Aging is characterized by several metabolic, signaling and molecular changes. These can be stratified as the biological “hallmarks of aging”. The geroscience hypothesis predicts approaching the biological hallmarks of aging could have multi-organ effects that may have an impact in several disease states. Approaching aging of organs via targeting the biological hallmarks of aging before transplant may provide a more youthful graft, one that may increase its duration and function. In this seminar I will discuss aspects of the biology of aging, metabolic reprogramming and its potential implications to organ transplantation.