

## RESEARCH UPDATE

## 2011 Canadian Diabetes Association, Young Scientist Award Winner, Minna Woo MD PhD

The National Research Council of the Canadian Diabetes Association (CDA) is pleased to announce that Dr. Minna Woo is the 2011 recipient of the CDA Young Scientist Award.

The CDA established the Young Scientist Award in 1987 for the purpose of encouraging, by appropriate recognition, outstanding research conducted in Canada by young scientists (not past their 45th birthday) in the field of diabetes.

Dr. Woo is currently an Associate Professor, Department of Medicine, University of Toronto, and is a staff clinician scientist/endocrinologist at St. Michael's Hospital in Toronto. Dr. Woo is currently serving as the Vice-Chair of the CDA's Personnel and Awards Peer Review Committee and is a CDA member of the National Research Council. She also serves as the Vice-Chair, Scientific, of the Clinical & Scientific Section of the CDA. Dr. Woo is a panel member for the Canadian Institutes of Health Research (CIHR) Diabetes, Obesity and Lipoprotein peer review committee. In addition to her countless other volunteer activities, Dr. Woo is an editorial board member for the *American Journal of Physiology - Endocrinology and Metabolism*.

Dr. Woo has been highly successful in garnering salary support and operating funds as an independent investigator, including a CIHR scholarship, CIHR and CDA operating grants, and the Premier's Research Excellence Award.

Dr. Woo began her research career by focusing her studies on the molecular mechanisms of apoptosis (programmed cell death) during the field's infancy. Dr. Woo studied the biology of caspase-3, now a well-known apoptosis gene, even before creation of the word "caspase." One of her main accomplishments was to engineer caspase-3 knockout mice. Her work led to seminal papers in numerous high-impact journals such as *Cell* and *Nature Immunology*. One of her first-author papers was designated the "hot" paper of the year in 2004, as ranked by *The Scientist*. In addition to her insightful work on the role of caspase-3 in apoptosis, she discovered a role of caspase-3 in cell cycle regulation.

Once she had established herself as an independent researcher, her research into islet apoptosis coincided with her clinical specialty of endocrinology. Her work in diabetes and islet apoptosis using unique genetic mouse models focused on caspase-3, caspase-8, and phosphatase and tensin homolog (PTEN), and has already resulted in multiple high-impact publications. Her abstracts have been presented by her trainees at major international meetings where they are frequently selected for oral presentation.

Dr. Woo has published new findings unmasking a role

for muscle PTEN in the control of metabolic homeostasis and insulin signalling. She has made extremely important observations demonstrating that caspase-3 plays a critical role in the initiation of autoimmunity via T cell priming, a finding with potential implications for autoimmune intervention early in the pathogenesis of type 1 diabetes.

Furthermore, Dr. Woo has initiated several important collaborations that have extended the understanding of the biology of caspase-3 into new areas, including stem cell fate and cell differentiation. She has also made important new insights into the metabolic and cellular roles of caspase-8. The award was presented to Dr. Woo at the CDA/Canadian Society of Endocrinology and Metabolism Professional Conference and Annual Meetings on October 28, 2011, in Toronto. At the award ceremony, Dr. Woo gave a lecture entitled "Life in the Journey of Pancreatic Beta Cell Death to Novel Paradigms in Type 2 Diabetes Pathogenesis."

Jovita Sundaramoorthy, MSc  
Vice President, Research and Education  
Canadian Diabetes Association  
Toronto, Ontario, Canada

C. Bruce Verchere PhD  
Chair, National Research Council  
Canadian Diabetes Association  
Professor, Departments of Pathology  
& Laboratory Medicine and Surgery  
Faculty of Medicine, University of British Columbia  
Vancouver, British Columbia, Canada

### REFERENCES

1. Choi D, Schroer SA, Lu SY, et al. Erythropoietin protects against diabetes through direct effects on pancreatic beta cells. *J Exp Med*. 2010;207:2831-2842.
2. Wang L, Liu Y, Lu SY, et al. Deletion of PTEN in pancreatic beta cells protects against deficient beta cell mass and function in mouse models of type 2 diabetes. *Diabetes*. 2010;59:3117-3126.
3. Wu X, Wang L, Schroer S, et al. Perinatal survivin expression is essential for establishment of pancreatic beta-cell mass. *Diabetologia*. 2009; 52:2130-2141.
4. Liadis N, Salmena L, Kwan E, et al. Distinct in vivo roles of caspase-8 in beta cells in physiological and diabetes models. *Diabetes*. 2007; 56:2302-2311.
5. Nguyen KT, Tajmir P, Lin CH, et al. Targeted PTEN deletion regulates body size and pancreatic beta cell homeostasis in vivo. *Molecular and Cellular Biology*. 2006;26:4511-4518.
6. Liadis N, Eweida M, Elford E, et al. Caspase-3-dependent beta-cell apoptosis in the initiation of autoimmune diabetes mellitus. *Mol Cell Bio*. 2005;25:3620-3629.

7. Wijsekara N, Konrad D, Eweida M, et al. Ablation of muscle PTEN protects mice from high fat and age-induced diabetes. *Mol Cell Bio.* 2005;25:1135-1145.
8. Woo M, Hakem R, Furlonger C, et al. Caspase-3 regulates cell cycle in B cells: a consequence of substrate specificity. *Nature Immunology.* 2003;4:1016-1022.