BIOGRAPHICAL SKETCH
DO NOT EXCEED FIVE PAGES.

NAME: Kim, Jung Han

eRA COMMONS USER NAME (credential, e.g., agency login): JUNGHANKIM

POSITION TITLE: Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Dongduk Women's University, Seoul, Korea	B.S.	02/85	Food and Nutrition
Dongduk Women's University, Seoul, Korea	M.S.	02/87	Food Science
The University of Tennessee, Knoxville, TN	Ph.D.	08/96	Nutritional Sciences
The Jackson Laboratory, Bar Harbor, ME	Postdoc	09/01	Genetics

A. Personal Statement

My experience and qualifications make me well suited for serving as a mentor for Dr. Arthur in this COBRE, which is focused on cellular transport in obesity related disorders. Over the last 15 years, I supervised more than one hundred undergraduate and twenty graduate students. I served as a member in twenty-three graduate student thesis committees and served as advisor/chair for eight M.S. and Ph.D. students. I have mentored three postdoctoral fellows who have become successful independent scientists. With my mentees I have produced multiple peer-reviewed publications. In addition, I have a solid background in physiology, genetics, and nutritional sciences, with specific training and expertise in pathogenesis of obesity, gene mapping, and positional cloning. My primary research interest is in obesity and type 2 diabetes. In both graduate and postdoctoral trainings, I studied physiological and cellular bases of obesity and type 2 diabetes. I have continued to work on identifying genetic factors underlying these diseases and involved in developing genetic models including the TALLYHO mouse. TALLYHO mice are well served in Dr. Arthur's project, and I will be able to provide my expertise regarding this model in physiological and genetic aspects. As PI on several Foundation- and NIH-funded grants, I have built a strong research program and have a track record of accomplished and productive research projects. Therefore, I sincerely believe that I'll be able to efficiently catalyze and facilitate Dr. Arthur's academic activities and career in a positive direction. I am committed to mentoring Dr. Arthur in helping her develop an independent research career following COBRE funding.

1. Kim JH, Stewart TP, Soltani-Bejnood M, Wang L, Fortuna JM, Mostafa OA, Moustaid-Moussa N, Shoieb AM, McEntee MF, Wang Y, Bechtel L, Naggert JK. Phenotypic characterization of polygenic type 2 diabetes in TALLYHO/JngJ mice. *J Endocrinol* 2006, 191(2): 437-46.
2. Stewart TP, Kim HY, Saxton AM, Kim JH. Genetic and genomic analysis of hyperlipidemia, obesity and diabetes using (TALLYHO/JngJ x C57BL/6J) F2 mice. *BMC Genomics* 2010, 11: 713.
3. Stewart TP, Mao X, Aqqad MN, Uffort D, Dillon KD, Saxton AM, Kim JH. Subcongenic analysis of *tabw2* obesity QTL on mouse chromosome 6. *BMC Genet* 2012, 13(1): 81.
4. Parkman JK, Mao X, Dillon K, Gudivada A, Moustaid-Moussa N, Saxton AM, Kim JH. Genotype-dependent metabolic responses to semi-purified high-sucrose high-fat diets in the TALLYHO/Jng vs. C57BL/6 mouse during the development of obesity and type 2 diabetes. *Exp Clin Endocrinol Diabetes* 2016, 124(10): 622-629.

B. Positions and Honors

Positions and Employment

1985–1987 Graduate Teaching Assistant, Dongduk Women's University, Seoul, Korea
1987 Research Assistant, Bioengineering, Korea Advanced Institute of Science and Technology, Seoul, Korea
1987–1989 Part-time Lecturer, Sang-Ji Junior College, Andong, Korea
1988–1991 Part-time Lecturer, Dongduk Women's University, Seoul, Korea
1992–1996 Graduate Research Assistant, The University of Tennessee, Knoxville, TN
1996–2001 Postdoctoral Associate, The Jackson Laboratory, Bar Harbor, ME
2001–2007 Assistant Professor Department of Nutrition, The University of Tennessee, Knoxville, TN Adjunct: Center of Excellence for Genomics and Bioinformatics Genome Science and Technology Graduate School
2007–2009 Associate Professor
(Tenured) Department of Nutrition, The University of Tennessee, Knoxville, TN Adjunct: Center of Excellence for Genomics and Bioinformatics Genome Science and Technology Graduate School
2009-2013 Associate Professor
(Tenured Department of Pharmacology, Physiology and Toxicology in 2011) School of Medicine, Marshall University, Huntington, WV
2013-Present Professor Department of Biomedical Sciences (Pharmacology, Physiology and Toxicology) School of Medicine, Marshall University, Huntington, WV

