

# features

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## Northern Exposure

### My Trip to Alaska

CASSIDY BROWN

As the end of the year was fast approaching, the anticipation of summer vacation was almost too much for me to bear. Although I knew I would miss my friends terribly, I couldn't wait for a break from homework, tests, and term papers. The first week in June was great. I slept until noon every day and spent the rest of my time driving around town in my beloved car, which had been sitting in the driveway for the past ten months. But my daily routine got old quickly, and by the second week of summer, I felt like a lazy bum. By the third week, I yearned to go back to school. I was willing to do anything (yes, even eat PFM food) to escape the boredom of summer. I had to find something to do.

My church youth group was planning to go to Alaska the first week in July, and I quickly signed up for the trip. We planned on joining other

church groups in Alaska to help build houses for needy citizens of Anchorage. After three different plane rides and a total time of over thirteen hours, I fi-

time. Because Alaska is so far north, it only gets dark for two or three hours during the summer months. As we drove to our hotel, I stared out the window

mountains. They were twice as high as any I had ever seen, and even though it was July, their peaks were still covered in snow.

The next day, my first day on the job-I was helping to re-roof a house. I glanced over to the highway that ran in front of the house, and saw a giant moose standing in the middle of the road! Although we were all excited and clamored for our cameras, the locals

four babies.

One afternoon, after we finished the roof, we decided to take a trip to a nearby glacier park. In order to see the glaciers, we had to ride a boat through a lake peppered with neon blue icebergs. The glacier, nestled between two mountains, was over four miles long and had formed both the lake and the icebergs. It was one of the most spectacular sights I have ever seen.

We spent Thursday and Friday painting the house that we had roofed and finished the day that we left. We caught a red-eye flight out of Anchorage, and when we landed in Seattle at 4:00 a.m., it was the first time in a week that I had seen darkness. When I got home, I was exhausted and jet-lagged, but extremely glad that I went. Alaska is beautiful and majestic, and I cannot wait to go back. After all, there's nothing like a trip to Alaska to get rid of the summer doldrums!



The four mile long glacier

Cassidy Brown

nally arrived in Alaska. As I got off the airplane, the first thing I noticed was that there was still daylight, even though it was almost midnight in local

at the majestic mountains in the distance. Even though I grew up in the mountains of western North Carolina, I had never seen anything like the Alaskan

said that seeing a moose in the middle downtown Anchorage was common. By the end of the week, I had seen nine moose and

## Stem Cells

FROM THE FRONT PAGE

end the debate.

Adult stem cells are certainly valuable in research today. For the past 25 years, researchers have been using adult stem cells found in bone marrow to regenerate blood cells after chemotherapy via transplants. Dr. Jos Domen, assistant Research Professor of Medicine and Immunology at Duke University, explained that "both adult and embryonic stem cells have their pros and cons in therapeutic use; an important question is whether embryonic stem cells hold the promise that adult stem cells may not. And that question has not been answered." Still, scientists are skeptical about using only adult stem cells, because, as Stanford scientist Irving Weissman puts it, "No paper shows definitively any adult stem cells in humans turning into anything else." Geron's CEO, Dr. Thomas B. Okarma, puts it bluntly: "It's baloney that adult stem cells are all we need to make regenerative medicine real."

His company claims to have three "validated and complementary technology platforms," one of which is the use of human embryonic stem cells. Another is nuclear transfer.

Nuclear transfer, commonly known as cloning, is the process by which an embryo is stripped of its genetic material by removing the nucleus and replacing it with a different nucleus extracted from an adult cell. In the case of human cloning, all 46 chromosomes come

from one individual, not 23 from a mother and 23 from a father, as with normal sexual reproduction. Cloning has the potential to complement stem cell research in that it could significantly lower the risk of new tissue being rejected by the patient's immune system.

