



***Stem Cells:
The Silver Lining
Behind the Dark Clouds***
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Preview

- Mainstream Media Misconceptions
- The Real Promise of New Technologies
- Science Serving the Culture of Life

The New York Times:

“The new technique would seem to remove the principal objection to stem cell research, the destruction of the human embryo.” (August 24, 2006)



8 Myths or Misconceptions



1. Stem cells only come from embryos.
2. Embryonic stem cell research is the most promising.
3. Somatic cell nuclear transfer (SCNT) is not cloning.
4. SCNT can be used for therapy without creating embryos.

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8 Myths or Misconceptions (Cont.)



5. Therapeutic and reproductive cloning are essentially different.
6. Every living human cell is human life and therefore no different from an embryo.
7. Abandoned frozen embryos may as well be used for research.
8. The Church is opposed to stem cell research.

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What are stem cells?

Stem cells are unspecialized cells capable of multiplying and forming many different kinds of tissue through cellular generation and differentiation.

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Human Embryonic Stem Cell Colony

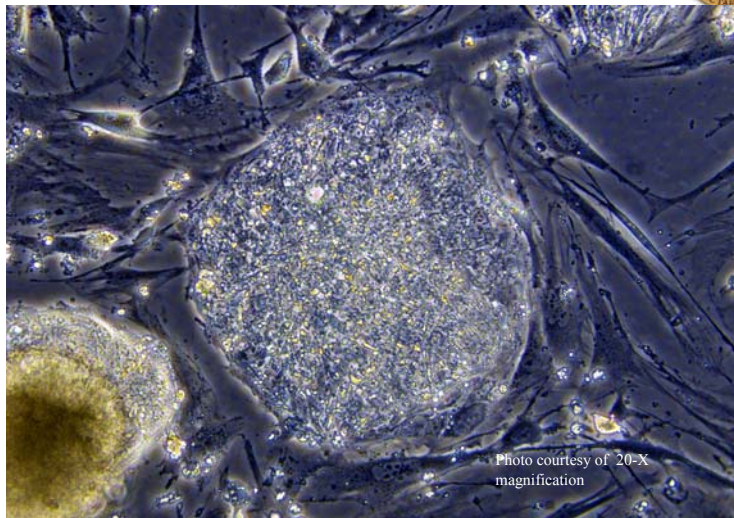


Photo courtesy of 20-X
magnification

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Where are stem cells found?

1. Embryos (ESC)
2. "Adult Stem Cells" (ASC)...



... "Adult Stem Cells" (ASC)

- Fetuses
- Umbilical Cords
- Baby Teeth
- Adult tissue such as:
 - neural (brain)
 - blood
 - adipose (fat)
 - nose (olfactory cells)
 - bone marrow
 - mammary gland
 - etc.



Advantages of ESC:

- Totipotent (*capable of differentiating into any kind of cell or tissue and some can develop as a complete organism.*)
- “Immortal”
- Available in IVF banks of frozen embryos.



Disadvantages of ESC:

- Difficulty in obtaining the desired kind of “target” tissue
- Can cause immune response and rejection.
- Carcinogenic
- Destruction of human life.

ESC vs. ASC



Advantages of ASC:

- Some can be totipotent
- Some are specific kinds of cells, easier to target
- Can avoid immune response and rejection
- Non-carcinogenic
- Easily harvested
- No harm to donor.

ESC vs. ASC



Disadvantages of ASC:

- Limited quantity
- Limited capacity for generation(not "immortal")
- Less plasticity

