

**MISSOURI STATE AUDITOR'S OFFICE
FISCAL NOTE (12-10)**

Subject

Initiative petition from Todd Jones regarding a proposed constitutional amendment to Article III. (Received January 20, 2012)

Date

February 8, 2012

Description

This proposal would amend Article III of the Missouri Constitution.

The amendment is to be voted on in November, 2012.

Public comments and other input

The State Auditor's Office requested input from the **Attorney General's Office**, the **Department of Agriculture**, the **Department of Economic Development**, the **Department of Elementary and Secondary Education**, the **Department of Higher Education**, the **Department of Health and Senior Services**, the **Department of Insurance**, **Financial Institutions and Professional Registration**, the **Department of Mental Health**, the **Department of Natural Resources**, the **Department of Corrections**, the **Department of Labor and Industrial Relations**, the **Department of Revenue**, the **Department of Public Safety**, the **Department of Social Services**, the **Governor's Office**, the **Missouri House of Representatives**, the **Department of Conservation**, the **Department of Transportation**, the **Office of Administration**, the **Office of State Courts Administrator**, the **Missouri Senate**, the **Secretary of State's Office**, the **Office of the State Public Defender**, the **State Treasurer's Office**, **Adair County**, **Boone County**, **Callaway County**, **Cass County**, **Clay County**, **Cole County**, **Greene County**, **Jackson County Legislators**, **Jasper County**, **St. Charles County**, **St. Louis County**, **Taney County**, the **City of Cape Girardeau**, the **City of Columbia**, the **City of Jefferson**, the **City of Joplin**, the **City of Kansas City**, the **City of Kirksville**, the **City of Kirkwood**, the **City of Mexico**, the **City of Raymore**, the **City of St. Joseph**, the **City of St. Louis**, the **City of Springfield**, the **City of Union**, the **City of Wentzville**, the **City of West Plains**, **Cape Girardeau 63 School District**, **Hannibal School District #60**, **Rockwood R-VI School District**, **Linn State Technical College**, **Metropolitan Community Colleges**, the **University of Missouri**, **St. Louis Community College**, and the **Missouri Life Sciences Research Board**.

Dena Ladd provided information as an opponent of the proposal to the State Auditor's office.

Assumptions

Officials from the **Attorney General's Office** assumes that any potential costs arising from this proposal can be absorbed with existing resources.

Officials from the **Department of Economic Development** anticipates no fiscal impact as a result of the proposed legislation.

The **Department of Higher Education** indicated the proposal contained in this initiative petition would have no direct, foreseeable fiscal impact on their department.

The **Department of Health and Senior Services** indicated this initiative petition is a no impact not for their department.

The **Department of Insurance, Financial Institutions and Professional Registration** indicated this petition, if passed, will have no cost or savings to the department.

The **Department of Mental Health** indicated this proposal places no direct requirements on their department that would result in a fiscal impact.

The **Department of Corrections** indicated no impact for their department.

The **Department of Labor and Industrial Relations** indicated this initiative petition has no fiscal impact on their department.

The **Department of Revenue** indicated this initiative petition will have no fiscal impact on their department.

The **Department of Social Services** indicated passage of this initiative petition will have no effect on their department.

Officials from the **Governor's Office** indicated there should be no added costs or savings to their office if approved by the voters.

The **Department of Conservation** indicated no adverse fiscal impact to their department would be expected as a result of this proposal.

The **Office of Administration** indicated this proposal will have no fiscal impact on their office.

The **Office of State Courts Administrator** indicated there is no fiscal impact on the courts.

Officials from the **Secretary of State's office** indicated their office is required to pay for publishing in local newspapers the full text of each statewide ballot measure as directed by Article XII, Section 2(b) of the Missouri Constitution and Section 116.230-116.290,

RSMo. Their office is provided with core funding to handle a certain amount of normal activity resulting from each year's legislative session. Funding for this item is adjusted each year depending upon the election cycle with \$1.3 million historically appropriated in odd numbered fiscal years and \$100,000 appropriated in even numbered fiscal years to meet these requirements. The appropriation has historically been an estimated appropriation because the final cost is dependent upon the number of ballot measures approved by the General Assembly and the initiative petitions certified for the ballot. In FY 2011, at the August and November elections, there were 6 statewide Constitutional Amendments or ballot propositions that cost \$1.02 million to publish (an average of \$170,000 per issue). Therefore, their office assumes, for the purposes of this fiscal note, that it should have the full appropriation authority it needs to meet the publishing requirements.

Officials from the **Office of the State Public Defender** indicated this initiative petition will not have any significant impact on their office.

Officials from the **State Treasurer's office** indicated there is no fiscal impact to their office.

Officials from the **City of Columbia** indicated this initiative does not have a direct effect on the city.

Officials from the **City of Jefferson** indicated they expect no fiscal impact if this petition becomes law.

Officials from the **City of Kansas City** indicated this proposal will restrict the medical research performed in Kansas City by forbidding certain stem cell research, including somatic cell nuclear transfer (SCNT).

It is estimated that the city received earnings taxes of almost \$171,000 in 2006 just from the work force at the Stowers Institute for Medical Research/Stowers Institute for Resource Development. It is also estimated that the State of Missouri earned almost \$763,000 in state income taxes. The Greater Kansas City Community Foundation reported in 2005 that the Stowers Institute for Medical Research is projected to increase funding each year by 20% to 25%, so that by 2015 it will be conducting \$300 million of research annually. That represents a continuous significant increase in earnings tax receipts (1% of gross salary). As reported at their website (December 2011), the Stowers Institute for Medical Research currently employs 475 staff members and has spent more than \$850 million on research since their beginning in 2000.

Although not pinpointed by city, but rather by the Kansas City, Missouri-Kansas area, the Kansas City Area Life Sciences Institute, in their 2009 life sciences research and development census, reported that 40% of respondents increased employment in 2009 and of those responding, 73% estimated they would increase employment over the next 36 months - assuming no change in the regulatory environment for this research. The

Kansas City Area Life Sciences Institute reports that 47 of the 206 life science companies are in the counties in which Kansas City is located.

The Kansas City Area Life Sciences Institute estimates that the counties in which Kansas City is located contain over 8,000 jobs in the life sciences. Of course, not all of those jobs relate to research involving SCNT, but the important fact is that there is in the Kansas City, Missouri - Kansas area significant life sciences jobs. That these jobs can be clustered sustains the larger growth in this field of medical research. Eliminating research using SCNT will erode the cluster effect of the remaining jobs and increase the adverse financial impacts felt by the area. Therefore, the loss of earnings tax should be considered the lowest amount of adverse financial impact since adoption of the proposed Constitutional Amendment will result in a reduced cluster of jobs.

The loss of employment represented by earnings tax of \$171,000 is roughly \$17.1 million in gross earnings. The loss of sales tax from the transfer of those jobs to another state where SCNT research would be lawful is significant. The City of Kansas City estimates in its current budget earnings tax receipts of \$199,250,000 and sales tax receipts of \$157,781,250, or about 79% of the earnings tax. If that ratio remained constant, the loss of \$171,000 in earnings tax represents an additional loss of about \$135,000 in sales tax just from the loss of the Stowers Institute for Medical Research / Stowers Institute for Resource Development and all of its jobs. Again, these estimates are the lowest estimates because of the planned expansion of the Stowers Institute - if the legal environment for stem cell research as guaranteed by current law is continued.

The financial impact of these jobs leaving the Kansas City area also will include the loss of the multiplier effect as payroll is recirculated within a local economy.

Officials from the **City of Raymore** indicated no fiscal impact.

Officials from the **City of St. Joseph** indicated this would have no fiscal impact on their city.

Officials from the **City of Wentzville** indicated they do not expect any financial impact from this petition.

Officials from the **Hannibal School District #60** indicated they do not believe this initiative petition will have any effect on revenue or expenditures to the district.

Officials from the **Rockwood R-VI School District** indicated as it is written, they see no estimated cost or savings from this measure.

Officials from **Linn State Technical College** indicated based on the information presented, there appears to be no fiscal impact to their organization.

Officials from **Metropolitan Community College** indicated this bill would have no direct fiscal impact on their organization.

Officials from **University of Missouri** indicated:

This amendment would effectively repeal the Stem Cell Amendment (Amendment 2 from 2006) and have a significant, negative chilling effect on education, research, and economic development across the UM System - at all four campuses and our academic health centers.

The proposed amendment, if passed, is projected to have a profound impact on the University's ability to grow and sustain its research operations and meet and exceed its economic development goals. Critical to fulfilling the University of Missouri's mission as the state's public research university is the ability to recruit and retain top faculty researchers who will contribute to the research enterprise to the ultimate benefit of the state's economy. The perception that the state has a hostile attitude towards research, and thus to academic freedom, can have a dampening effect on recruitment and retention of faculty. This amendment would have a deleterious effect on faculty perceptions and a negative impact on the University's ability to conduct cutting edge research that will extend beyond the life sciences.

Competition nationwide to attract and retain research faculty is exceedingly high. Faculty members consider many factors when deciding whether to stay in current positions or to accept offers from other states, including: supportive environment for research, level of state and private support, institutional reputation, and availability of state-of-the-art research facilities. A study conducted in 2006 by the National Bureau of Economic Research demonstrated the importance of attracting and retaining "research stars." These research stars in turn attracted other research stars that would concentrate in the area - increasing the number of start-up firms and economic activity in the area. The stars and the surrounding start-up firms would generate additional patents and invention disclosures - spinning off economic development with resulting growth in jobs and transforming economic activity in the area. Thus this concentrated effort results in the "rich getting richer" by virtue of the interactive effects of new ideas generating other new ideas. The proposed amendment will seriously impact the University's ability to attract and retain the "stars."

In FY 2011, the University of Missouri generated \$329 million in research expenditures from funding to faculty researchers provided by federal and private sources. The funding primarily provides for the salaries of the researchers and their research staffs, supplies and equipment and the administrative infrastructure that supports research. If one assumes only half of the University's research funding, or \$165 million, is in jeopardy, the direct financial loss to the University would be significant. This loss would come from top researchers leaving the University to go to institutions where there is an open and supportive climate for research and academic freedom. The economic impact on the state would be even greater because recent economic analysis* indicates every \$1.00 in research funding brought into the state generates almost \$2.00 in economic output and every \$1.0 million in research funding supports 17 jobs thus reducing economic output by \$329 million and impacting approximately 2800 jobs.

This amendment could also have an impact on the University's ability to support and grow commercialization of new technologies and the formation of new companies that result from the research. The University increased revenues from patents and licenses from \$2.3 million in FY2006 to approximately \$10 million in FY2010. This amendment would jeopardize continued growth in revenues that would be used by the University to reinvest in research and technology transfer operations and in economic development ventures that benefit the entire state such as the Discovery Ridge research park and the life sciences incubator in Columbia and the Missouri University of Science and Technology Innovation Park in Rolla. A recent MERIC economic impact analysis on Discovery Ridge indicated that continued investment in this project would yield an economic impact of \$33 million on the state's economy.

Finally, this amendment, if passed, could have a deleterious affect on the University's ability to continue to attract leading medical researchers and physicians to its medical schools and hospitals in Columbia and Kansas City. This would compromise the ability of the University's academic health centers to sustain high quality health care for citizens in the state and to continue to develop cutting edge treatments for the most life threatening medical conditions. This could result in the loss of patients to our hospitals and clinics as citizens of the state seek health care in other states. The fiscal impact of this is difficult to quantify.

*Kaufman, J., Kalaitzandonakes, N, and Johnson, T. "The Economic Role of the University of Missouri in the State." March 18, 2008.

Dena Ladd provided information as an opponent of this initiative petition.

This initiative would have a material adverse impact on medical research and access to emerging medical cures in this state and have a dramatic impact on state and local government finance. She said she is submitting fiscal information in opposition to the initiative petition. This information is similar to fiscal information submitted previously for substantially similar anti-medical research and cures initiative petitions, including for Fiscal Notes 07-16; 08-31; 09-10 and 09-34. The State Auditor's Office Fiscal Notes and Summaries for these measures are also included as attachments to this submittal to be made a part of your office's formal fiscal note record for the current measure.

**Information Relating to on the Impact of
Proposed Anti-Stem Cell Research/Cures
Initiative Petition**

September 13, 2007

Joseph H. Haslag, Ph. D.

and

Brian K. Long, Ph. D.*

* Joseph Haslag has a doctorate in economics from Southern Methodist University and is a professor of economics at the University of Missouri in Columbia. Brian Long has a doctorate from the Maxwell School of Citizenship and Public Affairs at Syracuse University and is the former Budget Director for the State of Missouri.

Information Relating to on the Impact of Proposed Anti-Stem Cell Research/Cures Initiative Petition

Background:

A successful attempt to prohibit certain promising stem cell research will have significant, negative long-term impacts on the health of Missouri citizens and the economy of the state. It has been estimated that such a prohibition could, even under deeply conservative assumptions, reduce Missouri's Gross State Product (GSP) by a present value of \$14 billion over the next 25 years with an associated reduction in state tax revenue of \$526 million.¹ The immediate costs to state and local government estimated under the state's fiscal note process are considerable, but necessarily less pronounced given the long timeline needed for accrual of research funding and the regulated process that governs the development and implementation of successful health care treatments. An analysis of the near term cost to state and local government is set-out below.

Near Term Tax Revenue Losses Resulting from a Prohibition on Missouri Stem Cell Research, Stowers Institute Phase II:

The Stowers Institute is a biomedical research organization that conducts basic research on genes and proteins that control fundamental processes in living cells. The Institute's stated goal is to "unlock the mysteries of disease and find the keys to their causes, treatment, and prevention." The Stowers Institute opened in November of 2000.

¹ Haslag, Joseph and Long, Brian, "The Missouri Stem Cell Research and Cures Initiative: An Economic and Health Care Analysis," The Missouri Coalition For Lifesaving Cures, August, 2006.

It occupies a 10-acre research campus in Kansas City, Missouri. The 600,000 square-foot, \$300 million facility houses laboratories, research support facilities, administrative services, and a maintenance team. In 2006, the Institute housed 20 independent research programs plus three technology development programs in bioinformatics, proteomics and imaging, and nearly 300 scientists, research associates, technicians and support staff.

The Stowers Institute has long planned a major expansion, referred to as “Phase II,” that would double the size of both its physical facility and staff.² The Institute has already acquired a 100 acres tract of land in Kansas City, Missouri for the expansion. The expansion would focus on early stem cell research, but is entirely contingent on Missouri maintaining a legal and regulatory climate that is not hostile to stem cell research.

Under threat of an anti-stem cell research measure being placed on the ballot in Missouri, the Stowers Institute announced in June of this year that it would indefinitely suspend its Phase II expansion “until the environment for embryonic stem cell research in Missouri stabilizes....”

Passage of the proposed anti-stem cell ballot initiative petition would further destabilize the research climate in Missouri. Conversely, defeat of the proposed measure and the resulting preservation of existing stem cell research protections in the Missouri Constitution would add stability to the stem cell research climate in Missouri.

