



Yale University

Michael J. Stern, Ph.D.
Associate Professor
Department of Genetics
Yale University School of Medicine
I-354 SHM
P.O. Box 208005
New Haven, CT 06520-8005

Street Address:
333 Cedar Street
Telephone: (203) 737-2283
Fax: (203) 785-6333
Internet:
Michael.Stern@Yale.Edu

10/10/05

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

Dear Dr. Brun,

I am writing to you in strong support of the application of **Dr. E. Jane Albert Hubbard** for a faculty position at Indiana University. I have known Dr. Hubbard (Jane) since she began publishing during her postdoctoral fellowship. More recently I have gotten to know Dr. Hubbard quite well through a computer modeling collaboration that was initiated officially in the summer of 2001. This interaction has shown me how outstanding a scientist she is and how beneficial it is to have her as a scientific collaborator.

Dr. Hubbard is a remarkably productive scientist on many levels. First, it is clear that Dr. Hubbard produced a high rate of outstanding scientific research during her postdoctoral work. This work, performed in Dr. Iva Greenwald's laboratory, centered on offshoots of the role of one of the two Notch-like genes, *lin-12*, in *C. elegans* development. Since arriving at NYU as a principal investigator, Dr. Hubbard has established a research niche that is both well funded and poised to be increasingly productive for the foreseeable future. In this work, Dr. Hubbard defined new genetic and anatomical aspects concerning the proliferation of germ cells. Her lab has carried out an extensive genetic screen that has yielded mutations defining at least eleven genes. Dr. Hubbard has published her findings on two of these genes, *glp-1* and *pro-1*, in a series of four important papers. Work on additional genes in this set is well underway, portending a constant flow of papers for the foreseeable future; two additional papers have come out this year. In addition, several papers are currently being published or are well along in the publication pipeline. Dr. Hubbard has also authored a number of important reviews in this field. It is important to note that the standards for publication in the *C. elegans* field are quite high, and that it is very common for the number of publications emanating from this type of laboratory to be significantly lower than comparable laboratories working in other fields of biology.

The prospects for Dr. Hubbard's future productivity, however, extend far beyond this initial effort that she has set up so successfully. Dr. Hubbard has already established a

number of collaborative efforts that will not only enhance her productivity in the field in which she is already a leader, but in systems biology as well. In her collaboration with Dr. Fabio Piano, a colleague of hers in the Biology Department at NYU, Dr. Hubbard is carrying out a high-throughput RNAi-based screen to identify additional genes in gonad and germline development. This screen will be productive in several ways. First, it will identify additional genes that play a role in her specific field of germline proliferative events; these genes will directly provide additional projects for her laboratory. Second, it will help link the mutants that she already has identified to their molecular identities, thereby speeding their analysis. Third, it will systematically identify genes with roles in gonad and germline development that will be used both in her laboratory and as a resource for the whole field. Dr. Hubbard is additionally extending this genetic analysis of *C. elegans* germline development with a computer modeling effort in collaboration with Dr. Bud Mishra.

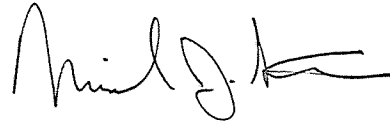
My most substantive interaction with Dr. Hubbard has been through a collaborative effort to use pioneering computer science methodologies for systems design to model systems understood through developmental genetic approaches. The remarkable structural similarity between this particular modeling methodology and the basis of knowledge in the field of developmental biology has compelled both Dr. Hubbard and me to see this endeavor as an extremely worthwhile investment of our efforts, despite its obvious risks. The adeptness with which Dr. Hubbard has adapted to this new field speaks well about the breadth of her scientific abilities.

Dr. Hubbard is wholeheartedly engaged in this project and has played a crucial role in driving this endeavor forward. Not only does she provide biological insights, but she is intellectually involved, inquisitive and learning about the computer science issues. The list of things that she is involved in for this project spans every aspect of the project: she is engaged in the background literature research, the grant and paper writing, our speaking engagements to disseminate our modeling approach and gain outside insights, the training of the student and postdoctoral members of the collaborative team, the supervision of and participation in the work itself, and finally in leading the intellectual and conceptual development of this project. Last, but not least, is Dr. Hubbard's work ethic: there is never any task that she is unwilling to take on or to contribute her time and talents to. She played the major role in assembling the grant that funds our collaboration and is its Consortium Leader. She has made trips to our collaborators' institution in Israel at critical junctures. She responds virtually immediately to any need, be it advising, planning strategies, or editing grants and papers. One could not ask for a better colleague in this endeavor.

Besides all of this, she is also an ideal mentor and colleague. Her laboratory is well-run, well-organized, and well-managed personally and financially. Her experimental (and computational) approaches are state-of-the-art. She is a broadly knowledgeable and insightful scientist. She is dedicated to investing in her institution on all fronts, scientifically, educationally, and administratively. Finally, she has a good balance between carrying out the first-rate science that she has been trained to do, and looking to the future towards an upcoming hot field.

Dr. Hubbard has laid the groundwork to contribute very significantly to many areas of both developmental biology and computational biology. She would make an outstanding addition to your faculty. If you should need any additional information, do not hesitate to contact me.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Michael J. Stern". The signature is fluid and cursive, with a prominent "M" and "S".

