

ECONOMIC IMPACT OF RESEARCH FUNDED BY THE CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE: AN UPDATE



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The conclusions and opinions expressed in this study are those of the author.

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Summary of Findings

In November 2004, Californians voted for the establishment of the California Institute for Regenerative Medicine (CIRM) and authorized the allocation of up to \$3 billion to support stem cell research and other vital medical technologies. CIRM awarded its first grants in April 2006 and, as of July 2012, it had awarded grants worth more than \$1.5 billion. In addition, grantees leveraged those grants to raise \$1.3 billion from donors, institutional project funds, foundations and other governmental granting agencies.

This report estimates the one-time economic impacts of those grants on employment and tax revenues. We find that CIRM's grants and the resultant matching funds, will have the following effects during the period 2006-2014:

- The creation of 38,000 FTEs in California over the period, the equivalent of 4,222 jobs per each of the 9 years; and
- Payment of \$205.1 million in tax revenues to the State of California; \$81.2 million to local governments and \$529.6 million to the Federal Government.

I. Introduction

Previous reports showed that CIRM's awards –including funds obtained by leveraging them-¹ would create 24,654 job years in California and generate significant new tax revenues through 2014: \$157.2 million for the State of California; \$44.4 million for local governments; and \$362.1 million for the Federal Government. The current report updates those results by including the original grants,² those corresponding to the July 2010-July 2012 period as well as the projected payout for those grants through 2014.

My objective in preparing this analysis is to assist interested parties in evaluating the economic impact of CIRM's grants. The approach I use is based on previously described methodologies. This report uses information provided by the CIRM as well as the information on the California economy provided by IMPLAN for the year 2010. I prepared this report at the request of CIRM, and was compensated for doing so. I was given complete control of the report's contents. The views expressed in the report are the product of independent and objective analysis, and do not necessarily reflect the views of either the **Berkeley Research Group** or CIRM.

¹ CIRM's grants were estimated to amount to \$1.1 billion and leveraged funds from donors and institutions to \$844 million.

² The estimate of the matching grants is also revised.

II. Impacts on Employment and Taxes

During the period 2006-2014 CIRM's grants can be classified into four categories:

- **Training:** Funds supporting individuals who provide human capital to stem-cell research projects;
- **Research:** Funds contributing to supplies and services necessary to conduct research;
- **Construction:** Funds for new construction or rehabilitation of facilities; and
- **Equipment:** Funds for the purchase of equipment to sustain research.

Apportionment to those four categories is shown in Table 1.³ More than 80% of CIRM's grants have been for research and training, and the rest for facilities and equipment.

Table 1
Classification of CIRM's Grants

Year	Training	Research	Construction	Equipment	Total
2006	\$ 12.1	\$ -	\$ -	\$ -	\$ 12.1
2007	\$ 9.2	\$ 30.5	\$ 0.95	\$ -	\$ 40.7
2008	\$ 7.7	\$ 35.8	\$ 186.2	\$ 19.9	\$ 249.6
2009	\$ 10.7	\$ 69.7	\$ 23.4	\$ 32.0	\$ 135.8
2010	\$ 22.2	\$ 151.1	\$ 3.4	\$ 3.8	\$ 180.5
2011	\$ 22.7	\$ 183.6	\$ 8.9	\$ 1.6	\$ 216.8
2012	\$ 24.6	\$ 196.2	\$ 9.3	\$ 11.7	\$ 241.8
2013	\$ 24.4	\$ 239.8	\$ -	\$ -	\$ 264.2
2014	\$ 25.0	\$ 171.1	\$ -	\$ -	\$ 196.1
Total	\$ 158.6	\$ 1,077.8	\$ 232.1	\$ 69.0	\$ 1,537.6

Funds committed as of July 2012. All numbers in millions of dollars.

Additionally, recipients obtained \$561.8 million of matching funds for construction and an additional \$701.5 million for faculty recruitment, other capital expenses and related research projects.

³ CIRM staff assisted in identifying each grant's appropriate category.

As in the previous report, my estimates recognize that the contribution of CIRM's grants go beyond direct disbursements and should include both the direct, indirect and induced effects of such spending. As before, I use the **IMPLAN** model and data base to 2010. The economic impacts of CIRM's grants on job creation for the period 2006-2014 are shown in Table 2.

Table 2

Employment Impact of CIRM's Grants & Projected Grants

Year	GRANTS	MATCHING FUNDS	EMPLOYMENT
2006	\$ 12.1	\$ -	164
2007	\$ 40.7	\$ 2.3	593
2008	\$ 249.6	\$ 450.6	9,104
2009	\$ 135.8	\$ 56.6	2,455
2010	\$ 180.5	\$ 120.8	4,171
2011	\$ 216.8	\$ 158.3	5,195
2012	\$ 241.8	\$ 168.6	5,638
2013	\$ 264.2	\$ 178.6	6,173
2014	\$ 196.1	\$ 127.4	4,507
Total	\$ 1,537.6	\$ 1,263.2	38,000

Funds committed as of July 2012. FTEs. Dollar amounts are in millions.