Cancellation of the Phase II expansion would have immediate negative economic consequences for Missouri. Specifically, Missouri will not realize the economic benefits associated with the expansion’s construction costs of approximately \$500 million and salaries for approximately 350 additional employees. In the meantime, the state will not receive tax revenue resulting from both foregone research and development activities and reduced flow of direct investment that would have been generated by the 600,000 square foot expansion project worth a projected \$500 million. State GSP will necessarily be

² Annual Report for Stowers Institute for Medical Research/Stowers Institute for Resource Development, 2004.

reduced by both the direct investment associated with construction and the return on that investment.

The direct investment in the Phase II physical plant is a net capital inflow into the state. Therefore, Missouri GSP will increase by the full amount of this investment.³ The flow of additional GSP comes from the returns to investment spending in place. If it proceeds, the \$500 million Phase II expansion would be completed over approximately three years. We can reasonably assume an investment schedule as follows: \$150 million in FY2009, \$150 million in FY2010, and \$200 million in FY2011.

Historically, the return on physical capital in the United States is 7 percent. If a more conservative estimate of 6.5% is used, the present value of the return to capital from the \$500 million investment would total \$9,750,000 in FY2009 (6.5% of the \$150 million investment from the previous year), \$19,500,000 in FY2010 (6.5% of the cumulative investment of \$300 million from the two previous years), and \$32,500,000 in FY2011 (6.5% of the cumulative investment of \$500 million). These sums represent foregone GSP that would have been paid to factors of production located in Missouri. As such, we treat the lost return on physical capital as foregone GSP for Missouri.

Table 1 summarizes the economic impact of potential cancellation of Stowers Phase II. In FY2008, present value GSP would be reduced by \$146 million, in FY2009, by \$280 million, by \$403 in FY2010, and by \$386 million in 2011.

³ The resources necessary to construct the Stowers Institute Phase II are currently not employed in Missouri. As such, workers emigrating from places outside Missouri, unemployed Missourians, or otherwise unemployed resources are used in construction. Hence, the investment is treated as an expansion of the productive capacity of the Missouri economy.

Table 1

Impact on the Missouri Economy of Canceling Stowers Institute Phase II

Year	Direct GSP Lost From Construction Investment	GSP Lost From Return on Phase II Investment	Total Lost GSP	Total Lost MO Tax Revenue
2008	\$150,000,000	\$0	\$146,000,000	-----
2009	\$150,000,000	\$9,750,000	\$280,000,000	\$10,640,000
2010	\$200,000,000	\$19,500,000	\$403,000,000	\$15,314,000
2011	\$0	\$32,500,00	\$386,000,000	\$14,668,000

Missouri's net general revenue has historically averaged 3.8 percent of GSP. Therefore, it can be estimated that a potential cancellation of Stowers II would mean revenues paid to state government will be \$10,640,000 lower in FY2009, \$15,314,000 lower in FY2010, and \$14,668,000 lower in FY2011.

Additional Tax Revenue Losses Due to Reduced R&D Expenditures:

Economics literature has established a positive relationship between research and development (R&D) and economic growth. The basic idea is simple: through R&D people gain valuable information that frequently results in increased productivity. This increased productivity is reflected in greater economic growth as expressed in GSP. Conversely, reductions in spending on R&D will have a negative effect on GSP and related state tax revenues.

The relationship between R&D and GSP has been quantified and can be expressed as -- one percentage point increase in R&D spending will result, on average, in a 0.14 percentage point increase in real GSP per worker.⁴

Local Tax Revenue Losses:

The Stowers Institute Phase II is projected to employ an additional 350 people. The Stowers Institute currently employs 350 people at an average salary and benefits of \$75,500. We assume that the average salary and benefits will apply to the expansion so that additional employee expenses will total \$11,325,000 million per year for Stowers Phase II.

Insofar as the Stowers Institute salaries will be subject to the earnings tax in Kansas City, there is also an effect on municipal revenues that can be quantified reliably. With \$11,325,000 million in salary and wages paid and subject to the 1 percent earnings tax, Kansas City will forego \$113,325 in annual revenues if the Phase II expansion was cancelled.

The “Chilling Effect” of a Ban on Stem Cell Research:

In addition to the loss of state tax revenues identified above, a much greater negative impact will occur if additional R&D leaves the state. Investors could conclude that Missouri laws are unpredictable and antagonistic to the research environment as evidenced by a ban on certain stem cell research. In fact, the *Kansas City Star* reported in February of 2005 that, “A recent survey of life science companies based in St. Louis conducted by [William] Danforth found that 10 of the 14 companies polled said they

⁴ Haslag, Joseph H., Mark Ehlert and SuZanne Troske, (2005), “The Show-Me Missouri Innovation Index 2005,” A report commissioned by the Missouri Technology Corporation.

would be less likely to remain in Missouri if the [somatic cell nuclear transfer stem cell research ban then under consideration by the Missouri General Assembly] is approved.”⁵

A September 2007 follow-up survey of eleven St. Louis area science and technology companies by the Coalition for Plant and Life Sciences, the Center for Emerging Technologies, and the Nidus Center for Scientific Enterprise⁶ had the following findings regarding the currently proposed anti-stem cell initiative petition:

- 56% said the new amendment would make them less likely to keep their company in Missouri
- 44% said it would have no effect
- 0% said it would make them more likely to remain in Missouri

- 73% said the new amendment would make it more difficult to recruit scientists and other talent to Missouri
- 18% said it would have no effect
- 9% said it would make it easier to recruit scientists and other talent to Missouri

- 73% said the new amendment would make it more difficult to attract investors and capital to their company in Missouri
- 27% said it would have no effect
- 0% said it would make it easier to attract investors

- 73% said the new amendment would increase the pressure to relocate their company to another state
- 27% said it would have no effect
- 0% said it would decrease the pressure to relocate

- 73% said the new amendment would increase the likelihood that existing companies would avoid Missouri when considering whether to locate here
- 18% said it would help attract companies to Missouri
- 9% said it would have no effect

- 82% said the new amendment would make entrepreneurs considering starting a company in Missouri more likely to start their company in another state
- 18% said it would have no effect

⁵ Carlson, Heather, “Reseachers: Therapeutic Cloning Ban Could Hurt Economy,” Associated Press, Kansas City Star, February, 14, 2005.

⁶ Coalition for Plant and Life Sciences, the Center for Emerging Technologies, and the Nidus Center for Scientific Enterprise, “Survey of Life Sciences Companies and Investors re Impact of Proposed Anti-Stem Cell Initiative,” September 11, 2007.

- 0% said it would make entrepreneurs more likely to start their company in Missouri

In the same survey, seven Missouri-based venture capital firms and investor organizations were unanimous in their agreement that the proposed amendment would harm Missouri's business climate.

- 100% said the new amendment would make it more difficult to relocate existing companies to Missouri
- 0% said it would be easier to relocate companies to Missouri
- 100% said the new amendment would make it more difficult to establish new companies in Missouri.
- 0% said it would be easier to establish companies in Missouri

Finally, University of Missouri Interim President Gordon H. Lamb recently warned that the currently proposed initiative petition could “permanently destroy the future of research in the state and in its universities.”⁷

Direct spending on biotechnical research in Missouri has been conservatively estimated at \$1.3 billion (direct and indirect spending has been estimated at \$2.3 billion).⁸ Therefore, the “chilling” effect of a prohibition on stem cell research could have significant costs to the state from reduced R&D expenditures in other research-based industries.

A reduction of research activity in Missouri of only ten percent will have a substantial negative effect on state GSP and state revenue collections. According to The National Science Foundation, research and development spending in Missouri totaled \$3.04 billion in 2005 (the most recent data available). A ten percent chill translates into a reduction in research and development spending equal to \$304 million. This reduction

⁷ Lamb, Gordon H., “Statement from University of Missouri Interim President Gordon H. Lamb regarding proposed anti-research constitutional amendment”, September 7, 2007.

⁸ Milken Institute, Biopharmaceutical Industry Contributions to State and U.S. Economy, October 2004, p. 73., Wallace, Ki, Murphy, and Koepp. Alternatively, another estimate of the health science biotechnology sector's impact on the Missouri economy totals \$3.15 billion, “Health Science Biotechnology in Missouri, Economic Sector Analysis, Research and Planning, Missouri Department of Economic Development, December 28, 2000, David J. Peters.

will directly impact the state's economy and productivity growth will decline by 0.13 percentage points. With slower productivity growth, GSP over the next three years will decline by \$1.7 billion in FY2009, by \$2.1 billion in FY2010, and by \$2.5 billion in FY2011.

As indicated earlier, net general revenue is, on average, 3.8 percent of GSP. This suggests that a ten percent decline in R&D resulting from the chilling effect of the proposed amendment will, after discounting, result in a cumulative net general revenue decline of \$239.4 million over the next three fiscal years.

Regional Effects

The chilling effect on research affects productivity growth statewide. The Kansas City, St. Louis, and Columbia regions are likely to be particularly affected by reductions to research and development spending. The University of Missouri System accounts for roughly 20 percent of the more than \$3.04 billion R&D spending in Missouri. The campuses in Columbia, Kansas City and St. Louis account for the majority of the UM System R&D spending.

Further evidence of the concentration of R&D activity comes from the United States Bureau of Labor Statistics wage data for different industries. In 2006, scientific and engineering research workers in Missouri private companies received more than \$956 million in wage income. Of this amount, workers in St. Louis City, St. Louis County and St. Charles County accounted for 79 percent of the wage income. Jackson County workers were paid over \$125 million, or about 13 percent of the amount.

A chilling effect on R&D would disproportionately affect these local economies. To illustrate the impact on the local economies, note that with the chilling effect, slower productivity growth reduces GSP by about 0.5 percentage point over the three years. If the impact is distributed according to population (leave alone disproportionate

concentrations as is more likely the case) the St. Louis metro area would lose \$331 million in personal income a year. Likewise, the Kansas City metro area would see personal income fall by more than \$154 million and Boone County's personal income would decline by nearly \$20 million a year. The exact cost of this personal income loss to local governments is dependent on their boundaries and tax structure, but clearly significant.

Table 2

Summary of Potential Impact on the Missouri Economy of Banning Certain Stem-Cell Research

STATE IMPACT

	<u>FY2009</u>	<u>FY2010</u>	<u>FY2011</u>
GSP Reduction			
Loss of Stowers Phase II	\$280m	\$403m	\$386m
State Tax Revenue			
Loss of Stowers Phase II	\$10.6m	\$15.3m	\$14.7m
(3.8% of GSP)			
GSP Reduction			
10% Chilling Effect on R&D	\$1.7b	\$2.1b	\$2.5b
State Tax Revenue			
10% Chilling Effect on R&D	\$64.6m	\$79.8m	\$95m
(3.8% of GSP)			
TOTAL LOSS OF STATE			
TAX REVENUE (Phase II + chill)	\$75.2m	\$95.1m	\$109.7m

LOCAL GOVT.			<u>Annual</u>
IMPACT			
K.C. Loss of Stowers II			
Personal Income			\$113m
K.C. Loss Stowers Phase II			
Earnings Tax			\$113k
K.C. Loss of Personal Income			
10% Chilling Effect on R&D			\$154m

St.L. Loss of Personal Income	\$331m
10% Chilling Effect on R&D	

Boone Co. Loss of Personal Income	\$20m
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Updated Information For Fiscal Note Comment Paper:

Information Relating to the Impact of Proposed Anti-Stem Cell Research/Cures Initiative Petition

Page 1: Line one --- Strike the word "on";

Page 4: Second full paragraph, line one, end of sentence --- add footnote:

Peter N. Ireland, (1994), "Supply-side economics and endogenous growth," *Journal of Monetary Economics*, 33(3), 559-71;

Page 5: First full paragraph, line one, end of sentence --- add footnote:

Joseph H. Haslag, Mark Ehlert and SuZanne Troske, "The Show-Me Innovation Index: a report commission by the Missouri Technology Corporation," June 2005;

Page 5: Second full paragraph, line two, end of sentence --- add footnote:

Charles I. Jones (1995), "R&D-based models of economic growth," *Journal of Political Economy*, 103(4), 759-84;

Page 6: Second and third full paragraphs --- replace paragraphs with following:

The Stowers Institute Phase II is projected to employ an additional 600 to 750 people. The Stowers Institute currently employs 350 people at an average salary of \$56,500. We assume that the average salary will apply to the expansion so that additional employee wages will total \$33.9 million per year using the lower estimate of 600 additional employees for Stowers Phase II.

Insofar as the Stowers Institute salaries will be subject to the earnings tax in Kansas City, there is also an effect on municipal revenues that can be quantified reliably. With \$33.9 million in wages subject to the 1 percent earnings tax, Kansas City will forego \$339,000 in annual revenues if the Phase II expansion is cancelled.;

Page 10: Local Govt. Impact Table, first line --- replace "113m" with:

"\$339k."

**MISSOURI STATE AUDITOR'S OFFICE
FISCAL NOTE (07-16)**

Subject

Initiative petition from Lori Buffa regarding a proposed constitutional amendment to be known as Article III, Section 38(e). (Received September 5, 2007)

Date

September 25, 2007

Description

This proposal would amend Article III of the Constitution of Missouri by adding Section 38(e). This new section makes it unlawful to clone or attempt to clone a human being as defined in the section. In addition, this section prohibits the use of tax payer dollars for cloning or attempting to clone a human being or to research or experiment using human embryos derived from cloning or attempting to clone a human being.

The amendment is to be voted on in November, 2008.

Public comments and other input

The State Auditor's Office requested input from the **Attorney General's Office**, the **Department of Agriculture**, the **Department of Economic Development**, the **Department of Elementary and Secondary Education**, the **Department of Higher Education**, the **Department of Health and Senior Services**, the **Department of Insurance**, **Financial Institutions and Professional Registration**, the **Department of Mental Health**, the **Department of Natural Resources**, the **Department of Corrections**, the **Department of Labor and Industrial Relations**, the **Department of Revenue**, the **Department of Public Safety**, the **Department of Social Services**, the **Governor's Office/Office of Administration**, the **Missouri House of Representatives**, the **Department of Conservation**, the **Office of State Courts Administrator**, the **Department of Transportation**, the **Missouri Senate**, the **Secretary of State's Office**, the **Office of the State Public Defender**, the **State Tax Commission**, the **State Treasurer's Office**, **Cole County**, **Greene County**, **Jackson County**, **St. Louis County**, the **City of Columbia**, the **City of Jefferson**, the **City of Kansas City**, the **City of St. Louis**, **Cape Girardeau 63 School District**, **Hannibal School District #60**, **Rockwood R-VI School District**, **Linn State Technical College**, **Metropolitan Community Colleges**, the **University of Missouri**, **St. Louis Community College**, the **University of Central Missouri**, **Harris-Stowe State University**, **Lincoln University**, **Missouri State University**, **Missouri Southern State University**, **Missouri Western State University**, **Northwest Missouri State University**, **Southeast Missouri State University**, **Truman State University**, the **Missouri Technology Corporation**, and the **Missouri Life Sciences Research Board**.

