

## **Yao-Jen Liang, D.V.M., Ph.D. in Pharmacology**

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### **Education**

Ph.D. Insititue of Pharmacology, National Taiwan University , R.O.C. 2007

M.S. Insititue of Pharmacology, National Yang Ming University, R.O.C. 2003

B.S. Department of Veterinarian Medicine, National Taiwan University, R.O.C. 2001

In recent years, we have done several important basic studies with clinical potential. We tried to recognize the angiogenesis process in ischemic heart. In the therapeutic angiogenesis, we also proved that combined cord blood stem cells and gene therapy enhances angiogenesis and improves cardiac performance in mouse after acute myocardial infarction (1).

Atherosclerosis is an important pathophysiology change in vessel before myocardial ischemia. C-reactive protein (CRP) as an inflammatory marker and expression of adhesion molecules both play critical role in atherosclerosis. In vitro study, we demonstrated that CRP activates the nuclear factor- $\kappa$ B pathway and induces vascular cell adhesion molecule-1 expression through CD32 in endothelial cells (2). In addition to CRP-induced adhesion molecules expression, we also proved that simvastatin attenuated the inflammatory signal through the mevalonate pathway in endothelial cells (3). In research of endothelial cell, we identified the metformin attenuated TNF $\alpha$ -induced inflammatory effects were through PI3K and AMPK pathway (4)

In addition to atherosclerosis and myocardial infarction, we also focused on over-loaded induced hypertrophic cardiomyopathy. We have demonstrated for the first time that induction of serotonin 2B receptor in ventricular myocardium in a rat model of volume-overload heart failure (5).

Recently, another new research interest emerges as diabetic complications. For the first time, we used anti-oxidants and nanoparticles mixtures to accelerate the diabetic wound healing (6)(7). We also demonstrated the beneficial effects on the diabetic nephropathy (8)(9).

### **Selected publication**

1. Combined cord blood stem cells and gene therapy enhances angiogenesis and improves cardiac performance in mouse after acute myocardial infarction. *European journal of clinical investigation* 2005;35:677-686
2. C-reactive protein activates the nuclear factor- $\kappa$ B pathway and induces vascular cell adhesion molecule-1 expression through CD32 in human umbilical vein endothelial cells and aortic endothelial cells. *Journal of molecular and cellular cardiology* 2006;40:412-420
3. Liang YJ, Shyu KG, Wang BW, Lai LP. Simvastatin inhibits C-reactive protein-induced pro-inflammatory changes in endothelial cells by decreasing mevalonate pathway products. *Cardiology* 2008;110:182-90
4. Comparison of PPAR $\delta$  and PPAR $\gamma$  in inhibiting the pro-inflammatory effects of C-reactive protein in endothelial cells. *International Journal of Cardiology*. 2010;143:361-7.
5. Mechanical stress enhances serotonin 2B receptor modulating brain natriuretic peptide through nuclear factor- $\kappa$ B in cardiomyocytes. *Cardiovascular research* 2006;72:303-312
6. The Effects of Gold Nanoparticle in Wound Healing with anti-oxidant Epigallocatechin Gallate and Alpha Lipoic Acid. *Nanomedicine*. 2012; 8(5): 767-775.
7. Topical treatment with anti-oxidants and Au nanoparticles promote healing of diabetic wound through receptor for advance glycation end-products. *Eur J Pharm Sci*. 2012;47(5):875-883.
8. Advanced glycation end products-induced apoptosis attenuated by PPAR $\delta$  activation and epigallocatechin gallate through NF- $\kappa$ B pathway in human embryonic kidney cells and human mesangial cells. *Diabetes-Metabolism Research and Reviews*. 2010;26:406-16.
9. L-165,041, troglitazone and their combination treatment to attenuate high glucose-induced receptor for advanced glycation end products (RAGE) expression. *Eur J Pharmacol*. 2013 Jul 4.

### **Financial support for Ph.D. students**

[Stipend]

- 1.National Science Council (NSC) Scholarship for Ph.D : up to NT 12,000/mo
- 2.Ministry of Education Teaching Excellent Project for Ph.D: up to NT 12,000/mo (Teaching assistant, optional)
- 3.Fu Jen Catholic University International PhD student Scholarship: NT 10,000/mo

[Tuition]

- 1.The 1<sup>st</sup> and 2<sup>nd</sup> year tuition is waived (around NT 220,000).
- 2.The tuition will be free after the 3<sup>rd</sup> year of Ph.D program