**English Language and Composition**

**Reading Time: 15 minutes**

**Suggested Writing Time: 40 minutes**

**Directions:** The following prompt is based on the accompanying six sources.

This question requires you to integrate a variety of sources into a coherent, well-written essay. *Refer to the sources to support your position; avoid mere paraphrase or summary. Your argument should be central; the sources should support this argument.*

Remember to attribute both direct and indirect citations.

**Introduction**

Cloning is the process by which cells are artificially duplicated in order to produce an exact copy of an organism. This new and upcoming method of research is growing in popularity as well as controversy. Many people support cloning research because it can potentially open up many doors for scientific achievement, while others argue that this research is unethical. Currently, the topic of cloning is under debate and is highly regulated in most countries.

**Assignment**

Read the following sources (including any introductory information) carefully. **Then, in an essay that synthesizes at least six of the sources for support, take a position that defends, challenges, or qualifies the claim that the United States government should allow scientists to continue their studies toward perfecting cloning methods.**

Refer to the sources as Source A, Source B, etc.; titles are included for your convenience.

Source A (Caulfield)

Source B (Franklin)

Source C (“*Frequency of Health Problems and Premature Death in Clones vs. Conventional Animals”)*

Source D (“Human Cloning Is Closer than You Think.”)

Source E (Rudolf)

Source F (Myhrvold)

Source G (Redden)

Source H (Smith)

Source I (Tierney)

Source J (Walters)

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| **Source A**Caulfield, Timothy. “Human Cloning Laws, Human Dignity and the Poverty of the PolicyMaking Dialogue.” *BMC Medical Ethics*, 29 July 2003, bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3. |

*The following passage is excerpted from a source that addresses some concerns about reproductive cloning.*

At the heart of many of the human dignity arguments, often implicitly, is the idea that copying someone's genome is a morally problematic action. From the perspective of human dignity, the concern is founded on the assumption that a clone's autonomy will be compromised and that a person's genome is singularly important to human uniqueness.[[18](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3%22%20%5Cl%20%22CR18)] For those who espouse this view, dignity is obviously closely related to autonomy (likely to some version of the classic Kantian view of dignity) and the ability to make autonomous choices. Moreover, dignity is connected to human "uniqueness," though it is rarely explained why this is so. As Donald Bruce argues: "Willfully to copy the human genetic identity seems to go beyond something inherent in human dignity and individuality". [[19](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3#CR19)] Many policy statements, such as the few noted above, seem to adopt this view and specifically link genetic identity with the concept of human dignity. Other statements simply assert that "the production of identical human individuals" [[20](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3#CR20)] or the creation of a "genetic 'copy"' [[21](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3#CR21)] should be banned.

The ethos that underlies these positions is, of course, both scientifically inaccurate and philosophically problematic. Without resolving the point, let us assume that, somehow, uniqueness is central to an individual's dignity. We must ask, then, what role our genome has in our uniqueness and, more to the point, why copying it infringes human dignity. Our genome plays a key role in how we develop, but it is hardly determinative of who we are as individuals. Is an identical twin's dignity compromised because of the mere existence of a sibling with an identical genome? More importantly, our genes do not, on their own, bind our future life to a particular course. Absent other external factors (such as social or parental expectations), an individual's autonomy is not compromised solely because he/she does not have a unique genome. To believe otherwise is to adopt a deterministic view of the role of genes that is simply wrong. [[22](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3#CR22), [23](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3#CR23)] There are very few human traits that are controlled solely by genetic factors, and this is particularly true of the infinitely complex characteristics that make us who we are as individuals. [[24](https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-4-3#CR24)] A human clone would be wholly unique and, as such, it is difficult to maintain that even a "uniqueness" view of human dignity is dependant on having a unique genome.

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| **Source B**“Dolly the World-Famous Sheep.” *Identity and Difference in the Global Era*, by Sarah Franklin, 2002, pp. 221–232, sarahfranklin.com/wp-content/files/Identity-and-Difference-in-the-Global-Era-2002.pdf. |

*The following passage is excerpted from a source that discusses the cloning of the “world-famous” sheep known as Dolly.*

It is fitting a sheep should pose much questions to us, as these animals have for so much of recorded human history formed a pivotal connection between agriculture and the economy. The complicated ways sheep have been folded in to human societies is epitomised buy the global celebrity of Dolly, the world’s most famous sheep. Truly a totem of our time, Dolly symbolise a future we all will share, in which biology is less about what we are than what we can be recreated to become. As our genealogy is transformed from an unalterable condition of existence into a template for genetic modification, our sense of ourselves as human is also transfigured. This is truly where the significance of cloning lies-at the heart of the identities and differences through which we understand and imagine ourselves and our futures.