Brad Ketcher of the Ketcher Law Firm, LLC provided information to the State Auditor's Office.

Assumptions

Officials from the **Attorney General's Office** indicated that any potential costs arising from the implementation of this proposal can be absorbed with existing resources. However, they assumed that because this proposal has the potential to be the subject of state and federal litigation, potential costs are unknown.

Officials from the **Department of Economic Development** indicated this proposal would have a significant negative impact on General Revenue, federal funds and local funds. The department anticipates a negative impact on public and private research institutions as well as on economic development efforts of local and regional government. In addition, they indicate that the passage of this constitutional amendment could have significant impact on small technology business growth and development.

The department assumes that placing the issue on the ballot by initiative petition will have no impact on General Revenue. However, they indicate that passage of the ballot initiative could have impact on the general revenue of this state. While the department did not make any fiscal projections, they do anticipate that this could have a significant economic impact and therefore impact general revenue.

This bill should have no known direct administrative or fiscal impact on the department. However, they do indicate there is a possibility that impact on the state general revenue could impact their agency to an unknown extent. If passed, this proposal could impact the department's mission to attract and retain business as well as grow business within the state.

The department also indicated that passage of the constitutional amendment could have significant economic impact on future research, entrepreneurship, and business development within Missouri. The department did not conduct any specific fiscal or economic projections on the impact of the constitutional amendment. However, they do anticipate that future projects and opportunities could be put at risk by passage of this amendment.

The **Department of Health and Senior Services** indicated no impact as a result of this initiative petition.

The **Department of Insurance, Financial Institutions and Professional Registration** indicated this proposed amendment will have no cost to the department.

The **Department of Public Safety** indicated there is no fiscal impact for this petition on the director's office.

Officials from the **Governor's Office/Office of Administration** indicated passage of this proposal should not result in additional costs or savings to their agencies.

Officials from the **Missouri House of Representatives** anticipates no fiscal impact as a result of the initiative petition.

The **Department of Conservation** indicated no fiscal impact expected to their agency as a result of proposal.

The **Office of the State Courts Administrator** indicated that the proposed initiative petition should not have a fiscal impact on the judiciary.

Officials from the **Secretary of State's Office** indicated their office is required to pay for publishing in local newspapers the full text of each statewide ballot measure as directed by Article XII, Section 2(b) of the Missouri Constitution and Section 116.230-116.290, RSMo. The Secretary of State's office is provided with core funding to handle a certain amount of normal activity resulting from each year's legislative session. Funding for this item is adjusted each year depending upon the election cycle with \$1.6 million historically appropriated in even numbered fiscal years and \$100,000 appropriated in odd numbered fiscal years to meet these requirements. The appropriation has historically been an estimated appropriation because the final cost is dependent upon the number of ballot measures approved by the General Assembly and the initiative petitions certified for the ballot. In FY 2007, at the August and November elections, there were 6 statewide Constitutional Amendments or ballot propositions that cost \$1.2 million to publish (an average of \$193,000 per issue). Therefore, the Secretary of State's office assumes, for the purposes of this fiscal note, that it should have the full appropriation authority it needs to meet the publishing requirements.

Officials from the **Office of the State Public Defender** indicated this proposed constitutional amendment will have no significant impact on their office.

The **State Tax Commission** indicated this petition will not impact their organization.

Officials from the **State Treasurer's Office** indicated that there is no fiscal impact on their office as a result of this petition.

The **City of Jefferson** indicated that they do not anticipate any fiscal impact should this petition become law.

Officials from the **City of Kansas City** indicated this proposal will restrict the medical research performed in Kansas City by forbidding certain stem cell research, including somatic cell nuclear transfer.

It is estimated that the City received earnings taxes of almost \$171,000 in 2006 just from the work force at the Stowers Institute for Medical Research/Stowers Institute for Resource Development. It is also estimated that the State of Missouri earned almost

\$763,000 in state income taxes. The Greater Kansas City Community Foundation reported in 2005 that the Stowers Institute for Medical Research is projected to increase funding each year by 20% to 25%, so that by 2015 it will be conducting \$300 million of research annually. That represents a continuous significant increase in earnings tax receipts (1% of gross salary). The Stowers Institute has doubled in personnel since 2005 and is estimated to increase again by another 50%, to about 550 scientists, researchers, staff support and other employees.

Although not pinpointed by city, but rather by the Kansas City, Missouri-Kansas area, the Kansas City Area Life Sciences Institute has estimated that 58% of the life science companies will increase employment over the next 36 months - assuming no change in the regulatory environment for this research. The Kansas City Area Life Sciences Institute reports that three dozen of the 145 companies or private organizations - one in four - involved in human life science research in the region are located within Kansas City.

The Kansas City Area Life Sciences Institute estimates that the counties in which Kansas City is located contain over 8,000 jobs in the life sciences. Of course, not all of those jobs relate to research involving SCNT, but the important fact is that there is in the Kansas City, Missouri - Kansas area significant life sciences jobs. That these jobs can be clustered sustains the larger growth in this field of medical research. Eliminating research using SCNT will erode the cluster effect of the remaining jobs and increase the adverse financial impacts felt by the area. Therefore, the loss of earnings tax should be considered the lowest amount of adverse financial impact since adoption of the proposed Constitutional Amendment will result in a reduced cluster of jobs.

The lost of employment represented by earnings tax of \$171,000 is roughly \$17.1 million in gross earnings. The loss of sales tax from the transfer of those jobs to another state where SCNT research would be lawful is significant. The City of Kansas City estimates in its current budget earnings tax receipts of \$199,250,000 and sales tax receipts of \$157,781,250, or about 79% of the earnings tax. If that ratio remained constant, the loss of \$171,000 in earnings tax represents an additional loss of about \$135,000 in sales tax just from the loss of the Stowers Institute for Medical Research / Stowers Institute for Resource Development and all of its jobs. Again, these estimates are the lowest estimates because of the planned expansion of the Stowers Institute - if the legal environment for stem cell research as guaranteed by current law is continued.

The financial impact of these jobs leaving the Kansas City area also will include the loss of the multiplier affect as payroll is recirculated within a local economy.

The **City of St. Louis** indicated that the fiscal impact of the proposed constitutional amendment will be both extremely serious and extremely negative with \$14.3 million in annual lost revenue as a conservative estimate of this negative impact on the city.

The new initiative petition filed by opponents of stem cell research purports to ban "human cloning." In addition to what is commonly thought of as "human cloning"—a

practice already banned by the Missouri Constitution—the amendment will ban one of the most promising new types of stem cell research, somatic cell nuclear transfer or “SCNT,” a procedure for medical research or for treating disease that involves replicating (or “cloning”) a patient’s own skin cell in a lab dish in order to create healthy new cells to help treat his or her disease. This process is currently permitted by the Missouri Constitution but would be banned if the proposed amendment is passed. SCNT is also sometimes referred to as “therapeutic cloning” because the cells are copied for the purpose of providing or developing a therapy for a patient’s disease or injury.

The economy of the City of St. Louis is closely tied to the City’s image as a cutting edge center for medical research. The City of St. Louis ranks 12th in a listing of the Top 100 Cities for grants from the National Institutes of Health, with \$441 million in grants flowing into the City in 2005 from NIH sources. This \$444 million represents 85% of all NIH support flowing into the State of Missouri. These grants support our hospitals and medical schools (Washington University School of Medicine, St. Louis University, Barnes-Jewish Hospital, and St. Louis Children’s Hospital), and, assuming that 60% of the funding pays salaries, account for approximately 5,300 jobs in the City. If only half of these jobs are lost—and it is a given that many of these jobs will be lost over time if this amendment is passed—the City will lose \$1.3 million in revenue each year—\$50,000 x 5,300 x 50% x .01 City earnings tax.

As the following table shows, the City’s hospitals alone account for nearly 19,000 jobs in the City, and other medical, professional and scientific and technical occupations account for an additional 15,000 jobs. Thus, 34,000 of the City’s 221,000 jobs—nearly 17%—are related to medical research and treatment and related professional occupations. Many additional jobs reside in the City’s colleges and universities—because colleges and universities do not report their employment data in the same manner as other places of business, detailed job and wage data for colleges and is not available from the U. S. Bureau of Labor Statistics.

A threat to ban and criminalize any type of medical research puts a black cloud over our entire state. Scientists in general will view Missouri as a regressive and unfriendly place for life sciences research, and those who make careers of cutting-edge research will not locate in Missouri. In recruiting scientists and companies, perception of the research environment is very important. Some scientists have already said that they would not come to Missouri due to threats to overturn Amendment 2 and potentially criminalize research. The initiative petition now proposed will have a drastic impact on our universities and medical schools. These schools are the engines that drive both our existing medical and research facilities and the promise of a thriving concentration of young and mature science-based companies, like those who are beginning to occupy the CORTEX campus.

The proposed amendment will not only discourage growth in the institutions and businesses directly impacted by the amendment—the deleterious impact on health care over time will also impact the quality and size of our hospitals and our City’s ability to attract and retain talent and employers from any industry. Quality of life, in particular

quality of available medical care, has become a top issue in the selection of company locations. St. Louis enjoys access to some of the world's premier health care facilities in Washington University, the BJC Medical Center, and Saint Louis University, all of which are teaching hospitals. The regressive negative intellectual environment created by opposition to the newest medical research and treatments will certainly erode this quality of care as it will no longer be possible to attract top students for these schools and top professionals to staff the hospitals. This proposed Constitutional Amendment banning promising forms of stem cell research would also criminalize any patient who might one day get a cure from such a procedure, thus costing these hospitals patients. Again, restricted access to the newest areas of medicine erodes the quality of life we take for granted from the great medical institutions available to us now.

RESEARCH-RELATED JOBS AND WAGES IN THE CITY OF ST. LOUIS

Source: U. S. Bureau of Labor Statistics--2006

TYPE	BUSINESSES	JOBS	TOTAL ANNUAL WAGES	% OF TOTAL BUSINESSES	% OF TOTAL JOBS	% OF TOTAL WAGE BASE
Medical Equipment & Supplies Manufacturing	15	516	19,613,949	0.19%	0.23%	0.19%
Professional, Scientific & Technical Services	889	14,642	952,212,500	11.11%	6.63%	9.12%
Hospitals	13	18,634	769,206,410	0.16%	8.43%	7.37%
TOTALS--LIFE SCIENCES RELATED:	917	33,792	1,741,032,859	11.46%	15.29%	16.67%
City of St. Louis Totals:	8,000	221,000	10,442,455,000	100.00%	100.00%	100.00%

A 10% loss of jobs in the three categories shown in the above table will cost the City more than \$10 million each year in direct loss of the 1% City earnings tax from these employees. It is also safe to say that this 10% loss will have a similar ripple effect in the thousands of other employees who serve the needs of the hospitals—laundry services, transportation, construction, wholesale food sales, and others.

In addition, passage of the proposed amendment will cost the City growth. The Battelle Institute of Cincinnati has already predicted that if current trends (absent this amendment) continue, Missouri will be eclipsed as a life science-driven economy by other states and regions. On the other hand, Battelle also predicts that if the state aggressively pursues the life sciences and makes the necessary investments over the next ten years in the research capacity and technology commercialization areas, the state would add more than 21,000 permanent jobs in life science industries, for the most part well-paid, quality employment. Conservatively assuming that one fourth of these jobs would be located in the City, given the City's predominance as a center for medical research, further assuming conservatively that each new job had a salary of \$50,000 per year, and further assuming that this salary grew by 3% each year, the loss of these new jobs to the City would cost the City an average of \$3 million per year once these jobs were fully situated. Again, it is also safe to say that this loss will have a similar ripple effect in the thousands of other employees who could be hired to serve the needs of the growing hospitals and

research/development businesses—laundry services, transportation, construction, wholesale food sales, and others.

In summary, we therefore conservatively estimate that the proposed amendment will cost the City of St. Louis a minimum of \$14.3 million per year in direct general revenue—approximately 3.5% of the City's general revenue budget—and countless millions more in indirect revenue. This is a loss that the City cannot tolerate in the face of rising costs and rising service needs.

As the Battelle Institute report stated in 2003, "If Missouri does not choose its 'fork in the road' consciously, deliberately, and with full knowledge of the consequences, it may take a fork that neither it nor its citizenry chooses. ...one fork may take Missouri to 21,000 additional well-paying jobs, \$7.2 billion in additional gross regional product, and more than \$3.9 billion in real disposable income over the next decade. The other fork may not only cost the state these jobs, but, if the state and the private sector simply continue existing trends, it may also mean further significant job and economic losses in key life science industries such as drugs and pharmaceuticals and medical devices."

A ban on SCNT will seriously harm the Missouri economy and its life science industry, in particular that industry in the City of St. Louis. The threat of such a ban has already caused harm in Kansas City, where the noted Stowers Institute has been unable to recruit the scientists necessary to carry out the Institute's work. If the Institute expands in another state, Missouri will lose millions of dollars in economic benefit directly related to stem cell research that is not "human cloning." Human cloning is currently banned by the Missouri Constitution. Opponents of stem cell research have falsely claimed that human cloning is not banned, because they also want to forbid promising medical procedures that require the copying of cells. However, the terminology, the concepts, and the distinction used in the Missouri Constitution are the same as used by America's most respected doctors and scientists.

America's most respected doctors and scientists believe that "reproductive cloning" should be banned, but that "therapeutic cloning" should be encouraged because it holds great medical promise to lead to cures for debilitating diseases—this is also the current philosophy espoused in the Missouri Constitution. In 2002, forty Nobel Prize Winners sent a letter to members of the U.S. Senate making this important distinction. Nobel Prize-winning Scientist Paul Berg has stated that "cloning humans and 'therapeutic cloning' are fundamentally different. The cloning of a human being should be prohibited. Therapeutic cloning, on the other hand, is meant to produce stem cells, not babies." What the proposed amendment would ban is the same procedure that stem cell research opponents have tried unsuccessfully to ban in the legislature for the past five years. The passage of the "Stem Cell Amendment" in late 2006 ended the legislative battle. That battle has now moved to the voting booth with the proposal for this amendment.

In an effort to help quantify the economic impact of a new effort to undo Missouri's constitutional research and cures protections, the Coalition for Plant and Life Sciences, the Center for Emerging Technologies, and the Nidus Center for Scientific Enterprise

collaborated on a survey of St. Louis science and technology-based companies and St. Louis investment firms and organizations that specialize in investments with science-based companies. This survey sought to measure the potential impact of this new proposal.

Responses were received from eleven science and technology companies. The results, summarized below, clearly demonstrate that an overwhelming majority of the leaders of these companies would find the amendment to be a severe impediment to growing their companies in Missouri, that a majority of respondents would consider moving their companies out of Missouri if the amendment passes, and that a majority of respondents believe that the amendment would be perceived as an anti-research initiative that would make Missouri an unattractive location for the high growth science-based companies that have become a major part of the City's bread and butter.

