

Sean Morrison



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Keeping up with Sean Morrison is not for the faint-hearted. Morrison spun his high school science fair project into a biotech start-up even before enrolling at Dalhousie University in his native Halifax, Nova Scotia in 1986. He dropped out as a sophomore to carry the venture through a successful field trial, and then started over as a student in 1990. Morrison finished Dalhousie in 1991, earned his PhD at Stanford in 1996, and finished a post-doc at Caltech in 1999, before joining the faculty of the University of Michigan Medical School the same year. Morrison became an HHMI Investigator in 2000 and won a Presidential Early Career Award for Scientists in 2003.

Morrison's science got off to an unlikely if fast start back in Halifax. His science fair project was a hydroponic plant growth system to crank out a difficult-to-grow symbiotic fungus that was known to sharply increase nutrient uptake in plants. The venture attracted immediate support from Dalhousie, which gave him lab space, and from Canadian government agencies, which gave him research grants. His hydroponically grown fungus amply demonstrated proof-of-principle in a field trial, Morrison recalls, but chaos in the financial markets dried up the venture capital pool at the critical moment, so he shut the whole thing down in 1990 and went back to school. Being a teenage biotech entrepreneur was an amazing experience and a positive one, reflects Morrison.

Today Morrison's Ann Arbor lab works with both hematopoietic and neural stem cells, using them as comparative model systems to get at conserved and divergent stem cell regulation mechanisms. His lab draws on his graduate student experience in the lab of Irv Weissman in blood-forming stem cells, and on his post-doc with David Anderson in

neural stem cells. "Now at Michigan, we go back and forth, studying the extent to which mechanisms are conserved between stem cells in different tissues," explains Morrison. "We use them both to focus on questions

such as self-renewal. When you have two examples of how something works, you understand it a lot better."

Morrison was the first to trace a neural stem cell genetic defect to Hirschsprung disease, a catastrophic impairment of intestinal motility.

"There is no other stem cell biology investigator in Sean's age group nationally

or internationally as original and productive as Sean," says Stanford's Ben Barres, citing Morrison's early work on how neural crest stem cells give rise to different fates in different peripheral nervous system regions and how aging further narrows stem cell fates. Says Barres, "Sean's identification of the novel protein BMI-1, and showing that it is necessary for stem cell self-renewal but not progenitor proliferation, may be the most important step forward in understanding stem cell biology of the decade."

According to Leonard Zon at Children's Hospital in Boston, "Sean has a different way of looking at data. He can take things apart—he understands the biochemistry and the molecular biology—but he also has the ability to look at data in the context of the whole cell, of how it moves, how it does its job, and what its decision-making strategies are."

"Sean Morrison is definitely one of the stars of stem cell biology," says Harvard Medical School's

George Daley. "He is able to reach across a spectrum of multiple adult stem cell types—blood and neural—to compare and contrast these different adult stem cell systems and find universal features. That's part of the power

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of his analytic approach. I'm in awe of his productivity and the depth of his science."

Morrison has not been content to sit in his lab while outsiders demonize stem cell research. He joined the ASCB's Public Policy Committee two years ago and is also active with the International Society for Stem Cell Research, believing that the stem cell "controversy" has been overblown by certain interest groups whose political influence far outweighs their numbers. "We think of stem cell research as a controversial area, but I think it's really a small fraction of the population who thinks this is problematic," says Morrison. "But this fraction is influential with the present Administration and has been able to create the impression that there are ethically-problematic issues that should delay research. The fact is that very few of the people who are knowledgeable about what's really at stake agree. Even among the general public, a majority do not share that point of view. The vast majority of people think that this is really important and worth supporting and that goes for Democrats, Republicans, Catholics, non-Catholics, you name it. No one has ever given me a hard time about stem cells anywhere, even on Capitol Hill," says Morrison.

"Sean has emerged as a compelling public spokesman for stem cell biology," says Daley, who serves with Morrison on the ASCB Public

Policy Committee. "He's sort of quiet by nature so when Sean speaks up in a committee meeting, it behooves you to listen. He's not the sort of person who speaks just to hear the sound of his own voice."

ASCB Public Policy Chair Larry Goldstein echoes that assessment. "Sean is a rising star scientifically as well as on the policy side of the stem cell world. He is a young scientist who has embraced this responsibility and I really admire him for that."

Morrison lives in Ann Arbor with his wife, Theodora Ross, an MD/PhD who is a cancer clinician and researcher, and his two daughters by a previous marriage, Alix, 9, and Annika, 7. Both girls are aspiring equestrians. Morrison himself, until recently, cultivated his Canadian roots by playing in Ann Arbor's amateur men's hockey league. "But I had to retire," Morrison reports wistfully. "I was just getting too old and too slow and I didn't want to embarrass my kids." He now characterizes his athletic self as "someone who aspires to play golf again someday." ■

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DEAR Labby



Dear Labby,

I am a third-year post-doc in a lab that has been very productive and in which I feel valued and happy. However, over the past year the lab has transitioned increasingly from developmental biology to more work in human embryonic cells. I am not opposed to embryonic stem cell research because intellectually I believe that the potential benefits outweigh the costs. However, I find, somewhat to my own surprise, that I feel uncomfortable participating in this research personally. Is it logically and ethically consistent to support this research but not want to conduct it myself? How can I explain my feelings to my PI? Do you see a continuing place for me in this lab?

—Feeling Caught

Dear Caught,

You are not accountable to anyone else's feelings about what is or is not "logically or ethically consistent"—your own feelings are those that you must respect. Your challenge is to accept your own instincts as valid and to find a resolution that enables you to continue to be productive scientifically.

Discuss the issue with your PI. Even if he or she is a passionate advocate for human embryonic stem cell research, it is very likely that s/he will respect your feelings that you do not want to participate in this research. The best outcome is if there are other promising projects in the lab to which you could be reassigned.

In general, independent of the nature of the controversy, it is the PI's responsibility to determine the goals of the lab. If your PI's plans are not within your comfort range, ask your PI to help and support your search for another lab. ■

—Labby

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