THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON
SCHOOL OF PUBLIC HEALTH

HUMAN GENETICS CENTER

June 8, 2012
Pierre Buekens, M.D., Ph.D.
W. H. Watkins Professor and Dean

Dear Dr. Buekens:

I am pleased to write this enthusiastic letter in my strong support of Dr. Jinying Zhao's tenure in the Department of Epidemiology at Tulane University. Dr. Zhao is an extremely bright and motivated young scientist. I have been greatly impressed by her academic integrity and achievements. I am a former advisor of Dr. Zhao. Based on my knowledge on Dr. Zhao's scientific work as well as a thorough review of the materials that you forwarded to me, I am confident in providing a strong recommendation in favor of Dr. Zhao's tenure

I am a Professor in the Division of Biostatistics and Human Genetics Center at the University of Texas School of Public Health and have been working in the areas of statistical genetics, bioinformatics and computational systems biology.

It is my opinion that Dr. Zhao meets all criteria for the award of tenure. This recommendation is based on (1) excellence in research, (2) commitment in teaching, (3) service to the department and institution, and (4) national and international reputation.

Dr. Zhao has received broad educational training in medicine, molecular cell biology, genetic epidemiology and statistical genetics. She performed and is performing strong and rigorous research. She has published 47 papers in peer reviewed journals. Dr. Zhao localized, for the first time, type 2 diabetes genes onto chromosome 1p36 in Chinese population, a susceptibility region that was later replicated by several independent studies in different populations. She has specific expertise in statistical genetics in developing novel methodologies for genome-wide linakge and association analysis as well as genetic interactions. She has developed several novel statistical methodologies that have been shown to be more powerful and sensitive in detecting major

genetic effects as well as gene-gene interactions implicated in human chronic disorders. Current GWAS have primarily focused on testing association of single SNPs. To only test for association of single SNPs has limited utility and is insufficient to dissect the complex genetic structure of many common diseases. To meet conceptual and technical challenges raised by GWAS , she with other scientists, proposed gene and pathway-based GWAS as complementary to the current single SNP-based GWAS, which was awarded the EJHG 1st Prize for her paper "Gene and pathway-based second wave analysis of genome-wide association studies" as the top cited article in the first calendar year following its publication. The most popular methods for pathway analysis are designed for common variants, the statistical methods for pathway-based association analysis of rare variants have not been well developed. Many investigators have observed highly inflated false positive rates and low power in pathway-based tests of association of rare variants. The inflated false-positive rates and low true-positive rates of the current methods are mainly due to their lacking ability to account for gametic phase disequilibrium and population stratification in the association analysis. To overcome these serious limitations, she develops a novel statistic that is based on the smoothed functional component analysis (SFCA) for pathway association analysis with next-generation sequencing data. The developed statistic can capture position-level variant information and account for gametic phase disequilibrium. Her works shift the paradigm of GWAS from individual marker test to gene and pathway-based tests. Dr. Zhao has also developed novel statistical tests for differential methylation pattern for complex diseases and investigated the potential role of epigenetics in the pathogenesis of obesity, diabetes and cardiovascular disease.

Her work has led to significant presentations at national and international conferences. One of her presentations won the highly competitive "Elizabeth Barrett-Connor Research Award for Young Investigators" from the American Heart Association. Recently, she won another prestigious award, "Roger R. Williams Memorial Award for Genetic Epidemiology" presented by the American Heart Association.

THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON
SCHOOL OF PUBLIC HEALTH

HUMAN GENETICS CENTER

Dr. Zhao has also been very successful in developing novel projects and obtaining research funding. Over the past few years, she has secured several millions of funding as PI from NIH (one R21, one K01 and one R01), American Heart Association and other funding agencies. Her success in obtaining research funding is extremely impressive during this financial difficult time.

Dr. Zhao has made great contribution to the methodology development in statistical genetics. Her research works substantially advance our knowledge in genetic epidemiology and statistical genetics, and have great impact on the field of type 2 diabetes and cardiovascular diseases. Besides the achievements in scientific research of her fields, Dr. Zhao has also been teaching and mentoring graduate students, postdoctoral fellows and clinical fellows. Over the past years, she has developed two new courses at the graduate level and has also been co-teaching other graduate courses.

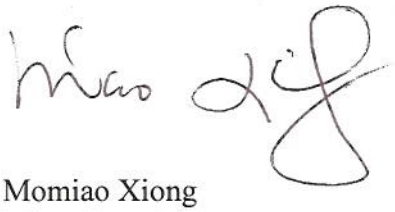
Dr. Zhao has strong record of outstanding institutional and national service. She has been the Editorial Member for three journals. She served on several NIH review panels as a grant reviewer and has also reviewed numerous articles for peer-reviewed journals. She also served several school and university committee.

In summary, Dr. Zhao's record to date clearly puts her at the top of her peers. She has demonstrated remarkable productivity and achievements in research, teaching and professional services. I am fully confident that Dr. Zhao is a leader in genetic epidemioplogy and a nationally recognized outstanding genetic epidemiologist in cardiovascular disease. Based on her strong records and outstanding contributions, if Dr. Zhao were a candidate for awarding tenure at the University of Texas School of Public Health, she would be awarded tenure without any concern . My only regret is that he is not on the faculty at the University of Texas School of Public Health. I therefore strongly recommend to award Dr. Zhao tenure. Please do not hesitate to contact me if you need any additional information.

THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON
SCHOOL OF PUBLIC HEALTH

HUMAN GENETICS CENTER

Sincerely,



Momiao Xiong
Professor
Division of Biostatistics
Human Genetics Center
University of Texas School of Public Health