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BIOGRAPHY

Hong Wang obtained his medical degree and Ph.D. degree from the Nanjing Medical University, China. His Ph.D. study focused on the biochemical pathways involved in the pathogenesis of diabetic chronic complications. He then practiced as a Clinical Associate Professor in adult endocrinology in the First Affiliated Hospital of Nanjing Medical University for many years. In 1995, his interest in basic research led him to the USA. He first studied the central modulation of pain, particularly focused on the molecular neuroanatomical pathways in both central and peripheral nerve system in the Department of Cell Biology and Neuroanatomy of University of Minnesota. In 1999, he moved to the University of Virginia to study the central regulation of respiratory and cardiovascular function in the Department of Pharmacology. Currently, he is an Assistant Professor in the Department of Medicine. Since 2002, his research interest has been focusing on the insulin action on vascular endothelial biology and the molecular machinery that mediates biomacromoleculars move across the endothelial barrier. Dr. Wang has authored over 40 peer-reviewed publications.

RESEARCH INTERESTS

Dr. Hong Wang's research interests are focusing on Insulin action on vascular endothelial biology and the molecular machinery that mediates biomacromoleculars move across the endothelial barrier. He is particularly interested in defining the cellular pathways that govern insulin trans-endothelial transport, identifying sites of regulation and testing interventions that will allow to correct the impaired insulin trans-endothelial transport under obesity and type 2 diabetes.

RECENT PUBLICATIONS

Wang H.(Corresponding author), Wang A.X., Aylor K., Barrett E.J. (2013) Nitric oxide directly promotes vascular endothelial insulin transport. Diabetes. Dec;62(12):4030-42. doi: 10.2337/db13-0627.

Wang H (2013) Traversing the Barrier: A Journey of Insulin from Vascular Lumen into Skeletal Muscle. J Metabolic Synd 3: e108. doi:10.4172/2167-0943.1000e108

Wang H (2012) Endothelial Metabolic Inflammation: A Link between High Fat Feeding, Insulin Resistance, and Impaired Trans-Endothelial Insulin Transport. J

Wang H (2013) Vascular Endothelial Nitric Oxide, Insulin Signaling and Insulin Transport: A Delicate Balance. Endocrinol Metab Synd 2: e118. doi: 10.4172/2161-1017.1000e118

Wang H.(Corresponding author), Wang A.X., Barrett E.J. (2012) Insulin-Induced Endothelial Cell Cortical Actin Filament Remodeling: A Requirement for Trans-Endothelial Insulin Transport. Mol Endocrinol. Aug;26(8):1327-38.

Wang H.(2012) A Critical Regulatory Site for Trans-capillary Insulin Delivery: Transendothelial Transport. Endocrinology & Metabolic Syndrome., 1:e102.doi:10.4172/2161-1017.1000e102.

Wang H.(Corresponding author), Wang A.X., Barrett E.J. (2011) Caveolin-1 is Required for Vascular Endothelial Insulin Uptake. Am J Physiol Endocrinol Metab. Jan;300(1):E134-44

RECENT PUBLICATIONS

Wang H.(Corresponding author), Wang A.X., Liu Z., Chai W., Barrett E.J. (2009) The trafficking/interaction of eNOS and caveolin-1 induced by insulin modulates endothelial nitric oxide production. Mol Endocrinol. Oct;23(10):1613-23

Barrett EJ, Wang H, Upchurch CT, Liu Z. (2011) Insulin regulates its own delivery to skeletal muscle by feed-forward actions on the vasculature. Am J Physiol Endocrinol Metab. Aug;301(2):E252-63. Epub 2011 May 24.

Barrett EJ, Eggleston EM, Inyard AC, Wang H, Li G, Chai W, Liu Z. (2009) The vascular actions of insulin control its delivery to muscle and regulate the rate-limiting step in skeletal muscle insulin action. Diabetologia. May;52(5):752-64.

