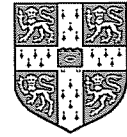




HARVARD
UNIVERSITY

UNIVERSITY OF
CAMBRIDGE



Dept of Systems Biology
Harvard Medical School
200 Longwood Ave
Boston, MA 02115, US
Phone +1 617 432-4996

Dept of Applied Mathematics
and Theoretical Physics
Wilberforce Rd, CMS
Cambridge, CB3 0WA, UK
j.paulsson@damtp.cam.ac.uk

October 5, 2005, Boston, MA

To Whom It May Concern:

It is a pleasure to write a letter of reference for Ido Golding. I first met Ido when he joined Princeton University in 2001 as a departmental Fellow in Molecular Biology. He had then already made a name for himself as a first-rate theoretical biophysicist, with many excellent papers on bacterial pattern formation. The Princeton fellowship, which comes with PI privileges and a personal research grant, was intended for mathematicians and physicists entering experimental biology. Ido did so wholeheartedly and is now becoming a leading experimentalist in his field. I have come to know him very well, both professionally and personally, and am closely familiar with his published work including co-authoring a paper that will appear later this year. It is therefore with great confidence that I can recommend Ido for a faculty position in your department.

Much of Ido's recent work focuses on dynamics in single cells, particularly on stochastic gene expression. The advent of quantitative GFP measurements has turned this into a very productive field, but current methods are limited in that they can only estimate the shape of fluorescence distributions, with far from enough accuracy to resolve individual molecules. This makes interpretation very difficult – almost all published data is consistent with large families of random processes, not just the Markov models accompanying the various studies. To separate between the many alternatives, it turns out to be critical to count the integer-valued number of molecules of the chemical species that spontaneously creates the fluctuations, preferably producing time-series rather than snapshots. As many studies have claimed that protein noise comes from having few copies of the corresponding mRNA, it is thus essential to count the number of transcripts per individual cell. Ido developed a new method that not only accurately measures the single-cell mRNA levels for the first time, but does so with single-molecule resolution over many cell generations. In my opinion, this study is the first to truly characterize the randomness of transcription, as well as mRNA partitioning at cell division, mRNA-protein correlations etc. Some of the results will be published in the December 2005 issue of *Cell* with Ido as both first and corresponding author, reflecting the fact that this was truly his project from beginning to end.

Princeton has a very strong tradition in biophysics, and out of the many postdocs I know there I would definitely rank Ido as the strongest. He is fully independent, both intellectually and practically, and I have no doubt that he quickly would attract students, grants and postdocs to form a cutting-edge research group. I am equally convinced of his potential as a teacher and supervisor. He is a very clear communicator, and responsible and thorough in all his undertakings.

Finally, Ido is also an extraordinary individual on a personal level. He has an unusual scientific curiosity, always keeping up with the research literature, asking questions in seminars, and discussing science with everyone around him. He is very friendly and interactive, constantly helping other groups with their projects and asking for second opinions on his own work, which leads to many fruitful collaborations. He has a great sense of humor and behind the many jokes there is a rich and subtle mind with a rare intellectual maturity.

In summary, Ido is an outstanding scientist and colleague. He would be an excellent faculty member at any department and I give him my unreserved recommendation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Johan Paulsson', with a long horizontal flourish extending to the right.

Johan Paulsson

Assistant Professor, Dept of Systems Biology, Harvard Medical School, US
Tenured Faculty, Dept of Applied Maths and Theoretical Physics, University of Cambridge, UK