

CENTER FOR BIOSYSTEMS RESEARCH

UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUTE  
5115 PLANT SCIENCES BUILDING  
COLLEGE PARK, MARYLAND 20742-4450  
301 405 1581  
301 314 9075 (FAX)

September 8, 2005

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

Dear Colleagues,

It is a pleasure to write a letter in support of Mitchell S. Dushay's application for a Faculty position in your department. I have known Mitch for seven years and I am enthusiastic about his future. Mitch and I met when he came to the University of Maryland. We interacted daily then, and we have continued to communicate on a regular basis since he has been in Sweden - I have visited Södertörns högskola, and Mitch and I see each other at scientific meeting in the United States. Thus, I feel qualified to assess his potential.

Dushay is among the best researchers I know, and I am certain that he will operate a productive laboratory for many years in the future. Mitch's research has emphasized genetic and molecular approaches to understanding the biology of behavior and physiology. Rather than list all of his accomplishments, let me summarize the highlights. As a graduate student with Jeff Hall at Brandeis, Mitch studied circadian rhythm in fruit flies, and carried out the initial characterization of important genes that are now known to function in this process in higher animals. As a postdoctoral researcher, Mitch has pursued understanding the basis of immunity in insects, with most of his studies emphasizing a genetic approach in fruit flies. This excellent project has led to several key discoveries that have had a huge impact on the field of immunity, by helping to shape our understanding of how humans defend themselves against pathogens. Clearly, the isolation and publication of the *relish* gene was a tremendous scientific contribution, because of the importance of this signalling molecule in organisms that are as different as flies and humans. While Dushay has worked in several laboratories during his postdoctoral training, he has maintained continuity of research interests, has remained productive, and has made these changes to pursue important projects. For example, his most recent move to Södertörns högskola was timely. Mitch saw an opportunity to apply his long-term interest in immunity, collaborate with Dr. Uli Theopold on studies of blood coagulation, and their productivity is clear based on recent high-impact publications. In addition, Dushay recognized the potential importance of interactions between nuclear lamins and chromatin, and how this interaction serves to regulate cell- and tissue-specific gene expression that is associated with cell differentiation during development of the immune system. Dushay received a competitive grant from the Graduate research School in Functional Genomics for this work. I am certain that Mitch is studying problems that will have a huge influence on science, and that this will provide his students with opportunities that are rare in all Universities. Thus, I am sure that these studies will lead to important publications, and research grants from federal agencies including the National Institutes of Health.

Teaching is not always a priority among top researchers, but Dushay is an exception, and clearly wants to share and disseminate his interest in science. His background extends well beyond the standard teaching assistant experience that most entry level faculty candidates gain while in graduate school, since Mitch was responsible for teaching an entire course while at Notre Dame, and has been teaching since his return to Sweden. While I have not observed him in the classroom, I am confident of his teaching abilities based on the clarity of his presentations in research lectures, and his daily mentoring of students in laboratories within our institute. In addition, the fruit fly *Drosophila melanogaster* that Dushay utilizes in the laboratory is an ideal system for teaching genetics and development. Further, the nature of Dushay's work will enable him to share this resource with students in both the classroom and his own laboratory.

I am extremely positive about the promise of Mitch Dushay's career. Mitch has a naturally inquisitive mind and an intellect that allows him to select significant areas of research, and then utilizes his strong work ethic to overcome the technical obstacles that may stand in his way. On top of this, Mitch is a pleasant and thoughtful person who goes out of his way to help others with their research. Mitch has put an impressive amount of intellectual effort into understanding my work and has provided many helpful suggestions. Further, his daily interaction and encouragement of my students was self-motivated, and what I believe distinguishes great mentors. I am confident that Mitch will be an excellent teacher, researcher, and colleague. In closing, I would like to emphasize that Mitch has tremendous potential, and that you have a rare opportunity to provide him with a faculty position. Please don't hesitate to contact me if you have any questions.

Sincerely,



Eric H. Baehrecke, Ph.D.

Associate Professor  
Center for Biosystems Research  
University of Maryland Biotechnology Institute  
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College Park, MD 20742

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DEPARTMENT OF MOLECULAR BIOLOGY  
AND FUNCTIONAL GENOMICS

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ARRHENIUS LABORATORIES FOR NATURAL SCIENCES

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STOCKHOLM UNIVERSITY      S-106 91 STOCKHOLM      SWEDEN



Stockholm, September 13<sup>th</sup>, 2005

To: Yves Brun, Systems Biology/Microbiology Faculty Search  
Department of Biology, Indiana University  
Jordan Hall 142, 1001 E 3rd St  
Bloomington, IN 47405-7005

Letter of recommendation for Dr. Mitchell S. Dushay.

Dr. Dushay and I have known each other since our time as postdoctoral fellows in the laboratory of Dr. Dan Hultmark, at that time Stockholm University, Sweden. Dr. Hultmark was the first to systematically use *Drosophila* as a model system to study innate immunity. This was the main reason why both of us joined his team. During his time in Stockholm, Mitch laid the ground for the characterization of one of the two pathways (the rel and imd pathway) that are involved in the induction of innate immune responses in the fly by discovering the key transcription factor relish (rel). His pioneering work on relish is cited by most publications on innate immunity. Mitch continued to work on insect immunity in the labs of Drs. Elisabeth Eldon and David O'Brochta. During this time we had less contact. After returning to Sweden, Mitch established his own group at Södertörn University College, Stockholm. Since 2001, Mitch and I have been collaborating on a particular aspect of insect immunity, namely the clotting reaction of insect hemolymph. Although this aspect of immunity is likely one of the key aspects of cellular immunity, it has been almost completely neglected in recent years. We decided to lay the groundwork for studying this reaction in *Drosophila* in order to get an integrated view of innate immunity in this system. Our work has attracted interest from a number of groups working in the field, in particular Dr. Bruno Lemaitre, Paris, one of the leading researchers in our field with whom we are now collaborating. The characterization of clotting in *Drosophila* and the identification of some key components are subject of four papers as well as

a review published during 2004/05 and at present three manuscripts in preparation.

