College for all Texans

# Technology Development and Transfer FY 2011 and FY 2012

January 2013

Texas Higher Education Coordinating Board

## Texas Higher Education Coordinating Board

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## Mission of the Coordinating Board

The Texas Higher Education Coordinating Board's mission is to work with the Legislature, Governor, governing boards, higher education institutions and other entities to help Texas meet the goals of the state's higher education plan, Closing the Gaps by 2015, and thereby provide the people of Texas the widest access to higher education of the highest quality in the most efficient manner.

## Philosophy of the Coordinating Board

The Texas Higher Education Coordinating Board will promote access to quality higher education across the state with the conviction that access without quality is mediocrity and that quality without access is unacceptable. The Board will be open, ethical, responsive, and committed to public service. The Board will approach its work with a sense of purpose and responsibility to the people of Texas and is committed to the best use of public monies. The Coordinating Board will engage in actions that add value to Texas and to higher education. The agency will avoid efforts that do not add value or that are duplicated by other entities.

This document is available on the Texas Higher Education Coordinating Board Website: **http://www.thecb.state.tx.us**. **For more information, contact:**


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The Texas Higher Education Coordinating Board does not discriminate on the basis of race, color, national origin, gender, religion, age or disability in employment or the provision of services.

# Executive Summary

Texas Education Code, Section 153.008, directs the Texas Higher Education Coordinating Board to prepare a report biennially on the technology transfer efforts of the state's public universities and health-related institutions. This report is a compilation of data provided by each institution for fiscal years 2011 and 2012. Of note are the following highlights:

- Intellectual property revenues increased from $93,727,753 in fiscal year 2011 to $97,189,009 in fiscal year 2012.

- Total direct expenses for technology transfer activities increased to $25,176,203 in fiscal year 2012, up from $24,402,360 in fiscal year 2011. For both fiscal years, the expense category "personnel expenses" accounted for approximately 46 percent of the total expenditures.

- In fiscal year 2012, Texas public universities and health-related institutions received 1,164 invention disclosures, were issued 212 U.S. patents, executed 152 licensing agreements and 71 option agreements, and formed 51 start-up companies. Thirty-four of the start-up companies were formed in Texas.

- In fiscal year 2012, the top entities signing licensing agreements were The University of Texas M.D. Anderson Cancer Center (24), The University of Texas Southwestern Medical Center (22), and The University of Texas Health Science Center at Houston (18). The top entities signing option agreements were Texas AgriLife Research (31), The University of Texas at Austin (7), and The University of Texas Southwestern Medical Center (6).

- The University of Texas M.D. Anderson Cancer Center reported the highest fair market value of publicly-traded stock through intellectual property agreements.

- In fiscal year 2012, the top five institutions receiving royalty and fee income were: The University of Texas M.D. Anderson Cancer Center ($28.3M), The University of Texas at Austin ($20.3M), University of Houston ($12.5M), The University of Texas Southwestern Medical Center ($7.5M), and Texas AgriLife Research ($5.4M).

- Three higher education institutions reported receipts for cashed-in equity in fiscal year 2011 totaling $695,009.

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# Introduction

In 2001, the 77th Texas Legislature in Regular Session passed Senate Bill 1190, codified as Texas Education Code 153. The statute authorized Texas higher education institutions to establish Centers for Technology Development and Transfer to enhance the economic growth of new technology and related industries and encourage greater public/private partnerships. The legislation also directed the Coordinating Board to compile data relating to technology transfer activities at public higher education institutions and report findings to the Legislature. This is the sixth biennial technology transfer report to meet that requirement. The survey instrument used to collect data from the higher education institutions is included in Appendix A.

## Intellectual Property Protection

Texas public universities and health-related institutions use a variety of methods to document and protect intellectual property and initiate transfer of new knowledge to the marketplace. Data related to these efforts are presented in Tables 1 and 2. Because protecting intellectual property usually involves a multi-year effort, patents granted during one fiscal year result from patent filings and invention discoveries made in previous fiscal years. The period of time required to move an idea from inception to commercial product varies considerably.

Researchers at higher education institutions file invention disclosure forms with their institutions to initiate the process of protecting discoveries made while conducting research. Institutional review of these disclosures determines which inventions the institution will use its resources to protect and commercialize. Higher education institutions typically apply for patents from the United States Patent and Trademark Office, which legally grants property rights that exclude others from making, using, or selling the intellectual property. Further development and commercialization of intellectual property is frequently accomplished through licensing agreements between private companies and higher education institutions. In exchange for cash or other negotiated considerations, an institution may grant an exclusive license to allow only one company to use the intellectual property or a non-exclusive license that allows others to use it.

In fiscal years 2011 and 2012, nine public health-related institutions, 15 public universities, and three Texas A&M service agencies reported activities related to intellectual property protection (Tables 1 and 2).

