

## **“THERAPEUTIC” HUMAN CLONING AND HUMAN EMBRYONIC STEM CELL RESEARCH are....**

### **Harmful to embryos:**

- **This research discriminates based on developmental age—by creating a class of humans (cloned and noncloned embryos) whose sole purpose is destruction for their stem cells.** This violates worldwide medical codes established to protect human research subjects.
- **Science is clear that human life begins with the 1-celled embryo.** Embryology and biology textbooks state this unequivocally. Life functions (e.g. digestion, respiration, growth, etc.) defined in cell biology are present in all living organisms from the simplest one-celled amoeba to more complex animals. The human embryo carries out every life function that adult humans do, only they may do so differently. One cannot say a human embryo is not living without defying basic principles of cell biology.
- **A human embryo is a person.** Some admit that life begins with the 1-celled embryo, but advocate discrimination against this tiny human on the basis of developmental age, size, location, etc. If the line that has protected the intrinsic value of human life is crossed, society will head down an ethical slope where an ever-expanding group of people can be classified as “not worthy of full personhood” and harmed in the name of progress. Ultimately, this will harm the very people that destructive embryo research purports to help—the diseased and disabled.

### **Harmful to women**

- **“Therapeutic” cloning**
  - Would require 50 to 100 human eggs per patient. There are not enough women of child-bearing age in the US to donate eggs if eligible patients were to receive this “therapy” which is estimated to cost \$200,000 per patient
  - Eggs would become a commodity, exploiting women
  - Health risks involved with egg harvesting
- **Embryonic stem cell (ESC) research**
  - **Cannot be done on a large scale with the current number of available frozen embryos** (According to the Rand study, less than 3% of the 400,000 frozen human embryos in the US are designated for research. It is estimated that only 275 ESC lines could be produced—not enough for widespread use even if the problems with human ESC research could ever be overcome)
  - Not all fertility centers in the US or elsewhere create excess human embryos or freeze them. Germany prohibits the freezing of human embryos because of the high mortality rate when unfreezing them
  - Egg freezing technology is improving so that excess human embryos may not be made in the future, thus eliminating the supply of embryos for research
  - Would require biological “factories” creating human embryos for the sole purpose of their destruction
  - Women could be exploited to provide eggs for these “factories”

### **Harmful to patients**

- Cells or tissue from cloned embryonic stem cells (“therapeutic” cloning)
  - Are diseased; current health standards would not allow their use in patients
  - Can be rejected (explanation complex)
  - Have not been very successful in animal studies—it would be unsafe and unconscionable to proceed with human trials

- Have not been used for one single human clinical study
- Embryonic stem cells...
  - Can form tumors in animal studies
  - May be rejected
  - Can have genetic or other abnormalities after being grown in a culture
  - Have had few successes in animal studies--it would be unsafe and unconscionable to proceed with human trials
  - Have not been used for one single human clinical study

An alternative approach to accomplish the same clinical goals is **ADULT STEM CELL (ASC) RESEARCH** which....

- Is **safe**--Usually involves use of a patient's own cells
- **Does not harm human embryos**
- Is **successful**--Has been used in **over 50 human clinical applications** for a wide range of disorders (heart failure, stroke, immune disorders, cancers, spinal cord injury, diabetes, Parkinson's disease, many more.....)
  - Has also been successful in the lab, although more research is still necessary to develop repeatable methods of working with these cells
  - ASCs are found not only in bone marrow, but in other tissues like fat and heart
  - ASCs have been shown to turn into different tissue types in the lab
  - Bone marrow stem cells from human patients have been found to repair damaged tissue in organs outside the bone marrow. Whether they are actually turning into other cell types in vivo or simply inducing repair of native tissue may not be clear, but studies are showing success and some controlled trials have been done
- If limited resource dollars are put into human ESC research and "therapeutic" cloning, money will be diverted from much more promising research like that being done with adult stem cells.

Websites to explore for further information:

[www.stemcellresearch.org](http://www.stemcellresearch.org)  
[www.cloninginformation.org](http://www.cloninginformation.org)