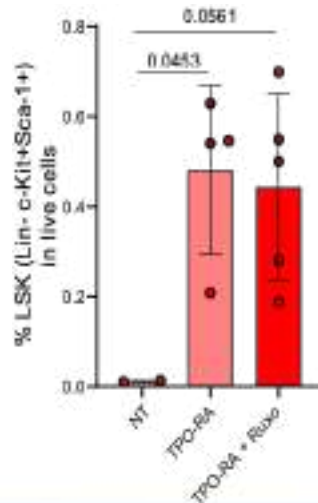
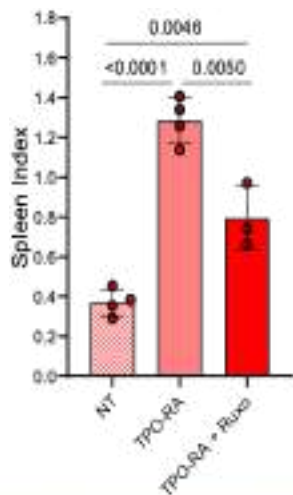
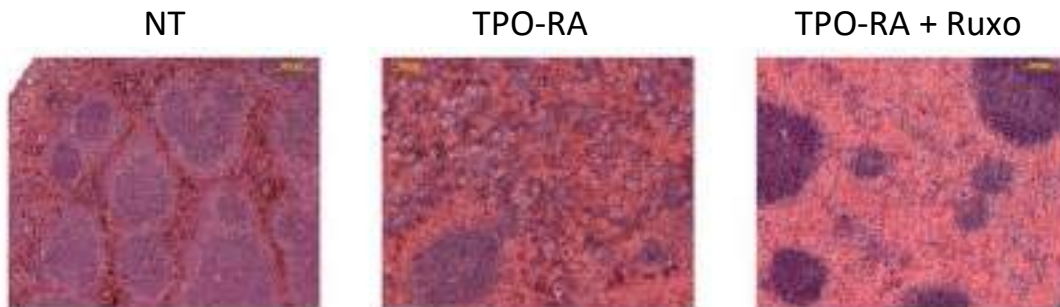
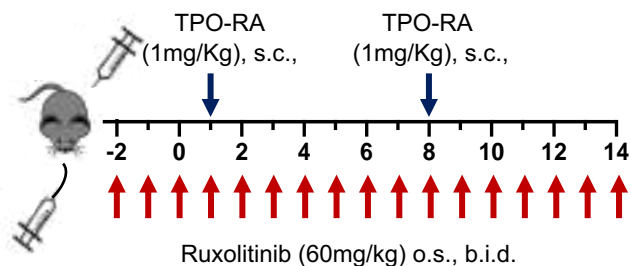
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Ruxolitinib reduces splenomegaly but does not restore spleen histology



Ruxolitinib reduces splenomegaly but does not restore spleen histology



Do monocytes act as primers for HSPCs mediated EMH?

Arch Histol Cytol. 2019;73(3):127-37. doi: 10.1007/s00412-018-1127-1.

Recruited peripheral blood monocytes participate the liver extramedullary hematopoietic milieu

Ayako Takamune-Ishizu¹, Shunichi Morikawa, Kazuhiko Shimizu, Tetsu Endo

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PMID: 22572180 DOI: 10.1679/aohc.73.127