Wang H., Wang A.X., Liu Z., Eugene Barrett E.J. (2008) Insulin Signaling Stimulates insulin transport By Bovine Aortic Endothelial Cell". Diabetes, Mar;57(3):540-7

Wang H., Liu Z., Li G., and Barrett E.J. (2006) The vascular endothelial cell mediates insulin transport into skeletal muscle. Am J Physiol Endocrinol Metab, Aug;291(2):E323-32

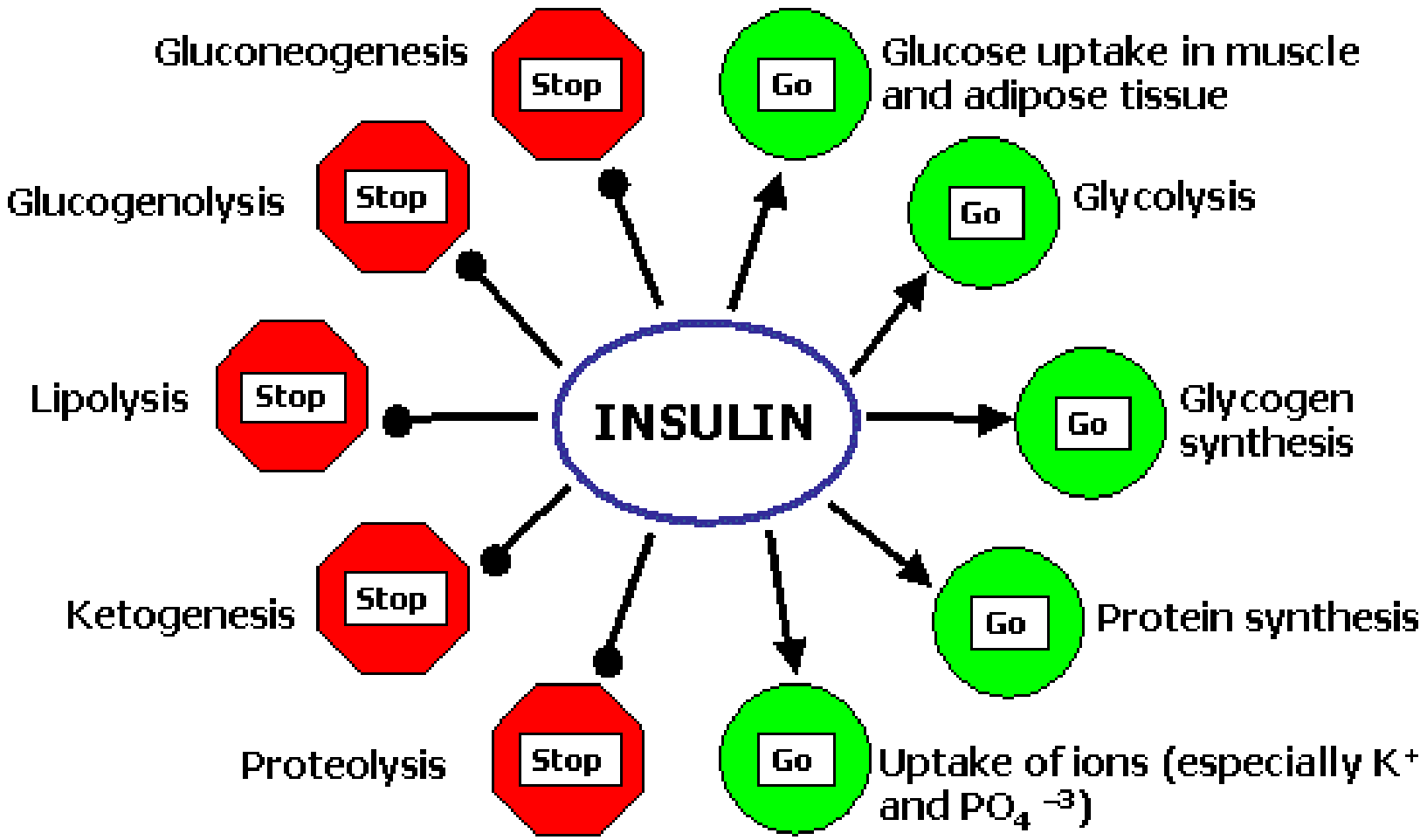
Li G, Barrett EJ, Wang H, Chai W, Liu Z. (2005) Insulin at physiological concentrations selectively activates insulin but not insulin-like growth factor I (IGF-I) or insulin/IGF-I hybrid receptors in endothelial cells" Endocrinology, Nov;146(11):4690-6