- 55% said the new amendment would make them less likely to keep their company in Missouri
- 45% said it would have no effect
- 0% said it would make them more likely to remain in Missouri

- 73% said the new amendment would make it more difficult to recruit scientists and other talent to Missouri
- 18% said it would have no effect
- 9% said it would make it easier to recruit scientists and other talent to Missouri

- 73% said the new amendment would make it more difficult to attract investors and capital to their company in Missouri
- 27% said it would have no effect
- 0% said it would make it easier to attract investors

- 73% said the new amendment would increase the pressure to relocate their company to another state
- 27% said it would have no effect
- 0% said it would decrease the pressure to relocate

- 73% said the new amendment would increase the likelihood that existing companies would avoid Missouri when considering whether to locate here
- 18% said it would help attract companies to Missouri
- 9% said it would have no effect

- 82% said the new amendment would make entrepreneurs considering starting a company in Missouri more likely to start their company in another state
- 18% said it would have no effect
- 0% said it would make entrepreneurs more likely to start their company in Missouri

The seven Missouri-based venture capital firm and investor organization respondents were unanimous in their agreement that this newly proposed amendment would harm Missouri's business climate by overturning our current protections for science and research.

- 100% said the new amendment would make it more difficult to relocate existing companies to Missouri
- 0% said it would be easier to relocate companies to Missouri
- 100% said the new amendment would make it more difficult to establish new companies in Missouri.
- 0% said it would be easier to establish companies in Missouri

It is important to note that none of the surveyed companies or investors is involved in stem cell research. That being the case, these results are evidence of the serious harm that this proposed amendment would wreak, not just on companies involved in stem cell research but on the wide variety of companies in Missouri that depend on scientific research for their survival and growth. Any threat to science of any type creates a chilling environment and negatively affects our business climate.

While it is not possible to quantify the results of this survey in terms of specific economic impact on the City of St. Louis, we believe these results clearly support the above assertions that if the amendment passes the City will lose both existing jobs and new opportunities, and as a result will lose, at a minimum, the \$14 million per year in revenue referenced above.

In summary, the negative impact on the amount of research and the consequential economic development emerging from the scientific research that would result from the proposed amendment would impact the City of St. Louis disproportionately: the City would suffer a very substantial reduction in scientific and medical activity and the sacrifice of significant future growth potential. As the chart above shows, medical research and treatment are extremely significant parts of St. Louis's current economy; as the CORTEX initiative and the Battelle report demonstrate, these economies are also very important parts of our future. As the survey results demonstrate, businesses involved in scientific research of all types and the businesses involved in raising capital for these research businesses would seriously question their futures in Missouri. Given the negative attitudes of businesses already ensconced in Missouri to the passage of this amendment, it is also obvious that businesses outside Missouri would have equally if not more strongly negative attitudes and would not locate in the City of St. Louis or Missouri.

Officials from **Linn State Technical College** indicated there appears to be no fiscal impact on their organization as a result of this initiative petition.

Metropolitan Community College indicated this proposed amendment would have no significant fiscal impact on their organization.

The **University of Missouri** indicated the proposed amendment's greatest potential impact is on the University's ability to retain and recruit top researchers who will contribute to the research enterprise to the ultimate benefit of the state's economy. The perception that a state has a hostile attitude toward research can have a dampening effect on recruitment and retention of faculty. Legal restrictions on research, such as those this amendment would impose, will have a deleterious effect on faculty perceptions and a negative impact on the University's ability to conduct cutting edge research.

Competition to retain and attract research faculty is exceedingly high. Faculty consider many factors when deciding whether to stay in current positions or accept offers in other states include: supportive environment for research, level of state and private support, institutional reputation, and availability of modern research facilities. However, a faculty member's career decisions are personal in nature. Thus it is not possible to determine with any precision the costs in terms of lost productivity, grants, human capital, and subsequent impact on the state economy.

The **University of Central Missouri** indicated this initiative will not affect their organization as they do not engage in stem cell research or medical research involving human organisms.

Officials from **Lincoln University** indicated the proposed amendment will not have a cost impact on their organization as they are not engaged in research activities relative to human cloning.

Officials from **Missouri State University** indicated that they do not perceive there to be any fiscal impact on their organization as a result of this proposed constitutional amendment.

Missouri Southern State University has determined that the proposed constitutional amendment would not have any fiscal impact on their operations.

Missouri Western State University does not anticipate any direct fiscal impact as a result of this initiative petition.

Officials from **Northwest Missouri State University** determined that this measure would have no estimated costs or savings impact on their organization.

Truman State University indicated no fiscal impact on their organization.

Mr. Brad Ketcher of the Ketcher Law Firm, LLC provided fiscal impact information related to the proposal which is summarized as follows:

STATE IMPACT

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
GSP Reduction	\$280m	\$403m	\$386m
Loss of Stowers Phase II			
State Tax Revenue	\$10.6m	\$15.3m	\$14.7m
Lose of Stowers Phase II (3.8% of GSP)			
GSP Reduction	\$1.7b	\$2.1b	\$2.5b
10% Chilling Effect on R&D			
TOTAL LOSS OF STATE TAX REVENUE (Phase II + chill)	\$64.6m	\$79.8m	\$95m

LOCAL GOVT IMPACT

	<u>Annual</u>
KC Loss of Stowers Phase II	\$339k
Personal Income	
KC Loss of Stowers Phase II	\$113k
Earnings Tax	
KC Loss of Personal Income	\$154m
10% Chilling Effect on R&D	
St. Louis Loss of Personal Income	\$331m
10% Chilling Effect on R&D	
Boone Co. Loss of Personal Income	\$20m

The State Auditor's Office did not receive a response from the **Department of Agriculture, Department of Elementary and Secondary Education, the Department of Higher Education, the Department of Mental Health, the Department of Natural Resources, the Department of Corrections, the Department of Labor and Industrial Relations, the Department of Revenue, the Department of Social Services, the Department of Transportation, the Missouri Senate, Cole County, Greene County, Jackson County, St. Louis County, the City of Columbia, Cape Girardeau 63 School District, Hannibal 60 School District, Rockwood R-VI School District, St. Louis Community College, Harris-Stowe State University, Southeast Missouri State University, the Missouri Technology Corporation, and the Missouri Life Sciences Research Board.**

Fiscal Note Summary

This proposal could have a significant negative fiscal impact on state and local governmental entities due to its prohibition of certain research activities. However, the total costs to state and local governmental entities are unknown.

**MISSOURI STATE AUDITOR'S OFFICE
FISCAL NOTE (08-31)**

Subject

Initiative petition from Todd Jones regarding a proposed amendment to Article III of the Missouri Constitution. (Received March 20, 2008)

Date

April 9, 2008

Description

This proposal would amend Article III, Section 38 of the Missouri Constitution.

The amendment is to be voted on in November, 2008.

Public comments and other input

The State Auditor's Office requested input from the **Attorney General's Office**, the **Department of Agriculture**, the **Department of Economic Development**, the **Department of Elementary and Secondary Education**, the **Department of Higher Education**, the **Department of Health and Senior Services**, the **Department of Insurance**, **Financial Institutions and Professional Registration**, the **Department of Mental Health**, the **Department of Natural Resources**, the **Department of Corrections**, the **Department of Labor and Industrial Relations**, the **Department of Revenue**, the **Department of Public Safety**, the **Department of Social Services**, the **Governor's Office/Office of Administration**, the **Missouri House of Representatives**, the **Department of Conservation**, the **Office of State Courts Administrator**, the **Department of Transportation**, the **Missouri Senate**, the **Secretary of State's Office**, the **Office of the State Public Defender**, the **State Tax Commission**, the **State Treasurer's Office**, **Cole County**, **Greene County**, **Jackson County**, **St. Louis County**, the **City of Columbia**, the **City of Jefferson**, the **City of Kansas City**, the **City of St. Louis**, **Cape Girardeau 63 School District**, **Hannibal School District #60**, **Rockwood R-VI School District**, **Linn State Technical College**, **Metropolitan Community Colleges**, the **University of Missouri**, **St. Louis Community College**, the **University of Central Missouri**, **Harris-Stowe State University**, **Lincoln University**, **Missouri State University**, **Missouri Southern State University**, **Missouri Western State University**, **Northwest Missouri State University**, **Southeast Missouri State University**, **Truman State University**, the **Missouri Technology Corporation**, and the **Missouri Life Sciences Research Board**.

Brad Ketcher of the Ketcher Law Firm, LLC provided information to the State Auditor's Office.

Assumptions

Officials from the **Attorney General's Office** indicated that the implementation of this proposal creates no fiscal impact for their office. However, they assumed that because this proposal has the potential to be the subject of state litigation, potential costs are unknown.

Officials from the **Department of Economic Development** indicated this proposal would have a significant negative impact on General Revenue, federal funds and local funds. The department anticipates a negative impact on public and private research institutions as well as on economic development efforts of local and regional government. In addition, they indicate that the passage of this constitutional amendment could have significant impact on small technology business growth and development.

The department assumes that placing the issue on the ballot by initiative petition will have no impact on General Revenue. However, they indicate that passage of the ballot initiative could have impact on the general revenue of this state. While the department did not make any fiscal projections, they do anticipate that this could have a significant economic impact and therefore impact general revenue.

This bill should have no known direct administrative or fiscal impact on the department. However, they do indicate there is a possibility that impact on the state general revenue could impact their agency to an unknown extent. If passed, this proposal could impact the department's mission to attract and retain business as well as grow business within the state.

The department also indicated that passage of the constitutional amendment could have significant economic impact on future research, entrepreneurship, and business development within Missouri. The department did not conduct any specific fiscal or economic projections on the impact of the constitutional amendment. However, they do anticipate that future projects and opportunities could be put at risk by passage of this amendment.

The **Department of Higher Education** indicated no foreseeable direct impact on their department resulting from this proposal.

The **Department of Health and Senior Services** indicated no impact as a result of this initiative petition.

The **Department of Insurance, Financial Institutions and Professional Registration** indicated this proposed amendment will have no cost to the department.

The **Department of Mental Health** indicated this initiative will have no fiscal impact on their department.

The **Department of Natural Resources** does not anticipate a direct fiscal impact from this proposal.

The **Department of Corrections** indicated the impact of this proposal is unknown, but less than \$100,000 per year. Further, the department stated that the penalty provision component of the bill resulting in potential fiscal impact for the department, is for up to fifteen years imprisonment.

The department is unable to determine the number of people who would be convicted under the provisions of this bill and therefore the number of additional inmate beds that may be required as a consequence of passage of this proposal. Estimated construction cost for one new medium to maximum-security inmate bed is \$55,000. Utilizing this per-bed cost provides for a conservative estimate by the department, as facility start-up costs are not included and entire facilities and/or housing units would have to be constructed to cover the cost of housing new commitments resulting from the cumulative effect of various new legislation, if adopted as statute.

The department stated it cannot predict the number of new commitments which may result from the creation of the offense(s) outlined in this proposal. An increase in commitments depends on the utilization by prosecutors and the actual sentences imposed by the court.

If additional persons are sentenced to the custody of the DOC due to the provisions of this legislation, the DOC will incur a corresponding increase in operational cost either through incarceration (FY07 average of \$41.21 per inmate, per day or an annual cost of \$15,040 per inmate) or through supervision provided by the Board of Probation and Parole (FY07 average of \$2.43 per offender, per day or an annual cost of \$887 per offender).

In summary, supervision by the DOC through probation or incarceration would result in additional unknown costs to the department. Seven (7) persons would have to be incarcerated per fiscal year to exceed \$100,000 annually. Due to the narrow scope of this new crime, it is assumed the impact would be less than \$100,000 per year for the DOC.

The **Department of Labor and Industrial Relations** indicated the petition has no fiscal impact on the department.

The **Department of Revenue** indicated the petition will have no impact on the department.

The **Department of Public Safety** indicated there is no fiscal impact for this petition on the director's office.

The **Department of Social Services** indicated no fiscal impact to the department.

Officials from the **Governor's Office/Office of Administration** indicated passage of this proposal should not result in additional costs or savings to their agencies.

The **Department of Conservation** indicated no fiscal impact expected to their agency as a result of proposal.

The **Office of the State Courts Administrator** indicated that the proposed initiative petition should not have a fiscal impact on the judiciary.

Officials from the **Missouri Senate** indicated that the petition appears to have no fiscal impact as it relates to their agency.

Officials from the **Secretary of State's Office** indicated their office is required to pay for publishing in local newspapers the full text of each statewide ballot measure as directed by Article XII, Section 2(b) of the Missouri Constitution and Section 116.230-116.290, RSMo. The Secretary of State's office is provided with core funding to handle a certain amount of normal activity resulting from each year's legislative session. Funding for this item is adjusted each year depending upon the election cycle with \$1.6 million historically appropriated in even numbered fiscal years and \$100,000 appropriated in odd numbered fiscal years to meet these requirements. The appropriation has historically been an estimated appropriation because the final cost is dependent upon the number of ballot measures approved by the General Assembly and the initiative petitions certified for the ballot. In FY 2007, at the August and November elections, there were 6 statewide Constitutional Amendments or ballot propositions that cost \$1.2 million to publish (an average of \$193,000 per issue). Therefore, the Secretary of State's office assumes, for the purposes of this fiscal note, that it should have the full appropriation authority it needs to meet the publishing requirements.

Officials from the **Office of the State Public Defender** indicated this initiative will have no significant impact on their office.

The **State Tax Commission** indicated this petition will not impact their organization.

Officials from the **State Treasurer's Office** indicated that there is no fiscal impact on their office as a result of this petition.

Officials from the **City of Columbia** indicated that no fiscal impact is expected from this proposal.

The **City of Jefferson** indicated that they do not anticipate any fiscal impact should this petition become law.

The **City of St. Louis** indicated that the fiscal impact of the proposed constitutional amendment will be both extremely serious and extremely negative with \$14.3 million in annual lost revenue as a conservative estimate of this negative impact on the city.

The new initiative petition filed by opponents of stem cell research purports to ban "human cloning." In addition to what is commonly thought of as "human cloning"—a practice already banned by the Missouri Constitution—the amendment will ban one of the most promising new types of stem cell research, somatic cell nuclear transfer or "SCNT," a procedure for medical research or for treating disease that involves replicating (or "cloning") a patient's own skin cell in a lab dish in order to create healthy new cells to help treat his or her disease. This process is currently permitted by the Missouri Constitution but would be banned if the proposed amendment is passed. SCNT is also sometimes referred to as "therapeutic cloning" because the cells are copied for the purpose of providing or developing a therapy for a patient's disease or injury.

The economy of the City of St. Louis is closely tied to the City's image as a cutting edge center for medical research. The City of St. Louis ranks 12th in a listing of the Top 100 Cities for grants from the National Institutes of Health, with \$441 million in grants flowing into the City in 2005 from NIH sources. This \$444 million represents 85% of all NIH support flowing into the State of Missouri. These grants support our hospitals and medical schools (Washington University School of Medicine, St. Louis University, Barnes-Jewish Hospital, and St. Louis Children's Hospital), and, assuming that 60% of the funding pays salaries, account for approximately 5,300 jobs in the City. If only half of these jobs are lost—and it is a given that many of these jobs will be lost over time if this amendment is passed—the City will lose \$1.3 million in revenue each year— $\$50,000 \times 5,300 \times 50\% \times .01$ City earnings tax.

