

# False Promises

## Common Cloning Claims Refuted



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President  
Family Research Council

## False Promises: Common Cloning Claims Refuted

BY WILLIAM L. SAUNDERS, J.D.,  
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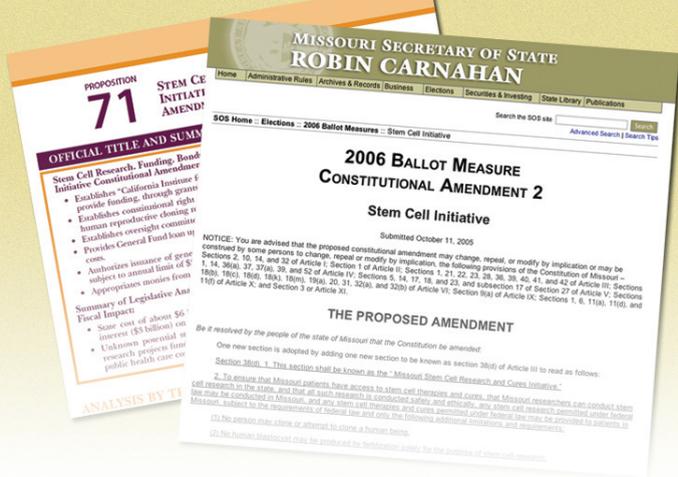
In recent years, a growing number of state governments have embarked on cloning initiatives, often linked to efforts to promote human embryonic stem cell research.<sup>1</sup> Legislation has ranged from protecting certain kinds of human cloning and embryonic stem cell research (i.e., ensuring they cannot be “outlawed”), to funding the practices directly. One can only expect that, given the inflated media coverage, this trend will continue.

The best known of these initiatives were in California and Missouri. Each amended the state constitution, rather than state laws, making repeal more difficult. California’s Proposition 71 from 2004, known as the “California Stem Cell Research and Cures Initiative” (“Prop 71”), was crafted specifically to fund embryonic stem cell research and human cloning, while the 2006 Missouri Amendment 2, “The Missouri Stem Cell Research and Cures Initiative” (“Amendment 2”), enshrined the right to engage in human cloning in the Missouri state constitution.

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Supporters of both measures made similar claims—that embryonic stem cell research and human cloning provide effective cures for diseases; that embryonic stem cell research and cloning would provide economic growth; and that by enshrining embryonic stem cell research and cloning in law, the state would provide meaningful ethical oversight.

Yet each one of these claims is false.

## Prop 71

Prop 71 was an initiative on the ballot for the 2004 elections. Prop 71 itself sought to achieve a number of goals: to form the California Institute for Regenerative Medicine (“CIRM”), to establish a California “constitutional right” to engage in embryonic stem cell research, to provide oversight for CIRM, and to provide almost \$3 billion for CIRM through the issuance of bonds.

In the lead up to the vote, those in favor of Prop 71 raised and spent a prodigious amount of money—\$25 million (versus \$400,000 spent by its opposition). Prop 71 passed by a margin of 59.1 percent in favor to 40.9 percent opposed. As a result, CIRM was organized and funded through a General Obligation Bond issue, and the California Constitution now contains Article XXXV, protecting embryonic stem cell research and human cloning.

## Amendment 2

Two years later, the people of Missouri were asked to vote on their own constitutional amendment. Amendment 2 ostensibly sought to ensure “that Missouri patients have access to stem cell

therapies and cures, that Missouri researchers can conduct stem cell research in the state, and that such research is conducted safely and ethically ...”<sup>2</sup> Amendment 2 was touted as the best hope for cures for the infirm, as well as a potential engine of economic growth for Missouri, and as a much-needed source of an ethical scientific framework. It was promoted as a “cloning ban.”

As in California, a significant portion of the initiative was geared towards ensuring funding for embryonic stem cell research and human cloning (called “somatic cell nuclear transfer” or “SCNT”)<sup>3</sup> from the state government—that is from taxpayers.<sup>4</sup> Also as in California, the pro-cloning side spent exorbitant amounts of money advancing their cause—over \$30 million. Nevertheless, a last minute campaign by Amendment 2’s opponents, who took issue with its deceptive nature, almost succeeded in defeating it. The final vote was 51.2 percent in favor, 48.8 percent opposed. The lead had been steadily narrowing from the original 30 point advantage in favor of the initiative. Polling revealed that if the vote had come a few days later, Amendment 2 would have been defeated.

