Leukotriene B4 (LTB4) and its role in acquired Lymphedema

It is estimated that hundreds of millions of people worldwide suffer from this lymphedema, which includes pain and swelling that generally occurs in one of a patient’s arm or leg. Lymphedema is most commonly caused by cancer treatment (radiation), the surgical removal of lymph nodes, cancer, trauma, or infection of the lymph nodes. There is no known treatment for lymphedema, which can have very significant impact on patients’ quality of life and lifestyle.

With the damage or loss of lymph node functioning, buildup of lymph fluid occurs. Examining these fluids, Dr. Mark Nicolls’ lab discovered that LTB4 is elevated in lymphatic patients and that the presence of LTB4 hinders lymphatic repair in a mouse model. Excitingly, there is already a drug compound available in Japan, that antagonizes LTB4 and which is currently being tested in a clinical trial at Stanford. It is highly unusual that the testing of a compound predates the publication of the underlying basic science (Dr. Nicolls’ work); but a testament to the VAPAHCS and Stanford research excellence in fostering innovation that matters.