Convergence of tissue engineering and cancer biology to develop clinically relevant models of human disease

In order to move beyond the state of the art of medical devices, implants, and artificial organs, the concept of tissue engineering has moved into the center of biomedical research worldwide with a major translational impact on regenerative medicine. Clinically established personalized regenerative practices incorporate engineered constructs consisting of the patient’s own cells that are transplanted into injured and/or dysfunctional host tissues or organs. The aim of this approach is not to replace damaged tissue with a ready-made implant or device such as an artificial hip prosthesis or heart valve but rather to prompt the patient’s own tissue to enact a regenerative response by using a patient-specific tissue engineered construct to assemble new functional and healthy tissue. More recently, it was advocated that the tissue engineering tool box has the potential to enhance personalized medicine not only from a regenerative medicine perspective but also to provide frontier technologies for building and transforming the research landscape in the field of in vitro and in vivo disease models.

STUDENTS: If you would like to attend a catered lunch with Dr. Hutmacher following the lecture, please send an email to lina.luciano@mcgill.ca