

# Cloning and genetic determinism—a call for consistency

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From a “free love” cult in Quebec wanting to use cloning to reproduce its members to an international research consortium that claims it is ready to proceed with privately financed cloning experiments, we have heard a great deal about human reproductive cloning in the past few months<sup>1,2</sup>. Currently, many countries, such as Canada and the United States, still do not have laws that specifically regulate cloning. However, the recent flurry of stories has heightened the call for regulatory oversight<sup>3</sup>. Indeed, many, if not most, policymakers have suggested that human cloning should be criminally prohibited. In Canada, for example, the federal government is poised to introduce a new federal law that is likely to criminally prohibit human cloning.

There are, no doubt, profound ethical concerns associated with human cloning experiments as well as innumerable safety and health uncertainties. Would human clones be more susceptible to disease? Would the fact that clones possess “older” genetic material mean that they would age more quickly? How could cloning research ever be conducted in an ethically sound manner? Recent reports have noted several health and developmental anomalies in animal clones produced by nuclear transfer. These are credible concerns and, as such, it seems entirely appropriate to tightly regulate cloning. In fact, at the current time, a moratorium on all human reproductive cloning would be a sensible course of action.

That said, governments should not jump to pass anti-cloning laws, particularly criminal laws, until they have clear and consistent justifications for a long-term ban. The use of rigid prohibitive legislation has the potential to do little more than formally legitimize inaccurate notions of genetic determinism.

## Cloning laws and genetic determinism

Health and safety issues aside, the central contention used to support legislative prohibitions against human cloning is that creating an individual with a genome nearly identical to a living or dead person is an

affront to human dignity. For example, article 11 of UNESCO’s *Universal Declaration on the Human Genome and Human Rights* states: “Practices which are contrary to human dignity, such as reproductive cloning of human beings, shall not be permitted.” Arguments used to support this view are that a clone would not have “genetic individuality” and that his or her individual autonomy would be greatly compromised<sup>4,5</sup>. One author has gone so far as to suggest that cloning “crosses a significant boundary in removing the single most important feature of autonomy: the fact that each of us is genetically unique and individual.”<sup>6</sup>

At some level, these arguments against human cloning are based, explicitly or implicitly, on a belief that our future lies in our genes and that our sense of self is necessarily tied to our genetic heritage. The popular media’s inaccurate depiction of clones as exact copies of the genetic source undoubtedly bolsters public support for these positions. But clearly this deterministic vision of genetics is simply wrong. In fact, very few human conditions, be they behavioral or physical, can be explained solely through genetics (e.g., see ref. 7). Contrary to the tenor of many popular reports, one of the fundamental themes of modern genetic research is the incredible complexity of the interaction between genes and other genes and between genes and the environment. Yes, genes are obviously tremendously important to how we develop. Genes do not, however, bind our future.

The desire to use cloning technology to replace a lost child or to produce a “copy” of oneself for the purposes of ego gratification is based on misplaced notions regarding the role of genetics in who we are as individuals. Policymakers should focus on dispelling these inaccurate notions of genetic essentialism and not on the passing of laws that confirm the deterministic myth by implication.

## A policy paradox

I am not, of course, the first to note this policy paradox (e.g., see refs 8,9). For example, the 1997 report by the US National Bioethics Advisory Commission (NBAC) was criticized for being logically inconsistent<sup>10</sup>. The report carefully denounces the concept of genetic determinism, but then goes on to suggest that cloning may threaten an individual’s unique identity.

This policy paradox is often justified by arguing that in this age of deterministic thinking a clone may simply believe that his or her uniqueness and autonomy are limited<sup>11</sup>. This is the approach taken by NBAC (ref. 5). But if the problem is a misplaced belief in the power of genes and not the use of the technology, governments are aiming their regulatory powers at the wrong target. Indeed, the passing of a law that, on the surface, legitimates the deterministic misperception may, in the long run, do more harm than the technology. Instead, governments should invest in education and communication strategies that are aimed at cutting through the “genohype” that pervades much of current popular culture.

## Conclusion

If one believes that the notion of genetic determinism is a dangerous social construct and not a scientific fact, then it seems to follow that you would also believe that a clone would not be a “carbon copy” of the source, that a clone’s “genetic future” would not be closed, and that a clone’s genetic autonomy would not necessarily be diminished.

Let me be clear: I am not “for” human cloning. On the contrary, there are profound safety issues associated with this technology and the practical uses of reproductive cloning are probably quite limited. What I am worried about, however, are laws and policy discussions that seem, on the surface, to be an ill-informed response to media hype and supportive of the current trend toward accepting genetic determinism. We need regulatory policies that promote and respond to a rational discourse about the benefits and risks of biotechnology.

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