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| **Source C***Frequency of Health Problems and Premature Death in Clones vs. Conventional Animals* .2.bp.blogspot.com/\_mDaf3IQ-j-4/SyHPHGl2PUI/AAAAAAAACok/\_FxkRMignIs/s640/graph.gif. |



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| **Source D**“Human Cloning Is Closer than You Think.” *Time*, 19 Feb. 2001,  img.timeinc.net/time/magazine/archive/covers/2001/1101010219\_400.jpg. |



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| **Source E**Jaenisch, Rudolf. “Human Cloning- The Science and Ethics of Nuclear Transplantation.” *Perspective*, 30 Dec. 2004, pp. 2787–2791., www.precaution.org/lib/cloned\_animals.nejm.041230.pdf. |

*The following passage is excerpted from a source that discusses the shortcomings of reproductive cloning.*

Most cloned mammals derived by nuclear transfer die during gestation, and those that survive to birth frequently have the large offspring syndrome, a neonatal phenotype characterized by respiratory and metabolic abnormalities and an enlarged, dysfunctional placenta. In order for a donor nucleus to support development into a clone, it must be “re- programmed” to a state compatible with embryonic development. Inadequate reprogramming of the donor nucleus is most likely the principal reason for the developmental failure of clones. The transferred nucleus must properly activate genes that are important for early embryonic development and must also suppress genes associated with differentiation that have been transcribed in the original donor cell.

However, gene-expression analyses indicate that 4 to 5 percent of the overall genome and 30 to 50 percent of imprinted genes (described below) are not correctly expressed in tissues of newborn cloned mice.2 These data represent strong molecular evidence that cloned animals, even if they survive to birth, have serious gene-expression abnormalities. Moreover, as cloned mice age, severe pathological alterations in multiple organs and major metabolic disturbances that were not apparent at younger ages become manifest. A case in point is Dolly the sheep, the first mammal cloned from a somatic cell, which appeared healthy at a young age but died prematurely with numerous pathological abnormalities. These findings suggest that clones that survive to birth merely represent the least abnormal animals: subtle abnormalities that originate in faulty reprogramming may simply not be severe enough to interfere with their survival. Indeed, given the available evidence, it may be exceedingly difficult, if not impossible, to generate healthy cloned animals or humans.

It is often argued that the technical problems associated with producing normal cloned mammals will be solved by scientific progress in the foreseeable future. But some of these problems may well prove to be insurmountable.

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| **Source F**Myhrvold, Nathan. “Human Clones: Why Not?” *Slate Magazine*, 13 Mar. 1997,  www.slate.com/articles/briefing/critical\_mass/1997/03/human\_clones\_why\_not.html. |

*The following passage is excerpted from a blog post that is in favor of cloning.*

Fear of clones is just another form of racism. We all agree it is wrong to discriminate against people based on a set of genetic characteristics known as "race." Calls for a ban on cloning amount to discrimination against people based on another genetic trait--the fact that somebody already has an identical DNA sequence. The most extreme form of discrimination is genocide--seeking to eliminate that which is different. In this case, the genocide is pre-emptive--clones are *so* scary that we must eliminate them before they exist with a ban on their creation.

What is so special about natural reproduction anyway? Cloning is the only predictable way to reproduce, because it creates the identical twin of a known adult. Sexual reproduction is a crap shoot by comparison--some random mix of mom and dad. In evolutionary theory, this combination is thought to help stir the gene pool, so to speak. However, evolution for humans is essentially over, because we use medical science to control the death rate.

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| **Source G**Redden, Alana. “Alana Redden Final Blog Post – Cloning.” *Religion Ethics and Reproductive**Technology Summer Session Class*, 21 June 2017, scholarblogs.emory.edu/religionethicsandreproductivetechnologysummercourse2017/2017/06/21/alana-redden-final-blog-post-cloning/. |

*The following passage is excerpted from a blog post that discusses the cons of cloning.*

I would be remiss to ignore the potential dangers of cloning. Yitzchok Breitowitz, in his essay in the Kennedy Institute of Ethics Journal titled “What’s So Bad About Human Cloning,” astutely identifies a multitude of risks associated with human cloning. First, it would be necessary to determine how the technology would be funded. Publicly funded human cloning programs would exist at the potential expense of social services, whereas privately funded human cloning programs would result in unequal access and raise eugenics concerns (Breitowitz 333-334). Second, clones in the early stages of human trials would likely face high viability, health, and disability risks (335). This was also the case with the early stages of in-vitro fertilization technology, which is now a popular technology used on a global scale. Third, there might be psychological burdens associated with being a clone — specifically issues of identity, expectation and individuality. Fourth, there are evolutionary and survival benefits of broad genetic diversity within a population. Widespread cloning could potentially jeopardize that diversity, which could have dire consequences in the future. And lastly, cloning provokes contested questions of immortality, human intervention and evolution. Is there a line in the sand? If so, would we be crossing it?

