

## Why it matters that Sanders aligns with conservatives on funding stem cell and cloning research

Human cloning has been a fairly high-profile topic in public policy discussion, since Dolly, the first cloned sheep, was born 20 years ago. The topic trended again last week, following release of a story comparing the voting records of the two Democratic presidential candidates on biomedical research, cloning and stem cells specifically.

The voting records revealed a surprising lack of daylight between Senator Bernie Sanders and socially conservative Republicans on issues of cloning during the early 2000s. Republican objections to funding cloning were—and still are—due to religious beliefs of conservative Christians that a human being has ‘personhood’ from the time of fertilization. In their minds, doing anything with an embryo other than allowing it to develop in the womb into a person is equivalent to murder. In public policy, this belief has been taken to the point that many social conservatives have objected to federal funding of research on human embryos, and stem cells derived from them, even when the embryos have been created already at fertility clinics and would otherwise be discarded, because they will not be implanted.

Sanders’ stated reasons for being on the same side of the issue as social conservatives had to do with suspicions that industry working on cloning might get wealthier at the expense of society. That sounds consistent with his positions on other issues, but his votes on cloning are nevertheless surprising for a legislator who seeks to promote effective healthcare for all Americans.

For a long time, cloning has featured prominently in science fiction, and that phenomenon continues to this day. In popular culture, cloning generally implies *reproductive cloning*. That’s the kind of cloning that forms the basis of the hit BBC America sci-fi series [Orphan Black](#) that begins airing its 4th season this week. Reproductive cloning is very different from *therapeutic cloning* and it’s important for the voting public to understand the difference.

### Differing Cloning policy positions between Bernie Sanders and Hillary Clinton

In the early 2000s, Senator Sanders and then Senator Hillary Clinton both voted to prohibit reproductive cloning to produce actual human babies; neither senator wanted anything like an *Orphan Black* scenario. However, Sanders opposed alternatives that would have enabled scientists to clone human embryos strictly for medical research purposes, while Clinton favored those option. Clinton was, and still is, in favor of human embryonic stem cell research, including research using stem cells created via therapeutic cloning. Therapeutic cloning means cloning new embryos specifically to create new stem cell lines to develop into therapies with no intention of creating a new human. Rather than being allowed to develop into a viable fetus, the embryo is harvested for its wealth of pluripotent cells—stem cells. Advanced research might also harvest precursors to organs known as embryonic primordia.

Utilization of stem cells, and eventually primordia, constitutes one of the main strategies of the new field of regenerative medicine that beckons to address degenerative conditions (such as Alzheimer disease, Parkinson disease, and cardiovascular disease), stroke and neurologic trauma, including spinal cord

injury, and cancer. Such a huge amount of human mortality and suffering results from these conditions and it's difficult to fathom Senator Sanders' votes against regenerative medicine, which puts him in alliance with social conservatives who opposed that research based on religious belief.

An alternative to therapeutic cloning is embryonic stem cells from cell lines that already exist. As noted above, social conservatives also oppose this, but an initial compromise was worked out under the Bush administration. It allowed for research on a handful of pre-existing human embryonic stem cell lines with no creation of new ones, but those cell lines are considered inferior to any that could be created. That's at the federal level though and the [situation today with state laws](#) is that most states prohibit reproductive cloning, none of them fund reproductive cloning, and the laws on therapeutic cloning vary widely.

### **Into the current era**

In 2016, regenerative medicine is now a growing presence in healthcare. The main two techniques poised to advance it are stem cell technologies and gene therapy. Disease research that is using both but that is by no means an isolated example is Parkinson disease. In recent years, researchers have achieved rapid advances in early trials of both [stem cells](#) and [genes](#) delivered to specific parts of the brain to reverse Parkinson pathology. However, the research is only in its infancy.

At present, Hillary Clinton states that she remains committed to supporting policies that advance human embryonic stem cell research, and that includes therapeutic cloning. As for Bernie Sanders, he too says that he supports stem cell research, but his voting record does not completely support that claim. Thus far, we can assume only that he remains committed to opposing federal support of biotechnology when the support stands to help industry.

I do not think that a national leader is working in the interest of healthcare, if he or she does not prioritize advances in technologies critical to healthcare above other considerations. The way that stem cell research — in fact regenerative medicine research as a whole — has panned out today is that it's a sophisticated collaboration between academic medicine AND industry — as we can see on the website of the [Harvard Stem Cell Institute](#).

That's the current environment of biomedicine and it beckons for leadership in Washington that can advance medicine into the future — not only by improving the distribution of healthcare that's state-of-the-art today, but also by acting as a catalyst for bringing about completely new treatments. And so, Senator Sanders, rather than continuing to demand a political revolution that only a segment of the voting public desires, we urge you to start doing more than merely saying that you support stem cell research. Since the Progressive Era (1890s-1920s), being a *progressive* has always meant being for economic equality but also for *progress* in technology. Therefore, show some political courage and do something in the interest of the people, even when doing so may align you with the biotech industry. Start working for a different kind of revolution — a revolution in biomedicine, a revolution in genetics, a revolution in the technology of living things that will be welcomed by everybody and take the state of healthcare on a voyage to the 22nd century.

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Note: The opinions expressed in this article reflect those of the author. The Genetic Literacy Project does not specifically endorse any candidate.