Other Experience and Professional Memberships

Grant reviewing:
2004 Panelist, USDA Improving Human Nutrition for Optimal Health grant review panel
2011 Ad-hoc reviewer, Veni programme of The Netherlands Organisation for Health Research and Development (ZonMw)
2012 Ad-hoc reviewer, The Israel Science Foundation
2012-14 Member, American Heart Association Lipids BSc2 Study
2013 Ad-hoc reviewer, NIDDK DDK-C Subcommittee
Journal refereeing:
1998- Peer reviewed 36 articles for 24 journals
Editorship:
2013- Associate Editor, BMC Genetics
Professional Memberships:
2001- Member, American Society for Nutrition
2004- Member, American Diabetes Association 2011- Member, The Obesity Society
2012- Member, American Heart Association

Honors

1995 Outstanding Graduate Research Award, The University of Tennessee, Knoxville, TN
1995 Graduate Student Research Award, The American Institute of Nutrition Sponsored by the Procter and Gamble Company
1996 Outstanding Graduate Research Award, The University of Tennessee, Knoxville, TN
1996 Graduate Student Research Award, The American Institute of Nutrition Sponsored by the Procter and Gamble Company
1996 Chancellor's Citation for Extraordinary Professional Promise, The University of Tennessee, Knoxville, TN
1998 Finalist for Postdoctoral Fellowship Award, Life Sciences Research Foundation
1998-2000 Postdoctoral Fellowship Award, American Heart Association, Northeast Affiliate
2003 Faculty Achievement Award for Research/Creative Endeavor College of Education, Health and Human Science, The University of Tennessee, Knoxville, TN

C. Contribution to Science

1. My early publications addressed cellular mechanisms of obesity and type 2 diabetes developed in the *agouti* yellow mouse. In wild type mice, the *agouti* gene is transiently expressed during hair growth and encodes a signaling molecule that creates a subapical yellow band on each hair. The *agouti* yellow mouse has a dominant mutation in the *agouti* gene that results in constitutive *agouti* expression, leading to the expression of yellow fur and metabolic syndrome of obesity and type 2 diabetes. Our work elucidated the role of intracellular calcium in the *agouti* action that antagonizes the melanocortin receptors. I served as the first or primary author in all of these studies.
    a. Zemel MB, Kim JH, Woychik RP, Michaud EJ, Kadwell SH, Patel IR, Wilkison WO. Agouti regulation of intracellular calcium: Role in the insulin resistance of viable yellow mice. *Proc Natl Acad Sci USA* 1995, 92: 4733-4737.
    b. Kim JH, Mynatt R, Moore JW, Woychik RP, Moustaid N, Zemel MB. The effect of Ca^{2+}-channel blockade on agouti-induced obesity. *FASEB J* 1996, 10: 1646-1652.
    c. Kim JH, Kiefer LL, Woychik RP, Wilkison WO, Truesdale A, Ittoop O, Willard D, Nichols J, Zemel MB. Agouti regulation of intracellular calcium: Role of melanocortin receptors. *Am J Physiol* 1997, 272: E379-E384.

2. Mutations in the leptin receptor gene (*Lepr*) cause severe early onset obesity, insulin resistance, chronic hyperglycemia, and hypertension, primarily by preventing leptin signaling to the hypothalamic satiety center. Hypertension is, in part, salt and volume dependent. We studied the effect of moderate reductions in dietary salt intake on blood pressure in $Lepr^{fa}$ mutant rats that exhibit a pressor response to an increase in salt intake. We also characterized three new spontaneous recessive mouse mutations in *Lepr*, namely $Lepr^{db\text{-}rtnd}$, $Lepr^{db\text{-}dmpg}$, and $Lepr^{db\text{-}rlpy}$. These studies provided new information to the current understanding of *Lepr*. I served as the first or corresponding author in these studies.
    a. Kim JH, Snider T, Abel M, Zemel MB. Hypertension in young, healthy zucker obese rats is not responsive to reduced salt intake. *J Nutr* 1994, 124: 713-716.
    b. Kim JH, Taylor PN, Young D, Karst SY, Nishina PM, Naggert JK. New leptin receptor mutations in mice: $Lepr^{db\text{-}rtnd}$, $Lepr^{db\text{-}dmpg}$, and $Lepr^{db\text{-}rlpy}$. *J Nutr* 2003, 133 (5): 1265-1271.