The disbursement of \$2.8 billion⁴ implies the creation of 38,000 Full-time Equivalents (FTE)⁵ over the period 2006-2014: of those 15,106 are direct; 7,756 are indirect and the remaining 15,138 are induced. Economic growth also brings about an increase in tax revenues. As can be seen in Table 3, \$286.3 million dollars of new tax revenues would accrue to California's governments: \$205.1 million to the State and \$81.2 to local governments.⁶

⁴ \$1.54 billion for grants plus matching funds of \$1.26 billion.

⁵ Full-time equivalent (FTE) is a way to measure a worker's involvement in a project. An FTE of 1.0 is equivalent to a worker being fully employed for a year. If the work year is defined as 2,080 hours, one worker occupying a paid full time job all year would consume one FTE. Two employees working for 1,040 hours each would consume one FTE between the two of them.

⁶ Local government's main sources of revenue are the proceeds from the property tax and a share – estimated to be 9.5%- of the sales tax.

Table 3
Estimated Increase in State and Local Tax Revenues

	Sales	Property	Personal Income	Corporate Income	Other	Total
2006	\$ 319,414	\$ 348,283	\$ 249,386	\$ 56,000	\$ 227,155	\$ 1,200,238
2007	\$ 1,074,687	\$ 1,171,818	\$ 1,143,880	\$ 229,117	\$ 899,805	\$ 4,519,307
2008	\$ 15,242,334	\$16,619,950	\$15,196,919	\$3,975,262	\$12,264,784	\$ 63,299,249
2009	\$ 4,487,681	\$ 4,893,282	\$ 4,580,727	\$1,080,478	\$ 3,670,902	\$ 18,713,070
2010	\$ 7,511,380	\$ 8,190,267	\$ 8,426,453	\$1,644,006	\$ 6,482,714	\$ 32,254,820
2011	\$ 9,292,858	\$ 10,132,756	\$10,438,032	\$2,052,155	\$ 8,024,337	\$ 39,940,138
2012	\$ 10,156,802	\$11,074,784	\$11,342,282	\$2,250,438	\$ 8,742,748	\$ 43,567,054
2013	\$ 11,091,921	\$12,094,420	\$12,630,872	\$2,416,327	\$ 9,656,812	\$ 47,890,352
2014	\$ 8,113,901	\$ 8,847,244	\$ 9,167,842	\$1,759,047	\$ 7,032,103	\$ 34,920,137
Total	\$ 67,290,978	\$73,372,804	\$73,176,393	\$15,462,830	\$57,001,360	\$286,304,365

“Other state and local taxes” include: fines, fees, motor vehicle tax, and state employment taxes (payroll). Homeowners and businesses pay property taxes. Most organizations that receive CIRM funds directly are universities or non-profit research institutes that are exempt from paying property taxes.

I also estimate that the revenues of the federal government will increase by \$529.6 million as can be seen in Table 4

Table 4
Estimated Increase in Tax Revenues by the Federal Government

	Personal Income	Corporate Income	Social Security	Other	Total
2006	\$ 608,191	\$ 204,739	\$ 994,175	\$ 119,645	\$ 1,926,750
2007	\$ 2,789,644	\$ 837,661	\$ 4,236,746	\$ 402,554	\$ 8,266,605
2008	\$ 37,061,559	\$ 14,533,723	\$ 56,460,267	\$ 5,709,461	\$ 113,765,010
2009	\$ 11,171,268	\$ 3,950,272	\$ 17,127,839	\$ 1,680,991	\$ 33,930,370
2010	\$ 20,550,051	\$ 6,010,552	\$ 30,902,258	\$ 2,813,607	\$ 60,276,468
2011	\$ 25,455,794	\$ 7,502,769	\$ 38,243,529	\$ 3,480,912	\$ 74,683,004
2012	\$ 27,661,046	\$ 8,227,694	\$ 41,633,270	\$ 3,804,527	\$ 81,326,537
2013	\$ 30,803,600	\$ 8,834,190	\$ 46,188,918	\$ 4,154,802	\$ 89,981,510
2014	\$ 22,358,118	\$ 6,431,145	\$ 33,576,853	\$ 3,039,297	\$ 65,405,413
Total	\$ 178,459,271	\$ 56,532,745	\$ 269,363,855	\$ 25,205,796	\$ 529,561,667

III. Conclusion

CIRM grants, and their leveraged funds, create new well paid jobs and generate new tax revenues. I find that the \$1.5 billion in CIRM grants along with \$1.3 billion in leveraged funds will have the following effects during the period 2006-2014:

- The creation of 38,000 FTEs, many of which are well paying⁷;
- Payment of \$205.1 million dollars in tax revenues to the State of California and \$81.2 million to local governments;
- Payment of \$529.6 million dollars in tax revenues to the Federal Government.

⁷ I estimate that those jobs pay between \$50,000 and \$140,000 a year and that, on average, they pay \$74,000 a year.