As the following table shows, the City's hospitals alone account for nearly 19,000 jobs in the City, and other medical, professional and scientific and technical occupations account for an additional 15,000 jobs. Thus, 34,000 of the City's 221,000 jobs—nearly 17%—are related to medical research and treatment and related professional occupations. Many additional jobs reside in the City's colleges and universities—because colleges and universities do not report their employment data in the same manner as other places of business, detailed job and wage data for colleges and is not available from the U. S. Bureau of Labor Statistics.

A threat to ban and criminalize any type of medical research puts a black cloud over our entire state. Scientists in general will view Missouri as a regressive and unfriendly place for life sciences research, and those who make careers of cutting-edge research will not locate in Missouri. In recruiting scientists and companies, perception of the research environment is very important. Some scientists have already said that they would not come to Missouri due to threats to overturn Amendment 2 and potentially criminalize research. The initiative petition now proposed will have a drastic impact on our universities and medical schools. These schools are the engines that drive both our existing medical and research facilities and the promise of a thriving concentration of young and mature science-based companies, like those who are beginning to occupy the CORTEX campus.

The proposed amendment will not only discourage growth in the institutions and businesses directly impacted by the amendment—the deleterious impact on health care

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RESEARCH-RELATED JOBS AND WAGES IN THE CITY OF ST. LOUIS

Source: U. S. Bureau of Labor Statistics--2006

TYPE	BUSINESSES	JOBS	TOTAL ANNUAL WAGES	% OF TOTAL BUSINESSES	% OF TOTAL JOBS	% OF TOTAL WAGE BASE
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City of St. Louis Totals:	8,000	221,000	10,442,455,000	100.00%	100.00%	100.00%

A 10% loss of jobs in the three categories shown in the above table will cost the City more than \$10 million each year in direct loss of the 1% City earnings tax from these employees. It is also safe to say that this 10% loss will have a similar ripple effect in the thousands of other employees who serve the needs of the hospitals—laundry services, transportation, construction, wholesale food sales, and others.

In addition, passage of the proposed amendment will cost the City growth. The Battelle Institute of Cincinnati has already predicted that if current trends (absent this amendment) continue, Missouri will be eclipsed as a life science-driven economy by other states and regions. On the other hand, Battelle also predicts that if the state aggressively pursues the life sciences and makes the necessary investments over the next ten years in the research capacity and technology commercialization areas, the state would add more than 21,000 permanent jobs in life science industries, for the most part well-paid, quality employment. Conservatively assuming that one fourth of these jobs would be located in the City, given the City's predominance as a center for medical research, further assuming conservatively that each new job had a salary of \$50,000 per year, and further assuming that this salary grew by 3% each year, the loss of these new jobs to the City would cost the City an average of \$3 million per year once these jobs were fully situated. Again, it is also safe to say that this loss will have a similar ripple effect in the thousands

of other employees who could be hired to serve the needs of the growing hospitals and research/development businesses—laundry services, transportation, construction, wholesale food sales, and others.

In summary, we therefore conservatively estimate that the proposed amendment will cost the City of St. Louis a minimum of \$14.3 million per year in direct general revenue—approximately 3.5% of the City's general revenue budget—and countless millions more in indirect revenue. This is a loss that the City cannot tolerate in the face of rising costs and rising service needs.

As the Battelle Institute report stated in 2003, "If Missouri does not choose its 'fork in the road' consciously, deliberately, and with full knowledge of the consequences, it may take a fork that neither it nor its citizenry chooses. ...one fork may take Missouri to 21,000 additional well-paying jobs, \$7.2 billion in additional gross regional product, and more than \$3.9 billion in real disposable income over the next decade. The other fork may not only cost the state these jobs, but, if the state and the private sector simply continue existing trends, it may also mean further significant job and economic losses in key life science industries such as drugs and pharmaceuticals and medical devices."

A ban on SCNT will seriously harm the Missouri economy and its life science industry, in particular that industry in the City of St. Louis. The threat of such a ban has already caused harm in Kansas City, where the noted Stowers Institute has been unable to recruit the scientists necessary to carry out the Institute's work. If the Institute expands in another state, Missouri will lose millions of dollars in economic benefit directly related to stem cell research that is not "human cloning." Human cloning is currently banned by the Missouri Constitution. Opponents of stem cell research have falsely claimed that human cloning is not banned, because they also want to forbid promising medical procedures that require the copying of cells. However, the terminology, the concepts, and the distinction used in the Missouri Constitution are the same as used by America's most respected doctors and scientists.

America's most respected doctors and scientists believe that "reproductive cloning" should be banned, but that "therapeutic cloning" should be encouraged because it holds great medical promise to lead to cures for debilitating diseases—this is also the current philosophy espoused in the Missouri Constitution. In 2002, forty Nobel Prize Winners sent a letter to members of the U.S. Senate making this important distinction. Nobel Prize-winning Scientist Paul Berg has stated that "cloning humans and 'therapeutic cloning' are fundamentally different. The cloning of a human being should be prohibited. Therapeutic cloning, on the other hand, is meant to produce stem cells, not babies." What the proposed amendment would ban is the same procedure that stem cell research opponents have tried unsuccessfully to ban in the legislature for the past five years. The passage of the "Stem Cell Amendment" in late 2006 ended the legislative battle. That battle has now moved to the voting booth with the proposal for this amendment.

In an effort to help quantify the economic impact of a new effort to undo Missouri's constitutional research and cures protections, the Coalition for Plant and Life Sciences,

the Center for Emerging Technologies, and the Nidus Center for Scientific Enterprise collaborated on a survey of St. Louis science and technology-based companies and St. Louis investment firms and organizations that specialize in investments with science-based companies. This survey sought to measure the potential impact of this new proposal.

Responses were received from eleven science and technology companies. The results, summarized below, clearly demonstrate that an overwhelming majority of the leaders of these companies would find the amendment to be a severe impediment to growing their companies in Missouri, that a majority of respondents would consider moving their companies out of Missouri if the amendment passes, and that a majority of respondents believe that the amendment would be perceived as an anti-research initiative that would make Missouri an unattractive location for the high growth science-based companies that have become a major part of the City's bread and butter.

- 55% said the new amendment would make them less likely to keep their company in Missouri
- 45% said it would have no effect
- 0% said it would make them more likely to remain in Missouri

- 73% said the new amendment would make it more difficult to recruit scientists and other talent to Missouri
- 18% said it would have no effect
- 9% said it would make it easier to recruit scientists and other talent to Missouri

- 73% said the new amendment would make it more difficult to attract investors and capital to their company in Missouri
- 27% said it would have no effect
- 0% said it would make it easier to attract investors

- 73% said the new amendment would increase the pressure to relocate their company to another state
- 27% said it would have no effect
- 0% said it would decrease the pressure to relocate

- 73% said the new amendment would increase the likelihood that existing companies would avoid Missouri when considering whether to locate here
- 18% said it would help attract companies to Missouri
- 9% said it would have no effect

- 82% said the new amendment would make entrepreneurs considering starting a company in Missouri more likely to start their company in another state
- 18% said it would have no effect
- 0% said it would make entrepreneurs more likely to start their company in Missouri

The seven Missouri-based venture capital firm and investor organization respondents were unanimous in their agreement that this newly proposed amendment would harm Missouri's business climate by overturning our current protections for science and research.

- 100% said the new amendment would make it more difficult to relocate existing companies to Missouri
- 0% said it would be easier to relocate companies to Missouri
- 100% said the new amendment would make it more difficult to establish new companies in Missouri.
- 0% said it would be easier to establish companies in Missouri

It is important to note that none of the surveyed companies or investors is involved in stem cell research. That being the case, these results are evidence of the serious harm that this proposed amendment would wreak, not just on companies involved in stem cell research but on the wide variety of companies in Missouri that depend on scientific research for their survival and growth. Any threat to science of any type creates a chilling environment and negatively affects their business climate.

While it is not possible to quantify the results of this survey in terms of specific economic impact on the City of St. Louis, we believe these results clearly support the above assertions that if the amendment passes the City will lose both existing jobs and new opportunities, and as a result will lose, at a minimum, the \$14 million per year in revenue referenced above.

In summary, the negative impact on the amount of research and the consequential economic development emerging from the scientific research that would result from the proposed amendment would impact the City of St. Louis disproportionately: the City would suffer a very substantial reduction in scientific and medical activity and the sacrifice of significant future growth potential. As the chart above shows, medical research and treatment are extremely significant parts of St. Louis's current economy; as the CORTEX initiative and the Battelle report demonstrate, these economies are also very important parts of our future. As the survey results demonstrate, businesses involved in scientific research of all types and the businesses involved in raising capital for these research businesses would seriously question their futures in Missouri. Given the negative attitudes of businesses already ensconced in Missouri to the passage of this amendment, it is also obvious that businesses outside Missouri would have equally if not more strongly negative attitudes and would not locate in the City of St. Louis or Missouri.

Officials from **Linn State Technical College** indicated there appears to be no fiscal impact on their organization as a result of this initiative petition.

Metropolitan Community College indicated this proposed amendment would have no direct fiscal impact on their organization.

The **University of Missouri** indicated this amendment would alter the Stem Cell Amendment (Amendment 2 from 2006) to allow the legislature to punish universities and hospitals for conducting stem cell research by withholding or reducing funding for other programs and have a significant, negative chilling effect on education, research, and economic development across the University of Missouri (UM) System – at all four campuses and their academic health centers.

The proposed amendment, if passed, is projected to have a profound impact on the University's ability to grow and sustain its research operations and meet and exceed its economic development goals. Critical to fulfilling the University of Missouri's mission as the state's public research university is the ability to recruit and retain top faculty researchers who will contribute to the research enterprise to the ultimate benefit of the state's economy. The perception that the state has a hostile attitude toward research, and thus to academic freedom, can have a dampening effect on recruitment and retention of faculty. This amendment could have a deleterious effect on faculty perceptions and a negative impact on the University's ability to conduct cutting edge research that will extend beyond the life sciences.

Competition nationwide to attract and retain research faculty is exceedingly high. Faculty members consider many factors when deciding whether to stay in current positions or to accept offers from other states, including: supportive environment for research, level of state and private support, institutional reputation, and availability of state-of-the-art research facilities. A study conducted in 2006 by the National Bureau of Economic Research demonstrated the importance of attracting and retaining "research stars". These research stars in turn attracted other research stars that would concentrate in the area - increasing the number of start-up firms and economic activity in the area. The stars and the surrounding start-up firms would generate additional patents and invention disclosures – spinning off economic development with resulting growth in jobs and transforming economic activity in the area. Thus this concentrated effort results in the "rich getting richer" by virtue of the interactive effects of new ideas generating other new ideas. The proposed amendment will seriously impact the University's ability to attract and retain the "stars."

In FY 2007, the University of Missouri generated \$240 million in research expenditures from funding to faculty researchers provided by federal and private sources. The funding primarily provides for the salaries of the researchers and their research staffs, supplies and equipment, and the administrative infrastructure that supports research. Another key element of research funding is providing support for extramural training programs for graduate students and postdoctoral fellows. In a sense, these funds are used to build future scientists. If one assumes that only half of the University's research funding, or \$120 million, is in jeopardy, the direct financial loss to the University would be significant. This loss would come from top researchers leaving the University to go to institutions where there is an open and supportive climate for research and academic freedom. The economic impact on the state would be even greater because recent economic analysis* indicates that every \$1.00 in research funding brought into the state

generates almost \$2.00 in economic output and every \$1.0 million in research funding supports 17 jobs thus reducing economic output by \$240 million and impacting approximately 2000 jobs.

This amendment could also have an impact on the University's ability to support and grow commercialization of new technologies and the formation of new companies that result from the research. The University has a goal to increase revenues from patents and licenses from \$2.3 million in FY 2006 to \$10 million. This amendment would jeopardize this growth in revenues that would be used by the University to reinvest in research and technology transfer operations and in economic development ventures that benefit the entire state such as the Discovery Ridge research park and the new life sciences incubator in Columbia and the Missouri University of Science and Technology Innovation Park in Rolla. A recent MERIC economic impact analysis on Discovery Ridge indicated that continued investment in this project would yield an economic impact of \$33 billion on the state's economy.

Finally, this amendment, if passed, could have a deleterious affect on the University's ability to continue to attract leading medical researchers and physicians to its medical schools and hospitals in Columbia and Kansas City. This would compromise the ability of the University's academic health centers to sustain high quality health care for citizens in the state and to continue to develop cutting edge treatments for the most life threatening medical conditions. This could result in the loss of patients to our hospitals and clinics as citizens of the state seek health care in other states. The fiscal impact of this is difficult to quantify.

*Kaufman, J., Kalaitzandonakes, N, and Johnson, T. "The Economic Role of the University of Missouri in the State. March 18, 2008.

Harris-Stowe State University indicated this petition will have no fiscal impact on their organization.

Missouri Southern State University indicated they are not a research institution and therefore this initiative would not have a fiscal impact on their organization.

Officials from **Northwest Missouri State University** determined that this measure would have no estimated costs or savings impact on their organization.

Truman State University indicated no direct fiscal impact on their organization can be identified.

Mr. Brad Ketcher of the Ketcher Law Firm, LLC provided fiscal impact information in opposition to the proposal which is summarized as follows:

STATE IMPACT

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
GSP Reduction	\$280m	\$403m	\$386m
Loss of Stowers Phase II State Tax Revenue	\$10.6m	\$15.3m	\$14.7m
Loss of Stowers Phase II (3.8% of GSP) GSP Reduction	\$1.7b	\$2.1b	\$2.5b
10% Chilling Effect on R&D State Tax Revenue	\$64.6m	\$79.8m	\$95m
10% Chilling Effect of R&D (3.8% of GSP)			

LOCAL GOVT IMPACT

	<u>Annual</u>
KC Loss of Stowers Phase II Personal Income	\$339k
KC Loss of Stowers Phase II Earnings Tax	\$113k
KC Loss of Personal Income 10% Chilling Effect on R&D	\$154m
St. Louis Loss of Personal Income 10% Chilling Effect on R&D	\$331m
Boone Co. Loss of Personal Income	\$20m

The State Auditor's Office did not receive a response from the **Department of Agriculture, Department of Elementary and Secondary Education, the Missouri House of Representatives, the Department of Transportation, Cole County, Greene County, Jackson County, St. Louis County, the City of Kansas City, Cape Girardeau 63 School District, Hannibal 60 School District, Rockwood R-VI School District, St. Louis Community College, University of Central Missouri, Lincoln University, Missouri State University, Missouri Western State University, Southeast Missouri State University, the Missouri Technology Corporation, and the Missouri Life Sciences Research Board.**

Fiscal Note Summary

This proposal could have a significant negative fiscal impact on state and local governmental entities if state funds for certain research activities are eliminated, reduced, denied, or withheld. However, the total costs to state and local governmental entities are unknown.

