

Jewish and Islamic Ethical Perspectives on Human Stem Cell Research

Bernard Epel, PhD, Professor Emeritus Tel Aviv University

Abstract:

Stem cell research promises to provide invaluable tools in basic research for studying differentiation and oncogenesis. From the medical viewpoint, stem cells provide new tools for drug discovery. They also hold out the hope of cell-based therapies for regenerative or reparative medicine, providing medical solutions to diseases such as leukemia, Type 1 diabetes, and Parkinson's, and the repair of spinal cord injury, damaged heart muscle tissue and more.

In countries having a strong Christian background, such as the US, some express ethical concerns about using human embryonic stem cells. The main concern is that embryos must be destroyed. For many in these countries, an embryo, from the moment of fertilization, is considered a human being whose life must be protected.

Jewish and Islamic cultures have different basic ethical values concerning the status of an embryo and strongly support on ethical grounds the use and development research and utilization technologies and basic research with embryonic stem cells. This difference in ethical values will be discussed.

Discussion:

The presentation began with a short background on human stem cell research, including the four types of stem cells: human embryonic stem cells (hESC), cloned embryonic stem cells (cESC), adult somatic stem cells, and induced pluripotent stem cells (iPSC). Analysis of the pros and cons of each type of stem cell for medical research followed.

Discussion covered the ethics of embryo "destruction", the risks of induced pluripotent stem cells for human medical treatments and the possible exploitation of women oocyte donors for somatic cell nuclear transfer (research cloning).

Professor Epel emphasized that although science takes place in a secular society, it is still very much influenced by religion, specifically in the United States. A brief overview of different religious views and their ethical conceptions of "when life begins" were given. It was pointed out that historically, religious views evolve as a product of higher societal understanding while philosophically, living is associated with the concept of personhood, which includes views of the self and individual rights. In general, the Christian view holds that life starts at conception. An example of how this view influences US law and research regulation is the Dickey Wicker Amendment, which restricts research that harms or destroys embryos (http://en.wikipedia.org/wiki/Dickey-Wicker_Amendment). In Europe, some areas allow for hESC and others restrict it.

The Judaic view of hESCs has three main premises. Simply put, the first is that embryos do not have the same status as human beings. The second is that motherhood is a *mitzvah* or a basic right and any medical means to achieve this is a medical imperative. The third premise says that saving life is the number one *mitzvah* that supersedes all other moral imperatives.

The Islamic view holds that full human life only begins after a process of ensoulment. In this context, the major Islamic duty involves the prevention of human suffering and illness. The Islamic view allows for hESC but involves a higher focus on family-tie based restrictions.

Epel concluded the talk by arguing for open research efforts using stem cells, including embryonic stem cells. He argued that those whose religious (or other) beliefs oppose stem cell research in whole or in part, need not avail themselves of treatments that arise as a result of this research.

Discussion Questions:

1. How do we separate the notion of personhood from religion views of when life begins?
2. To what extent is it permissible to push stem cell research forward? Are there limitations to how far we should go? Example: The scientist who created the cloned sheep, "Dolly," reported that he now regrets doing so.
3. When is it permissible to "discard" an embryo? Is there a moral difference between killing an embryo in the womb and killing a blastocyst in a petri dish? And if so, what is that moral difference?
4. How do we weigh the value of early human life (blastocysts, embryos) against the value of alleviating (or preventing) human disease and the suffering it brings? Or the value of possible treatments in the future?
5. The separation of ethics from biology and medicine under the Christian view: What implication does this have for research on hESCs in the US?
6. The Judaic argument for permissibility of hESC research has little foundation in science or biology, is this good or bad?
7. How can hESC research and benefits be acceptably communicated to members of the public who oppose such research on religious grounds?
8. What if any, are the biological and/or ethical advantages of working with non-embryonic forms of stem cells?
9. Issues: Justice, Fairness, Issues of Access, Conceptions of the Self, Technology and Science

Jewish and Islamic perspectives on human stem cell research

Bernard L. Epel

Professor Emeritus

Molecular Biology and Ecology of Plants

Tel Aviv University

Israel

Basics: What are stem cells?

undifferentiated cells which can
continue to divide
maintain their pluripotent or multipotent
characteristics

and

Under proper conditions can be induced to
differentiate into multiple cell types, tissues, organs

Totipotent- able to develop into a complete organism

Pluripotent- able to differentiate into all tissue and cell types

Multipotent are capable to differential into a limited number of cell types and tissues

