



Mississippi State UNIVERSITY

College of Veterinary Medicine

Biocomplexity Faculty Search Committee
C/O Prof. Rob de Ruyter van Steveninck
Department of Physics
Indiana University
Swain Hall West 117
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Dear Search Committee:

Dr. Xiufeng Wan has asked me to write a letter of recommendation for a Junior Faculty Position in Biocomplexity. This is a pleasant task. Wan was an excellent academic student during his years at Mississippi State University.

Wan joined my laboratory in 1998 for his doctoral degree studies. I served as Wan's major professor and provided training in the various molecular biology techniques used in his research. During this time, I was impressed with his ability to conceptualize the problem, and then to formulate the most logical approach to the question at hand. Generally, he would only need advice on how to conduct a given molecular biology technique required for the experiment. Wan reads the literature voraciously and familiarized himself with all aspects of his project. He was interested in the research of his colleagues and was alert to potential collaborative projects at the border of his and their studies.

Wan's research expanded a research direction in my laboratory; identification of the genes involved in the host-adaptation of the commensal mycoplasma species to poultry. This research was necessary to understand how the commensal species remains colonized in the respiratory tract for the life of the animal, an ideal quality for a live vaccine. We would then be able to insert genes from *M. gallisepticum* into *M. gallinarum* for a recombinant vaccine, and therefore avoid any interference with the host-adaptation mechanisms of the *M. gallinarum* species. To accomplish this goal, Wan constructed a recombinant library from *M. gallinarum* genomic DNA, as a recombinant genomic library for this mycoplasma species did not exist. Subsequently Wan was then able to identify several gene candidates that would be predicted to play a role in mycoplasma host adaptation. In particular, a gene encoding an enzyme, an aminopeptidase was cloned and fully sequenced. Additional studies showed that the gene is present as a single copy in the genome and is expressed at the RNA level. This suggested that the aminopeptidase would be expressed as a functional protein. Indeed, Wan developed the antibody reagents to identify the aminopeptidase protein, and then showed that the enzyme is found mainly in the cytosol of the cell. Significantly, the results of these studies suggested that the aminopeptidase enzyme would be responsible



for providing amino acids for the cell. The aminopeptidase also represents the first protein-coding gene to be identified in the *M. gallinarum* species. The importance of this research was noted at the Annual Meeting of the South Central Branch of the American Society for Microbiology, Louisiana State University in 2001. Their interest centered on the possibility that host-adaptation mechanisms would be similar among the different mycoplasma species, especially those species that are responsible for human infections. Therefore, Wan's conclusions that cytosolic aminopeptidases would supply amino acids for the survival of mycoplasma species in different environments, or possibly different tissues are highly relevant. To this end Wan was awarded the Outstanding Student Poster Presentation by the American Society for Microbiology. Moreover, the aforementioned studies resulted in two significant publications detailing the expression and functional characterization of the aminopeptidase enzyme.

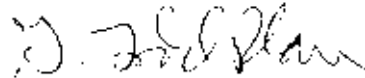
I should also point out that this whole research effort was quite a stretch for Wan, as his initial training had been in veterinary medicine and therefore had to learn much of the molecular biology essentially from scratch. In addition to his research endeavors, Wan also earned a master's degree in computer science to develop expertise in bioinformatics. To that end Wan collaborated on a bioinformatics project with the chairperson of the Department of Biochemistry and Molecular Biology. With the skills developed from that project, Wan was able to make further contributions to my laboratory by predicting a protein structure for the mycoplasma aminopeptidase enzyme. Additionally, over the course of his studies he developed a series of aminopeptidase gene mutants to be used in testing the protein structure prediction.

Wan presents scientific data at meetings or lectures to students with confidence and gains the interest of his audience by thoroughly understanding the subject. He has worked hard to improve the clarity of his presentations. While I have not had the opportunity to observe Wan in a classroom lecture, I believe he would be excellent in this regard. Like most good teachers, Wan is always organized and well-prepared for lab meetings and other presentations. Wan would always explain the fundamental details of his subject so that the least experienced members of his audience would understand. I also believe that Wan would serve as a good mentor for both undergraduate and graduate students. Therefore I have encouraged him to seek academic positions after postdoctoral training.

At completion of the degree, Wan applied for postdoctoral fellowship training in genomics and subsequently joined Jizhong Zhou's laboratory at Oak Ridge. Dr. Zhou, in my view, runs the premier lab functional genomics, so Wan's move to Oak Ridge was a significant advancement scientifically. From what I understand, Wan has also been combining the interest of Dr. Zhou's lab with his own background in bioinformatics to good effect. I will leave it to Wan and Dr. Zhou to address this in detail.

I very strongly support Wan's application to join your department. I think he is well qualified to teach a variety of courses in the biological sciences. In addition, I feel confident he would develop sound research and that this would be a valuable opportunity in his academic career. Please feel free to contact me if there is anything further I can offer on Wan's behalf.

Sincerely,



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