In both California and Missouri, those promoting cloning initiatives made similar claims. In all cases, those claims have proven to be at best deceptive, and at worst, false.

## Claim 1: “Stem Cell Research will provide ready cures”

The most common claim made in favor of a cloning initiative is that it will provide needed cures in a timely manner to those suffering from serious diseases or disabilities. In the run-up to the vote on Amendment 2, the actor and Parkinson’s disease patient Michael J. Fox campaigned for pro-Amendment senatorial candidate Claire McCaskill, claiming that she supported “his hope



for cures” through “stem cell research.”<sup>5</sup> It was a sentiment echoed by the Missouri Coalition for Lifesaving Cures, organized to promote Amendment 2, which claimed, “It is estimated that the various medical conditions that could some day be cured or treated with [embryonic stem] cells currently afflict over 500,000 Missouri children and adults and millions of other Americans—including a child, parent or grandparent in over

half of all families. In fact almost everyone has a family member or friend who could benefit from [embryonic stem] cell research.”<sup>6</sup> The Coalition went on to specify which diseases they meant, saying, “Medical researchers believe that stem cells could potentially lead to cures for over 70 diseases and injuries ...”<sup>7</sup> Among them, they claimed, are diseases from arthritis to cancers, to HIV/AIDS, to Alzheimer’s Disease, to Autism.

Yet, notice how the second claim made, while still being misleading, is twice hedged: scientists merely “believe” (rather than “know” or even “expect”) these cures will come from the new research; further, the therapies “could *potentially* lead to cures” (rather than “certainly” or “probably”). Also, the crucial distinction between embryonic and adult stem cells is selectively ignored. The fact is that the Coalition for Lifesaving Cures was wise to be circumspect in trumpeting the potential of embryonic stem cell research to provide cures for debilitating diseases—because the science is against them.

## Failures of Embryonic Stem Cells

When it comes to medical treatments, the proponents of embryonic stem cell research have little to crow about. To date there has not been a single clinical trial using human embryonic stem cells to cure or to treat *any* medical condition.<sup>8</sup> As embryonic stem cell advocate Larry Goldstein admitted, “no one knows” how long it will take to have clinical trials for embryonic stem cells.<sup>9</sup>

In California, regrettably, this fact did not receive much publicity until \$3 billion had been spent on CIRM. In fact, by the time the money allocated to CIRM runs out in 2014, its president admits

that it “will still be doing early-stage studies on potential treatments.”<sup>10</sup>

Perhaps to reverse a growing perception of ineffectiveness CIRM claimed responsibility for a clinical trial “enabled by CIRM funding.” However, as John M. Simpson of the group Consumer Watchdog found, CIRM did not finalize the grant to the successful scientific team until after the findings were reported, and the successful findings did not involve embryonic stem cells in the first place. As Simpson put it, “[The] fact is that CIRM is jumping on the bandwagon claiming credit for contributions that were at best rather trivial.”<sup>11</sup>

No lesser light than Ian Wilmut, the man who cloned the first mammal, Dolly the Sheep, does hope that embryonic stem cell research will yield advances in primary science about human biology, but has admitted it will *not* yield effective therapies *for diseases*. He has gone so far as to repudiate the use of human cloning and embryo-destructive research for the sake of obtaining stem cells in favor of the cutting edge practice of somatic cell reprogramming.<sup>12</sup> (This occurred following the news that two independent groups of scientists were able to “reprogram” skin cells into embryo-like stem cells, thereby obtaining embryonic stem cells without having to destroy embryos, which is the ordinary practice).<sup>13</sup>

## Adult Stem Cell Successes

Compare this complete lack of success in using embryonic stem cells to one alternative: adult stem cells.<sup>14</sup> Adult stem cells can be obtained without destroying embryos—from adult humans, from umbilical cords, from placenta, and from amniotic



fluid.<sup>15</sup> Not only do they thus bypass the moral problems of embryo-destructive research and the related practice of human cloning, but adult stem cells also have a proven track-record of providing treatments for diseases.