SC Importance

- Valuable tool for studying differentiation, oncogenesis, drug discovery
- Can be used (hypothetically) in cell-based therapies for regenerative or reparative medicine.
 - Leukemia
 - type 1 diabetes
 - Parkinson
 - Spinal cord repair
 - Restoring damaged heart muscle tissue

There are different classes of stem cells

- Embryonic stem cells (ESC)
- Adult (somatic) stem cells (ASC)
- “Cloned” *embryonic* stem cells
 - Somatic Cell Nuclear Transfer (SCNT)
 - Therapeutic cloning
- induced Pluripotent Stem Cells (iPSC)

Advantages and disadvantages of alternate sources of stem cell

- **Human Embryonic Stem Cells (hESC)**

- Advantages:

- Pluripotent
- Genetically unmodified
- Easily to obtain
- Easy to culture (reproduce)

- Disadvantages:

- Tissues produced may be immunologically incompatible with recipient
- Embryos must be destroyed (ethical issue for some).

Advantages and disadvantages of alternate sources of stem cell

- **Adult (somatic) stem cells**

- **Advantages**

- Isolated from adult tissue (no need to destroy embryos).
 - If isolated from patient, no problem of histo-incompatibility.

- **Disadvantages**

- Very rare, difficult to isolate and replicate
 - Each type can only differentiate into a limited number of tissues
 - Not clear if practical to isolate in reasonable time frame to aid a sick individual.

Advantages and disadvantages of alternate sources of stem cell

- **Cloned” *embryonic* stem cells by Somatic cell nuclear transfer Advantages**

- Generate embryo from patient somatic cell; no problem of histo-incompatibility
- No need to destroy natural embryo (?)

- **Disadvantages**

- Embryo could be used to clone individual
- Somatic nucleus may have mutations
- Eggs would have to be provided; exploitation of women as egg source.
- Not yet proven safe

Advantages and disadvantages of alternate sources of stem cell

- **induced Pluripotent Stem Cells (iPSC)**
 - **Advantages**
 - Generate pluripotent cell line from patient's somatic cell; no problem of histo-incompatibility.
 - No need to destroy natural embryo (?)
 - **Disadvantages**
 - Not clear cell has undergone complete de-differentiation
 - Not yet proven safe

Human embryonic stem cells are the **Biological Gold Standard**

- **Advantages**

- Pluripotent,
- Fully embryonic,
- Easily cultured
- Off the shelf

- **Disadvantages**

- Problems of not self== rejection

- ***They are derived from human embryos***

**But by employing a human embryo we destroy the embryo
(the potential baby !/?)**

- Claimed by some:
 - **Morally wrong**
 - the embryo from conception is a human being
 - entitled to rights and protection.
 - **Life**
 - **Do no harm**

Religion in a secular society should not be the determining factor in ethical questions of technology

- But is often does!

Effect of religion on the ethical discussion

RELIGIOUS VIEWPOINTS POLITICALLY POWERFUL

Religious Ethical Views

- Christian
 - Catholic and Orthodox views
 - Protestants
- Buddhism and Hinduism
- Jewish
- Islam

Catholic/Greek Orthodox

- Life starts at conception
 - Life is a continuum
 - The embryo from the moment of conception is a living human
 - We may not take the life of a human
 - We must protect the weak
 - Do no harm

If one accept this as axiomatic:
Life starts at conception ...

- In vitro fertilization is unacceptable
- Destroying or discarding an embryo is unacceptable
- Abortion is unacceptable

**Roman Catholic and Greek Orthodox churches
have condemned hESC research as
*immoral and illegal***

Protestants: varied opinions

- **no explicit policy (multi denominational)**
 - **American Baptist Churches in the U.S.A.**
 - “one must be guided by one’s own relationship with God and Scripture.”
 - **National Council of Churches**
 - as a result of a lack of clear consensus, neither endorses nor condemns experimentation on human embryos.”
 - Many churches have not yet made decision for or against
- **Opposed**
 - **Lutheran Church-Missouri Synod**
 - **National Association of Evangelicals**
 - **Southern Baptist Convention**
 - **Assemblies of God**
 - **The Reformed Church in America:**
- **Favorable**
 - **Presbyterian Church (U.S.A.)**
 - **Unitarian Universalist Association of Congregations**
 - **United Church of Christ**
 - **United Methodist Church**
 - **Episcopal Church**

Much of Christian world affected by belief: Life starts at conception

- Many countries have regulations/ laws against hSC research/use
- **USA-research on hESC no longer outlawed by federal granting agencies BUT....**
 - More research efforts now put into research with
 - adult SC
 - iPSC
- Prudent? Right / Wrong ??

