

Altered Nuclear Transfer Violates Natural Law Ethics

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Medical researchers have promised that embryonic stem cells (ES cells) hold the secret to discovering cures for Parkinson's disease, neurological damage, and other unsolved medical problems, yet President George W. Bush blocked government funding for embryo destructive research, claiming that such research is unethical. Many people hold that human embryos are living human persons, so they gladly accepted a decision they believe protects the lives of the unborn. President Obama overturned the former president's decision and granted National Institutes of Health (NIH) funding to ES cell research, supporting those who see this as a cure for many debilitating diseases. This ongoing political argument reveals the deep controversy over ES cell research, and the debate seems to have no end in site.

As the ethical discussion continues, researchers are pursuing alternative methods to generate stem cells that are ethically less controversial. One method proposed by William Hurlbut and expanded on by Maureen Condic is Altered Nuclear Transfer (ANT). William Hurlbut defines ANT as "the artificial construction of a cellular system ... that lacks the essential elements for embryologic development but contains a partial developmental potential capable of engineering ES cells" (Hurlbut, 2005, p. 222). ANT would create a culture of pluripotent stem cells similar to human inner cell mass ES cells, supposedly without the generation of a new human life. This is accomplished by preventing the formation of the trophoblast, the placental precursor. Technically, the ANT procedure would be a variation of somatic cell nuclear transfer (SCNT), or cloning, with one major change.

SCNT is the transfer of gene content from a somatic cell into an ooplast, a “hollowed out” oocyte, with the haploid nucleus removed. ANT uses this technique, but before the transfer of genetic material, either the DNA or the ooplast must be modified. The original procedure outlined by Hurlbut calls for the silencing of the Cdx2 gene so the trophoblast will never form (Hurlbut, 2005). A year later, Condic and a group of researchers proposed another form of ANT based upon altering the oocyte before DNA transfer. This procedure, ANT in coordination with oocyte-assisted reprogramming (ANT-OAR), is more complicated than the Hurlbut proposal, involving the preparation of the somatic DNA so it will produce specific transcription factors coding only for the inner cell mass pluripotent cells. To guarantee this end, the ooplast would have to be pre-loaded with the same transcription factors (Condic, 2008). To defend both versions of ANT, Condic presents a deontological argument based on the conception definition of personhood.

In 2003, Condic presented an argument for the conception view of personhood by defining brain death. Most scientists and physicians define brain death as “irreversible damage to the brain, resulting in a complete and permanent failure of brain function”. According to Condic, brain death is defined this way because, “what has been lost at death is not merely the activity of the brain or heart, but more importantly the ability of the body’s parts to function together as an integrated whole” (Condic, 2003, p. 51). If death leads to the loss of personhood and life based on a lack of integrated function, then new life and personhood should begin at the point of the integrated function, which we see happening at conception. I believe this is a strong and accurate defense of the personhood at conception, but how does it apply to Altered Nuclear Transfer?

To defend either form of ANT, we need to prove that the mass of cells used for stem cell culture has never been a living human and is not merely a crippled human embryo. According to Condic's argument, the product of ANT will never be a human person if it does not have the integrative function of a whole, instead behaving as "mere components of an organism, rather than as a whole." Crippled human embryos would also display evidence of integrated function as a backdrop to their defects, thus making them full human persons. However, the products of ANT "neither communicate in a coordinated manner nor organize themselves into an integrated being of any kind," preventing them from being crippled embryos (Condic, 2008, p. 12). ANT should work because the gene deletion and strict genetic regulation prevents the first differentiation of the embryo: trophoblast and inner cell mass. Condic proposes that experiments on animal models could ensure that the product of ANT does not differentiate and act as an integrated whole; her idea is just a proposal at this time, and has never actually been carried out

Condic's argument is very strong; it is based upon solid scientific thought and well-reasoned ethical logic. Condic is not using pseudoscience to pretend ANT will work; she bases her proposal on legitimate research. Her argument is also based on a solid deontological foundation of personhood at conception. She does not beg the argument by assuming ANT works; she wants to test its safety first. I respect Maureen Condic for her work, because the US public has been given unrealistic promises concerning ES cell research:

"In the USA, the public has been led to believe that ES cells will provide near miraculous cures for a wide range of devastating medical conditions. Despite very real medical advances in the development of non-embryonic stem cell therapies,

these treatments do not currently live up to the unrealistic expectations of ‘stem cell cures’” (Condic, 2008, p. 9).

However, I have philosophical reservations about agreeing that ANT provides an ethical intermediary to embryo destructive research. Some writers such as Lawrence Masek may use Kantian ethics as a counter to ANT (Masek, 2006; Masek, 2008). However, I believe natural law provides a stronger foundation because its principles are more flexible in the light of modern developments. Natural law ethics, as defined by Thomas Aquinas, is the knowledge of right and wrong programmed by God into the human nature. To do right is to pursue what we, by inclination, know to be good: life, procreation, knowledge, society, and reasonable conduct (SEP, 2008). Though some may try to suppress it, two inclinations of good that we humans have written into our moral nature are life and the significance of our human nature. These intuitions make ANT wrong because it pursues ends other than life and the significance of our human nature.

In every culture, murder is wrong because it ends human life. Different cultures may define the terms “murder” or “human life” differently, but ultimately the act of ending life is viewed as wrong. While ANT may not directly end a human life, such as in embryo destructive research, it is a purposeful act to avoid the creation of life. Catholic bioethicist Norman Ford makes a parallel natural law argument against ANT (Ford, 2008). I do not believe the natural law argument can defeat ANT alone, but when combined with natural law thoughts on human nature, it is greatly strengthened.

When viewing art such as *The Young Family* by Patricia Piccinini, part of us recoils, because her sculpture seems to combine canine and human nature in a grotesque way (Piccinini, 2003). The heated modern debate over personhood and when life begins shows that we inherently know human nature is an important issue, and we should err on

the side of respecting humanity. ANT is morally wrong because we are purposefully acting to make what would be human something less. Whether SCNT is right or wrong, the result of SCNT would be a zygote with the capacity to form a new human life based upon its integrative function as a whole. However, when we interfere with the technique by modifying the DNA and ooplast, we intentionally make what should be human life something less: a culture of cells.

By devaluing life and our nature as humans through ANT, we violate the moral law written on our conscience. I respect Maureen Condic for trying to do something to help cure those with debilitating diseases in an ethical manner, however I do not believe ANT will ever be a viable option for those who hold human life to be sacred from conception.

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