**MISSOURI STATE AUDITOR'S OFFICE
FISCAL NOTE (09-10)**

Subject

Initiative petition from Todd Jones regarding a proposed amendment to Article III of the Missouri Constitution. (Received February 20, 2009)

Date

March 12, 2009

Description

This proposal would amend Article III, Section 38 of the Missouri Constitution.

The amendment is to be voted on in November, 2010.

Public comments and other input

The State Auditor's Office requested input from the **Attorney General's Office**, the **Department of Agriculture**, the **Department of Economic Development**, the **Department of Elementary and Secondary Education**, the **Department of Higher Education**, the **Department of Health and Senior Services**, the **Department of Insurance**, **Financial Institutions and Professional Registration**, the **Department of Mental Health**, the **Department of Natural Resources**, the **Department of Corrections**, the **Department of Labor and Industrial Relations**, the **Department of Revenue**, the **Department of Public Safety**, the **Department of Social Services**, the **Governor's Office**, the **Office of Administration**, the **Missouri House of Representatives**, the **Department of Conservation**, the **Office of State Courts Administrator**, the **Department of Transportation**, the **Missouri Senate**, the **Secretary of State's Office**, the **Office of the State Public Defender**, the **State Tax Commission**, the **State Treasurer's Office**, **Cole County**, **Greene County**, **Jackson County**, **St. Louis County**, the **City of Columbia**, the **City of Jefferson**, the **City of Kansas City**, the **City of St. Louis**, **Cape Girardeau 63 School District**, **Hannibal School District #60**, **Rockwood R-VI School District**, **Linn State Technical College**, **Metropolitan Community Colleges**, the **University of Missouri**, **St. Louis Community College**, the **University of Central Missouri**, **Harris-Stowe State University**, **Lincoln University**, **Missouri State University**, **Missouri Southern State University**, **Missouri Western State University**, **Northwest Missouri State University**, **Southeast Missouri State University**, **Truman State University**, the **Missouri Technology Corporation**, and the **Missouri Life Sciences Research Board**.

Brad Ketcher of the Ketcher Law Firm, LLC, provided information to the State Auditor's Office.

Assumptions

Officials from the **Attorney General's Office** indicated that the implementation of this proposal would not directly affect their office. However, they assumed that because this proposal has the potential to be the subject of state and federal litigation, potential costs are unknown.

The **Department of Economic Development** indicated this proposal would have a significant negative impact on General Revenue, federal funds and local funds. The department anticipates a negative impact on public and private research institutions as well as on economic development efforts of local and regional government. In addition, they indicate that the passage of this constitutional amendment could have significant impact on small technology business growth and development as it could create the perception that Missouri is hostile to science and technology.

The department assumes that placing the issue on the ballot by initiative petition will have no impact on General Revenue. However, they indicate that passage of the ballot initiative could have impact on the general revenue of this state. While the department did not make any fiscal projections, they do anticipate that this could have a significant economic impact and therefore impact general revenue.

This bill should have no known direct administrative or fiscal impact on the department. However, they do indicate there is a possibility that impact on the state general revenue could impact their agency to an unknown extent. If passed, this proposal could impact the department's mission to attract and retain business as well as grow business within the state.

It is unclear to the department whether the definition of "human cloning" in the proposed amendment is intended to be the same that contained in Article III, Section 38(d). The department indicated this could foster litigation and an uncertain environment. The department further indicated that passage of the constitutional amendment could have significant economic impact on future research, entrepreneurship, and business development within Missouri. The department did not conduct any specific fiscal or economic projections on the impact of the constitutional amendment. However, they do anticipate that future projects and opportunities could be put at risk by passage of this amendment.

The **Department of Higher Education** indicated no direct, foreseeable fiscal impact on their department resulting from this proposal.

The **Department of Health and Senior Services** indicated no impact as a result of this initiative petition.

The **Department of Insurance, Financial Institutions and Professional Registration** indicated this initiative, if passed, will have no cost or savings to the department.

The **Department of Mental Health** indicated since the department does not perform human cloning, the implementation of this initiative will have no fiscal impact to their department.

Officials from the **Department of Natural Resources** indicated they would not anticipate a direct fiscal impact from this proposal.

The **Department of Corrections** indicated no impact on their agency as a result of this proposal.

The **Department of Revenue** indicated the petition will not have a fiscal impact on the department.

The **Department of Public Safety** indicated there is no fiscal impact for their department.

The **Department of Social Services** indicated there is no fiscal impact to the department because the department does not now, nor plan to, expend funds for human cloning.

Officials from the **Office of Administration** indicated this proposal will have no fiscal impact on their agency.

Officials from the **Missouri House of Representatives** indicated this petition will have no fiscal impact to the operations budget of their agency.

The **Department of Conservation** indicated no fiscal impact would be expected to their department as a result of this proposal.

Officials from the **Missouri Senate** indicated that the petition appears to have no fiscal impact as it relates to their agency.

Officials from the **Secretary of State's Office** indicated their office is required to pay for publishing in local newspapers the full text of each statewide ballot measure as directed by Article I, Section 26, 27, 28 of the Missouri Constitution and Section 116.230-116.290, RSMo. The Secretary of State's office is provided with core funding to handle a certain amount of normal activity resulting from each year's legislative session. Funding for this item is adjusted each year depending upon the election cycle with \$1.6 million historically appropriated in even numbered fiscal years and \$100,000 appropriated in odd numbered fiscal years to meet these requirements. The appropriation has historically been an estimated appropriation because the final cost is dependent upon the number of ballot measures approved by the General Assembly and the initiative petitions certified for the ballot. In FY 2009, at the August and November elections, there were 5 statewide Constitutional Amendments or ballot propositions that cost \$1.35 million to publish (an average of \$270,000 per issue). Therefore, the Secretary of State's office assumes, for the purposes of this fiscal note, that it should have the full appropriation authority it needs to meet the publishing requirements.

Officials from the **Office of the State Public Defender** indicated this initiative will not have any significant impact on their office.

The **State Tax Commission** indicated this petition will not impact their agency.

The **State Treasurer's Office** indicated no fiscal impact on their office as related to this petition.

The **City of Jefferson** indicated that they do not anticipate any fiscal impact should this petition become law.

The **City of Kansas City** indicated this petition will have a negative fiscal impact on the city. They estimate this initiative would cause a loss of revenue for the city of approximately \$270,000 in FY 2010, approximately \$320,000 in FY 2011 and approximately \$380,000 in FY 2012. Such loss of revenue would occur because of the anticipated negative effect this legislation would have on the Stowers Institute for Medical Research, which is located in Kansas City and conducts biomedical research, and the consequent loss of earnings tax to Kansas City resulting from staff reductions at the Stowers Institute.

The **City of St. Louis** indicated that the fiscal impact of the proposed constitutional amendment will be both extremely serious and extremely negative with \$14.3 million in annual lost revenue as a conservative estimate of this negative impact on the city.

The new initiative petition filed by opponents of stem cell research purports to ban "human cloning." In addition to what is commonly thought of as "human cloning"—a practice already banned by the Missouri Constitution—the amendment will ban one of the most promising new types of stem cell research, somatic cell nuclear transfer or "SCNT," a procedure for medical research or for treating disease that involves replicating (or "cloning") a patient's own skin cell in a lab dish in order to create healthy new cells to help treat his or her disease. This process is currently permitted by the Missouri Constitution but would be banned if the proposed amendment is passed. SCNT is also sometimes referred to as "therapeutic cloning" because the cells are copied for the purpose of providing or developing a therapy for a patient's disease or injury.

The economy of the City of St. Louis is closely tied to the city's image as a cutting edge center for medical research. The City of St. Louis ranks 12th in a listing of the Top 100 Cities for grants from the National Institutes of Health, with \$441 million in grants flowing into the City in 2005 from NIH sources. This \$444 million represents 85% of all NIH support flowing into the State of Missouri. These grants support our hospitals and medical schools (Washington University School of Medicine, St. Louis University, Barnes-Jewish Hospital, and St. Louis Children's Hospital), and, assuming that 60% of the funding pays salaries, account for approximately 5,300 jobs in the city. If only half of these jobs are lost—and it is a given that many of these jobs will be lost over time if this amendment is passed—the city will lose \$1.3 million in revenue each year—\$50,000 x 5,300 x 50% x .01 city earnings tax.

As the following table shows, the city's hospitals alone account for nearly 19,000 jobs in the city, and other medical, professional and scientific and technical occupations account for an additional 15,000 jobs. Thus, 34,000 of the city's 221,000 jobs—nearly 17%—are related to medical research and treatment and related professional occupations. Many additional jobs reside in the city's colleges and universities—because colleges and universities do not report their employment data in the same manner as other places of business, detailed job and wage data for colleges and is not available from the U. S. Bureau of Labor Statistics.

A threat to ban and criminalize any type of medical research puts a black cloud over our entire state. Scientists in general will view Missouri as a regressive and unfriendly place for life sciences research, and those who make careers of cutting-edge research will not locate in Missouri. In recruiting scientists and companies, perception of the research environment is very important. Some scientists have already said that they would not come to Missouri due to threats to overturn Amendment 2 and potentially criminalize research. The initiative petition now proposed will have a drastic impact on our universities and medical schools. These schools are the engines that drive both our existing medical and research facilities and the promise of a thriving concentration of young and mature science-based companies, like those who are beginning to occupy the CORTEX campus.

The proposed amendment will not only discourage growth in the institutions and businesses directly impacted by the amendment—the deleterious impact on health care over time will also impact the quality and size of their hospitals and the city's ability to attract and retain talent and employers from any industry. Quality of life, in particular quality of available medical care, has become a top issue in the selection of company locations. St. Louis enjoys access to some of the world's premier health care facilities in Washington University, the BJC Medical Center, and Saint Louis University, all of which are teaching hospitals. The regressive negative intellectual environment created by opposition to the newest medical research and treatments will certainly erode this quality of care as it will no longer be possible to attract top students for these schools and top professionals to staff the hospitals. This proposed Constitutional Amendment banning promising forms of stem cell research would also criminalize any patient who might one day get a cure from such a procedure, thus costing these hospitals patients. Again, restricted access to the newest areas of medicine erodes the quality of life we take for granted from the great medical institutions available to us now.

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In an effort to help quantify the economic impact of a new effort to undo Missouri's constitutional research and cures protections, the Coalition for Plant and Life Sciences, the Center for Emerging Technologies, and the Nidus Center for Scientific Enterprise collaborated on a survey of St. Louis science and technology-based companies and St. Louis investment firms and organizations that specialize in investments with science-based companies. This survey sought to measure the potential impact of this new proposal.

Responses were received from eleven science and technology companies. The results, summarized below, clearly demonstrate that an overwhelming majority of the leaders of these companies would find the amendment to be a severe impediment to growing their companies in Missouri, that a majority of respondents would consider moving their companies out of Missouri if the amendment passes, and that a majority of respondents believe that the amendment would be perceived as an anti-research initiative that would make Missouri an unattractive location for the high growth science-based companies that have become a major part of the city's bread and butter.

- 55% said the new amendment would make them less likely to keep their company in Missouri
- 45% said it would have no effect
- 0% said it would make them more likely to remain in Missouri

- 73% said the new amendment would make it more difficult to recruit scientists and other talent to Missouri

- 18% said it would have no effect
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- 73% said the new amendment would make it more difficult to attract investors and capital to their company in Missouri
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- 73% said the new amendment would increase the pressure to relocate their company to another state
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The seven Missouri-based venture capital firm and investor organization respondents were unanimous in their agreement that this newly proposed amendment would harm Missouri's business climate by overturning our current protections for science and research.

- 100% said the new amendment would make it more difficult to relocate existing companies to Missouri
- 0% said it would be easier to relocate companies to Missouri
- 100% said the new amendment would make it more difficult to establish new companies in Missouri.
- 0% said it would be easier to establish companies in Missouri

It is important to note that none of the surveyed companies or investors is involved in stem cell research. That being the case, these results are evidence of the serious harm that this proposed amendment would wreak, not just on companies involved in stem cell research but on the wide variety of companies in Missouri that depend on scientific research for their survival and growth. Any threat to science of any type creates a chilling environment and negatively affects their business climate.

While it is not possible to quantify the results of this survey in terms of specific economic impact on the City of St. Louis, they believe these results clearly support the above

assertions that if the amendment passes the city will lose both existing jobs and new opportunities, and as a result will lose, at a minimum, the \$14 million per year in revenue referenced above.

In summary, the negative impact on the amount of research and the consequential economic development emerging from the scientific research that would result from the proposed amendment would impact the City of St. Louis disproportionately: the city would suffer a very substantial reduction in scientific and medical activity and the sacrifice of significant future growth potential. As the chart above shows, medical research and treatment are extremely significant parts of St. Louis's current economy; as the CORTEX initiative and the Battelle report demonstrates, these economies are also very important parts of their future. As the survey results demonstrate, businesses involved in scientific research of all types and the businesses involved in raising capital for these research businesses would seriously question their futures in Missouri. Given the negative attitudes of businesses already ensconced in Missouri to the passage of this amendment, it is also obvious that businesses outside Missouri would have equally if not more strongly negative attitudes and would not locate in the City of St. Louis or Missouri.

Officials from **Rockwood R-VI School District** indicated they do not expend money for any such services (and they doubt that other districts do either) so there would be no cost or savings to implement this initiative.

Officials from **Linn State Technical College** indicated there appears to be no fiscal impact on their organization as a result of this initiative petition.

Officials from the **Metropolitan Community College** indicated no direct fiscal impact on their organization.

The **University of Missouri** indicated this amendment would have significant, negative chilling effects on education, research, and economic development across the University of Missouri (UM) System – at all four campuses and their academic health centers.

The proposed amendment, if passed, is projected to have a profound impact on the university's ability to grow and sustain its research operations and meet and exceed its economic development goals. Critical to fulfilling the University of Missouri's mission as the state's public research university is the ability to recruit and retain top faculty researchers who will contribute to the research enterprise to the ultimate benefit of the state's economy. The perception that the state has a hostile attitude toward research, and thus to academic freedom, can have a dampening effect on recruitment and retention of faculty. This amendment would have a deleterious effect on faculty perceptions and a negative impact on the university's ability to conduct cutting edge research that will extend beyond the life sciences.

Competition nationwide to attract and retain research faculty is exceedingly high. Faculty members consider many factors when deciding whether to stay in current

positions or to accept offers from other states, including: supportive environment for research, level of state and private support, institutional reputation, and availability of state-of-the-art research facilities. A study conducted in 2006 by the National Bureau of Economic Research demonstrated the importance of attracting and retaining "research stars". These research stars in turn attracted other research stars that would concentrate in the area - increasing the number of start-up firms and economic activity in the area. The stars and the surrounding start-up firms would generate additional patents and invention disclosures – spinning off economic development with resulting growth in jobs and transforming economic activity in the area. Thus this concentrated effort results in the "rich getting richer" by virtue of the interactive effects of new ideas generating other new ideas. The proposed amendment will seriously impact the university's ability to attract and retain the "stars."

