Project Title: The protective effects of fenofibrate in diabetes-related vascular complications

Code: HRI6

Host School/Institute
The Heart Research Institute
Address: The Heart Research Institute
7 Eliza Street, Newtown, NSW 2042

URL: http://www.hri.org.au/

Personal Supervisor: Dr. Jun Yuan
Phone: 02 8208 8900
Email: yuanj@hri.org.au

Co-supervisor: Associate Professor Martin Ng

Phone: 02 8208 8900
Email: yuanj@hri.org.au

Co-supervisor: Associate Professor Martin Ng

Email: yuanj@hri.org.au

Project Type: Laboratory based, design

Project Category: Cardiovascular, Molecular biology, Endocrinology/Metabolism

Project Keywords:
1. Cardiovascular disease
2. Diabetic complications
3. Fenofibrate
4. Hypoxia
5. Endothelial functions

Project Description:

Prevention and treatment of diabetic vascular complications globally remain a challenge in the management of diabetes, particularly in type 2 diabetes. The vascular complications of diabetes are associated with impaired tolerance to hypoxia, though the mechanisms for this are poorly understood.

In the Translational Research Group, led by A/Prof Martin Ng, a physician-scientist and cardiologist, we investigate the mechanisms of endothelial cell dysfunctions and cardiovascular complications in diabetes. The Fenofibrate Intervention and Event Lowering in Diabetes (FIELD) placebo-controlled randomised trial, led by our collaborator Professor Anthony Keech (NHMRC clinical trial centre) demonstrated for the first time that fenofibrate therapy in type 2 diabetes significantly and substantially reduced the risk of microvascular-related complications (Lancet, 2004, 2007, 2009).

This summer project will be focus on investigating the effects of fenofibrate, a lipid lowering agent, on impaired hypoxia tolerance in diabetes mellitus in vitro. This project will apply cell culture, RT-PCR, and western blot techniques to assess the effects of fenofibrate on functions and gene expression of endothelial cells under diabetic and hypoxic conditions.