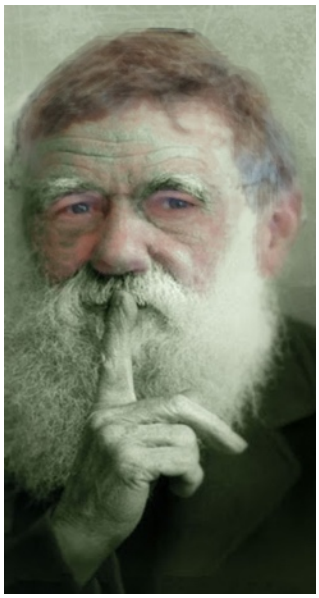
CBR Virtual Summer Seminar Series

Wednesday, Jul 28 | 11:00am - 12:00pm PT



Dr. Mark Scott, *Senior Scientist-Clinical Professor*
Canadian Blood Services
UBC Department of Pathology and Laboratory Medicine
UBC Centre for Blood Research

Topic: "Resealed RBC: Blowing Up Red Blood Cells For Fun, Science and (?) Profit"
Presented by: Dr. Mark Scott

Despite the 'simple' nature of the anucleate red blood cell (RBC), RBC abnormalities are a leading cause of morbidity and mortality in humans. Among the most common of these RBC abnormalities are hemoglobinopathies (*e.g.,* Thalassemia) and enzymopathies (*e.g.,* G6PD). While mouse models exist for these diseases, they do not fully model the human diseases due to inter-species differences. Moreover, using patient derived RBC to study the effects on normal RBC structure and function is also difficult as these cells already exhibit pathological changes and/or altered enzyme levels. One novel approach to studying the effects of both hemoglobinopathies and enzymopathies is the use of ***osmotically lysed and resealed*** normal human RBC (*i.e.,* resealed RBC). Using this method, abnormal hemoglobins, enzymes or extracellular proteins or molecules (*e.g.,* high *m.w.* iron chelators) can be efficiently inserted into normal human (or mouse, *etc.)* RBC. Importantly, control-resealed RBC exhibit both normal RBC structure and function and *in vivo* survival thus allowing the use of resealed RBC for studying the effects of the altered hemoglobins/enzymes/*etc.* on RBC structure, function and survival. Moreover, current commercial efforts are underway to utilized resealed RBC in the clinical treatment of cancer and, potentially, other human diseases.