

Augmenting Stress-Induced Erythropoiesis

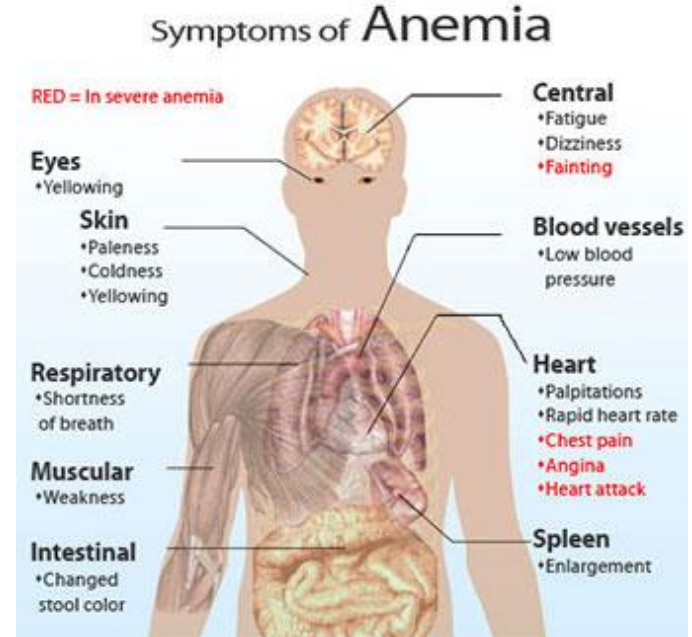
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Anemia

- Anemia is the inability to generate enough red blood cells to adequately carry oxygen to the body's tissues
- Affects 1.62 billion people worldwide.
- Clinical Problem:
 - Over 3 million cases in the US each year
 - Current treatments aim to stimulate red blood cell production (erythropoiesis)



CD24-Mediated Stress Erythropoiesis

Solution: Researchers at the University of Virginia have discovered that engagement of CD24 by treatment with monoclonal antibodies (mAb) to CD24 results in a dramatic transient increase in erythropoiesis.

- Novel treatment for anemia by targeting a previously unknown function of CD24
- Stimulates erythropoiesis and induces long-term production of endogenous erythropoietin

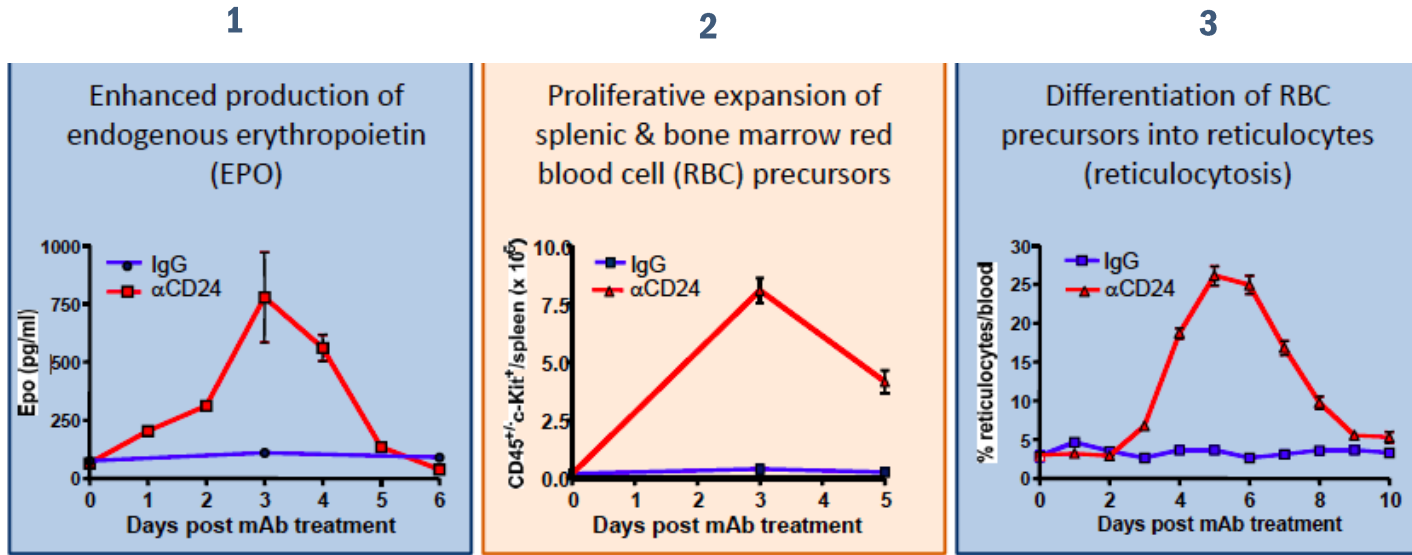
Mouse Spleens



Spleens treated with IgG control or anti-CD24 antibody at 1, 3 and 5 days post-injection. Increased erythropoiesis results in splenomegaly in mice treated with α CD24.

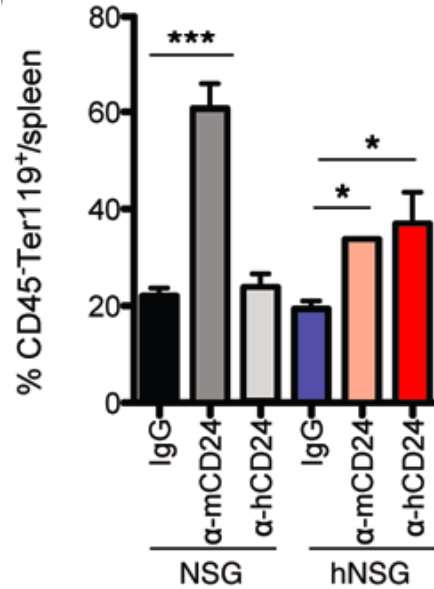
Braciale and Kim

Repeated injection of α CD24 restimulates reticulocytosis



Anti-CD24 monoclonal antibody stimulation does not boost erythropoiesis in $CD24^{-/-}$ mice, $Batf3^{-/-}$ (ablates $CD8\alpha^{+}$ dendritic cells) mice, or $c-kit^{-/-}$ mice.

Anti-CD24 antibodies exhibit increased splenic red blood cell precursors



Control non-humanized chimeric mice (NSG) and humanized mice (hNSG) treated with anti-CD24 antibodies compared to mice treated with IgG control.

Relevant Publications

- The Journal of Clinical Investigation. 2015 Oct 1; 125(10): 3965-80. **Kim TS**, et. al.

Intellectual Property

- UVA Tech ID: BRACIALE-ERYTHRO
 - Title: Compositions and methods for regulating erythropoiesis
 - U.S. Patent Application 14/651,708 filed Dec. 11, 2013