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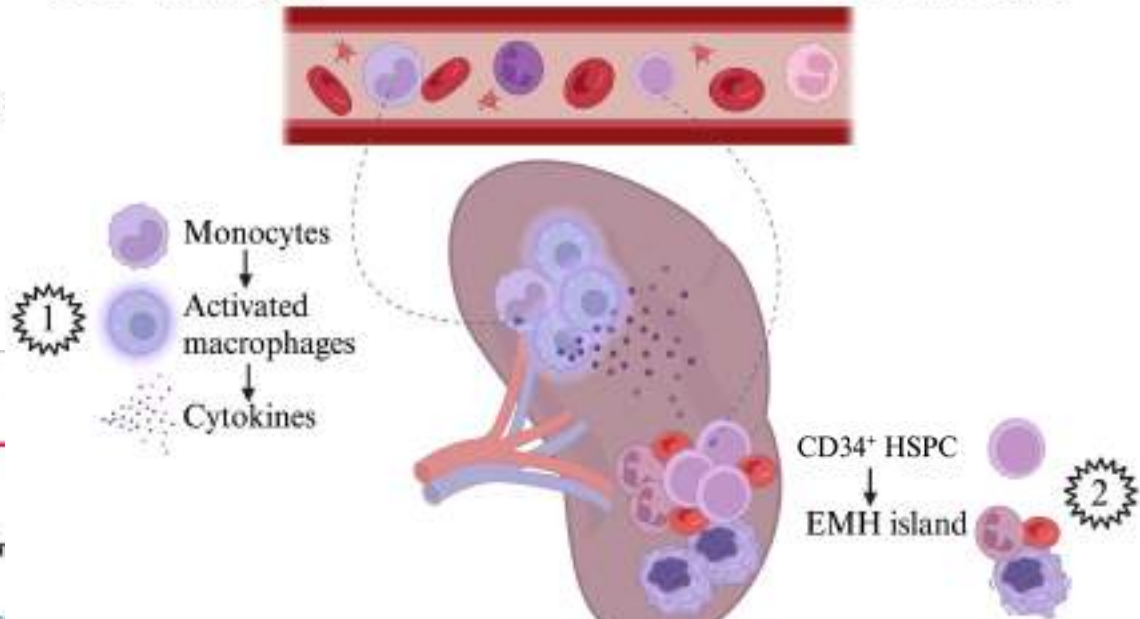
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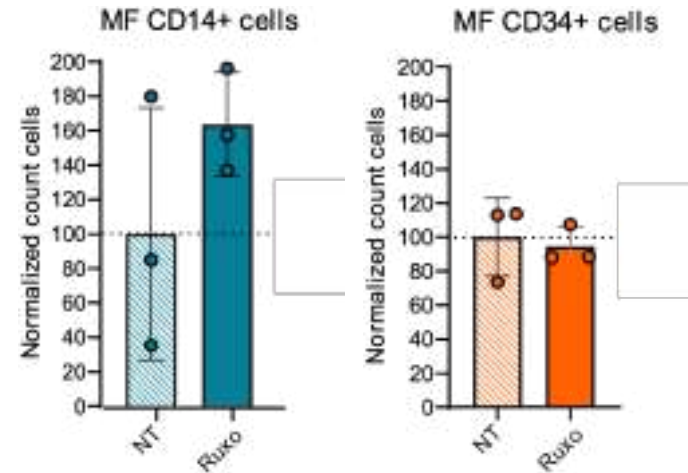
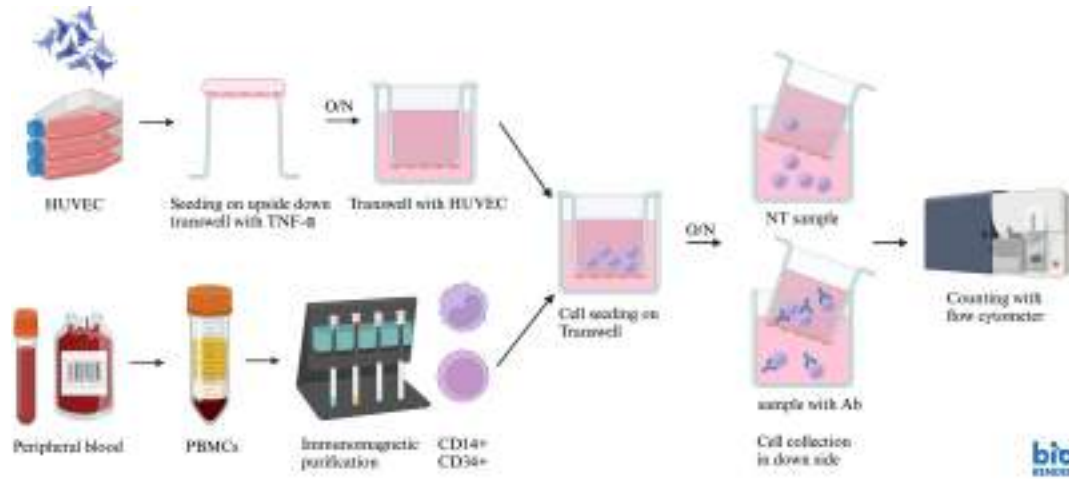
Macrophages support pathological erythropoiesis in polycythemia vera and β -thalassemia

