



University of Connecticut Health Center
School of Medicine

Department of Neuroscience

November 3, 2005

Re: Sunjong Kwon

Dear Dr. Brun,

I was a thesis associate advisor to Dr. Sunjong Kwon at the University of Connecticut Health Center. My laboratory has collaborative projects with the laboratory of Dr. Carson, Dr. Kwon's former mentor, and we hold joint weekly lab meetings. Therefore, I had opportunities to see Sunjong in various settings.

I was and continued to be very impressed by Dr. Kwong sharp intellect. He asked the most insightful questions and got to the core of the problem quickly. It is evident at international meetings where he presents his work and participates most actively in the discussion of presentations including those outside his immediate field of research.

John Carson, Sunjong's thesis advisor, usually presents the Ph.D. students interested in joining his lab with a few rough ideas of possible projects. It is up to the student to develop anyone of these ideas into an hypothesis, to defend it, and to design ways to test it. Sunjong chose to test if a sequence of myelin basic protein mRNA identified for its role in translocation of the message to the periphery of the oligodendrocyte was also a translational regulator. In developing this hypothesis into a project he proved to be an independent and creative investigator. He developed an ingenious in vivo translation assay that allowed to monitor translational activity under a variety of experimental conditions. This assay is now used routinely and is a significant contribution to our analytical capability. Sunjong constantly evaluated the approach to his project, modifying it or refining it while making steady progress towards its completion. He was totally devoted to his work, thinking about it constantly, and coming up with a great many ideas. He was truly an exceptional student. He has the drive, the intelligence and the dedication to become an outstanding scientist.

Sunjong's major strength is creativity and his willingness and enthusiasm to try new approaches. His weakness is in written and verbal communications because English is his second language. However, he is very ambitious and hard working, and will certainly improve his skills in order to succeed.

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Sunjong is a very pleasant fellow and has a good sense of humor. He was always helpful to his fellow students and was a good lab citizen. I would think that he would be similarly a great colleague and responsible faculty in the Department of Biology.

Sincerely,

A handwritten signature in cursive script that reads "Elisa Barbarese". The signature is written in black ink and is positioned below the word "Sincerely,".

Elisa Barbarese, PhD
Professor of Neuroscience and Neurology
University of Connecticut Health Center
Farmington, CT.



University of Connecticut Health Center

Molecular, Microbial
and Structural Biology

November 2, 2005

Dr. Yves Brun
Systems Biology/Microbiology Faculty Search
Department of Biology
Indiana University
Jordan Hall 142, 1001 E. 3rd St.
Bloomington, IN 47405-7005

Dear Dr. Brun,

This is a letter of recommendation for Sunjong Kwon who is applying for a position at your institution. Sunjong did his PhD thesis research in my laboratory. I know him quite well.

Sunjong joined the Molecular Biology and Biochemistry Graduate Program at the University of Connecticut Health Center as part of a particularly strong class. From the beginning he was one of the most interactive students in the program in terms of asking questions in seminars and journal clubs and participating in class discussions. His Korean accent was difficult to understand at first but he has since become quite fluent and articulate. He has a broad range of interests and reads the literature voraciously, frequently pointing out relevant papers. He thinks primarily in terms of biochemistry and molecular biology.

When Sunjong came to my lab I asked him to investigate the relationship between intracellular RNA transport and translational regulation. He approached this problem with creativity and tenacity. Since RNA transport can only be assayed *in vivo* he developed an *in vivo* translation assay using green fluorescent protein as a reporter. I should emphasize that the assay he developed requires exquisitely careful experimental technique, attention to detail and patience. The success of the project depended heavily on Sunjong's extraordinary experimental skills. I don't believe most graduate students would be willing or able to perform this assay successfully. Sunjong also designed and developed a very nifty fluorescence dequenching technique to assay RNA degradation both *in vitro* and *in vivo*, that is described in a paper published in Analytical Biochemistry. Reasoning that cis-acting signals for transport might also regulate translation he inserted a known RNA transport signal at various positions in mRNA encoding green fluorescent protein, microinjected the RNA into different cell types and analyzed the level of GFP expression by confocal microscopy. He showed that the RNA transport signal functions as a translational enhancer *in vivo* and *in vitro*. The effect is position-, copy number- and cell type-independent, specific for cap-dependent initiation and requires hnRNP A2. He also developed a dicistronic reporter RNA using GFP and BFP to analyze the subcellular distribution of cap dependent and independent translational activity *in vivo*. This typifies his experimental strategy which usually involves using novel and elegant recombinant fluorescent reporter molecules in combination with advanced imaging technology to analyze specific biochemical events in living cells. This work was published in the Journal of Cell Biology and was the topic of a recent minireview in Cell. Based largely on Sunjong's work we have applied for a patent on the transport/translation regulatory element and plan

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to license it for applications in biotech and gene therapy. Sunjong is also a coauthor of two reviews, one published in Current Opinion in Neurobiology and one in J. Neurocytology. The hallmarks of Sunjong's research are a combination of sophisticated imaging technology, meticulous molecular biological technique and hard work.

Sunjong is an excellent lab citizen, always willing to help other students with their projects and he often has good suggestions and insightful comments at lab meetings, even about topics unrelated to his own research. He is scrupulously careful in his experimental work. He enjoys interpersonal interactions and is well liked.

Since leaving my lab Sunjong has worked as a post-doc with Bruce Schnapp studying Vg-1 RNA localization in *Xenopus*. He has made good progress in this field and recently presented his work at a FASEB meeting on RNA trafficking. In discussions at this meeting Sunjong exhibited a level of confidence, insight and maturity that is exceptional for a post-doctoral fellow. He is rapidly becoming an intellectual leader in the field of RNA trafficking.

In terms of scientific accomplishment, experimental skill, maturity and creativity I would rank Sunjong in the top 10% of students I have known (more than 100 students past and present). He has overcome initial language difficulty and has developed an effective communication style. His presentations in lab meetings, journal clubs and scientific meetings are excellent and I expect that he will be an effective teacher. The single most outstanding attribute that distinguishes him from other scientists is his exceptional ability to perceive relationships between apparently unrelated fields. For example, while in my lab he noticed that amyloid precursor protein mRNA contains a sequence similar to the RNA trafficking signal in myelin basic protein, and moreover, individuals with Alzheimer's disease often carry mutations in this sequence. This observation opened up a new line of investigation on APP RNA trafficking in my laboratory. I believe truly creative scientists must have this ability to see beyond their own field and I expect it to serve Sunjong well in his future scientific career.

Sincerely,



John Carson
Professor of Biochemistry

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