Therapeutic cloning is the use of nuclear transfer for research. The theory is this: a patient who has suffered what is now considered permanent damage to, for example, heart tissue after a heart attack could donate a sample of his or her DNA (which can be obtained from any cell in her body). Using the DNA, an embryo is cloned. The cloned embryo

would not be permitted to develop into a fetus. Instead, the cloned DNA could be allowed to replicate within the embryonic stem cells, which could in turn be extracted for tissue regeneration. Because the DNA would be an exact match to the donor, the patient's body theoretically would not reject the tissue grown in stem cell cultures, and the damaged tissue would be regenerated. Only one U.S. company, Advanced Cell Research, has publicly announced that it plans to use nuclear transfer to create human embryos from egg cells for research purposes. Geron, which merged with Roslin Bio Med Ltd. (the company that was re-

sponsible for cloning Dolly the sheep back in 1997), hopes to use somatic (non-sex) human cells to perform nuclear transfer, thereby avoiding the controversy associated with using human egg cells for cloning.

On July 31, the House of Representatives voted to ban the cloning of human embryos, even for research purposes. Of the research, House member

money for that purpose. Sen. Daschle prefers to allow more time to pass, however, before cloning is considered for a vote. Sen. Brownback (R-Kansas) has in turn vowed that he would force a debate on cloning when a stem cell research bill arrives on the Senate floor. Brownback opposes stem cell research, cloning, and abortion. However, not all pro-life politicians have gravitated to his position on stem cell research. Sen. Orrin Hatch (R-Utah), who is rigidly anti-abortion said "A frozen embryo in a refrigerator in a clinic" isn't the same as "a fetus developing in a mother's womb." Trent Lott (R-Mississippi), the Senate's top republican, also came out in favor of the research.

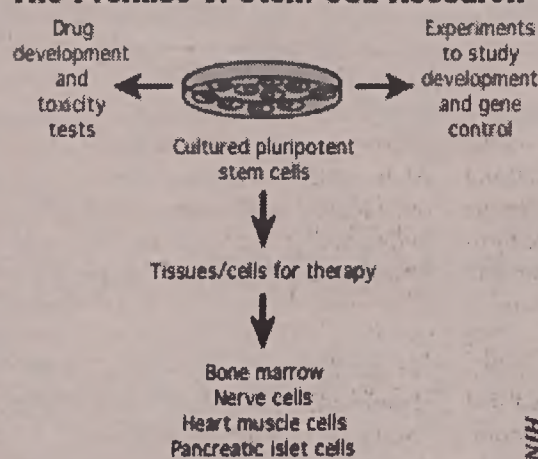
During the Clinton administration, a law was passed that banned federal contributions to research that involved the destruction of embryos. This measure was circumvented when NIH guidelines, supported by the Clinton White House, ruled that it was legal for the government to fund embryonic stem cell research, as long as biotech companies collected the embryos from the fertility clinics without using federal funds. Bush has the potential to overturn these guidelines, and there are many encouraging him to do so. President Bush has yet to decide on his position regarding embryonic stem cell research. He has recently decided to take a month's working vacation at his Texas ranch in order to

weigh the moral and ethical implications of the issue.

Amy Laura Hall is the assistant professor of theological ethics at Duke University. She worries that after the supply embryos that are currently available as a result of IVF techniques are exhausted, the temptation will exist to create new ones solely for research purposes. In fact, researchers cited by *Newsweek* have already claimed that some biotech companies are seeking out anonymous "gamete donors" to provide sperm and eggs for the creation of embryos, because the IVF embryos are inferior.

While the ethical challenges presented by cloning and embryonic stem cell research are being carefully considered by the President and Congress, their decision can decide the fate of the new technology only in the United States. Roger Peterson, a leading stem cell researcher at the University of California at San Francisco, has not waited for their decision. Instead, he's accepted a position at Cambridge University in the U.K. There, Parliament has legalized cloning for research purposes. Advanced Cell has announced that if cloning is banned in the U.S., it will simply move its technology elsewhere, "probably... to England," says CEO Tom Tureen. Many biotech companies and leading US researchers may follow suit.

### The Promise of Stem Cell Research



J.C. Watts stated "We should not be giving the green light to mad scientists to tinker with the gift of life. Cloning is an insult to humanity. It is science gone crazy." Naturally, the Senate will have to adopt the measure for it to become law. Senate Majority leader Tom Daschle (D-S. Dakota), who supports stem cell research, noted that he was "opposed to the effort to clone under virtually any circumstances." He has also believes that "virtually every one of my Senate colleagues is opposed to human cloning." Sen. Daschle plans to move with legislation to fund stem cell research this fall if President Bush refuses to release federal

Interested in learning more about stem cell research? Visit <http://www.nih.gov/news/stemcell/>