3. In continuation of studying obesity and type 2 diabetes biology described above, I focused on genetics of these diseases that commonly follows a polygenic pattern of inheritance. I worked on developing a new polygenic mouse model for obesity and type 2 diabetes, TALLYHO, and documented multiple quantitative trait loci (QTL) linked to the disease phenotypes in this model. Further, using congenic and subcongenic strategy I have fine mapped one of the obesity QTL, *tabw2*, for positional cloning. Recently, we have generated a complete catalog of sequence variants in TALLYHO mice using the data from whole genome sequencing, which will facilitate the identification of causal variants in this model. These studies generated new animal models in the field and help shed light on the genetic architecture of these complex diseases. I served as the first author or primary investigator in all of these studies.
    a. Kim JH, Sen S, Avery CS, Simpson E, Chandler P, Churchill G, Nishina PM, Naggert JK. Genetic analysis of a new mouse model for non-insulin dependent diabetes. *Genomics* 2001, 74 (3): 273-286.
    b. Kim JH, Stewart TP, Zhang W, Kim HY, Nishina PM, Naggert JK. The Type 2 diabetes mouse model TallyHo carries an obesity gene on chromosome 6 that exaggerates dietary obesity. *Physiol Genomics* 2005, 22 (2): 171-181.
    c. Stewart TP, Kim HY, Saxton AM, Kim JH. Genetic and genomic analysis of hyperlipidemia, obesity and diabetes using (TALLYHO/JngJ x C57BL/6J) F2 mice. *BMC Genomics* 2010, 11: 713.
    d. Kim HY, Stewart TP, Wyatt BN, Siriwardhana N, Saxton AM, Kim JH. Gene expression profiles of a mouse congenic strain carrying an obesity susceptibility QTL under obesigenic diets. *Genes & Nutrition* 2010, 5: 237-250.

e. Stewart TP, Mao X, Aqqad MN, Uffort D, Dillon KD, Saxton AM, Kim JH. Subcongenic analysis of *tabw2* obesity QTL on mouse chromosome 6. *BMC Genet* 2012, 13(1): 81.
f. Denvir J, Boskovic G, Fan J, Primerano DA, Parkman JK, Kim JH. Whole genome sequence analysis of the TALLYHO/Jng mouse. *BMC Genomics* 2016, 17(1): 907.

4. Along with the genetic and genomic studies we have investigated the pathogenesis of obesity and type 2 diabetes in TALLYHO mice that encompass many aspects of polygenic human obesity and type 2 diabetes. They are characterized by impaired glucose tolerance and uptake, enlarged islets, and increased glucose-stimulated insulin secretion from islets and β-cell mass. We also identified that diets are important modulators of genetic susceptibility to type 2 diabetes and obesity in these mice. I served as the primary investigator in all of these studies.
    a. Kim JH, Stewart TP, Soltani-Bejnood M, Wang L, Fortuna JM, Mostafa OA, Moustaid-Moussa N, Shoieb AM, McEntee MF, Wang Y, Bechtel L, Naggert JK. Phenotypic Characterization of Polygenic Type 2 Diabetes in TALLYHO/JngJ Mice. *J Endocrinol* 2006, 191(2): 437-446.
    b. Mao X, Dillon KD, McEntee MF, Saxton AM, Kim JH. Islet insulin secretion, β-cell mass, and energy balance in a polygenic mouse model of Type 2 diabetes with obesity. *JIEMS* 2014: 1-6.
    c. Parkman JK, Mao X, Dillon K, Gudivada A, Moustaid-Moussa N, Saxton AM, Kim JH. Genotype-dependent metabolic responses to semi-purified high-sucrose high-fat diets in the TALLYHO/Jng vs. C57BL/6 mouse during the development of obesity and type 2 diabetes. *Exp Clin Endocrinol Diabetes* 2016, 124(10): 622-629.

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/junghan.kim.1/bibliography/47838499/public/?sort=date&direction=ascending

D. Additional Information: Research Support and/or Scholastic Performance

Completed Research Support
R01DK077202 Kim (PI) 07/01/08 - 06/30/15
National Institutes of Health/ National Institute of Diabetes and Digestive and Kidney Diseases Genetics of diet-induced obesity in a new mouse model. The goal of this study is to elucidate energy balance in diet-induced obesity and identify the underlying genetic factors in the congenic mice that carry an obesity susceptibility QTL.
Role: Principal Investigator