

Center for Blood Oxygen Transport & Hemostasis (CBOTH) post-doctoral position-CBOTH-Buehler laboratory

The University of Maryland Baltimore, School of Medicine's, interdisciplinary Center for Blood Oxygen Transport & Hemostasis includes a team of physicians, biochemists, and engineers and will help answer fundamental, challenging questions related to blood function in health and disease.

This fellowship is funded by an NIH post-doctoral training grant and will focus on mechanisms that drive sickle cell disease (SCD) pulmonary hypertension (PH). Accumulation of pulmonary vascular macrophage iron is a new and unique finding observed in SCD, suggesting that erythrophagocytosis mediated iron overload is a pathological driver of progressive pulmonary vascular disease. This is in striking contrast to idiopathic pulmonary arterial hypertension (iPAH), which is exacerbated by iron depletion states and may be improved in some cases by iron administration. The study of macrophage processing of sickled red blood cells, macrophage migration to the pulmonary vasculature and iron driven pulmonary vascular remodeling will be the primary focus of this post-doctoral fellowship. Secondly, mechanisms such as inflammation and complement activation will also be studied as processes that exacerbate PH. Both murine models and patient samples will be studied to define proof-of-concept for experimental therapeutics that slow the progression of pulmonary vascular complications in SCD.

The fellow will assist in research studies to advance knowledge in a training-based setting under the direction of Dr. Paul Buehler, a federally funded pharmacologist and toxicologist with specialization in hematotoxicology. The position requires an ability to carry out general laboratory techniques (e.g., spectrophotometry, ELISAs, Western blotting, flow cytometry, histopathology, and microscopy). Evaluation of RBC deformability, oxygen equilibrium, preparation for microscopy (light and EM), capability to assess RBC morphological changes consistent with disease states will be taught. Further, a knowledge and/or desire to expand expertise in techniques that evaluate tissue oxygenation and perfusion (e.g., MRI, EPR, PET, Phosphorescence Quenching, Laser Doppler Flowmetry) is critical to this position's goals.

Minimum Education: Recent graduate applicants with a PhD or applicants that are expected to graduate from a Bioengineering, Physiology, or related discipline PhD program and are required to be a green card holder or US citizen. The candidate will be expected to possess strong communication and independent writing skills.

Interested candidates should email their CV and Research Statement to PBuehler@som.umaryland.edu.

Salary – In accordance with NIH guidelines (NIH 0–3-year experience level)