In FY 2007, the University of Missouri generated \$240 million in research expenditures from funding to faculty researchers provided by federal and private sources. The funding primarily provides for the salaries of the researchers and their research staffs, supplies and equipment, and the administrative infrastructure that supports research. If one assumes that only half of the university's research funding, or \$120 million, is in jeopardy, the direct financial loss to the university would be significant. This loss would come from top researchers leaving the university to go to institutions where there is an open and supportive climate for research and academic freedom. The economic impact on the state would be even greater because recent economic analysis* indicates that every \$1.00 in research funding brought into the state generates almost \$2.00 in economic output and every \$1.0 million in research funding supports 17 jobs thus reducing economic output by \$240 million and impacting approximately 2000 jobs.

This amendment could also have an impact on the university's ability to support and grow commercialization of new technologies and the formation of new companies that result from the research. The university has a goal to increase revenues from patents and licenses from \$2.3 million in FY 2006 to approximately \$10 million in FY 2009. This amendment would jeopardize this growth in revenues that would be used by the university to reinvest in research and technology transfer operations and in economic development ventures that benefit the entire state such as the Discovery Ridge research park and the new life sciences incubator in Columbia and the Missouri University of Science and Technology Innovation Park in Rolla. A recent MERIC economic impact analysis on Discovery Ridge indicated that continued investment in this project would yield an economic impact of \$33 million on the state's economy.

Finally, this amendment, if passed, could have a deleterious affect on the university's ability to continue to attract leading medical researchers and physicians to its medical schools and hospitals in Columbia and Kansas City. This would compromise the ability of the university's academic health centers to sustain high quality health care for citizens in the state and to continue to develop cutting edge treatments for the most life threatening medical conditions. This could result in the loss of patients to their hospitals and clinics as citizens of the state seek health care in other states. The fiscal impact of this is difficult to quantify.

*Kaufman, J., Kalaitzandonakes, N, and Johnson, T. "The Economic Role of the University of Missouri in the State." March 18, 2008.

Officials from the **University of Central Missouri** indicated no costs or savings on their organization as a result of this initiative petition.

Officials from **Harris-Stowe State University** indicated this initiative petition has no fiscal impact on their organization.

Officials from **Missouri State University** indicated their organization does not spend any funds in this area, so this petition should have no fiscal impact on their university.

Officials from **Missouri Southern State University** indicated there would be no fiscal impact to their organization for this initiative petition.

Officials from **Missouri Western State University** indicated there would be no fiscal impact.

Officials from **Northwest Missouri State University** determined this measure would have no estimated cost or savings impact on their organization.

Mr. Brad Ketcher of the Ketcher Law Firm, LLC provided fiscal impact information in opposition to the proposal which is summarized as follows:

STATE IMPACT

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
GSP Reduction	\$280m	\$403m	\$386m
Loss of Stowers Phase II State Tax Revenue	\$10.6m	\$15.3m	\$14.7m
Lose of Stowers Phase II (3.8% of GSP) GSP Reduction	\$1.7b	\$2.1b	\$2.5b
10% Chilling Effect on R&D State Tax Revenue	\$64.6m	\$79.8m	\$95m
10% Chilling Effect of R&D (3.8% of GSP)			

LOCAL GOVT IMPACT

	<u>Annual</u>
KC Loss of Stowers Phase II Personal Income	\$339k
KC Loss of Stowers Phase II Earnings Tax	\$113k
KC Loss of Personal Income 10% Chilling Effect on R&D	\$154m
St. Louis Loss of Personal Income	\$331m

10% Chilling Effect on R&D
Boone Co. Loss of Personal Income

\$20m

The State Auditor's Office did not receive a response from the **Department of Agriculture**, the **Department of Elementary and Secondary Education**, the **Department of Labor and Industrial Relations**, the **Governor's Office**, the **Office of State Courts Administrator**, the **Department of Transportation**, **Cole County**, **Greene County**, **Jackson County**, **St. Louis County**, the **City of Columbia**, **Cape Girardeau 63 School District**, **Hannibal School District #60**, **St. Louis Community College**, **Lincoln University**, **Southeast Missouri State University**, **Truman State University**, the **Missouri Technology Corporation**, and the **Missouri Life Sciences Research Board**.

Fiscal Note Summary

This proposal could have a significant negative fiscal impact on state and local governmental entities. Federal grants to state governmental entities for research programs may be in jeopardy. The total costs to state and local governmental entities are unknown.

**MISSOURI STATE AUDITOR'S OFFICE
FISCAL NOTE (09-34)**

Subject

Initiative petition from Todd Jones regarding a proposed amendment to Article III of the Missouri Constitution. (Received July 7, 2009)

Date

July 27, 2009

Description

This proposal would amend Article III, Section 38 of the Missouri Constitution.

The amendment is to be voted on in November, 2010.

Public comments and other input

The State Auditor's Office requested input from the **Attorney General's Office**, the **Department of Agriculture**, the **Department of Economic Development**, the **Department of Elementary and Secondary Education**, the **Department of Higher Education**, the **Department of Health and Senior Services**, the **Department of Insurance**, **Financial Institutions and Professional Registration**, the **Department of Mental Health**, the **Department of Natural Resources**, the **Department of Corrections**, the **Department of Labor and Industrial Relations**, the **Department of Revenue**, the **Department of Public Safety**, the **Department of Social Services**, the **Governor's Office**, the **Office of Administration**, the **Missouri House of Representatives**, the **Department of Conservation**, the **Office of State Courts Administrator**, the **Department of Transportation**, the **Missouri Senate**, the **Secretary of State's Office**, the **Office of the State Public Defender**, the **State Tax Commission**, the **State Treasurer's Office**, **Cole County**, **Greene County**, **Jackson County**, **St. Louis County**, the **City of Columbia**, the **City of Jefferson**, the **City of Kansas City**, the **City of St. Louis**, **Cape Girardeau 63 School District**, **Hannibal School District #60**, **Rockwood R-VI School District**, **Linn State Technical College**, **Metropolitan Community Colleges**, the **University of Missouri**, **St. Louis Community College**, the **University of Central Missouri**, **Harris-Stowe State University**, **Lincoln University**, **Missouri State University**, **Missouri Southern State University**, **Missouri Western State University**, **Northwest Missouri State University**, **Southeast Missouri State University**, **Truman State University**, the **Missouri Technology Corporation**, and the **Missouri Life Sciences Research Board**.

Brad Ketcher of the Ketcher Law Firm, LLC provided information to the State Auditor's Office.

Assumptions

Officials from the **Attorney General's Office** assumed that implementing the proposed initiative petition would not directly affect their office. However, they assume that because this proposal has the potential to be the subject of state litigation, potential costs are unknown.

Officials from the **Department of Economic Development** indicated this proposal would have a significant negative impact on General Revenue, federal funds and local funds. The department anticipates a significant negative impact on public and private research institutions as well as on economic development efforts of local and regional government. In addition, they indicate that the passage of this constitutional amendment could have significant impact on small technology business growth and development.

The department assumes that placing the issue on the ballot by initiative petition will have no impact on General Revenue. However, they indicate that passage of the ballot initiative could have impact on the general revenue of this state. While the department did not make any fiscal projections, they do anticipate that this could have a significant economic impact and therefore impact general revenue.

This bill should have no known direct administrative or fiscal impact on the department. However, they do indicate there is a possibility that impact on the state general revenue could impact their agency to an unknown extent. If passed, this proposal could impact the department's mission to attract and retain business as well as grow business within the state.

The department also indicated that passage of the constitutional amendment could have significant economic impact on future research, entrepreneurship, and business development within Missouri. The department did not conduct any specific fiscal or economic projections on the impact of the constitutional amendment. However, they do anticipate that future projects and opportunities could be put at risk by passage of this amendment.

The **Department of Higher Education** indicated this initiative petition would not have a direct, foreseeable fiscal impact on their department. It might, however, have some impact on the public higher education institutions that conduct research with which the department works.

The **Department of Health and Senior Services** indicated no impact for their department.

The **Department of Insurance, Financial Institutions and Professional Registration** indicated this initiative will have no cost or savings to the department.

The **Department of Mental Health** indicated they do not participate in stem cell research, therapies or cures. There should be no fiscal impact resulting from the enactment of this amendment.

The **Department of Natural Resources** does not anticipate a direct fiscal impact from this initiative petition.

The **Department of Corrections** indicated they cannot predict the number of new commitments which may result from the creation of the offense(s) outlined in this proposal. An increase in commitments depends on the utilization by prosecutors and the actual sentences imposed by the court.

If additional persons are sentenced to the custody of the department due to the provisions of this legislation, the department will incur a corresponding increase in direct offender cost either through incarceration (FY08 average of \$15.64 per offender, per day or an annual cost of \$5,709 per inmate) or through supervision provided by the Board of Probation and Parole (FY08 average of \$2.47 per offender, per day or an annual cost of \$902 per offender).

In summary, supervision by the department through probation or incarceration would result in additional unknown costs to the department. Eighteen (18) persons would have to be incarcerated per each fiscal year to exceed \$100,000 annually. Due to the narrow scope of this new crime, it is assumed the impact would be less than \$100,000 per year for the department.

The **Department of Revenue** indicated the petition will not have a fiscal impact on the department.

The **Department of Public Safety** assumed that this initiative petition would have no fiscal impact to the department.

The **Department of Social Services** indicated there is no fiscal impact to their department.

Officials from the **Governor's Office** indicated there should be no added costs to their office if this amendment is approved by the voters.

The **Office of Administration** indicated there should be no added cost to their office if this constitutional amendment is passed by the voters. The amendment modifies the Missouri Stem Cell Research and Cures Initiative passed by the voters in November 2006. Currently, the provisions prohibit state and local governments from preventing or discouraging lawful research, therapies and cures. If the proposed amendment would pass, the prohibition of state government from preventing or discouraging lawful research, therapies and cures is removed.

Officials from the **Missouri House of Representatives** indicated this petition will have no fiscal impact to the budget of their agency.

The **Department of Conservation** indicated no adverse fiscal impact is expected to their department as a result of this proposal.

The **Office of State Courts Administrator** indicated the proposed initiative should not have a fiscal impact on the judiciary.

Officials from the **Missouri Senate** indicated that the initiative appears to have no fiscal impact as it relates to their agency.

Officials from the **Secretary of State's Office** indicated their office is required to pay for publishing in local newspapers the full text of each statewide ballot measure as directed by Article I, Section 26, 27, 28 of the Missouri Constitution and Section 116.230-116.290, RSMo. The Secretary of State's office is provided with core funding to handle a certain amount of normal activity resulting from each year's legislative session. Funding for this item is adjusted each year depending upon the election cycle with \$1.6 million historically appropriated in even numbered fiscal years and \$100,000 appropriated in odd numbered fiscal years to meet these requirements. The appropriation has historically been an estimated appropriation because the final cost is dependent upon the number of ballot measures approved by the General Assembly and the initiative petitions certified for the ballot. In FY 2009, at the August and November elections, there were 5 statewide Constitutional Amendments or ballot propositions that cost \$1.35 million to publish (an average of \$270,000 per issue). Therefore, the Secretary of State's office assumes, for the purposes of this fiscal note, that it should have the full appropriation authority it needs to meet the publishing requirements.

Officials from the **Office of the State Public Defender** indicated this initiative will not have any impact on their office.

The **State Tax Commission** indicated this petition will not impact their agency.

Officials from the **State Treasurer's Office** indicated this initiative petition does not have a fiscal impact on their office.

Officials from **St. Louis County** indicated this amendment pertains to appropriations of funds for stem cell research. Because St. Louis County has not been involved in this issue, the initiative, if adopted as law, would appear to have no impact on the county.

The **City of Jefferson** indicated that they do not anticipate any fiscal impact should this petition become law.

The **City of St. Louis** indicated that the fiscal impact of the proposed constitutional amendment will be both extremely serious and extremely negative with \$14.3 million in annual lost revenue as a conservative estimate of this negative impact on the city.

The new initiative petition filed by opponents of stem cell research purports to ban "human cloning." In addition to what is commonly thought of as "human cloning"—a practice already banned by the Missouri Constitution—the amendment will ban one of the most promising new types of stem cell research, somatic cell nuclear transfer or "SCNT," a procedure for medical research or for treating disease that involves replicating (or "cloning") a patient's own skin cell in a lab dish in order to create healthy new cells to help treat his or her disease. This process is currently permitted by the Missouri Constitution but would be banned if the proposed amendment is passed. SCNT is also sometimes referred to as "therapeutic cloning" because the cells are copied for the purpose of providing or developing a therapy for a patient's disease or injury.

The economy of the City of St. Louis is closely tied to the City's image as a cutting edge center for medical research. The City of St. Louis ranks 12th in a listing of the Top 100 Cities for grants from the National Institutes of Health, with \$441 million in grants flowing into the City in 2005 from NIH sources. This \$444 million represents 85% of all NIH support flowing into the State of Missouri. These grants support our hospitals and medical schools (Washington University School of Medicine, St. Louis University, Barnes-Jewish Hospital, and St. Louis Children's Hospital), and, assuming that 60% of the funding pays salaries, account for approximately 5,300 jobs in the City. If only half of these jobs are lost—and it is a given that many of these jobs will be lost over time if this amendment is passed—the City will lose \$1.3 million in revenue each year— $\$50,000 \times 5,300 \times 50\% \times .01$ City earnings tax.

As the following table shows, the City's hospitals alone account for nearly 19,000 jobs in the City, and other medical, professional and scientific and technical occupations account for an additional 15,000 jobs. Thus, 34,000 of the City's 221,000 jobs—nearly 17%—are related to medical research and treatment and related professional occupations. Many additional jobs reside in the City's colleges and universities—because colleges and universities do not report their employment data in the same manner as other places of business, detailed job and wage data for colleges and is not available from the U. S. Bureau of Labor Statistics.

A threat to ban and criminalize any type of medical research puts a black cloud over our entire state. Scientists in general will view Missouri as a regressive and unfriendly place for life sciences research, and those who make careers of cutting-edge research will not locate in Missouri. In recruiting scientists and companies, perception of the research environment is very important. Some scientists have already said that they would not come to Missouri due to threats to overturn Amendment 2 and potentially criminalize research. The initiative petition now proposed will have a drastic impact on our universities and medical schools. These schools are the engines that drive both our existing medical and research facilities and the promise of a thriving concentration of young and mature science-based companies, like those who are beginning to occupy the CORTEX campus.

The proposed amendment will not only discourage growth in the institutions and businesses directly impacted by the amendment—the deleterious impact on health care over time will also impact the quality and size of our hospitals and our City’s ability to attract and retain talent and employers from any industry. Quality of life, in particular quality of available medical care, has become a top issue in the selection of company locations. St. Louis enjoys access to some of the world’s premier health care facilities in Washington University, the BJC Medical Center, and Saint Louis University, all of which are teaching hospitals. The regressive negative intellectual environment created by opposition to the newest medical research and treatments will certainly erode this quality of care as it will no longer be possible to attract top students for these schools and top professionals to staff the hospitals. This proposed Constitutional Amendment banning promising forms of stem cell research would also criminalize any patient who might one day get a cure from such a procedure, thus costing these hospitals patients. Again, restricted access to the newest areas of medicine erodes the quality of life we take for granted from the great medical institutions available to us now.