Unlike embryonic stem cells, whose supporters admit will not be close to providing treatments for at least a decade, adult stem cells are already being used to treat over 73 human diseases and conditions. There are over 1400 FDA approved clinical trials underway involving adult stem cell therapy. These trials focus on conditions ranging from heart disease to diabetes.<sup>16</sup>

While Michael J. Fox referenced the “hope” that comes from human cloning and embryonic stem cell research, people like Dennis Turner have *already* used adult stem cells to reduce their Parkinson’s symptoms by *80 percent*.<sup>17</sup>

In spite of what the proponents of cloning initiatives claim, an expanded regime of human cloning and embryonic stem cell research will not yield miracle cures in a timely fashion.

## Claim 2: “Stem Cell Research will provide economic growth”

It is often the case that those in favor of cloning initiatives will tout the alleged economic benefits that come to a state from amending its constitution to support such a policy.

In Missouri, the proponents of Amendment 2 insisted that by making Missouri constitutionally friendly to embryonic stem cell research and



cloning, they would create a “predictable research climate,” and thus, “a leading science-friendly environment,” attracting “millions of dollars in private and federal research funds.”<sup>18</sup>

Likewise in California, the analysis provided, as required, to voters by the state’s Legislative Analyst, claimed, “If the measure were to result in economic and other benefits that would not otherwise have occurred, it could produce unknown indirect state and local revenue gains ...”

While the official California analysis admitted

uncertainty surrounding the forecasted economic benefits of embryonic stem cell research (“*If the measure were to result in ...*”), promoters from the private sector were far less circumspect in their optimistic claims. For instance, Dr. Lawrence Baker of Stanford University School of Medicine and Bruce Deal of the Analysis Group posited that, “In even the modest scenarios examined, Proposition 71 provides total state revenues and health care cost savings of between \$6.4 billion and \$12.6 billion during the payback period, generating a 120 percent to 236 percent return on the investment made in the research.”<sup>19</sup> In particular, the state would receive, they claimed, between \$500 million and \$1 billion in royalties.

## California

The study on which those predictions were based has been called into question by an eminent University of California at Berkeley professor of economics, Richard J. Gilbert.<sup>20</sup> Citing flaws in both their analysis of healthcare costs and in their economic modeling, Professor Gilbert predicts California will receive merely \$31 million in royalties as a return on the \$3 billion research and development investment—one-percent! He muses, “[I]f income generation were the sole justification for stem cell research funding... the State would be better off investing in its own municipal bonds.” An author of the original study did not dispute the possibility of his projections being false. This prompted one California commentator to reply, “We sure could have used a little such forthrightness when we were, you know, voting on this vast new experiment with public funds.”<sup>21</sup>

## Missouri

Similarly, many of the claims made in Missouri have shown themselves to be overstated. Partly this comes from political miscalculation. The pro-cloning faction hoped that a constitutional amendment protecting cloning and embryo-destructive research would settle the question and make Missouri a haven for embryonic stem cell researchers. What they did not count on was the opposition of the sizeable pro-life population in Missouri, or the simple fact that a solid consensus is unlikely to emerge from an amendment that passed by a mere 50,000 votes out of more than 2 million cast.

In any case, passage of the Amendment 2 did not convert Missouri into a cloning-friendly state. Here are two examples. Citing a “persistent negative political climate” towards cloning and embryonic stem cell research, the Stowers Institute for Medical Research (whose founders contributed over \$30 million to pass Amendment 2) recently cancelled plans for a \$300 million expansion of its facilities in Missouri. Similarly, the University of Missouri at Columbia lost \$85 million in funding for a new research facility. The funding was blocked by state legislators who feared that although the facility is not planning to do cloning and stem cell research *presently*, the provisions of Amendment 2 would not allow the state to cut their funding in the future should they start to engage in such research “down the line.”<sup>22</sup>

In Missouri we see the political folly of cloning laws and its likely negative economic fallout. In California we see the dubious economics of cloning on its own. Both states show that claims by cloning proponents that the practice

would be the goose that laid the golden egg were misleading.

