

- Science Progress - <http://www.scienceprogress.org> -

## Stem Cell Fairy Tales and Stem Cell Fables

Posted By [Rick Weiss](#) On March 30, 2009 @ 12:28 pm In [Article](#), [Life Sciences](#) | [4 Comments](#)

They're supposedly for kids, but fairy tales can be haunting. So perhaps I should have known that a "fairy tale" quote I got from a stem cell scientist five years ago would come back to haunt me—over and over, like the undead.

### Weiss's Notebook



CAP Senior Fellow Rick Weiss covered science and medicine for *The Washington Post* for 15 years, and now he brings his investigative eye to science policy. From cloning and stem cells to agricultural biotechnology and nanotechnology, Weiss examines the issues at the intersection of cutting edge research and public policy. Follow him on Twitter:

[@rickspaceweiss](#)

Now it's time for a silver bullet of sorts, or a wooden stake, to put that tired quote to rest at last.

The quote was from Ronald McKay, a stem cell researcher at the National Institutes of Health, and the topic was human embryonic stem cells. In an [interview](#) I did for *The Washington Post* in 2004, I asked McKay why so many people kept talking about the possibility that injections of stem cells into the brains of people with Alzheimer's disease might someday cure these people when, in fact, the scientific consensus at the time (and still today) was that such injections were unlikely to benefit such patients.

Alzheimer's, after all, affects such a large part of the brain that treating it with injections of cells would almost certainly be futile. (Parkinson's disease, by contrast, involves a very small area in the brain so has real of hope of being helped by injections of replacement cells there.) So why did people keep saying that stem cell injections might someday cure the disease?

"To start with, people need a fairy tale," McKay told me. "Maybe that's unfair, but they need a story line that's relatively simple to understand."

I had a feeling that quote would come back to haunt McKay, but as a journalist, that was not really my problem. He said it on the record and it struck me as true; people often do want to believe there is hope, even where there is little.

What I didn't know was that conservative opponents of embryonic stem cell research would

take that comment and repeat it over and over—increasingly out of context—until it had taken on a meaning that McKay never intended and that no scientist believes is true. Specifically, these opponents have used the quote to argue that embryonic stem cells have no potential role to play whatsoever in the search for treatments for Alzheimer's. So let's just set the record straight: That is simply not the case, and I will explain why.

I bring this up now because last week, yet again, McKay's quote was resurrected, this time by conservative blogger [Ed Morrissey](#). He used it to chide President Obama, who said during his news conference last week that stem cells could prove valuable "to find cures for Parkinson's or for Alzheimer's...."

"Alzheimer's?" Morrissey wrote in response. "Would embryonic stem cells hold promise for Alzheimer's?" That's when he dredged up my old article—the one with the fairy tale quote from McKay—in which I wrote about a scientific consensus that "of all the diseases that may someday be cured by embryonic stem cell treatments, Alzheimer's is among the least likely...."

Here is what Morrissey and his ilk keep ignoring: Just because injections of stem cells into the brain are not likely to cure Alzheimer's does not mean the cells are not uniquely able to help scientists find a cure for this devastating disease.

Recall that the whole beauty of embryonic stem cells is that they can develop into any cell type. Among the cell types they can become are brain cells, including the kinds of neurons that go bad in Alzheimer's.

Exactly why these cells lose function in some people as they age remains a mystery. Scientists know that the problem seems related to the buildup of proteins around these neurons, but they know little about the genetic or other underpinnings of the problem. And there are obviously very few things a researcher can do to observe this process up close as it happens, since it is happening inside people's skulls.

Imagine, though, being able to watch a neuron undergo its natural development and aging process in a laboratory dish. And imagine being able to compare this process in normal brain cells and in brain cells bearing the subtle molecular differences that scientists have so far found to be characteristic of at least some varieties of Alzheimer's disease. In fact, you don't need to imagine this because it is already being done, thanks to embryonic stem cells.

Scientists are using these cells to create normal neurons and abnormal neurons with many of the characteristics of Alzheimer's. They are using them not only to compare them, but to be able to test various chemical compounds and potential medicines to see which of these compounds might have salutary effects on the ailing neurons. They are using them, in short, to do studies that could never be done in patients and that, in fact, could never be done in laboratory dishes were it not for the newfound ability to grow them from embryonic stem cells.

"We're in the process of building a large program in San Diego with industry to use human neurons generated from human embryonic stem cells lines ... to test and search for new drugs for Alzheimer's," Larry Goldstein told me just last week. Goldstein is a leading stem cell scientist at the UCSD School of Medicine, and one of many in the field tired of the bogus use of McKay's fairy-tale quote by people with political or religious reasons to oppose embryonic stem cell research generally. "We are introducing by molecular means the genetic changes that cause hereditary Alzheimer's disease into existing stem cell lines ...for drug discovery."

The approach has every chance of identifying targets in Alzheimer's neurons that new drugs might attack to slow the disease, stop it, or perhaps someday even to reverse it. And that is extremely important for a disease such as Alzheimer's, not only because it takes such an awful toll on patients and their families but because the cupboard of potential therapies, at

this point, is nearly bare.

"We've got almost nothing," Goldstein said, noting that the few FDA-approved Alzheimer's medicines have modest beneficial effects at best. "And we've got very little in the pipeline, so radical new approaches really are needed."

Will it work? Goldstein's answer is optimistic but sensible—not so much a fairy tale as a fable from Aesop: "Any new approach might fail," he said. "But it absolutely will fail if you don't try."

[Rick Weiss](#) is a Senior Fellow at the Center for American Progress and Science Progress.

---

Article printed from Science Progress: <http://www.scienceprogress.org>

URL to article: <http://www.scienceprogress.org/2009/03/stem-cell-fairy-tales/>

Copyright © 2007-2009 Science Progress. All rights reserved.