

Podcast: Can we harness the power of germline editing without inviting disaster?

Gene editing has moved rapidly from the lab to real-world applications in medicine, yielding novel treatments for diseases like [sickle cell](#), [leukemia and lymphoma](#). Important milestones though they are, these [somatic therapies](#) are relatively uncontroversial because they involve editing non-reproductive cells and thus only affect the person receiving treatment. Even Europe, known for its hostility to agricultural biotechnology, [has cautiously allowed](#) gene-editing research in the biomedical sphere to progress and approved several products. But this is just the beginning of the genetics revolution.



(NHGRI)

We could potentially cure many more diseases with [germline therapies](#), which involve editing sperm and egg cells. But this stirs controversy, as it but would result in heritable changes in DNA that patients would pass on to their offspring. This is kind of genetic engineering goes beyond anything we've ever done before and "could change the genetic makeup of humans, in possibly unpredictable ways," STAT News contributor [Patrick Skerrett](#) noted several years ago.

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Skerrett's observation isn't hyperbole. A study published last summer, for instance, [showed that](#) edited embryos sometimes displayed unintended (or "off-target") mutations that could have led to birth defects and possibly cancer had they been used to start a pregnancy, spurring some experts to conclude that we should "[stay the living daylights away from embryo editing.](#)" It's also possible that the technology could be used one day [to give children](#) increased strength, musical ability, unique athletic skills, physical beauty or innumerable other special qualities—so-called designer babies.

Other scientists aren't as worried, and [point out that](#) germline editing, properly regulated, could advance our understanding of early embryonic development and alleviate much suffering by eliminating debilitating diseases before a birth occurs. The public appears to support this application of germline editing as long as it's for therapeutic purposes, according to a [July 2020 survey](#), although approval of the technology was lower among people who knew more about genetics and genome editing.

The ultimate question is: can we safely and ethically harness the capabilities of germline editing, or are we inviting disaster by tinkering with birth as it now happens (recognizing that through contraception and non genetic intervention already change the 'natural order' of the birth process?

On the latest episode of the Talking Biotech podcast, host and geneticist Kevin Folta talks with bioethicist Christopher Gyngell to answer these challenging questions and to discuss how public perception could influence the future of germline editing and humanity itself.

https://geneticliteracyproject.org/wp-content/uploads/2020/10/262_gyncrisp.mp3

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