

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re: Patent of Jingyue Ju. *et al.*
Patent No.: 7,790,869
Appl. No.: 11/810,509
Issue Date: September 7, 2010
For: MASSIVE PARALLEL METHOD FOR DECODING DNA
AND RNA

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

**DECLARATION OF GEORGE WEINSTOCK UNDER RULE 37 C.F.R. §
1.132**

I, George Weinstock, declare as follows:

1. I have been retained by the firm of Reinhart Boerner Van Deuren s.c., who represent Illumina Incorporated ("Illumina") in this proceeding, as an expert regarding technical issues in this proceeding. My curriculum vitae is attached as Exhibit A, which includes all publications I have authored in the previous 10 years.

2. Illumina has requested I provide my opinion of the validity of claims 12-13, 15-17, 20-26, 28, 31, and 33 of U.S. Patent No. 7,790,869 to Jingyue Ju. *et al.* ("the '869 patent") in light of prior art in the field. In forming my opinion,

Columbia Ex. 2040 Illumina, Inc. v. The Trustees of Columbia University

I have relied on my own experience and have studied the '869 patent and the patents and references identified in this declaration.

QUALIFICATIONS

3. I am Associate Director of The Genome Institute at Washington University School of Medicine in St. Louis Missouri, where I am also a Professor of Genetics and a Professor of Molecular Microbiology.

4. I received a Bachelor's degree in Biophysics in 1970 from the University of Michigan. I was a PHS predoctoral Trainee in the Department of Biology at the Massachusetts Institute of Technology in Cambridge, Massachusetts from 1970 until 1977. I received my Ph.D. in Microbiology from the Massachusetts Institute of Technology in 1977. My doctoral research was on the subject of bacteriophage P22 and translocatable elements. From 1977 until 1980 I was a postdoctoral fellow in the Department of Biochemistry at Stanford University Medical School in Stanford, California. While I was a postdoctoral fellow, I studied the RecA protein of *Escherichia coli*.

5. Since 1980, I have held a number of academic appointments and employment positions, including academic positions at the University of Maryland Baltimore County, The University of Texas-Houston, Baylor College of Medicine, and Washington University at St. Louis, and a research staff position at

NCI-Frederick Cancer Research Facility in Frederick, Maryland. Since 1977, I have received a number of awards for my work in the areas of biomedical sciences, genetics and microbiology including the University of Texas Chancellor's Entrepreneurship and Innovation Award, the John P. McGovern Outstanding Teacher Award, and election to fellowship in the American Academy of Microbiology and the American Association for the Advancement of Science.

6. Since 1985, I have held a number of consulting positions and board memberships including scientific advisory positions to genome centers and large-scale research projects performing high throughput DNA sequencing. I have been an invited professor and guest lecturer at numerous universities, companies, and other organizations on various subjects, including genetics, genomics, biochemistry, molecular biology, and biochemistry. I am a member of the following societies and organizations: American Academy of Microbiology, American Association for the Advancement of Science, American Society for Biochemistry and Molecular Biology, American Society of Human Genetics, American Society of Microbiology, Association for Computer Machinery, Federation of American Scientists, Genetics Society of America, Human Genome Organization International, Institute of Electrical and Electronics Engineers, and Sigma Xi.

7. I have held various editorial positions for a number of scientific journals and participated in and organized a number of symposia and conferences. I have received funding for my research laboratory continuously for over 30 years and currently have 10 contracts and grants that are active, including projects funded by the National Institutes of Health, the United States Department of Agriculture, the Foundation Fighting Blindness, and the Bill and Melinda Gates Foundation. I have received other funding and support for a number of other research projects. I have also authored and contributed to more than 280 publications. My major research interests involve genetics and genomics and their application to understanding infectious diseases and other human medical conditions.

8. I have extensive, hands-on experience with many sequencing technology platforms, including the accused Illumina products in this case. I have over 40 years of experience working in the field of genomics, including over 15 years managing DNA sequencing projects, and first-hand experience in the use of DNA sequencing platforms such as the Illumina Genome Analyzer, HiSeq, and MiSeq, Roche 454 GS20 and FLX Titanium models, Life Technologies/Applied Biosystems SOLiD and capillary sequencing instruments, Pacific BioSciences RS, and Life Technologies/Ion Torrent Personal Genome Machine.

9. Since 1999 I have been a director of two of the three large scale genome centers in the United States funded by and comprising the National Institutes of Health DNA sequencing network. I am currently an associate director at one of these centers, The Genome Institute at Washington University. I was co-director of another of these centers, the Human Genome Sequencing Center at Baylor College of Medicine prior to joining the faculty at Washington University. The third genome center in the NIH network is at the Broad Institute. There are only two other genome centers of this scale, both outside the United States: Wellcome Trust Sanger Institute in the United Kingdom and the Beijing Genome Institute (BGI) in Shenzhen, China.

10. Part of the mission of the NIH genome centers is to acquire and investigate DNA sequencing technologies including interacting with companies to beta-test and provide feedback on their instruments. I regularly evaluate new sequencing technology as part of my position overseeing a large-scale sequencing center.

11. For my work related to this *inter partes* review, I am being compensated at a rate of \$600 per hour. I have no financial interest in this proceeding, and my compensation is unaffected by the content of my testimony or the outcome of this proceeding.

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