Patrizia Ferraro, Carlo Cava, Sara Gandolfi, Luca Basso, Stefania Cazzaniga, Elia Gini, Maria Hanna-Morone, Shobha Gupta, Rami L. Levine, Simon Maciejewski, Benjamin L. Ebert, Naveen N. Sankar, Sushil Malhotra, Robert W. Grady, Patricia I. Gonsky & Stefano Ferraro[✉]

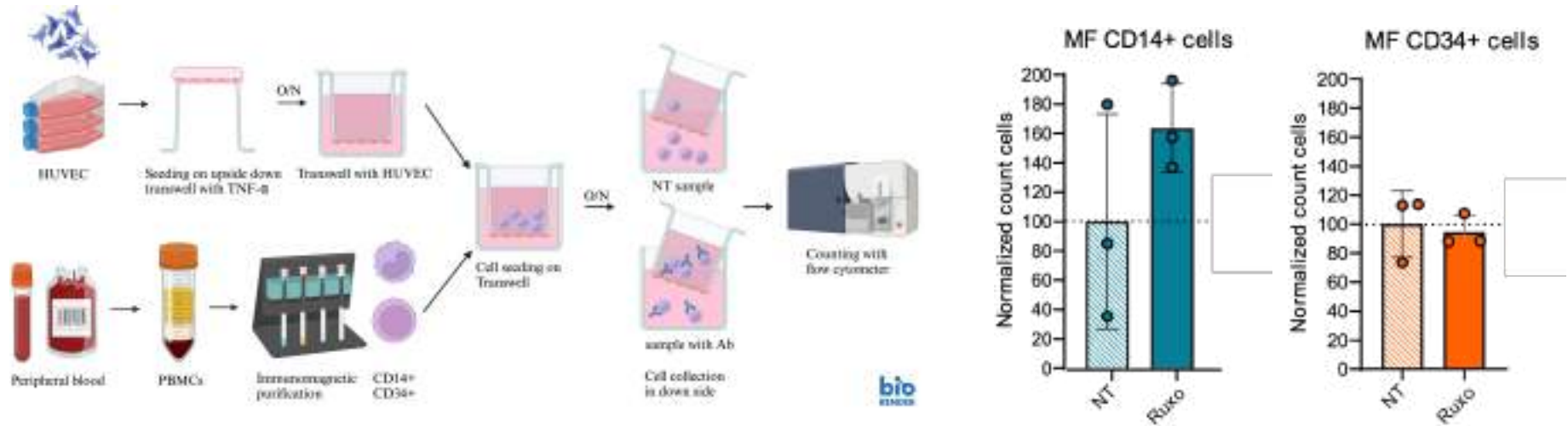
Nature Medicine 18: 437–445 (2012) | [View this article](#)



