Embryonic stem cells pose a vital question

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Recent polls, conducted in the backdrop of the solitary presidential veto, reaffirm the previous ones that the majority of Americans approve of embryonic stem-cell research.

An honest debate is needed in regard to stem-cell research. The stakes are high in terms of finding treatments for incurable diseases and in maintaining U.S. leadership in science and technology in the face of stiff international competition.

Discussion about stem-cell research is necessary in Nebraska to evaluate the effects on the state's economy, Nebraskans' access to cutting-edge medical treatments and our ability to retain and attract top-notch researchers if further local restrictions on stem-cell research are imposed.

Those who are overselling the adult stem-cell dream through premature and sometimes questionable clinical experiments run the risk of alienating the public whose support they are rightfully courting.

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Those who are stoking emotions to win their arguments and spinning the findings coming out of such experiments to buttress their opposition to scientific endeavors are not being honest to their own constituencies. In the end, only science that objectively seeks truth will be able to deliver a fair verdict.

Researchers have shown that embryonic stem cells, besides being a rich source of different cell types for repair and regeneration, have the potential to unravel the mystery of early human development. Embryonic stem cells thus can provide the valuable information needed to understand and treat intractable degenerative diseases.

Tissue-specific stem cells are descended from embryonic stem cells and generate different cell types of a particular tissue during development.

For example, neural stem cells give rise to different types of cells that make our brains. These cells persist in adult tissues, including those of the brain, blood, skin and cornea. Therefore, they are called adult stem cells and are regarded as a potential source for repair and regeneration of adult tissues.

Compared to embryonic stem cells, adult stem cells are less easy to culture and preserve, very rare in most tissues and have lesser potential for generating different cell types.

Through carefully conducted experiments and successful verification of results in different labs (the gold standard of any scientific endeavor), adult stem cells derived from blood have been shown to be successful in treating blood-related diseases. Other claims of successful treatments of various diseases by adult stem cells should be regarded with healthy skepticism until they pass similar muster.

Adult stem cells have promise, and stem-cell researchers think that their real potential could be unlocked by applying information about early human development, often garnered from the study of embryonic stem cells.

H.R. 801, vetoed by President Bush, would have allowed federally funded research on newly derived embryonic stem-cell lines from leftover embryos at IVF clinics.

Techniques for achieving successful pregnancy using single IVF embryos are not currently available, and couples will keep making families through IVF using existing procedures that require the generation of multiple embryos. As a result, the number of leftover embryos is expected to grow significantly over the current rough estimate of at least 400,000.

Stem-cell researchers would like to have access to embryos that will be discarded so they might derive embryonic stem cells for biomedical research. This will be done under strict guidelines that ensure the consent and privacy of donors and institute a firewall between researchers and IVF clinics to prevent any potential coercion and exploitation, monetary or otherwise.

The research use of leftover embryos otherwise slated for destruction can improve the lives of fellow human beings in very practical ways and has a strong moral underpinning.

Also, a realistic and common-sense regulation of stem-cell research is needed to stem the ominous tide of brain drain to institutes in Europe and Asia that has just begun in a development that does not bode well for our competitive edge in biomedical research.

Most Americans have got it. With a few more decibels added to their voices, they will be heard and not ignored by elected and aspiring representatives.