Treatments

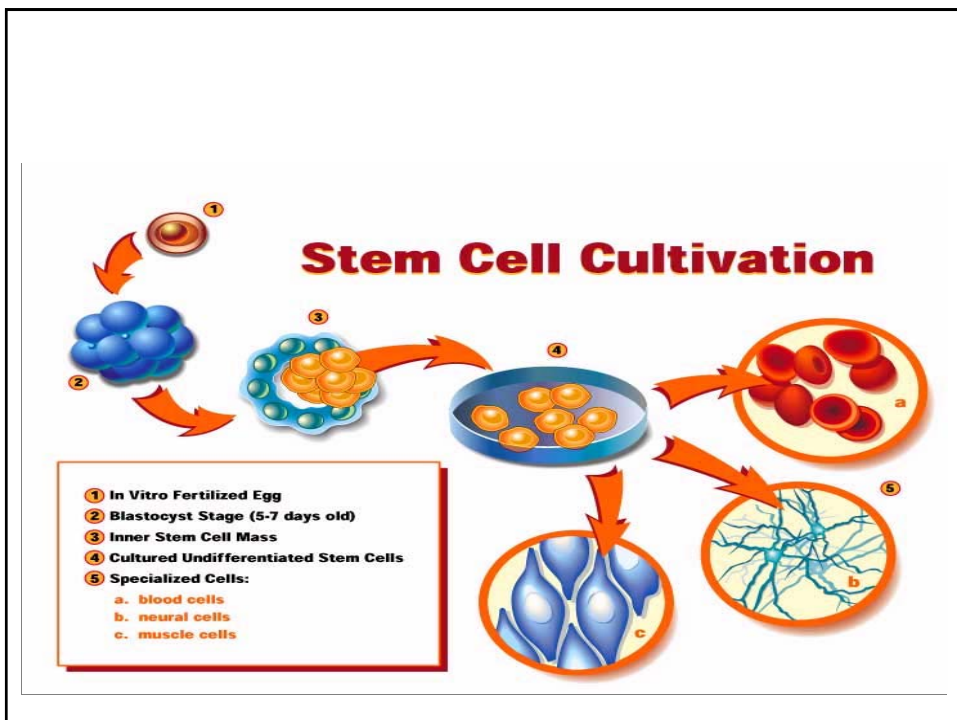


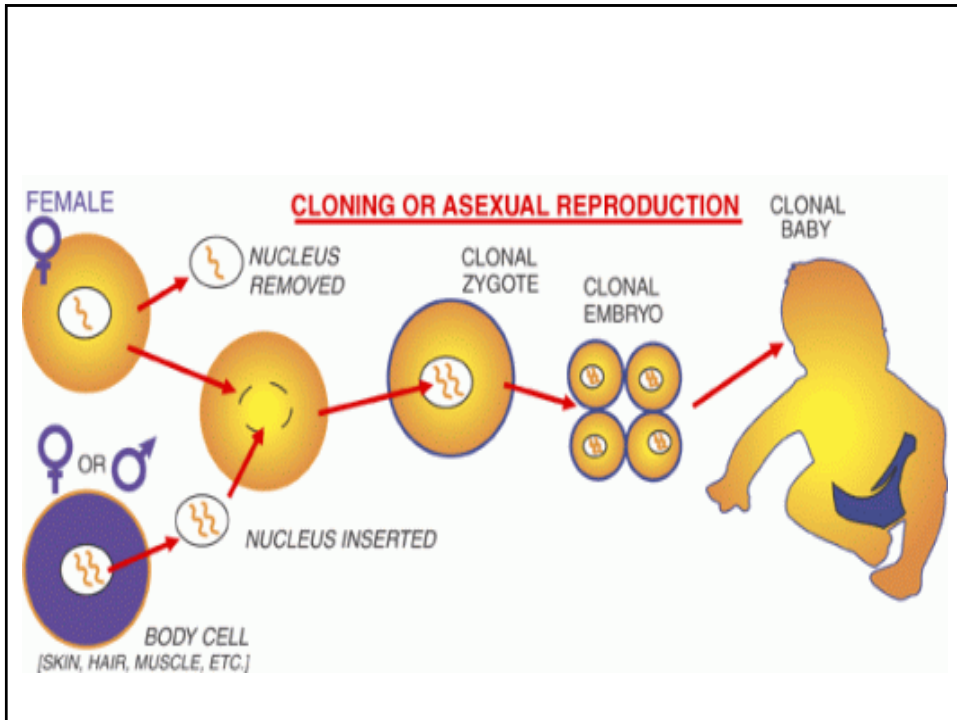
ESC: none to date.

ASC: tens of thousands of patients have benefited from treatments for more than 100 sicknesses including the following pathologies:

- ❑ spinal cord damage (paralysis),
- ❑ leukemia,
- ❑ Parkinsons,
- ❑ heart attack,
- ❑ Krabbe disease,
- ❑ etc.

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When Does Human Life Begin?



- The human being is an individual substance of the human nature. A living organism.
- Each one of us was once an embryo.
- We never were a sperm or egg cell.
- The life of a human *normally* begins with conception, the fertilization of an egg cell by a sperm cell.

How Can Something So Small Be a Human Being?



- From conception, if properly nurtured, the new organism can develop into an adult human being.
- It is a new human being, not a potential human being.
- Once the nuclei of the two germ cells are united, the unique genetic constitution, the DNA, of the new human being is formed.

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Embryos Have Rights Too!



1. The right to life.
2. The right to be embraced by the love of a mother and father.
3. The right to medical care for their own good.
4. The right to be treated for their own sake, never as a mere instrument for exploitation.

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Promote Scientific Research for Human Dignity



1. Promote research like that of ASC to develop treatments for pathologies while respecting human rights.
2. Promote the conservation and donation of cord blood and infant teeth.

Why the Misconceptions?



1. ESC research promises the discovery of truths that may be helpful in treating disease.
2. ESC also promises the possibility of a lot of money for some companies.



MacIntyre on Our Present Predicament



"This time, however, the barbarians are not waiting beyond the frontiers, they have already been governing us for quite some time. And it is our lack of consciousness of this that constitutes part of our predicament. We are not waiting for Godot, but for another - and doubtless very different - St. Benedict." (*After Virtue, final words*).



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