Ruxolitinib does not affect Monocytes and HSPCs migration



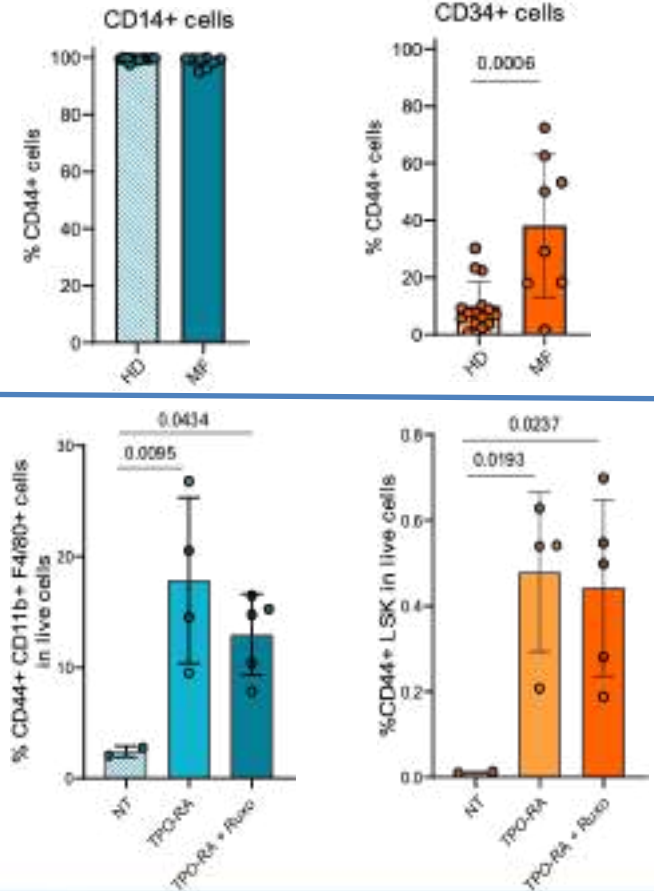
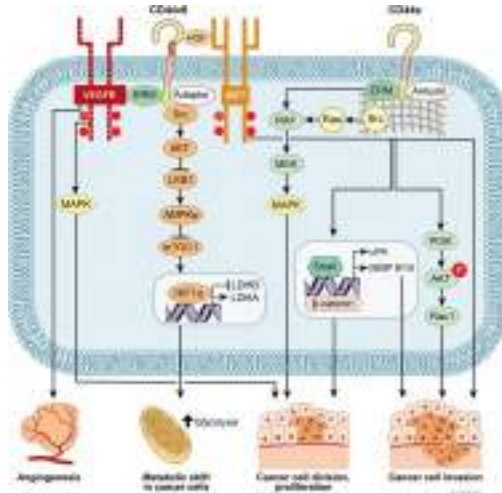
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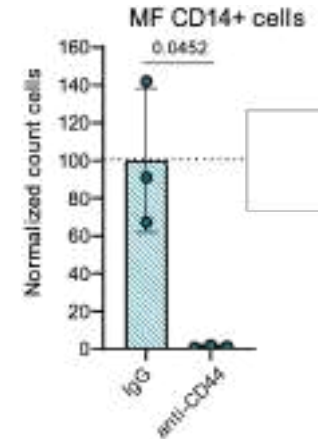
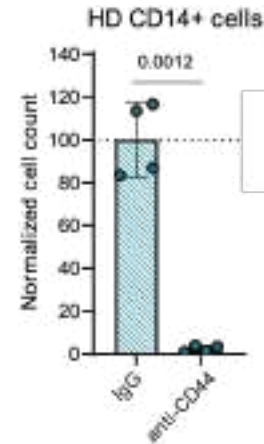
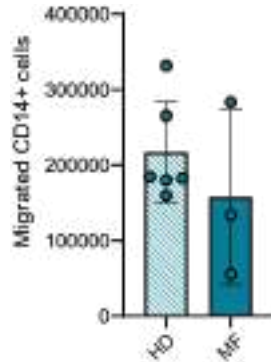
What's the molecular mediators of monocytes and HSPCs migration?

