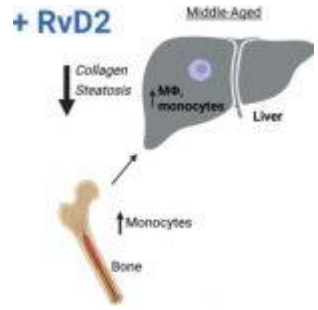
# Inflammaging – new insights




Recent research delves into understanding the processes that drive chronic inflammation during aging, known as "inflammaging," and identifies potential strategies to mitigate age-related organ decline (Figure 1). These insights revolve around the resolution of inflammation, highlighting the role of specialized proresolving lipid mediators (SPMs), specifically Resolvin D2 (RvD2), in tempering age-associated tissue dysfunction.

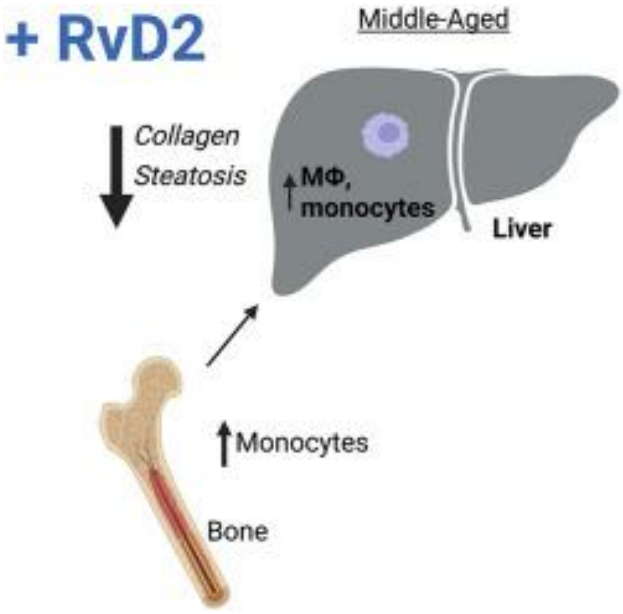



***Figure 1: Graphical abstract.***

Studies exploring inflammation-resolving mechanisms have revealed that inflammaging might persist due to impaired resolution programs. Treatment with SPMs like resolvins has shown promise in curbing excessive inflammation and age-related tissue deterioration.

RvD2 was found to act through a G-protein–coupled receptor called GPR18, crucial for maintaining tissue equilibrium during aging. In mouse models reflecting normal aging, researchers observed liver changes typical of middle age, including fatty liver disease and collagen buildup. These changes correlated with reduced protective macrophages. Notably, the transcriptional analysis indicated an increase in Gpr18 in aged macrophages compared to young ones, prompting investigations into its role in aging. Researchers generated a mouse model with myeloid cells lacking GPR18 and treated mice with RvD2 to assess its impact.

Their studies revealed that myeloid-specific GPR18 limited liver steatosis and collagen accumulation. Supplementing with RvD2 improved liver histopathology, notably increasing monocytes/macrophages in bone marrow and blood. Bone marrow transplants further demonstrated RvD2's direct influence on monocyte/macrophage progenitors. Surprisingly, RvD2 exhibited specific actions on bone marrow, inducing a targeted increase in monocyte/macrophage precursors.

This research offers a compelling proof-of-concept that RvD2 holds promise in mitigating established liver fibrosis, possibly through its influence on bone marrow function. These insights open avenues for potential interventions to combat inflammaging and associated organ decline.

**Journal article: H. K., et al. *2023.* Resolvin D2–GPR18 Enhances Bone Marrow Function and Limits Steatosis and Hepatic Collagen Accumulation in Aging. *American Journal of Pathology*.**

*Summary by Stefan Botha*