Ginzburg Lab

Area of Interest:

The Ginzburg Lab has been continuously funded for the last 15 years to focus on molecular mechanisms involved in the crosstalk between erythropoiesis and iron metabolism in multiple diseases.

Current Research:

The goals of our multiple projects are to elucidate a mechanistic understanding of the crosstalk between erythropoiesis and iron metabolism. We focus on diseases such as β-thalassemia, sickle cell anemia, iron deficiency anemia, anemia of renal failure, myelodysplastic syndrome, and most recently polycythemia vera. We have generated and analyzed mouse models and human cells in culture with the ultimate goal of developing novel therapeutics for diseases of disordered erythropoiesis and or iron metabolism. Clinical trials are on-going as a consequence of the research done in our lab and that of our collaborators. Most recently, we have focused also on the crosstalk of iron metabolism and inflammation and with bone homeostasis.

Specifically, the current projects in the laboratory involve:

1) analyzing the role of transferrin and its receptor partners, hepcidin, and erythroferrone in ineffective erythropoiesis in a mouse model of β-thalassemia;
2) exploring the role of erythroferrone in coordinating erythropoiesis, iron metabolism, and bone homeostasis using mice models in vivo and in vitro;
3) evaluating the mechanisms leading to persistent erythropoiesis in polycythemia vera despite iron deficiency in vivo and in vitro; and
4) determining the effect of iron overload and iron chelation on erythropoiesis in a mouse model of myelodysplastic syndrome.

We are also engaged in several collaborative clinical projects in various stages, including using macrophage iron status in sputum of sickle cell patients to predict acute chest syndrome, evaluating the effect of iron chelation on survival in patients with myelofibrosis, and eliminating phlebotomy requirements in patients with polycythemia vera treated with hepcidin mimetics. We are always looking for hard-working and passionate junior physician scientists interested in engaging on topics of mutual interest.