

1030 Burnside Hall,
805 Sherbrooke Ouest,
Montreal, Quebec, Canada
H3A 0B9
ttcassid.wixsite.com/home.

October 1, 2018

Dr. Alan Perelson and Dr. Ruy Ribeiro
Theoretical Biology and Biophysics Group
Los Alamos National Laboratory

Dear Dr. Perelson and Dr. Ribeiro:

I am writing to indicate my interest in the post doctoral position at the Los Alamos National Laboratory in viral dynamics and immune system modelling advertised in the SIAM life sciences mailing list. I am currently a doctoral candidate in the Department of Mathematics and Statistics at McGill University under the supervision of Prof. Antony R. Humphries and Prof. Morgan Craig. My doctoral research uses mathematics to quantify the importance of delayed processes in physiological systems. I am particularly interested in using physiology based mathematical models to understand systemic control of the immune system.

My long term research goal is to understand the dynamics of innate and adaptive immune response to infection, including initiation and termination of the immune response. My doctoral work has included developing and analysing a mathematical model of tumour-immune interaction. By using distributed delay differential equations, I explicitly incorporated the heterogeneity inherent to malignant tumours and showed that heterogeneity acts to destabilize the disease free state. Using this mathematical model, I showed the importance of immune recruitment in controlling cancer progression. Further, I extended the model to include viral cancer therapy. My results show that immune recruitment is crucial in determining the long term treatment outcome. By separately modelling immuno-oncology, I developed optimal dosing regimes for viral therapy and immuno-oncology combination therapies.

My work has won national and international awards. My doctoral work has been financed through a national award from the National Science and Engineering Research Council of Canada. I was also selected to attend the Thematic Semester in Mathematical Biology at the Mittag-Leffler Institute in Stockholm.

I have enclosed my CV. I can arrange for references to contact you directly. I can send any additional information you may require. I will be in Europe from November 18th-December 14st at the Mittag-Leffler Institute, but look forward to interviewing for this position at another time. Thank you for your consideration.

Yours sincerely,

Tyler Cassidy