December 8, 2019

Center for Human Genome and Precision Medicine

University of Wisconsin-Madison

677 Huntington Ave, Boston, MA 02115

Dear Dr. Bernardo Lemos,

Please accept this complete endorsement of Dr. Shicheng Guo’s application for Postdoc position in your lab at T. H. Chan School of Public Health, Harvard University. Dr. Guo was an outstanding graduate student in my lab who turned out excellent work focus on genetic and epigenetic variation with human disease. I have been his Ph.D supervisor during 2010 to 2015 together with Dr. Li Jin, vice president of Fudan University. I am proud to say that Mr. Guo is one of my best students I have ever taught and he received the reward of “excellent graduates in Fudan University 2015”. I enthusiastically endorse his application in your lab to receive further excellent training before becoming an independent scientist.

Dr. Guo completed the theory class in both pathogen biology in Medical School and Medical Genetics in School of Life Science, Fudan University. The classes he took were included Human Evolutionary Genetics, Molecular Genetics, Population Genetics, Human Genomics and Post-Genomcis, Medical Microbiology, Proteomics, Cancer Molecular Biology, Cell and Molecular Immunology and bioengineering. Meanwhile, he also taken large number of applied mathematics class such as biostatistics, text-mining, systemic biology, Biological Image Processing. The comprehensive and diversity theory training in different fields provided him better opportunity to think about questions in multiple perspectives.

After the theory class training, Dr. Guo conducted large number of genetic and epigenetic epidemiology research, especially on DNA methylation biomarker for cancer and autoimmune diseases. He built the first DNA methylation detection platform in my lab and conducted serials of DNA methylation biomarker screening on lung cancer and liver cancers. He successfully completed his Ph.D training with the thesis: Cancer Biomarker Research Based on Genome-wide DNA methylation Profile: Diagnosis and Prognosis (2015). In the thesis, he applied different methylation assay including Illumina methylation array (methylation 450K), MSD-SNuPET (Methylation Status Determined Single Nucleotide Primer Extension Technique), methylCap-Seq (MBD-Seq) to identify differential methylation signals in human cancers and then apply different machine learning method to build the prediction models to evaluate the biomarker performance in cancer diagnosis and prognosis. All the relevant works have been published as the first author or co-first author in Clinical Epigenetics, Cancer Medicine, and Frontiers in Genetics. Except human cancer, Dr. Guo finished the first CD4+ cell DNA methylation profiles in Rheumatoid Arthritis patient from Chinese Han Population, which provided the evidence to the role epigenetics variants on rheumatoid arthritis (Modern Rheumatology, 2017). He also published several important papers during his phd exchange program in School of Public Health, University of Texas under the training from Dr. Momiao Xiong. Dr. Guo conducted the further research on this field and extend his research into cell-free DNA methylation to detect the cancer-DNA origin based on tissue-specific DNA methylation signals when he working as Postdoc in University of California, San Diego and the work has been published on *Nature Genetics* (2017). Recently, Dr. Guo applied Marshfield Precision Medicine cohort identified a novel iron metabolism gene (FGF6) that have been accepted by the journal of *Blood* (2019).

Dr. Guo is an easygoing and dedicated researcher. He always provided his research skills to his colleagues and always an awesome collaborator. Dr. Guo was a strong self-learning student in my lab and demonstrated strong ability to learn new concepts and skills that required in his research project which also can be showed with his large number of publications. Dr. Guo was also a great teacher to assist me supervise several bachelors and masters in my lab. In addition to Shicheng’s commitment to his research, he has also showed exceptional scientific communicators. He always enjoy to introduce his project to the colleagues and seek for comments and collaborations. I still kept strong collaboration with Shicheng and we have kept in touch and collaboration even he left my lab for 4 years. In the past 4 years, I also met Dr. Guo every year. Dr. Guo came to visit me on September 2018 when he was invited to give a speech in Shanghai Annual Rheumatology Research Meeting and we talked about the genetic and epigenetic interaction research in autoimmune disease and Phenome Wide Association Studies based on epigenetic factors (PheWAS) and cell-free DNA methylation research for autoimmune diseases. Both of them are quite interesting and will be important for the basic research for these complex diseases. His present work will have strong collaboration opportunity on population genetics and epidemiology since I am charging one of largest cohorts (Taizhou Cohort) in China. Two week ago, I met Dr. Guo in 2019 ASHG meeting in Houston and discussed with his current research project and career development.

In short, Dr Guo has the high level of motivation, leadership, and independence and communication skills to effectively lead his research. He is a creative and thoughtful researcher who cares deeply about the veracity of the data analysis and result explanation. Overall, I strongly support him to be considered in the application to postdoc position at T. H. Chan School of Public Health, Harvard University that would provide him a great opportunity to become an excellent independent scientist. Please do not hesitate to email me if you have any question. I would like to share more information’s about Dr. Guo.

Sincerely,

Jiucun Wang, Ph. D

Director of the Department of Anthropology and Human Genetics

Deputy Director of Institute of Rheumatology, Immunology and Allergy

School of Life Sciences, Fudan University, Shanghai