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I qualified in pharmacy at University of Baghdad (Iraq) and after that I undertook a MSc degree in Experimental Pharmacology at University of Petra (Jordan) where I worked between the academia and the industry. My master work involved developing a novel oral delivery system for insulin with different pattern of insulin release and evaluating its efficacy an in vivo model of streptozotocine-induced diabetic rat. These novel findings then published in the Journal of Marine Drugs (Marine Drug 2015,13(4), 1710-1725). I then went back to Iraq to work as Lecturer at the College of Medicine/University of Diyala.

In late 2013, I started my PhD in Pharmacology in the laboratory of Professor Gary Baxter at the School of Pharmacy and Pharmaceutical Sciences (Cardiff University). My research focused on characterizing the cellular and mitochondrial mechanisms of thiol-induced protection against myocardial infarction and the involvement of insulin signaling in this protection. This involved developing an *in vivo* model of myocardial ischemia/reperfusion injury in rat and the application of a number of techniques including: myocardial tissue sampling, post-mortem histology, western blotting (fluorescence and chemiluminescence) and ELISA. By the end of the second year, I started a collaboration with Professor Rainer Schulz at Justus Liebig University in Germany. The fruit of this collaboration was a significant part of my PhD work. I visited his lab for two months where I did a comprehensive analysis of mitochondria functions. I learn the

isolation and purification of different subpopulations of cardiomyocyte mitochondria (subsarcolemmal and interfibrillar mitochondria) to study mitochondrial functions including: membrane potential, autofluorescence, oxygen consumption, reactive oxygen species generation, calcium retention capacity, ion influx.

After successfully defending my PhD thesis, I moved to Canada to join Dr Gary Lopaschuk laboratory to pursue my postdoctoral training looking at the mechanism of insulin resistance in the failing heart. Dr Gary Lopaschuk who is one of the world experts in the field of cardiac energy metabolism and has a continuous flow of funds to his research. Working alongside Dr Lopaschuk is an exceptional opportunity for me to obtain a strong background in cardiac energy metabolism and a good understanding of the experimental approaches in this field.

My research focuses on understanding how perturbations in energy metabolism contribute to the progression and severity of heart failure. This includes, but not limited to, the impact of cardiac insulin resistance on cardiac energy metabolism, pathological remodeling and function in the failing heart, and how worsening of insulin resistance by other comorbidities such as diabetes and obesity contribute to the metabolic remodeling in the heart failure.

I would like to take this opportunity to thank my mentor (Professor Gary Lopaschuk) for his limitless and continuous support. I would also like to thank all the lab members and collaborators who contributed to this study. My thanks also go to the Faculty of Medicine and Dentistry at University of Alberta for this award and for its continuous support for postdoctoral fellows. It is really a great honor. Thank you so much!