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| **Source H**Smith, Lawrence C., et al. “Benefits and Problems with Cloning Animals.” *Can Vet J*, vol. 41,Dec. 2000, pp. 919–924., www.ncbi.nlm.nih.gov/pmc/articles/PMC1476349/pdf/canvetj00024-0021.pdf. |

*The following passage is excerpted from an article that discusses cloning in terms of politics.*

Animal cloning is becoming a useful technique for producing transgenic farm animals and is likely to be used to produce clones from valuable adults. Other applications will also undoubtedly be discovered in the near future, such as for preserving endangered breeds and species. Although cloning promises great advantages for commerce and research alike, its outcome is not always certain due to high pregnancy losses and high morbidity and mortality during the neonatal period. Research into the mechanisms involved in the reprogramming of the nucleus is being conducted throughout the world in an attempt to better understand the molecular and cellular mechanisms involved in correcting these problems. Although the cause of these anomalies remains mostly unknown, similar phenotypes have been observed in calves derived through in vitro fertilization,suggesting that culture conditions are involved in these phenomena. In the meantime, veterinarians and theriogenologists have an important role to play in improving the efficiency of cloning by finding treatments to assure normal gestation and to develop preventative and curative care for cloned neonates.

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| **Source I**Tierney, John. “Are Scientists Playing God? It Depends on Your Religion.” *The New York Times*, www.nytimes.com/2007/11/20/science/20tier.html?\_r=1&th=&oref=slogin&emc=th &pagewanted=print. |

While critics on the right and the left fret about the morality of stem-cell research and genetic engineering, prominent Western scientists have been going to Asia, like the geneticists Nancy Jenkins and Neal Copeland, who left the National Cancer Institute and moved last year to Singapore.

Asia offers researchers new labs, fewer restrictions and a different view of divinity and the afterlife. In South Korea, when Hwang Woo Suk reported creating human embryonic stem cells through cloning, he did not apologize for offending religious taboos. He justified cloning by citing his Buddhist belief in recycling life through reincarnation.

When Dr. Hwang’s claim was exposed as a fraud, his research was supported by the head of South Korea’s largest Buddhist order, the Rev. Ji Kwan. The monk said research with embryos was in accord with Buddha’s precepts and urged Korean scientists not to be guided by Western ethics.

“Asian religions worry less than Western religions that biotechnology is about ‘playing God,’” says Cynthia Fox, the author of “[Cell of Cells](http://www.wwnorton.com/catalog/fall06/005877.htm),” a book about the global race among stem-cell researchers. “Therapeutic cloning in particular jibes well with the Buddhist and Hindu ideas of reincarnation.”

You can see this East-West divide in maps drawn up by Lee M. Silver, a molecular biologist at Princeton. Dr. Silver, who analyzes clashes of spirituality and science in his book “[Challenging Nature](http://www.leemsilver.net/challenging/top/biosketch.htm),” has been charting biotechnology policies around the world and trying to make spiritual sense of who’s afraid of what.

Most of southern and eastern Asia displays relatively little opposition to either cloned embryonic stem-cell research or genetically modified crops. China, India, Singapore and other countries have enacted laws supporting embryo cloning for medical research.

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| **Source J**Walters, LeRoy. “Research Cloning, Ethics, and Public Policy.” *Letters*, vol. 299, no. 5613, 14 Mar. 2003, p. 1661., doi:10.1126/science.299.5613.1661b. http://science.sciencemag.org/content/299/5613/1661.2 |

A federal ban on human SCNT research would be a radical imposition of the power of the President and the U.S. Congress on the 50 states: It would effectively reverse current public policies on this research in a majority of the states. Only 12 of the 50 states currently ban human SCNT research, either specifically or through prohibiting all research on early human embryos. In the remaining 38 states, SCNT research involving human eggs and early embryos is not legally proscribed. California studied the question of human embryonic stem cell research with the aid of an interdisciplinary advisory committee. Last september, after a multiyear deliberative process, this large, diverse state enacted a law that supports human SCNT research. A federal ban would immediately preempt this news law. Bills that expressly permit SCNT research have been introduced in the legislatures of 12 additional states. Thus, the “laboratory of the states” is actively engaged with the issue of SCNT research. Such policy innovation at the state level should be permitted to continue.

A federal ban would constitute an unprecedented intrusion of the
U.S. government into the freedom of scientific inquiry in the
United States. The temporary or permanent ban on human SCNT research proposed by 10 members of the President’s Council and included in the House-passed bill would go far beyond any previous intervention by the federal government in any area of biomedical research.