Wang H. (Corresponding author), Germanson T.P. Guyenet P.G. (2002) Depressor and tachypneic responses to chemical stimulation of the ventral respiratory International are reduced by ablation of neurokinin-1 receptor-expressing neurons. The Journal of Neuroscience,, 22: 3755-3764. (Evaluated by Faculty 1000)

Insulin

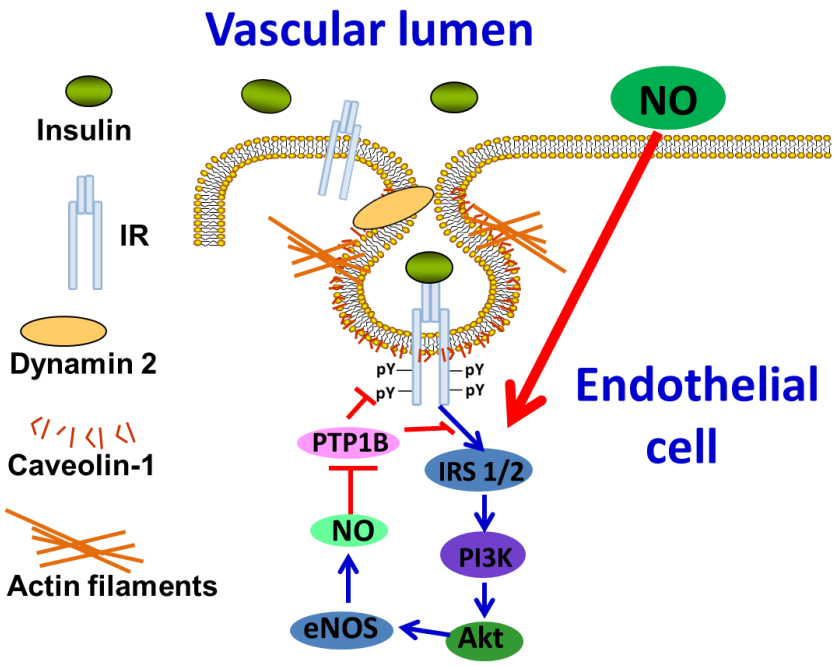
Insulin is a peptide hormone produced by beta cells in the pancreas. It regulates the metabolism of carbohydrates and fats by promoting the absorption of glucose from the blood to skeletal muscles and fat tissue and by causing fat to be stored. Under physiologic condition, insulin is provided within the body in a constant proportion to remove excess glucose from the blood, but in the presence of the metabolic disorders, such as type 2 diabetes and metabolic syndrome, body may develop insulin resistance leading to impaired whole body metabolism.

Actions of Insulin



Insulin allows your body to use sugar (glucose) from carbohydrates in the food that you eat for energy or to store glucose for future use. Insulin helps to keep your blood sugar level from getting too high (hyperglycemia). Many people with diabetes are prescribed insulin, either because their bodies do not produce insulin (type 1 diabetes) or do not use insulin properly (type 2 diabetes).

Dr. Wang's current research focus



For insulin to exert its biological action on muscle and fat tissues, it must first traverse the continuous vascular endothelium (a thin line of vascular lumen) into tissue interstitium. One of vascular endothelial functions is providing a barrier that regulates entry of nutrients and hormones like insulin into the interstitium of peripheral tissues. Insulin can act on endothelial cells and use a molecular machinery within endothelial cells to move across vascular endothelium, and this process is delayed in insulin resistant, obese humans. Our current research efforts are to define the cellular pathways that govern insulin trans-endothelial transport, identify sites of regulation and test interventions to correct the impaired insulin trans-endothelial transport under conditions such as obesity and type 2 diabetes.

METABOLIC SYNDROME RELATED JOURNALS

- Diabetology & Metabolic Syndrome
- Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy
- Metabolic Syndrome and Related Disorders
- Journal of Diabetes & Metabolic Disorders
- Global Journal of Obesity, Diabetes and Metabolic Syndrome

METABOLIC SYNDROME RELATED CONFERENCES

- **Keystone Symposia on Molecular and Cellular Biology**
- **Cardiometabolic Health Congress**
- **International Conference on Prehypertension and Cardio Metabolic Syndrome**

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