

TEL AVIV UNIVERSITY



אוניברסיטת תל-אביב

RAYMOND AND BEVERLY SACKLER
FACULTY OF EXACT SCIENCES
SCHOOL OF CHEMISTRY

הפקולטה למדעים מדויקים
ע"ש ריימונד וברלי סאקלר
בית הספר לכימיה

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

Dear Professor Brun:

Dr. Ido Golding

It is my sincere pleasure to provide the following letter of reference for Dr. Ido Golding.

I got to know Ido about eight years ago when we overlapped for a couple of years as graduate students at the condensed matter physics department of Tel Aviv University. We have remained in contact ever since and have had numerous scientific discussions. Throughout our interaction I have been struck by the rare combination in Ido's personality of brilliance, creativity, independent thought and scientific "fearlessness", on the one hand, and diligence, caution and rigor on the other. This balanced attitude has led him to a unique and demanding scientific path and, consequently, to very impressive achievements.

In the past years we have witnessed a surge of fascinating developments in cell biophysics driven, to a certain extent, by reorientation of highly skilled people from physical-chemical fields toward biological ones. In particular, many people from theoretical condensed matter physics and chemical physics have switched to biophysical problems. Very few of these theorists, however, made the leap all the way to *experimental* biology. By the end of his PhD, Ido had already reached remarkable achievements in statistical mechanics (polymer models with Yacov Kantor) and computational biophysics (dynamics of bacterial colonies with Eshel Ben-Jacob). These studies yielded more than a dozen publications in leading physical venues. The easiest and most natural path for him, therefore, would have been to proceed to a theoretical post-doc in either condensed matter or biophysics. Instead, he took a courageous (and, at least for



me, admirable) decision to move to experimental molecular biology. As I can tell from conversations that we had at that time, the decision was driven by two factors: (a) He had become increasingly intrigued and enthusiastic concerning fundamental problems in systems biology. (b) More crucially, he had realized that to achieve breakthroughs in this field he must get involved in hands-on laboratory work. Hence, given Ido's qualities of consistency and independence, his choice for a future career was a clear-cut one.

Out of several excellent post-doc offers, and having received the prestigious Lewis Thomas fellowship, Ido chose Princeton's Department of Molecular Biology. This reflected again his determination not to cut edges and go all the way to frontier biological problems. The fellowship allowed him more scientific independence than the usual post-doc position, as well as close collaboration with leading molecular biologists, primarily Edward Cox. Typically, Ido selected an extremely challenging task — to observe *in vivo* and in real time the kinetics of gene activity in a single bacterium. Such a shift of direction cannot be easy and, because of his uncompromising scientific rigor, it took him a considerable amount of effort and time to come up with the right biological system, build the single-molecule apparatus, and obtain the first reliable results. I was therefore thrilled a couple of years ago to see him begin to pick the fruit of his difficult endeavor. And the results have been beautiful — convincing, intriguing, and of central biological importance. [See the publications in *PNAS* (2004) and *Cell* (accepted).] The advantage of Ido's physical background has been manifest as well — apart from the apparent biological significance of his results, he was able to extract important and interesting physical insights, e.g., concerning the anomalous diffusion of a single RNA in the cytoplasm.

Ido's post-doc research reveals the high level of scientific maturity that he has reached. He has convincingly proved his ability to come up with new ideas, master new techniques, and conduct top-level independent research. This is expressed also in his research plan, which is concise, focused and ambitious. The time and effort that he has devoted to learning biological and biophysical techniques now put him in an excellent position to tackle some of most interesting problems in the field: the detailed kinetics of transcription; the microscopic mechanisms involved in protein-DNA interactions; the relation between such microscopic details and the macroscopic properties of the organism and its population.

Ido was considered a truly superb TA when he was a graduate student at TAU. He tutored in several physics classes. The ones he liked the most were the physics courses for biologists. He has a great talent for conveying complicated ideas in a simple manner and the students were giving him the highest grades. I am confident that he will be an excellent teacher.

Ido is a very straightforward and likable person who is always happy to help. He is also extremely funny. He is excellent at interaction and collaboration, as is clear also from his CV and research plan.



Because of Ido's unusual profile, it is hard to rank him relative to other young researchers. Two people who may offer a reasonably valid comparison are Mark Goulian (UPenn, previously at Rockefeller) and Amit Meller (Harvard's Rowland Inst., moving to Boston U). Both are physicists who switched to biologically relevant problems. Mark and Amit are at a more advanced stage of their careers and, hence, one can only try to extrapolate Ido's development to the near future. In this respect, I think that Ido is as good as these two scientists. Mark may be better in theoretical capabilities and Amit in experimental skills, but, in my opinion, Ido exceeds them both in his choice of problems and vision of what will be fundamentally important for biology.

In summary, I recommend Dr. Golding, enthusiastically and without any reservation, for a faculty position at your Department. He is a bright, original and independent scientist, with proved achievements and a clear, exciting scientific vision. I have no doubt that he will make seminal contributions to systems biology and cell biophysics in the coming years and become a leading scientist in the field.

Finally, for the sake of transparency and to reinforce all of the above, I would like to mention that Ido visited us at the School of Chemistry last fall. Although, because of the traditional structure of TAU, the School has never hired a biophysicist, Ido impressed people here so much that we very seriously consider offering him a faculty position this year. As things stand now, I expect that our biggest difficulty will be, in fact, to convince him to prefer our offer over others...

Sincerely yours,

A handwritten signature in black ink, appearing to read 'ח. דיאמנט' (Haim Diamant).

Haim Diamant, Ph.D.
Assistant Professor