### Claim 3: “Stem Cell Research will provide clear ethical benchmarks”

Missouri’s Amendment 2, in particular, used misleading phrasing to trick voters into thinking that they were voting for an initiative to set clear, consensus-based ethical boundaries against the practice of human cloning. In reality, Amendment 2 sought to enshrine certain human cloning procedures in the Missouri constitution.



Amendment 2 says clearly in the beginning, “No person may clone or attempt to clone a human being” (38(d)2(1)). It is not until four subsections later, when terms are defined, that we find out that “clone or attempt to clone a human being” in this law “means to implant in a uterus or attempt to implant in a uterus anything other than the product of fertilization of an egg of a human female by a sperm of a human male for the purpose of initiating a pregnancy that could result in the creation of a human fetus or the birth of a human being” (38(d)6(2)). In other words, the statute says that cloning a human being is only illegal if the clone is implanted in a uterus with the intent of allowing it to develop into a more mature human being. If it is killed before

that happens, the law would allow it. However, “implantation” does not change what the embryo is—it is a living human being from day one.<sup>23</sup> The law was dishonest as to the very meaning of the practice it claimed to forbid!

## Cloning is Cloning is Cloning

SCNT is the process by which someone or something is cloned. It is the same procedure that gave us Dolly the Sheep. It really is the definition of cloning, i.e. removing the nucleus of an “egg” (or, oocyte) and replacing it with the nucleus from an ordinary body (or “somatic”) cell; this is *somatic cell nuclear transfer* or SCNT.

The proponents of Amendment 2 played a semantic game, changing the definition of cloning from the creation of a genetically identical human being to the creation (and *implantation*) of a genetically identical human being *for reproductive*



*purposes*. Thus the Missouri “cloning *ban*” does no such thing; it merely bans a specific *motivation* for cloning. If you want to create it to kill it, that’s okay. If you want to create it to bring it to birth, that isn’t. As one newspaper put it following the passage of this deceptive initiative, “a clone by any other name, such as ‘somatic cell nuclear transfer,’ is still a clone.”<sup>24</sup>

The proponents, however, could not disagree more. William Neaves, President and CEO of the Stowers Institute for Medical Research, insists to this day that, “It does not represent a newly conceived life. It has been cultured in a lab dish from an ordinary body cell of an already-living person conceived years ago.”<sup>25</sup> This statement is a mixture of technical truths that actually implies a falsehood. A cloned embryo is not, in fact, “conceived” as conception is normally understood, that is, as involving normal, sexual reproduction. It *is* created, in a “lab dish” from a “body cell,” in a sense, as noted above. But none of this is germane to what *it* is: namely a new, living *human being*.

Neaves has made such declarations in the past. “When people hear the phrase ‘clone a human being’ they think of an attempt to make a human version of Dolly the sheep. No one thinks of making a few dozen cells in a Petri dish,” Neaves told the *Washington Post*. However, if people think that the sort of cloning Neaves advocates is “an attempt to make a human version of Dolly the sheep,”<sup>26</sup> they are absolutely *right*. Dolly the sheep was created *by the same process of SCNT* that was legalized in Missouri. Dolly the sheep was at first a *sheep embryo just as the embryos* Neaves wants to use for stem cell research are *human embryos*.

People who make the scientific argument that embryos are embryos regardless of how they were made, and thus cloning is cloning, whatever the purpose, are written off by Neaves as religious fundamentalists. He says that basing public policy on the facts of cloning “would be comparable to outlawing blood transfusions because some Christians believe it’s wrong.”<sup>27</sup> Scientific observations with which he disagrees

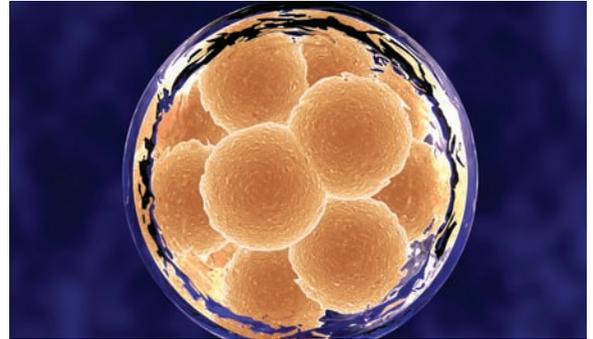
become “beliefs.”