RESEARCH-RELATED JOBS AND WAGES IN THE CITY OF ST. LOUIS

Source: U. S. Bureau of Labor Statistics--2006

TYPE	BUSINESSES	JOBS	TOTAL ANNUAL WAGES	% OF TOTAL BUSINESSES	% OF TOTAL JOBS	% OF TOTAL WAGE BASE
Medical Equipment & Supplies Manufacturing	15	516	19,613,949	0.19%	0.23%	0.19%
Professional, Scientific & Technical Services	889	14,642	952,212,500	11.11%	6.63%	9.12%
Hospitals	13	18,634	769,206,410	0.16%	8.43%	7.37%
TOTALS--LIFE SCIENCES RELATED:	917	33,792	1,741,032,859	11.46%	15.29%	16.67%
City of St. Louis Totals:	8,000	221,000	10,442,455,000	100.00%	100.00%	100.00%

A 10% loss of jobs in the three categories shown in the above table will cost the City more than \$10 million each year in direct loss of the 1% City earnings tax from these employees. It is also safe to say that this 10% loss will have a similar ripple effect in the thousands of other employees who serve the needs of the hospitals—laundry services, transportation, construction, wholesale food sales, and others.

In addition, passage of the proposed amendment will cost the City growth. The Battelle Institute of Cincinnati has already predicted that if current trends (absent this amendment) continue, Missouri will be eclipsed as a life science-driven economy by other states and regions. On the other hand, Battelle also predicts that if the state aggressively pursues the life sciences and makes the necessary investments over the next ten years in the research capacity and technology commercialization areas, the state would add more than 21,000 permanent jobs in life science industries, for the most part well-paid, quality employment. Conservatively assuming that one fourth of these jobs would be located in the City, given the City’s predominance as a center for medical research, further assuming conservatively that each new job had a salary of \$50,000 per year, and further assuming that this salary grew by 3% each year, the loss of these new jobs to the City

would cost the City an average of \$3 million per year once these jobs were fully situated. Again, it is also safe to say that this loss will have a similar ripple effect in the thousands of other employees who could be hired to serve the needs of the growing hospitals and research/development businesses—laundry services, transportation, construction, wholesale food sales, and others.

In summary, we therefore conservatively estimate that the proposed amendment will cost the City of St. Louis a minimum of \$14.3 million per year in direct general revenue—approximately 3.5% of the City's general revenue budget—and countless millions more in indirect revenue. This is a loss that the City cannot tolerate in the face of rising costs and rising service needs.

As the Battelle Institute report stated in 2003, "If Missouri does not choose its 'fork in the road' consciously, deliberately, and with full knowledge of the consequences, it may take a fork that neither it nor its citizenry chooses. ...one fork may take Missouri to 21,000 additional well-paying jobs, \$7.2 billion in additional gross regional product, and more than \$3.9 billion in real disposable income over the next decade. The other fork may not only cost the state these jobs, but, if the state and the private sector simply continue existing trends, it may also mean further significant job and economic losses in key life science industries such as drugs and pharmaceuticals and medical devices."

A ban on SCNT will seriously harm the Missouri economy and its life science industry, in particular that industry in the City of St. Louis. The threat of such a ban has already caused harm in Kansas City, where the noted Stowers Institute has been unable to recruit the scientists necessary to carry out the Institute's work. If the Institute expands in another state, Missouri will lose millions of dollars in economic benefit directly related to stem cell research that is not "human cloning." Human cloning is currently banned by the Missouri Constitution. Opponents of stem cell research have falsely claimed that human cloning is not banned, because they also want to forbid promising medical procedures that require the copying of cells. However, the terminology, the concepts, and the distinction used in the Missouri Constitution are the same as used by America's most respected doctors and scientists.

America's most respected doctors and scientists believe that "reproductive cloning" should be banned, but that "therapeutic cloning" should be encouraged because it holds great medical promise to lead to cures for debilitating diseases—this is also the current philosophy espoused in the Missouri Constitution. In 2002, forty Nobel Prize Winners sent a letter to members of the U.S. Senate making this important distinction. Nobel Prize-winning Scientist Paul Berg has stated that "cloning humans and 'therapeutic cloning' are fundamentally different. The cloning of a human being should be prohibited. Therapeutic cloning, on the other hand, is meant to produce stem cells, not babies." What the proposed amendment would ban is the same procedure that stem cell research opponents have tried unsuccessfully to ban in the legislature for the past five years. The passage of the "Stem Cell Amendment" in late 2006 ended the legislative battle. That battle has now moved to the voting booth with the proposal for this amendment.

In an effort to help quantify the economic impact of a new effort to undo Missouri's constitutional research and cures protections, the Coalition for Plant and Life Sciences, the Center for Emerging Technologies, and the Nidus Center for Scientific Enterprise collaborated on a survey of St. Louis science and technology-based companies and St. Louis investment firms and organizations that specialize in investments with science-based companies. This survey sought to measure the potential impact of this new proposal.

Responses were received from eleven science and technology companies. The results, summarized below, clearly demonstrate that an overwhelming majority of the leaders of these companies would find the amendment to be a severe impediment to growing their companies in Missouri, that a majority of respondents would consider moving their companies out of Missouri if the amendment passes, and that a majority of respondents believe that the amendment would be perceived as an anti-research initiative that would make Missouri an unattractive location for the high growth science-based companies that have become a major part of the City's bread and butter.

- 55% said the new amendment would make them less likely to keep their company in Missouri
- 45% said it would have no effect
- 0% said it would make them more likely to remain in Missouri

- 73% said the new amendment would make it more difficult to recruit scientists and other talent to Missouri
- 18% said it would have no effect
- 9% said it would make it easier to recruit scientists and other talent to Missouri

- 73% said the new amendment would make it more difficult to attract investors and capital to their company in Missouri
- 27% said it would have no effect
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- 73% said the new amendment would increase the pressure to relocate their company to another state
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- 18% said it would help attract companies to Missouri
- 9% said it would have no effect

- 82% said the new amendment would make entrepreneurs considering starting a company in Missouri more likely to start their company in another state
- 18% said it would have no effect

- 0% said it would make entrepreneurs more likely to start their company in Missouri

The seven Missouri-based venture capital firm and investor organization respondents were unanimous in their agreement that this newly proposed amendment would harm Missouri's business climate by overturning our current protections for science and research.

- 100% said the new amendment would make it more difficult to relocate existing companies to Missouri
- 0% said it would be easier to relocate companies to Missouri
- 100% said the new amendment would make it more difficult to establish new companies in Missouri.
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It is important to note that none of the surveyed companies or investors is involved in stem cell research. That being the case, these results are evidence of the serious harm that this proposed amendment would wreak, not just on companies involved in stem cell research but on the wide variety of companies in Missouri that depend on scientific research for their survival and growth. Any threat to science of any type creates a chilling environment and negatively affects their business climate.

While it is not possible to quantify the results of this survey in terms of specific economic impact on the City of St. Louis, we believe these results clearly support the above assertions that if the amendment passes the City will lose both existing jobs and new opportunities, and as a result will lose, at a minimum, the \$14 million per year in revenue referenced above.

In summary, the negative impact on the amount of research and the consequential economic development emerging from the scientific research that would result from the proposed amendment would impact the City of St. Louis disproportionately: the City would suffer a very substantial reduction in scientific and medical activity and the sacrifice of significant future growth potential. As the chart above shows, medical research and treatment are extremely significant parts of St. Louis's current economy; as the CORTEX initiative and the Battelle report demonstrate, these economies are also very important parts of our future. As the survey results demonstrate, businesses involved in scientific research of all types and the businesses involved in raising capital for these research businesses would seriously question their futures in Missouri. Given the negative attitudes of businesses already ensconced in Missouri to the passage of this amendment, it is also obvious that businesses outside Missouri would have equally if not more strongly negative attitudes and would not locate in the City of St. Louis or Missouri.

Officials from the **Rockwood R-VI School District** indicated they do not anticipate any cost or savings to their district as a result of this measure.

Officials from **Linn State Technical College** indicated there appears to be no fiscal impact on their organization as a result of this initiative petition.

Metropolitan Community College indicated this petition would have no direct fiscal impact on their organization.

The **University of Missouri** indicated this amendment would alter the Stem Cell Amendment (Amendment 2 from 2006) to allow the legislature to punish universities and hospitals for conducting stem cell research by withholding or reducing funding for other programs and have a significant, negative chilling effect on education, research, and economic development across the University of Missouri (UM) System – at all four campuses and their academic health centers.

The proposed amendment, if passed, is projected to have a profound impact on the University's ability to grow and sustain its research operations and meet and exceed its economic development goals. Critical to fulfilling the University of Missouri's mission as the state's public research university is the ability to recruit and retain top faculty researchers who will contribute to the research enterprise to the ultimate benefit of the state's economy. The perception that the state has a hostile attitude toward research, and thus to academic freedom, can have a dampening effect on recruitment and retention of faculty. This amendment could have a deleterious effect on faculty perceptions and a negative impact on the University's ability to conduct cutting edge research that will extend beyond the life sciences.

Competition nationwide to attract and retain research faculty is exceedingly high. Faculty members consider many factors when deciding whether to stay in current positions or to accept offers from other states, including: supportive environment for research, level of state and private support, institutional reputation, and availability of state-of-the-art research facilities. A study conducted in 2006 by the National Bureau of Economic Research demonstrated the importance of attracting and retaining "research stars". These research stars in turn attracted other research stars that would concentrate in the area - increasing the number of start-up firms and economic activity in the area. The stars and the surrounding start-up firms would generate additional patents and invention disclosures – spinning off economic development with resulting growth in jobs and transforming economic activity in the area. Thus this concentrated effort results in the "rich getting richer" by virtue of the interactive effects of new ideas generating other new ideas. The proposed amendment will seriously impact the University's ability to attract and retain the "stars."

In FY 2007, the University of Missouri generated \$240 million in research expenditures from funding to faculty researchers provided by federal and private sources. The funding primarily provides for the salaries of the researchers and their research staffs, supplies and equipment, and the administrative infrastructure that supports research. Another key element of research funding is providing support for extramural training programs for graduate students and postdoctoral fellows. In a sense, these funds are used to build

future scientists. If one assumes that only half of the University's research funding, or \$120 million, is in jeopardy, the direct financial loss to the University would be significant. This loss would come from top researchers leaving the University to go to institutions where there is an open and supportive climate for research and academic freedom. The economic impact on the state would be even greater because recent economic analysis* indicates that every \$1.00 in research funding brought into the state generates almost \$2.00 in economic output and every \$1.0 million in research funding supports 17 jobs thus reducing economic output by \$240 million and impacting approximately 2000 jobs.

This amendment could also have an impact on the University's ability to support and grow commercialization of new technologies and the formation of new companies that result from the research. The University has a goal to increase revenues from patents and licenses from \$2.3 million in FY 2006 to \$10 million. This amendment would jeopardize this growth in revenues that would be used by the University to reinvest in research and technology transfer operations and in economic development ventures that benefit the entire state such as the Discovery Ridge research park and the new life sciences incubator in Columbia and the Missouri University of Science and Technology Innovation Park in Rolla. A recent MERIC economic impact analysis on Discovery Ridge indicated that continued investment in this project would yield an economic impact of \$33 billion on the state's economy.

Finally, this amendment, if passed, could have a deleterious affect on the University's ability to continue to attract leading medical researchers and physicians to its medical schools and hospitals in Columbia and Kansas City. This would compromise the ability of the University's academic health centers to sustain high quality health care for citizens in the state and to continue to develop cutting edge treatments for the most life threatening medical conditions. This could result in the loss of patients to our hospitals and clinics as citizens of the state seek health care in other states. The fiscal impact of this is difficult to quantify.

*Kaufman, J., Kalaitzandonakes, N, and Johnson, T. "The Economic Role of the University of Missouri in the State.
March 18, 2008.

Missouri Southern State University indicated there would be no fiscal impact to their organization.

Missouri Western State University indicated no fiscal impact on their organization.

Officials from **Northwest Missouri State University** determined that this measure would have no estimated cost or savings impact on their organization.

Mr. Brad Ketcher of the Ketcher Law Firm, LLC provided fiscal impact information in opposition to the proposal which is summarized as follows:

STATE IMPACT

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
GSP Reduction	\$280m	\$403m	\$386m
Loss of Stowers Phase II			
State Tax Revenue	\$10.6m	\$15.3m	\$14.7m
Loss of Stowers Phase II			
(3.8% of GSP)			
GSP Reduction	\$1.7b	\$2.1b	\$2.5b
10% Chilling Effect on R&D			
State Tax Revenue	\$64.6m	\$79.8m	\$95m
10% Chilling Effect of R&D			
(3.8% of GSP)			

LOCAL GOVT IMPACT

	<u>Annual</u>
KC Loss of Stowers Phase II	\$339k
Personal Income	
KC Loss of Stowers Phase II	\$113k
Earnings Tax	
KC Loss of Personal Income	\$154m
10% Chilling Effect on R&D	
St. Louis Loss of Personal Income	\$331m
10% Chilling Effect on R&D	
Boone Co. Loss of Personal Income	\$20m

The State Auditor's Office did not receive a response from the **Department of Agriculture**, the **Department of Elementary and Secondary Education**, the **Department of Labor and Industrial Relations**, the **Department of Transportation**, **Cole County**, **Greene County**, **Jackson County**, the **City of Columbia**, the **City of Kansas City**, **Cape Girardeau 63 School District**, **Hannibal 60 School District**, **St. Louis Community College**, the **University of Central Missouri**, **Harris-Stowe State University**, **Lincoln University**, **Missouri State University**, **Southeast Missouri State University**, **Truman State University**, the **Missouri Technology Corporation**, and the **Missouri Life Sciences Research Board**.

Fiscal Note Summary

This proposal could have a significant negative fiscal impact on state and local governmental entities if state funds for certain research activities are eliminated, reduced, denied, or withheld. However, the total costs to state and local governmental entities are unknown.

The State Auditor's Office did not receive a response from the **Department of Agriculture**, the **Department of Elementary and Secondary Education**, the **Department of Natural Resources**, the **Department of Public Safety**, the **Missouri House of Representatives**, the **Department of Transportation**, the **Missouri Senate**, **Adair County**, **Boone County**, **Callaway County**, **Cass County**, **Clay County**, **Cole County**, **Greene County**, **Jackson County Legislators**, **Jasper County**, **St. Charles County**, **St. Louis County**, **Taney County**, the **City of Cape Girardeau**, the **City of Joplin**, the **City of Kirksville**, the **City of Kirkwood**, the **City of Mexico**, the **City of St. Louis**, the **City of Springfield**, the **City of Union**, the **City of West Plains**, **Cape Girardeau 63 School District**, **St. Louis Community College**, and the **Missouri Life Sciences Research Board**.

Fiscal Note Summary

This proposal could have a significant negative fiscal impact on state and local governmental entities by prohibiting certain research activities currently occurring in the state. The total costs to state and local governmental entities are unknown.