



David O. Morgan, Ph.D.
Department of Physiology
University of California, San Francisco
600 - 16th Street
San Francisco, CA 94143-2200

Telephone: (415) 476-6695
Fax: (415) 476-5233
dmorgan@cgl.ucsf.edu

November 16, 2005

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

Dear Committee:

I am writing to recommend F. Hernan Espinoza for a position in your department. I had the pleasure of working with Hernan for about 6 years (1992-1998), when he was a graduate student in my laboratory.

Hernan is a terrific scientist. He has a very quick mind and is always able to grasp a difficult concept, understand the subtleties of a research problem, or identify the strengths and weaknesses in an experimental approach. He is also exceptionally enthusiastic and energetic. He loves to talk about experiments, enjoys designing experiments, and spent an astonishing amount of time at his bench (during his time in my lab, he was consistently the person in the lab who worked the longest hours). Hernan is fearless when learning or adapting new methods. His enthusiasm is combined with an unstoppable creative urge: he loves to think about new ways to do experiments and is rarely satisfied with the standard way of doing things. As a result, he was unusually successful when faced with technical difficulties, and always seemed to find a way to make things work. This skill was particularly helpful in his case because he was one of the first people in my lab to work entirely on the biochemical analysis of yeast protein kinases, and so he was responsible for pioneering a lot of basic techniques that many lab members still use.

Hernan's analysis of the Pho85-Hcs26 proteins, published in *Science* in late 1994, was an outstanding accomplishment that required a great deal of hard work and determination on his part. Hernan encountered a number of technical difficulties in this work, but persevered, tried a lot of different approaches, and eventually produced a clear, definitive result.

Hernan was not satisfied with only one excellent story to his credit. His interests in the regulation of Pho85, and the regulation of cyclin-dependent kinases in general, led him to tackle a particularly difficult project: the purification and identification of the budding yeast CDK-activating kinase (CAK), a key cell cycle regulatory enzyme that had previously been studied only in vertebrate cells. Hernan devoted a year's intense effort in the cold room to the purification of this enzyme. When he finally obtained enough protein to get some amino acid sequence, he moved with incredible speed to clone the gene and characterize the enzyme's activity. This work appeared in *Science* in 1996. The rapidity with which he carried out these studies clearly illustrates his exceptional work ethic, determination, and thorough grasp of a wide range of biochemical and genetic techniques. His efforts were particularly impressive because this work was performed under the pressure of intense competition from other groups pursuing similar goals.

Hernan's choice of postdoctoral laboratories illustrates perfectly his deep-seated urge to explore new fields of research. As a student at UCSF, he always displayed an unusual breadth of scientific interests and accumulated an impressive body of knowledge in many fields outside his own. The switch to lung development in mice was not a particularly difficult one for him: he had no difficulties assimilating the methods and concepts of his new field. He has now devoted a great deal of effort to the development of a highly ambitious research project in the Krasnow lab, and I fully expect that this project will lead to many new breakthroughs in our understanding of the molecules that govern the various stages of lung development.

Hernan's abundant intelligence, creativity, energy and enthusiasm ensure that he is on his way to a productive and rewarding career.

Sincerely,

A handwritten signature in black ink that reads "David Morgan". The signature is written in a cursive, flowing style.

David Morgan

Professor of Physiology and Biochemistry & Biophysics

November 18, 2005

To the search committee:

I am writing to recommend Hernan Espinoza very strongly for a faculty position. I have known Hernan since he was a first year graduate student and rotated in my lab in the spring of 1992. During his ten-week rotation, he made a number of interesting observations, worked with great enthusiasm, and just seemed unusually motivated to learn. I greatly enjoyed having Hernan in the lab, and have maintained a scientific relationship with him throughout his graduate work and postdoc.

Hernan did his thesis work in David Morgan's lab, where he studied the cell cycle in budding yeast. He did two very nice pieces of work in the yeast cell cycle. First, he showed that a yeast G1 cyclin, HCS26, functioned not together with the canonical kinase CDC28 but rather with the kinase PHO85, revealing greater complexity in CDK/CDC2-like kinases than had been expected. Second, he purified the yeast CDK-activating kinase (CAK) and discovered that it is completely unrelated to the mammalian CAK, revealing a fundamental difference between modulatory enzymes at a key step in the cell cycle. These experiments represented the best sort of yeast cell biology, combining good biochemistry with the power of mutational analysis, and they led to two high profile papers in Science. By any standard, this was a very successful and impressive graduate career.

Hernan maintained his enthusiasm and motivation even under trying circumstances. His field was very competitive, and there were even times that other groups at UCSF were basically competing with him, yet Hernan worked very hard, kept a good attitude, and got the job done. In my experience, relatively few students have the constancy and maturity that Hernan does. Furthermore, throughout his graduate career, he was excited by his work and by science.

Hernan is smart in an effective way: he knows what's important, and it's clear to him how to do it. He and I talked when he was selecting a postdoctoral lab, and he had very clear insights into important questions in developmental biology and the future of the field. He started a new project from scratch as a postdoc on development of the mammalian lung. In a tour de force, he characterized expression of almost 1,000 ligands and receptors in developing lung, and found dozens with interesting and informative expression patterns. This is intellectually related to the Drosophila work in the Krasnow lab, but it moves into a medically relevant mammalian system. I give Hernan great credit for having the courage to start this new system. Hernan's work on lung development has the potential to provide important basic science results that will motivate translational research on the lung, using a genomic approach that covers the problem broadly. More than that, he has acquired extensive results through his high-throughput gene expression analysis that has set up a host of fascinating developmental questions. I just heard Mark Krasnow present Hernan's work at an HHMI meeting, and numerous people said that it was the most exciting work at the conference. I expect this work to have a major impact in mammalian developmental biology. It's taking a long time to publish, because Hernan and Mark want the story to be definitive and complete; I think other kinds of scientists would have published many papers by now, but this has been the Stanford way. The whole story will be very impressive when it appears.

Hernan is perfectly poised now to pursue these genes in his own group. He's an exceptionally skilled, rigorously trained molecular biologist in pursuit of a medically relevant problem in developmental biology.

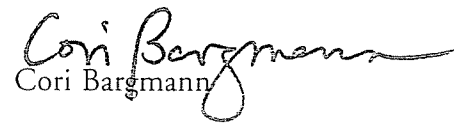
Cori Bargmann, Ph.D.
Investigator
Torsten N. Wiesel Professor

The Rockefeller University
Laboratory of Neural Circuits and Behavior
1230 York Avenue, New York, New York 10021
212.327.7241 • Fax 212.327.7243 • cori@rockefeller.edu

Intellectually, Hernan is ambitious and aggressive in the best sense of both words. He wants to do something important and is willing to push himself to do that. Experimentally, Hernan has his feet on the ground, and I see him as one of those people who will accomplish meaningful things at every stage of his career.

Hernan is charming and creative- he was one of my favorite people at UCSF. I still have some of the cartoons he drew in his lab notebook on scraps of paper over my desk. He's Mexican-American and has the personal grace that comes from knowing how to deal with people from different cultures and environments. I'm always delighted when he comes by the lab to visit. He's a scientist with the character, intelligence, and ability to get things done, and he's working on a problem of major importance. I strongly support his application for this position.

Sincerely,


Cori Bergmann