Neaves’ California counterpart, Larry Goldstein, once said of pro-lifers, “Another downside is that some opponents of embryonic stem cell research speak about this research in terms of Nazi-type experiments, or violating the civil rights of embryos, or murdering blastocysts. They often make outrageous and totally distorted scientific claims because they don’t actually understand the science. I feel bad about the implications that I’m a murderer when I’m driven actually trying to do something good and trying to educate the public. It’s difficult when opponents feel no compunction about scientific distortions and falsehoods.”<sup>28</sup> However, Goldstein’s statements merely confuse the issues.

That embryo-destructive research kills blastocysts (which are humans in a predictable stage of embryonic development) is indisputable scientifically.<sup>29</sup> Whether blastocysts are “murdered” in “Nazi-type experiments” or embryos “have their civil rights violated” is a *philosophical* question about the dignity and inviolability of innocent human life, on which proponents and opponents of human cloning disagree. Yet Goldstein describes this *moral* disagreement as “outrageous and totally distorted *scientific* claims” (Emphasis added). However, the science is indisputable—embryo-destruction kills blastocysts. Goldstein confuses his categories by referring to the *moral consequences* of the science as *the science itself*. Goldstein dismisses his opponent’s science as mere ideology, while Neaves simply dismisses his opponents themselves as religious fundamentalists.

Ironically, in many ways it’s Neaves’ “scientific” arguments that are exercises in post-modern philosophy: scientific facts (“what is cloning?”)

can be changed by the names we give them. This is an argument articulated prior to Neaves’ advocacy in the journal *Science* in 2002. In it, the authors argue that while SCNT might be used both “to create a genetically identical copy of a



biological entity,” and for “making stem cells for regenerative medicine,” these two “goals” are “substantially different.” In fact, the authors assert “the distinction between the objectives of these two very different lines of investigation” requires new language to be adopted. SCNT for the sake of creating a “a genetically identical copy” is “cloning,” whereas SCNT for the sake of stem cells ought to be called “nuclear transplantation.”<sup>30</sup> The authors ignore the fact that, regardless of why SCNT takes place, its invariable effect is “to create a genetically identical copy of a biological entity.” It is from that entity that the embryonic stem cells are extracted. In spite of what the authors say about how differing motivations alter the nature of the procedure, the procedure is “cloning” in both cases *by their own definition*.

Sadly, the Missouri constitution adopted this view that what makes a clone is motivation, not science. As such, it says that if you clone a person, it is a crime to try to implant it in a uterus so as to

allow it to mature. Thus, there is an entire class of people (those created by human cloning) that the Missouri constitution forbids from following their natural biological development, seemingly relegating them to being used in scientific experimentation.

If a state really wants to ban cloning, it must ban the intentional creation of genetically identical human beings at any stage—regardless of purpose. In fact, a grassroots organization in Missouri,



Cures without Cloning, is trying to do just that in the wake of Amendment 2.<sup>31</sup> In their own ballot initiative, seeking to amend the Missouri constitution, Cures without Cloning proposes defining cloning by saying,

For all purposes within this article, “Clone or attempt to clone a human being” means create or attempt to create a human embryo at any stage, which shall include the one-cell stage onward, by any means other than fertilization of a human egg by a human sperm.<sup>32</sup>

This definition attempts to ban the *act* of cloning, unlike the current law which simply bans a motivation for doing so.

Nevertheless, Cures without Cloning faced more

of the same semantic distortions from the pro-cloning forces in Missouri. On October 11, 2007, Robin Carnahan, Missouri’s Secretary of State, issued the official ballot summary for the anti-cloning initiative saying that it seeks “to repeal the current ban on human cloning or attempted cloning and to limit Missouri patients’ access to stem cell research, therapies and cures approved by voters in November 2006.”<sup>33</sup> In other words, expanding a partial cloning ban to cover *all* cloning is, according to her, a *repeal* of a cloning ban. By Carnahan’s logic more is less and less is more.<sup>34</sup>

