Stem Cell Research & Human Cloning
PARTIAL-BIRTH ABORTION?

NO, STEM-CELL RESEARCH
Topics for Discussion

- Clarify the scientific and moral definition of “cloning”
- Discuss the facts about stem cells, therapies, and cures
- Learn the truth about the Church’s position on stem cells
- Reveal typical rhetoric surrounding stem cell research
Hierarchy of Stem Cells

- Totipotent cell (capable of dividing and developing to form a complete, mature organism)
- Pluripotent cell (capable of developing into many different cell types)
  - Blood Stem Cells
  - Other Stem Cells
    - Muscle
    - Nerve
    - Bone
    - Other Tissues

Red Blood Cells, White Blood Cells
Embryonic Stem Cells & Human Cloning

**SEXUAL REPRODUCTION**

- Egg
- Sperm
- Zygote
- Embryo
- Blastocyst

**CLONING / ASEXUAL REPRODUCTION**

- Egg
- Nucleus Removed
- Zygote
- Nuclear Inserted
- Body Cell (Skin, Hair, Muscle, etc.)
- Clonal Embryo

**Harvested Stem Cells**

- Bone Tissues
- Muscle Tissues
- Nerve Tissues

For research and hoped for therapeutic use

**BABY**
"Although most developmental changes occur during the embryonic and fetal periods, some important changes occur during later periods of development: infancy, childhood, adolescence, and adulthood. Although it is customary to divide human development into prenatal and postnatal periods, birth is merely a dramatic event during development resulting in a change in environment. Development does not start or stop at birth."

Clinical Issues with Embryonic Stem Cells
277 Embryos Destroyed  =  1 Cloned Sheep
What if the Embryo Will Die Anyway?
Adult Stem Cells
### Regenerative Tissue Developed From Each of the Following Types of Adult Stem Cells…

<table>
<thead>
<tr>
<th>Type</th>
<th>Amniotic Fluid</th>
<th>Peripheral Blood</th>
<th>Bone Marrow</th>
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</thead>
<tbody>
<tr>
<td>Brain</td>
<td>Amniotic Fluid</td>
<td>Bone marrow</td>
<td>Marrow</td>
</tr>
<tr>
<td>Brain</td>
<td>Spermatagonia</td>
<td>Blood cells</td>
<td>Bone</td>
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<tr>
<td>Nerves</td>
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<td>Blood vessels</td>
<td>Cartilage</td>
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<tr>
<td>Blood cells</td>
<td></td>
<td>Nerves</td>
<td>Tendon</td>
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<td>Muscle</td>
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<td>Muscle</td>
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<tr>
<td>Cornea</td>
<td>Umbilical Cord Blood</td>
<td>Skeletal Muscle</td>
<td>Fat</td>
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<tr>
<td>Cornea</td>
<td>Large number of tissues</td>
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<td>Liver</td>
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<tr>
<td>Retina</td>
<td>Hair Follicle</td>
<td>Smooth muscle</td>
<td>Brain/Nerve</td>
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<tr>
<td>Retina</td>
<td>Skin</td>
<td>Bone</td>
<td>Blood cells</td>
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<tr>
<td></td>
<td>Brain/nerves</td>
<td>Cartilage</td>
<td>Heart</td>
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<tr>
<td>Pancreas</td>
<td>Smooth muscle</td>
<td>Fat</td>
<td>Blood vessels</td>
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<tr>
<td>Pancreas</td>
<td>Fat</td>
<td>Heart</td>
<td>Kidney</td>
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<tr>
<td>Liver</td>
<td>Placenta</td>
<td>Gastrointestinal</td>
<td>Lung</td>
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<tr>
<td>Liver</td>
<td>Bone</td>
<td>Esophagus</td>
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<td></td>
<td>Nerves</td>
<td>Stomach</td>
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<tr>
<td>Heart</td>
<td>Cartilage</td>
<td>Small intestine</td>
<td></td>
</tr>
<tr>
<td>Heart</td>
<td>Muscle</td>
<td>Large intestine/colon</td>
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<tr>
<td>Lung</td>
<td>Tendon</td>
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<td>Blood vessels</td>
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</table>
Darn it, Thorton! You left the stem cells sitting out too long! Now they're no good!!
So, Why Are We Still Having This Debate?
Local Politics of Embryonic Stem Cell Research
“Whoa... Whoa... Whoa... Hold It Right There!”
“It is immoral to produce human embryos intended for exploitation as disposable biological material...such manipulations are contrary to the personal dignity of the human being and his integrity and identity which are unique and unrepeatable.”

2275 Catechism of the Catholic Church

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Pope John Paul II, Evangelium Vitae, 1995

“The body of a human being, from the very first stages of its existence, can never be reduced merely to a group of cells. The embryonic human body develops progressively according to a well-defined program with its proper finality, as is apparent in the birth of every baby.”

Congregation for the Doctrine of the Faith, Dignitas Personae, 2008

“…discoveries in this field invite man to a deeper awareness of the weighty responsibilities involved in their application, and under no circumstances may a human being be manipulated or treated as a mere instrument for experimentation...the destruction of human embryos, whether to acquire stem-cells or for any other purpose, contradicts the purported intent of researchers, legislators and public health officials to promote human welfare.”

Pope Benedict XVI, 2007

“From the time that the ovum is fertilized, a new life is begun which is neither that of the father nor of the mother; it is rather the life of a new human being with his own growth. It would never be made human if it were not human already.”

Congregation for the Doctrine of the Faith, Donum Vitae (The Gift of Life), 1987
Legal Experimentation on “Non-Persons”
What Can You Do?
“Eggsploration renders the medical risks of paid egg donation with care and truth in every detail and makes a thoroughly devastating case against the commodification of women and their eggs.”

Donald Landry, MD, PhD, Chair, Department of Medicine, Columbia University School of Medicine
Summary

- Confirmed that science and morality agree on "cloning"
- Discussed the facts about stem cells, therapies, and cures
- Learned the Church’s true position on stem cells
- Exposed the rhetoric and politics of stem cell research
Dear Lord Jesus,

I offer to you my mind, my heart, and my prayers that the culture of death and its experimentation on your unborn children will cease.

I pledge to pray the rosary frequently for the safeguarding of embryonic human life.

I pledge to be an advocate for the dignity and respect due all human life.

Please send your Holy Spirit to enlighten, strengthen, and inspire me so that I may effectively defend your littlest ones.

Amen