Many states have laws against hSC research

USA law [Dickey-Wicker Amendment](#) still causing
problems

- [Dickey-Wicker Amendment](#) in 1995 prohibited any federal funding for the Department of Health and Human Services be used for research that resulted in the destruction of an embryo regardless of the source of that embryo.

European countries

Allow hESC research*	Restrict hESC reseach
UK Spain Switzerland	Germany Austria
Sweden Greece Finland	Italy
Czech Republic	Lithuania
Bulgaria Portugal	
France (2013)	France (until 2013)

- *Permit only use of surplus embryos from IVF treatment
 - Subject to permission of donor

*Creation of embryos expressively for research forbidden

*Reproductive cloning forbidden

Hinduism and Buddhism

- **Buddhism and Hinduism** (no official stance)
 - For : in accordance with the basic tenet of seeking knowledge and ending human suffering
 - Against: it is a violation of the notion of not harming others.
 - Life starts at conception
 - But some groups life only starts only later then 3 months
- In Japan, South Korea and India, China Singapore active research in hESC

Judaism (all denominations)

- **Basic premise 1:** the embryo does not have the same moral status as human beings.
 - Gametes and embryos outside the human body do not have any moral or legal status.
 - Fetus is insignificant (like water) until 40 days after implantation
 - From 40 days until just before birth, it is a potential being and has great value
 - The fetus does not have full value until the head emerges.
- **Basic premise 2: motherhood is a basic right** and any medical means to achieve this is a moral imperative, a *Mitzva*.
 - In vitro fertilization is morally condoned to support this Mitzva (duty).
 - Israel provides free, unlimited IVF procedures for up to two “take-home babies” until a woman is 45.
 - Embryos created by IVF are property of parents
 - if not used for implantation, it has no moral or legal status.
 - Can be used for med-research if parents give permission.

In vitro fertilization is commendable where needed

- Even single religious women use in vitro fertilization,
 - their efforts sanctioned by rabbis.
- In Israel all citizens (Arab, Jew, etc) have the same right to state-paid unlimited fertility treatments (up to 2 children and until 45 years of age).
- In Israel IVF available for all women regardless of their marital status or sexual orientation.

- 1,657 in vitro fertilization procedures per million people per year were performed in Israel,
- 899 in Iceland, the country with the second highest rate
- 126 in the United States

hESC research is commendable

- **Basic Premise 3.** It is an imperative (Duty/Mitzva) to save life.
 - Saving life supersedes all other duties
 - It is our duty to preserve our lives and health.
 - It is our duty to help others and alleviate suffering.
 - Great value is placed in medical research for alleviating pain and suffering
 - **Saving a life supersedes all other imperatives (פיקוח נפש דוחה שבת)**
- These views lead to strong support by Jews of all forms of stem cell research.
- Caveat: making an embryo for the *sole purpose of research is forbidden*.
 - Only surplus embryos from reproductive IVF may be used.

Islam

- **Basic premise** :Full human life begins only after the ensoulment of the fetus.
 - Generally believed to be 120 days after conception
 - (or according to others, 40 days).
- **Major Moral imperative**: Prevent human suffering and illness.

Islam stance on IVF

- in vitro fertilization allowed:
 - must be done with sperm and egg from a husband and wife only.
- the embryos must be transplanted only into the wife's uterus.
 - surrogate motherhood forbidden
- Assisted reproductive technologies which blur marital and parental ties are forbidden:
 - donor eggs or sperm from outside the marriage relationship **forbidden**,
 - in-vitro fertilization after a spouse's death or divorce of the married couple is **forbidden**.

Most Islamic countries allow surplus IVF embryos to be used for stem cell research

- No central authority: differences in opinion
- For : Iran, Turkey, Singapore, Islam Law Council USA, Saudi Arabia
- Against: Egypt (?)
- Not clear: Qatar

USA research strongly influenced by claim embryos must be protected

- Try and avoid conflict and encourage alternative technologies.
- iPSC
- Adult SC