The *St. Louis Post-Dispatch* said, in defense of Carnahan, that pro-life activists want to prohibit stem cell research and preserve “microscopic dividing cells in a Petri dish.”<sup>35</sup> This, as we have shown above, simply dehumanizes the embryo by a linguistic trick.<sup>36</sup>

In response to this double-talk from both Carnahan and the media, a lawsuit was brought by Cures without Cloning alleging bias in the ballot summary.<sup>37</sup> On February 20, Cole County Circuit Judge Patricia Joyce ruled that the existing ballot language was “insufficient and unfair.”<sup>38</sup> The description was changed to say the purpose of the initiative is “prohibiting human cloning that is conducted by creating a human embryo at any stage from the one-cell stage forward; prohibiting expenditure of taxpayer dollars on research or experimentation on human cloning; and allowing stem cell research for therapies and cures that complies with these prohibitions and the prohibitions of Section 38(d) of the Constitution.”

Regrettably, the state court of appeals overturned this decision, changing the language to read that the initiative would “change the current ban”—rather than Carnahan’s preferred “repeal

the current ban.” The decision came so late in the political process that it prevented Missouri pro-life groups from putting the initiative on the November 2008 ballot, which is precisely what the pro-cloners wanted.<sup>39</sup>

## Conclusion

In the future many states will be tempted to pass constitutional amendments similar to California’s Prop 71 and Missouri’s Amendment 2. They will be attracted to human cloning and embryonic stem cell research by the same siren songs of miracle cures, expanded revenue, and ethical benchmarks. As we have seen, all of these claims are overstated. The cures are not forthcoming. The revenue is purely hypothetical. The ethics are mere doublespeak. We hope that, using this pamphlet as a guide, the reader will be ready to refute these claims when they are made in his or her state.

## FOOTNOTES

- 1 The aim of cloning is to produce an embryo, from which stem cells will then be extracted. Since the embryo is a human being, doing so is unethical since it subjects one human being to lethal violence in order to benefit another. For more information about cloning and stem cell research see the FRC pamphlet by William L. Saunders and David Prentice, “Human Cloning and the Abuse of Science”, which is available at [www.frc.org](http://www.frc.org)
- 2 <http://www.sos.mo.gov/elections/2006petitions/ppStemCell.asp>
- 3 SCNT is defined at page 12
- 4 Unlike in Prop 71, Amendment 2 did not authorize the direct appropriation of funds for cloning and embryonic stem cell research. Instead, its language prevents legislators or regulators from “discouraging” embryonic stem cell research. (38(d)2(7))
- 5 [http://www.youtube.com/watch?v=a9WB\\_PXjTBo](http://www.youtube.com/watch?v=a9WB_PXjTBo)
- 6 <http://missouricures.com/faq.php>
- 7 <http://www.missouricures.com/diseases.php>
- 8 Monya Baker, “FDA to vet embryonic stem cells’ safety,” *Nature*, Published online 8 April 2008, 452, 670- (2008) and Erika Check Hayden, “The 3 Billion Dollar Question,” *Nature* 453 (May 1, 2008).
- 9 Accessed at: <http://www.voiceofsandiego.org/articles/2007/01/27/news/01goldstein012707.txt>
- 10 Accessed at: [http://findarticles.com/p/articles/mi\\_qn4176/is\\_20061005/ai\\_n16776105](http://findarticles.com/p/articles/mi_qn4176/is_20061005/ai_n16776105)

