STEM CELLS

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What are they?

* Stem cells are cells in the body that enable the body to re generate cells for certain parts of the body.

What do they do?

* Some stem cells are like blank CDs, they can be “programmed” for many different things such as muscle cells, brain cells, or even red blood cells. Others already have a set area as to where in the body they belong to.

What's the big deal?

* The big deal is that traditionally, before we had the cool technology we had before, scientists worked with two different types of stem cells, embryonic (Fig.A), cord (Fig. B), and adult (Fig. C) stem cells. But the deal was not what types of stem cells they were but where they get them from.

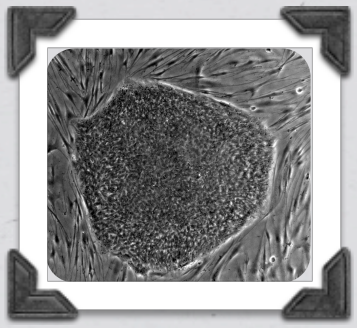

Fig. A

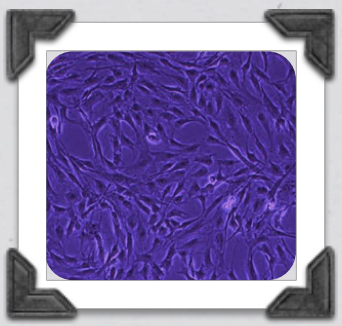

Fig. B

Fig. C

The Great Debate

* Because stem cells are taken from embryos when they are just 3 to 5 days old (which is before the cells are assigned to specific areas of the body), the Great Debate is all about those who value human life from the time of conception, and because the taking of these cells ends up killing the embryo, some look to it as murder. The question is, is it murder or scientifically justified?

What we know about thus far

* Scientists have been experimenting with embryonic stem cells since1998
* They are still going through clinical trials for embryonic cells
* Bone marrow and umbilical stem cells have been used for decades to treat blood cancers like leukemia and blood disorders
* Embryonic stem cells are better than adult stem cells because you can actually do more with them whereas adult stems cell are more restricted

What we've also found out

* Some scientists do not think embryonic stem cell research is not the answer.
* Mice with Parkinson's disorder treated with embryonic stem cells have died from brain tumors in about 20% of the cases
* Embryonic stem cells that have been stored have been shown to make the type of chromosomal abnormalities that create cancer cells

Final Thoughts

* Is it really worth it?
* Do the ends justify the means?
* What do you think?
* Why?

Citations

- Derivation of Human Stem-Cell Lines from Human Blastocysts, C. A. Cowan and others. March 25, 2004, New England Journal of Medicine, p.1355 with secondary reference to footnotes 13-17 p.1356.
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