In our collaboration, the emphasis in Mitch's group is on molecular genetics and transcriptional regulation. For the latter, a second project in the Dushay laboratory concerned with nuclear architecture adds additional aspects. Our interaction is extremely fruitful, Mitch and I meet at least once a week to coordinate our efforts and we have common group meeting every month. Mitch's expertise in all aspects of our field in particular on genetics and transcriptional regulation is invaluable for our research. In addition, his tremendous enthusiasm inspires all of us, myself, and students from both our laboratories. It was Mitch's enthusiasm and his clear way of addressing scientific questions that inspired me to propose our collaboration two years ago. Mitch's capability of thinking laterally is extremely helpful in a field that like ours is located at the crossroads between developmental and evolutionary biology, genetics and immunology.

Similarly, at the level of undergraduate teaching, from what I can judge, Mitch is a brilliant teacher, who inspires his students. He has taken on a heavy teaching load at his present university. This university was founded recently and a number of courses are still being established, including courses he is organizing. My judgment is mostly based on contacts with his students.

In summary, I can only warmly recommend Dr. Dushay for a faculty position in Systems Biology/Microbiology at Indiana University, Bloomington. I have complete confidence that Mitch will establish himself as a brilliant researcher and inspiring teacher.

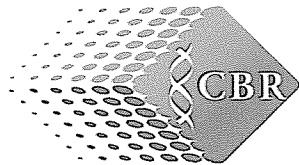
Please don't hesitate to contact me any time in case of further questions.

With best regards

Yours sincerely

A handwritten signature in cursive script, appearing to read 'U. Theopold', written in dark ink.

U.Theopold, Associate Professor, Molecular Biology



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September 9, 2005

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

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**To whom it may concern**

I am an Associate Professor and the senior lecturer in Developmental biology at the Section for Natural Sciences at Södertörns högskola, Stockholm, Sweden. I have been asked to write a letter of recommendation for Mitch Dushay, which I am more than delighted to do. Mitch has had a position with us since the autumn of 2000. When starting up, he decided to leave the field of transposable vector biology in which he'd worked the previous two years and start something new. In these last four years he has founded two projects. Both of them lie in the field of innate immune response, a field of science in which he was active as a post-doc, producing breakthrough results. One interesting sector of innate defence against invaders as studied in insects is the clotting response, which functions to trap exogenous material. It is also crucial for larvae, which make use of a positive pressure hydrostatic skeleton. Without rapid coagulation, larvae would bleed out in no time after even the smallest injury. Despite its interest and importance, virtually nothing is known about clotting's molecular components, nor anything regarding their regulation. Mitch, together with one of his graduate students, has developed a sensitive assay for detecting deficits in coagulation. They are currently screening through mutants to identify key components of the coagulation system. This is the more mature project of the two in Mitch's group, and it has produced five published manuscripts and one more just submitted to Science.

Mitch's other project dates back to 2002, when data from other model organisms led him to speculate that nuclear structural components might be crucial for developmental events and physiological changes in the fruit fly. He decided to write this up as a research proposal focusing on the development and function of the immunologically important organs in *Drosophila*. He was granted funding for a student for five years, including bench fees for this project (over 2,000,000 Swedish kronor). As he recruited a student to this project a little more than a year ago, Mitch and I decided our labs would join forces on an investigation into lamin mutant phenotypes. This collaboration has proven successful and we are currently writing up our first manuscript.

Mitch has built his projects successfully despite the fact that the teaching load at this department is rather high. Apart from supervising graduate students within his projects, Mitch has also successfully supervised undergraduates in various lab-, and theoretical assignments. His teaching of undergraduates includes setting up novel courses and course organization, it all adding up to approximately 25% of a full time lectureship. On top of this we were scheduled for a move during spring term 2002, relocating our laboratory to a newly constructed building. The move and the teething problems associated with the new building resulted in a substantial setback to lab activities here, but also showed Mitch to be able in successfully starting-up a lab. Mitch works hard and someone less determined could not push two such interesting and worthwhile projects, let alone start them from a dead stop - as Mitch has done.

On a more personal note, I would like to add that his interest in Science is enormous. He knows a lot of Science and he's very interested in scientific discussions, together with me, other faculty members or students - or all of us together. He demonstrates scientific independence in mind and in action. He is the best geneticist I know and also a good colleague.

I predict his scientific future will be bright, and I can warmly recommend Mitch without hesitation.

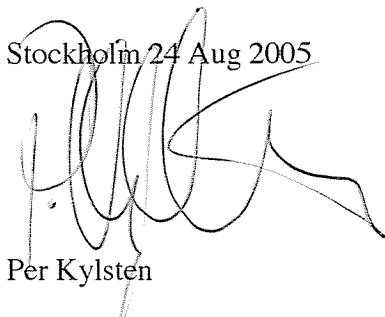


Per Kylsten, PhD, Associate Professor  
Senior Lecturer, Developmental Biology  
Södertörns högskola, 141 89 Huddinge, Sweden.

Accompanying note

I will be out of the lab for period of time. As I know Mitch will be applying for positions in the period while I am away, I have typed up this letter of recommendation in advance of his sending out the application and left the letter with him, including this note, sitting in a sealed envelope

Stockholm 24 Aug 2005



Per Kylsten