- 11 Accessed at: <http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/04-16-2008/0004794408&EDATE=>
- 12 Accessed at: <http://www.telegraph.co.uk/earth/main.jhtml?view=DETAILS&grid=A1YourView&xml=/earth/2007/11/16/scidolly116.xml>
- 13 Accessed at: <http://www.nytimes.com/2007/11/21/science/21stem.html?pagewanted=1&r=1&hp>
- 14 Prominent among the other alternatives are the reprogrammed “induced pluripotent stem cells,” discussed above.
- 15 Accessed at: <http://www.american.com/archive/2007/january-0107/an-easy-cell/?searchterm=fragoso>
- 16 For a complete list and recent developments see [stemcellresearch.org/facts/treatments.htm](http://stemcellresearch.org/facts/treatments.htm) and the FRC Insight series “Adult Stem Cell Success Stories” which are updated every six months. It is available at [www.frc.org](http://www.frc.org)
- 17 See Dennis Turner’s own testimony at [stemcellresearch.org/testimony/turner.htm](http://stemcellresearch.org/testimony/turner.htm); for more stories of adult stem cell successes see the FRC pamphlet, “Adult Stem Cells: Nine Faces of Success,” available at [www.frc.org](http://www.frc.org)
- 18 Accessed at: <http://missouricures.com/faq.php>
- 19 Dr. Laurence Baker and Bruce Deal, “Economic Impact Analysis: Proposition 71 California Stem Cell Research and Cures Initiative,” Analysis Group: Economic, Financial, and Strategy Consultants, September 14, 2004.
- 20 Richard J. Gilbert. “Dollars For Genes: Revenue Generation by the California Institute for Regenerative Medicine” *Berkeley Technology Law Journal* 21.2 (Symposium Issue) (2006).
- 21 Accessed at: [http://www.eastbayexpress.com/news/a\\_penny\\_on\\_the\\_dollar/Content?oid=359352](http://www.eastbayexpress.com/news/a_penny_on_the_dollar/Content?oid=359352)
- 22 Accessed at: <http://www.nytimes.com/2007/08/10/us/10stemcell.html>
- 23 “Almost all higher animals start their lives from a single cell, the fertilized ovum (zygote)... The time of fertilization represents the starting point in the life history, or ontogeny, of the individual.” Bruce M. Carlson, *Patten’s Foundations of Embryology*, 6th edition (McGraw-Hill, 1996).
- 24 IBD: <http://www.investors.com/editorial/editorialcontent.asp?secid=1501&status=article&cid=248054549203136>
- 25 Accessed at: [http://www.kansascures.com/news\\_031605JW.php](http://www.kansascures.com/news_031605JW.php)
- 26 Peter Slevin, “Mo. May Vote on Stem Cell Research,” *Washington Post*, December 25, 2005.
- 27 Accessed at: [http://www.kansascures.com/news\\_031605JW.php](http://www.kansascures.com/news_031605JW.php)
- 28 Accessed at: [http://ucsdnews.ucsd.edu/thisweek/2004/nov/11\\_01\\_goldstein.asp](http://ucsdnews.ucsd.edu/thisweek/2004/nov/11_01_goldstein.asp)
- 29 See Robert P. George and Christopher Tollefsen, *Embryo: A Defense of Human Life* (Doubleday, 2008).

- 30 Bert Vogelstein, Bruce Alberts, Kenneth Shine, "Please Don't Call It Cloning!" *Science* 295 (February 15, 2002): 1237.
- 31 Accessed at: <http://www.mocureswithoutcloning.com/>
- 32 Accessed at: <http://www.mocureswithoutcloning.com/initiativelanguage.html>
- 33 Accessed at: [http://www.sos.mo.gov/elections/2008petitions/08init\\_pet.asp#2008014](http://www.sos.mo.gov/elections/2008petitions/08init_pet.asp#2008014)
- 34 For a fuller treatment of this incident see <http://article.nationalreview.com/?q=ZjliNTUwNjgzNmE1OWU3MTg1OGE3ZjE5ZjM5YzEwNjc=>
- 35 Accessed at: <http://www.stltoday.com/stltoday/news/stories.nsf/editorialcommentary/story/1C171EAFFA138270862573750083AC4D?OpenDocument>
- 36 For a discussion of the "semantic gymnastics" that has long been used to de-humanize embryos in science, see the FRC pamphlet by William L. Saunders and David Prentice, "Human Cloning and the Abuse of Science" at page 10 (available at [www.frc.org](http://www.frc.org)).
- 37 Accessed at: <http://www.bnd.com/336/story/157457.html>
- 38 The court ruling is available at <http://www.mocure-withoutcloning.com/CWCFinal-Judgment.pdf>.
- 39 Accessed at: <http://www.kansascity.com/news/local/story/603109.html>



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There are currently over 1400 FDA approved clinical trials going on in the United States using adult stem cells. The following are a few of the success stories of people who have been helped by adult stem cell therapies. We invite you to read these stories and meet a small number of the thousands of people being treated by adult stem cell research.

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