OPN receptor CD44 is upregulated in MF

- OPN high plasma levels in MF mice and patients
- Anti-OPN reduces BM fibrosis in TPO-RA mouse model
- OPN promotes macrophages accumulation and HSPCs homing

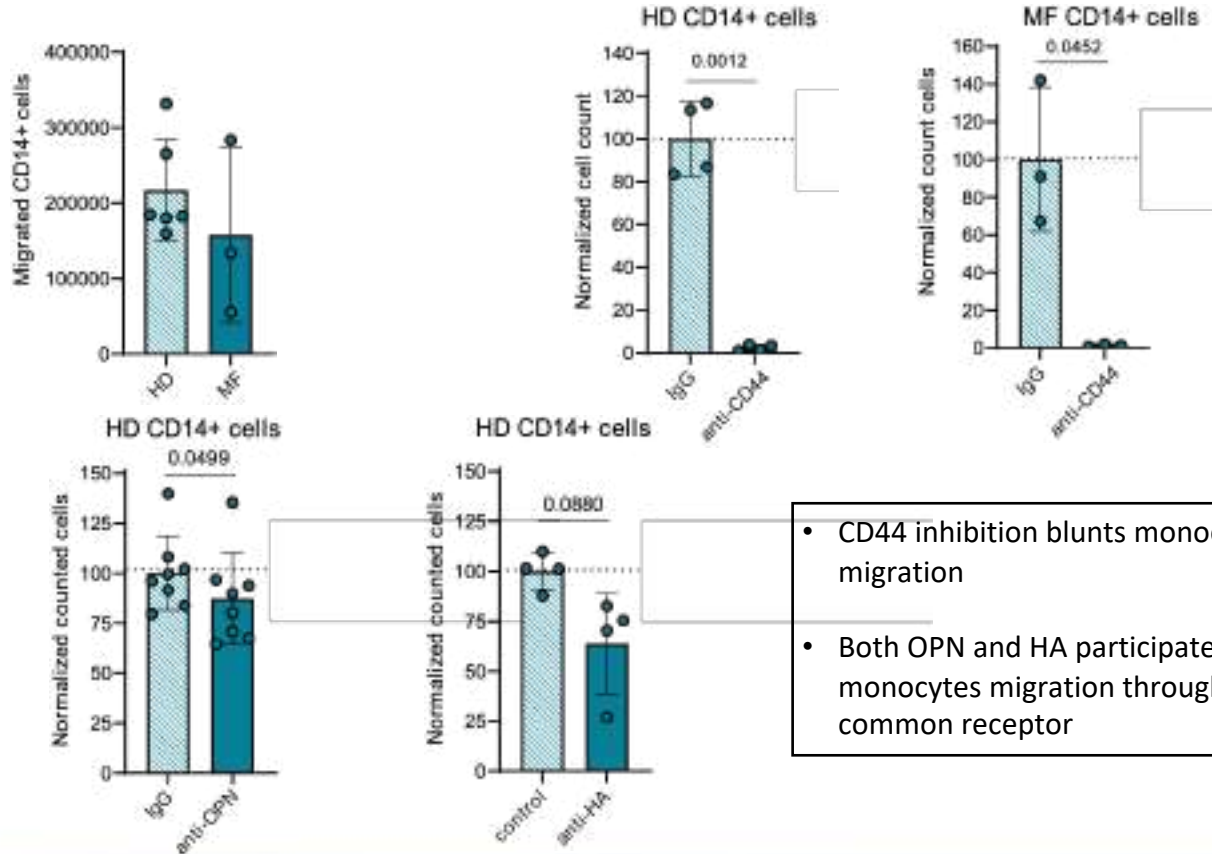


Inhibition of CD44 and of its main ligands reduces monocytes migration



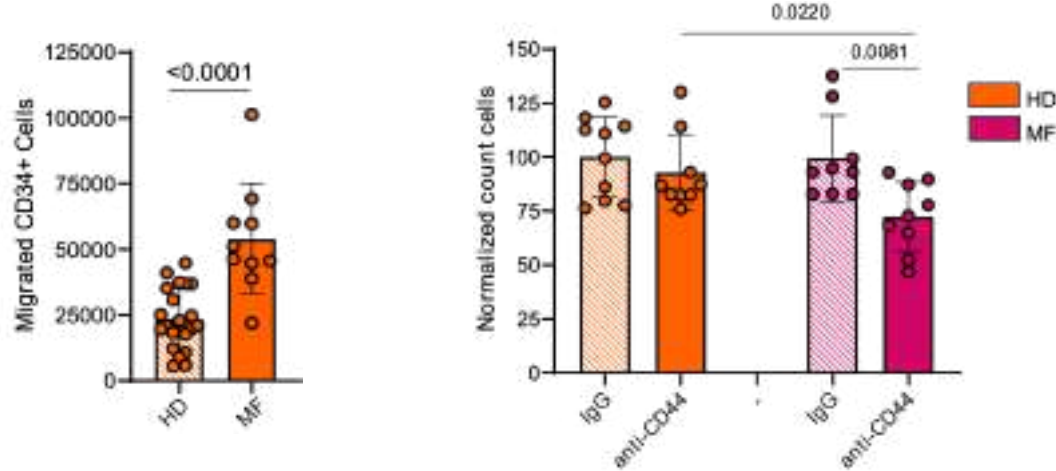
- CD44 inhibition blunts monocytes migration

Inhibition of CD44 and of its main ligands reduces monocytes migration



- CD44 inhibition blunts monocytes migration
- Both OPN and HA participates in regulating monocytes migration through their common receptor

MF HSPCs are more sensitive to CD44 inhibition than HD HSPCs

