

An Approach to Medical Device Innovation: Springboard from Dr. Fung's Biomechanical Foundation

G.S. Kassab^{1,*}

¹California Medical Innovations Institute, San Diego, CA 92121, USA.

*Corresponding Author: G.S. Kassab. Email: gkassab@calmi2.org.

In celebration of Dr. Fung's 100 birthday, the presentation will focus on a biomechanical design-based approach to innovation of medical devices that addresses unmet clinical needs ranging from cardiovascular diseases (e.g., ischemic heart disease and heart failure) to obesity. The technologies attempt to restore biomechanical homeostasis through a minimally invasive (e.g., percutaneous or laproscopic) approach in time efficient and cost-effective manner. The illustratory technologies include: **A**) A catheter for selective retroperfusion and "arterialization" of coronary veins for myocardial revascularization; **B**) A suction-based catheter for ease of trans-septal access; and **C**) A laproscopic and reversible restrictive device for weight loss without the use of staples or gastrectomy. A brief overview of the various technologies will be presented along with the underlying biomechanical axioms.