The use of Somatic cell nuclear transfer has major ethical problems

- Women will be exploited to obtain eggs
- Human cloning becomes possible

Analysis of Ethical Dilemma

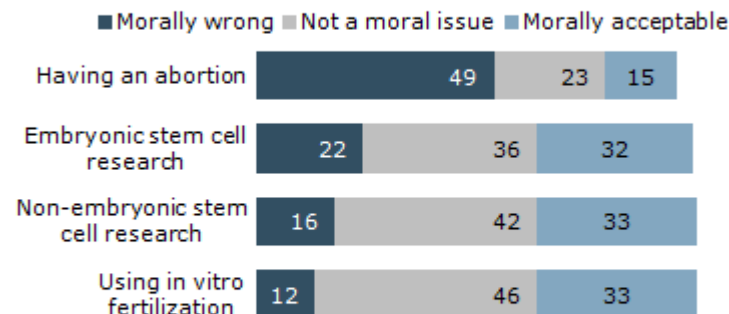
- Pluralism must be allowed
 - Basic tenets demand different actions
 - All technologies should be pursued except SCNT
- hESC technology has the least problems and should be strongly pursued
 - It is and will be pursued abroad

PewResearch Religion and Public Life Project 2013

- Regardless of their views about the legality of abortion, most Americans think that having an abortion is a moral issue. By contrast, the public is much less likely to see other issues involving human embryos – such as stem cell research or in vitro fertilization – as a matter of morality.

Moral Assessments

% of U.S. adults who say each of these is ...



Source: Pew Research Center survey March 21-April 8, 2013. Q58a-d. Responses of those who volunteered "depends on situation" and those who did not give an answer are not shown.

Embryonic Stem Cell Research

% saying medical research that uses embryonic stem cells is ...

	Morally wrong	Not a moral issue	Morally acceptable
All adults	22	36	32
Men	23	35	33
Women	21	36	31
18-49	22	39	30
50 and older	22	32	34
College grad+	19	35	38
Some college	24	36	31
H.S. or less	22	36	29
Rep./lean Rep.	30	31	28
Dem./lean Dem.	15	39	37
<i>Political ideology</i>			
Conservative	32	29	28
Moderate	17	39	35
Liberal	12	42	39
Protestant	28	32	28
White evangelical	38	26	23
White mainline	15	36	38
Black Protestant	23	39	26
Catholic	24	36	30
White Catholic	22	35	33
Hispanic Catholic	25	36	28
Unaffiliated	11	43	38
<i>Those who say having an abortion is ...</i>			
Morally wrong	36	29	23
Morally acceptable	6	25	67
Not a moral issue	8	62	26

Source: Pew Research Center survey March 21-April 8, 2013. Q58b. Response of those who volunteered "depends on situation" or who gave no response not shown.

PEW RESEARCH CENTER

In Vitro Fertilization

% saying that using in vitro fertilization is ...

	Morally wrong	Not a moral issue	Morally acceptable
All adults	12	46	33
Men	13	46	31
Women	11	46	34
18-49	11	48	32
50 and older	14	43	33
College grad+	7	46	43
Some college	11	47	33
H.S. or less	16	45	26
Rep./lean Rep.	12	46	33
Dem./lean Dem.	10	47	35
<i>Political ideology</i>			
Conservative	15	42	32
Moderate	10	48	35
Liberal	7	55	33
Protestant	13	45	31
White evangelical	14	42	31
White mainline	9	46	39
Black Protestant	12	49	23
Catholic	13	46	31
White Catholic	9	49	35
Hispanic Catholic	18	41	26
Unaffiliated	9	51	34

Source: Pew Research Center survey March 21-April 8, 2013. Q58d. Response of those who volunteered "depends on situation" or who gave no response not shown.

PEW RESEARCH CENTER

Non-Embryonic Stem Cell Research

% saying medical research that uses stem cells from sources that do not involve human embryos is ...

	Morally wrong	Not a moral issue	Morally acceptable
All adults	16	42	33
Men	16	41	36
Women	17	43	31
18-49	16	46	33
50 and older	18	38	34
College grad+	8	42	45
Some college	16	44	33
H.S. or less	22	41	25
Rep./lean Rep.	15	41	37
Dem./lean Dem.	17	44	33
<i>Political ideology</i>			
Conservative	18	38	34
Moderate	14	45	34
Liberal	15	47	34
Protestant	18	39	33
White evangelical	19	38	34
White mainline	9	42	42
Black Protestant	27	40	20
Catholic	21	39	33
White Catholic	17	38	38
Hispanic Catholic	26	38	26
Unaffiliated	10	53	32

Source: Pew Research Center survey March 21-April 8, 2013. Q58c. Response of those who volunteered "depends on situation" or who gave no response not shown.

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