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Biocomplexity Faculty Search Committee  
c/o Prof. Rob de Ruyter van Steveninck  
Biocomplexity Institute  
Indiana University  
Swain Hall West 117  
Bloomington IN, 47405-7105

Dear Professor de Ruyter van Steveninck:

Peter Thomas is a very bright, ambitious computational scientist who has asked me to write supporting his application to your Department. I am not very familiar with his graduate work with Cowan but know of his efforts while a post-doc in Terry Sejnowski's lab at the Salk. He appears to be involved in cutting-edge computational neuroscience and is a strong candidate for the position.

Peter has participated in a collaboration between my lab and that of Professor Herbert Levine of our Physics Department here at UCSD. Together with Wouter-Jan Rappel we have explored the possibility that cells determine direction in a chemotactic field during the first second when the front of the cell is exposed to higher levels than the back. We constructed a model in which an inhibitor is generated at the front of the cell and rapidly diffuses within the cell to the back where it inhibits the response to the exogenous activator. We propose that this inhibitor is cGMP. A manuscript describing our results has been submitted for publication.

Peter has done an excellent job in designing and running the simulations that show that such a mechanism is plausible. His computer skills were excellent and he rapidly grasped the essentials of the biological theory. He understands both the physics of molecular interactions and the cell biology of the response. We are now extending the model to encompass stabilization and amplification of the initial asymmetry to generate directional cell motility.

Peter is also involved in modelling the molecular interactions that occur at neuronal synapses and appears to have made significant contributions to this team effort. However, the neurobiologists involved should be consulted for a more informed judgement.

Peter tells me that he has taught undergraduate mathematics and enjoyed the challenge. He is eager to pursue an academic career where his knowledge and skills can be fully expressed. I recommend him highly to you.

Sincerely yours,

A handwritten signature in black ink, appearing to read "W. F. Loomis".

William F. Loomis  
Professor of Biology