

BCSLS Telehealth Video Broadcast

With Dr. Ross MacGillivray

“Blood Coagulation – From Clotting Proteins to INR and PTT”

Thursday Oct 20, 2011

Hemostasis is the mechanism whereby blood is retained in a fluid state and within the blood vessels. Normal hemostasis involves many complex interactions between the endothelial cells lining the blood vessels, platelets (non-nucleated cell fragments derived from megakaryocytes) and a group of plasma proteins called the coagulation factors. In response to blood vessel damage, platelets aggregate at the site of injury and become activated to form a platelet plug that functions as a mechanical plug to stop further blood loss. Tissue damage also activates the blood coagulation cascade of reactions that utilize the activated platelet membrane surface to form a fibrin clot that reinforces the platelet plug to form a tough insoluble clot. Once the bleeding has been arrested, blood coagulation is inhibited by several mechanisms including the action of plasma inhibitors (serpins such as antithrombin) and the conversion of thrombin from a procoagulant to an anticoagulant through its interaction with the endothelial cell membrane protein thrombomodulin. The fibrin clot is then removed by proteins of the fibrinolytic system. In this presentation, I will review the events leading to fibrin clot formation and dissolution. I will also explain how inherited mutations in the coagulation proteins can give rise to bleeding disorders such as hemophilia and thrombophilia. Lastly, I will review the commonly used laboratory tests (such as the partial thromboplastin time and the prothrombin time) and explain how these tests are able to measure the normal functions of coagulation proteins.

Dr. MacGillivray is currently Vice Dean Academic Affairs in the Faculty of Medicine and Professor of Biochemistry and Molecular Biology at U.B.C., a member of the Scientific and Research Staff in the Division of Hematological Pathology at the Vancouver General Hospital and a Consultant in Genetics and Health at the Child and Family Research Institute of the BC Children’s Hospital. Dr. MacGillivray was also the founding Director of the UBC Centre for Blood Research (www.cbr.ubc.ca) until he stepped down in 2008. Dr. MacGillivray received his education and training in the United Kingdom and the United States before joining UBC in 1981. As an independent investigator, Dr. MacGillivray’s laboratory is internationally known for its research on the molecular genetics of blood coagulation and its recent studies of iron homeostasis in yeast and humans. During his career, Dr. MacGillivray has published over 140 peer-reviewed papers and has trained over 40 basic scientists and clinician scientists as well as many undergraduate students. He has been the recipient of several awards including the Ayerst Award of the Canadian Biochemistry Society and a UBC Killam Research Prize, a Killam Teaching Prize and a Killam Senior Fellowship. He received the 2006 Genome BC Award for Scientific Excellence presented by BC Biotech.

Details: Thursday Oct 20, 2011 at 6:00pm – 8:00pm (PDT)

Registration fee for this event: \$28 BCSLS Members/\$56 Non-Members

Online Registration is available on our web site at [BCSLS Education - Live Events](#)