Michael J. Stern



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Michael J. Lenardo, M.D.
Chief, Molecular Development Section
Laboratory of Immunology
National Institute of Allergy and
Infectious Diseases
PHONE: (301) 496-6754
FAX: (301) 402-8530 or 496-0222

National Institutes of Health
Building 10 Room 11N311
10 CENTER DR MSC 1892
BETHESDAMD20892-1892
E-Mail - LENARDO@NIH.GOV

October 17, 2005

Yves Brun
Systems Biology/Microbiology Faculty Search
Department of Biology
Indiana University/ Jordan Hall 142
1001 E3rd Street
Bloomington, IN 47405-7005

RE: Recommendation for Dr. Di Jiang

Dear Mr. Brun,

It is my pleasure to recommend Dr. Di Jiang for a faculty position in the Department of Biology at Indiana University. I have known Dr. Jiang approximately 13 years during which time he was first employed as a Research Assistant in my laboratory, then advanced to a graduate student in Genetics when the joint George Washington University/National Institutes of Health program was established, and finally carried out postdoctoral work on zebrafish at the NIH in the laboratory of A.J. Chitnis. Prior to coming to the NIH, he was a student at St. Mary's College in Maryland after emigrating to the U.S. following his participation in the student demonstrations that were crushed by the Tiananmen Square Massacre. During the time that I have known Di, I have found him to be a thoughtful and dedicated scientist and a pleasure with which to work. He was one of the best graduate students that I have encountered at the NIH and I think he has a very promising future in the academic field.

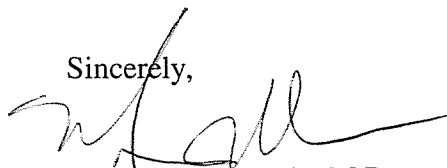
When Di first undertook his thesis work, he was most interested in how progenitor cells differentiate in the thymus. We had established several systems in the lab to study early steps in T cell development and he immersed himself in studies designed to reveal the key participating molecules. He was successful in using P53 knockout mice to establish a role for this protein in an early checkpoint in thymic development. This was a surprising result, although it is now generally accepted because previously P53 had been thought to primarily regulate the apoptotic response to DNA damage. He next attempted an ambitious strategy to retrovirally tag early thymic progenitors to carry out fate mapping during mouse thymic development. This idea was nicely thought out, but we encountered a variety of technical difficulties that in the end became insurmountable. Although we have not yet succeeded in this endeavor, we learned a great deal about stages at which early thymic progenitors are transfectable by murine retroviruses. Given the challenges of the tagging project, at my behest Di turned his attention to T cell receptor-

induced apoptosis that occurs during negative selection in thymocyte differentiation. He carried out a number of studies that implicate specific caspase proteases. During these studies he hypothesized that there must be a member of the death-inducing tumor necrosis factor gene family that mediated thymocyte death and set out to scan the EST (expressed sequence tag) database at Genebank for such a molecule. His efforts were successful and we are presently characterizing a novel TNF-like molecule. Though it is too early to tell if this is responsible for thymocyte deletion, its expression pattern strongly suggests that it will have a role in lymphocyte regulation and possibly a role in the central nervous system. Therefore I expect this work will generate another important contribution to the literature. So it should be clear that Di is creative, he gets excited by new ideas and pursues them with great vigor. This made him a very successful member of our group.

When leaving my laboratory, Di expressed interest in pursuing work on fundamental aspects of development in simpler systems. He joined the lab of A. J. Chitnis and has been productive during that experience. Dr. Chitnis would be a more appropriate person to comment on his contributions during his postdoc there. About a year or so ago, Di became interested in the nascent field of ascidian research. He was attracted to his new area because of the simplicity of this organism and its usefulness for genetic research. His visit to Dr. Smith's lab at UCSB convinced him that this was an important system to explore as the basis for his career and he decided to pursue a second postdoctoral fellowship there. I think this is a brilliant move for Di since he has a deep interest in basic aspects of development. It also will be terrific for Dr. Smith to have a highly trained investigator join his team that has experience in development in mammals (the immune system) and zebrafish. I think that Di's proposal may also be potentially valuable for developing new lines of investigation for cancer research using a simple system. The utility of simple organisms for significant insights into cancer and mammalian biology is well demonstrated. For example, there is no doubt that the study of programmed cell death in *C. elegans* has shed light on the mechanisms of apoptosis in mammalian cells and how they can become deranged and lead to malignancy. One could reasonably hope that penetrating analyses of ascidian development might yield insights into the basic mechanisms of human malignancy.

I think you will find Di a welcome addition to Indiana University. He is a first-rate investigator, with a formidable molecular biology background and a strong interest in developmental biology. He was one of the hardest working individuals in my lab and, when he left the lab, I missed his company in the late evening hours when I do my experiments. He is dedicated to science and I think he has the ability to be a highly successful independent investigator. I think his career has been greatly advanced by the training in Dr. Smith's laboratory and he could play an important role in this new field of investigation. I strongly recommend him with the greatest enthusiasm as an ideal candidate for a faculty position in your department

Sincerely,

A handwritten signature in black ink, appearing to read "M. Lenardo", written over the typed name below.

Michael J. Lenardo, M.D.
Senior Investigator