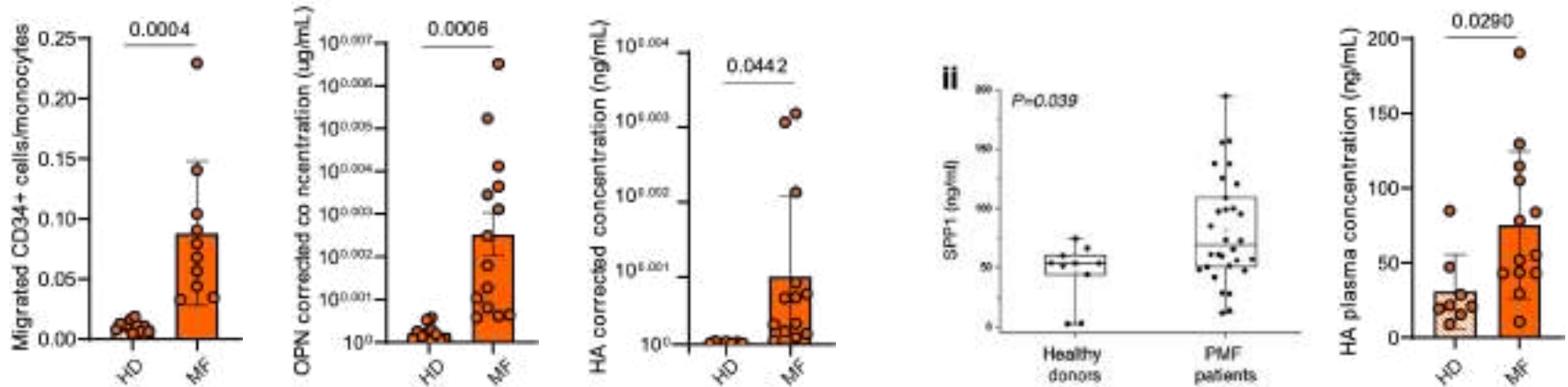


- MF HSPCs are more prone to migration and more sensitive to CD44 inhibition than HD HSPCs

MF HSPCs are more sensitive to CD44 inhibition than HD HSPCs

Monocytes conditioned medium

OPN and HA plasma levels



Leukemia. 2017 Aug 8;32(2):438–449.

- MF HSPCs are more prone to migration and more sensitive to CD44 inhibition than HD HSPCs
- MF monocytes secrete CD44 ligands with chemoattractant functions for HSPCs
- Both OPN and HA plasma levels are higher in MF patients than HD



Thank you for your attention!

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Dr. N. Bartalucci

