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Prof. Rob de Ruyter
Biocomplexity Faculty Search Committee
Biocomplexity Institute, Indiana University
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To whom it may concern,

With this letter I want to give my support to Ha Youn Lee's application for a faculty position in your Biocomplexity Institute. Ha Youn joined our department with the highest recommendations from Prof. Kardar as a visiting scholar in the summer of 2002. Since her arrival I have had numerous conversations with her and I have followed her very interesting work with Prof. Kardar at MIT and Prof. Deem at UCLA (now at Rice). This fall, Ha Youn and I started to collaborate on a project on the computational detection of RNA editing sites so that I had the pleasant opportunity to work more closely with her.

Let me say that Ha Youn is an ideal candidate for a faculty position in an interdisciplinary setting like yours. She got a very rigorous education in quantitative methods with her master and PhD degrees in statistical physics. She deepened her knowledge of statistical physics during her postdoc with Mehran Kardar, who is a world renowned authority in statistical physics. During this postdoc Ha Youn started to get interested in applying the methods she had learned in statistical physics to biological problems. From there on through her work at UC Los Angeles to her most recent project with me she has moved more and more toward biology. During this transition she has shown that she can very well immerse herself in a new research area — notice the breadth of the subjects on her publication list. This is an invaluable asset for an interdisciplinary position like the one she aspires to in your institution.

E.g., since last October she has been working with me on the computational identification of RNA editing sites in *Physarum polycephalum*. This organism inserts additional bases into the messenger RNA during transcription. Thus, the messenger RNA sequence is different from the genomic sequence which makes the prediction of gene loci very difficult. The mechanism for these insertions is unknown. Actually, even the messenger RNA sequences for the few genes that have been detected are difficult to obtain because in order to determine the editing sites experimentally, the messenger RNA has to be sequenced. To this end, primers have to be designed to isolate the messenger RNA in question from cell extracts. However, these primers have to be complementary to

the very sequences that are to be determined. Over the last year I have been developing a prototype computational approach that can predict the position of these editing sites thereby breaking the above mentioned vicious cycle. Since October Ha Youn has taken on the project of applying this method systematically to the whole mitochondrial genome of *Physarum polycephalum*. In addition, she wants to develop a de novo gene finding scheme for *Physarum polycephalum* using similar ideas like in my comparative approach. Although Ha Youn had no background in sequence comparison and gene finding, she was able to predict the editing sites of the last known gene without experimental information on editing sites within the three months that she has been working with me. These predictions will be confirmed by my experimental collaborator Jonatha Gott in the Department of Pathology at Case Western Reserve University. I am very confident that Ha Youn will produce publishable results also in this area very soon.

In summary, I believe that Ha Youn Lee is a scientist with a rare combination of a strong background in quantitative methods and an interest and demonstrated ability to put these methods to work on biological projects in an interdisciplinary context. On this basis I recommend her for the faculty position at the Biocomplexity Institute at Indiana University. Please do not hesitate to contact me if you have any further questions.

Yours

A handwritten signature in cursive script, reading "Ralf Bundschuh". The signature is written in black ink and is positioned above the printed name.

Ralf Bundschuh