The University of Texas at Austin (UT Austin) reported the largest number of invention disclosures for fiscal years 2011 and 2012. Additionally, UT Austin was issued the largest number of U.S. patents in both fiscal years. Sixteen higher education institutions and related entities filed 10 or more U.S. patent applications in fiscal year 2012. The largest number of licensing agreements was reported by The University of Texas Southwestern Medical Center with 35 in fiscal year 2011, and The University of Texas M.D. Anderson Cancer Center with 24 in fiscal year 2012.

## Table 1

**Activities to Protect and Commercialize New Intellectual Properties, FY 2011**

| Institution | Invention Disclosures Received | Patents | | | | |
|---|---|---|---|---|---|---|
| | | U.S. | | | Foreign | |
| | | Applications | | Issued | Filed under PCT* or foreign national stage applications not nationalized via a previously filed PCT application | Issued |
| | | First Filings and Provisionals | Divisionals, Continuations, Continuations in Part, and Reissues | | | |
| **University of Texas System** | | | | | | |
| UT at Arlington | 43 | 21 | 31 | 14 | 5 | 2 |
| UT at Austin | 157 | 74 | 61 | 34 | 156 | 30 |
| UT at Dallas | 49 | 25 | 4 | 9 | 18 | 1 |
| UT at El Paso | 20 | 4 | 4 | 3 | 2 | 0 |
| UT-Pan American | 9 | 3 | 3 | 0 | 8 | 0 |
| UT at San Antonio | 47 | 23 | 1 | 2 | 11 | 0 |
| UT at Tyler | 7 | 0 | 0 | 0 | 0 | 0 |
| UT Southwestern Medical Center | 100 | 56 | 20 | 31 | 21 | 25 |
| UTMB at Galveston | 52 | 27 | 32 | 21 | 5 | 21 |
| UTHSC at Houston | 72 | 15 | 28 | 12 | 41 | 3 |
| UTHSC at San Antonio | 36 | 11 | 20 | 13 | 24 | 3 |
| UT M.D. Anderson Cancer | 132 | 54 | 45 | 19 | 93 | 24 |
| UT Health Center at Tyler | 1 | 1 | 0 | 0 | 0 | 0 |
| **Texas A&M University System** | | | | | | |
| Texas A&M | 37 | 17 | 0 | 3 | 7 | 1 |
| Texas AgriLife Research | 113 | 10 | 2 | 4 | 20 | 4 |
| Texas Eng. Experiment Station | 65 | 23 | 6 | 5 | 3 | 9 |
| Texas Transportation Institute | 6 | 3 | 1 | 1 | 0 | 11 |
| Texas A&M HSC | 39 | 16 | 2 | 3 | 13 | 1 |
| Office of Technology/Commercialization | 24 | 1 | 0 | 0 | 0 | 0 |
| **University of Houston System** | | | | | | |
| Univ. of Houston | 47 | 53 | 5 | 20 | 42 | 1 |
| **University of North Texas System** | | | | | | |
| University of North Texas | 16 | 22 | 0 | 3 | 5 | 3 |
| Univ North Tx HSC | 20 | 4 | 4 | 1 | 0 | 0 |
| **Texas Tech University System** | | | | | | |
| Texas Tech | 30 | 9 | 0 | 1 | 1 | 6 |
| Texas Tech Univ HSC | 26 | 9 | 0 | 0 | 4 | 0 |
| **Texas State University System** | | | | | | |
| Sam Houston State | 6 | 4 | 1 | 0 | 0 | 0 |
| Texas State University - San Marcos | 12 | 3 | 0 | 0 | 2 | 0 |
| **Non-system Universities** | | | | | | |
| Stephen F. Austin State | 1 | 0 | 0 | 0 | 0 | 0 |
| **Totals** | **1,167** | **488** | **270** | **199** | **481** | **145** |

*Patent Cooperation Treaty

## Table 1 - continued

| Activities to Protect and Commercialize New Intellectual Properties, FY 2011 | | | | |
|---|---|---|---|---|
| Institution | Licensing Agreements Executed | Option Agreements Executed | Start-Up Companies Formed** | |
| | | | In Texas | Outside of state |
| **University of Texas System** | | | | |
| UT at Arlington | 5 | 1 | 4 | 1 |
| UT at Austin | 27 | 9 | 3 | 1 |
| UT at Dallas | 8 | 0 | 2 | 0 |
| UT at El Paso | 0 | 0 | 2 | 2 |
| UT-Pan American | 0 | 0 | 0 | 0 |
| UT at San Antonio | 5 | 0 | 1 | 0 |
| UT at Tyler | 0 | 0 | 0 | 0 |
| UT Southwestern Medical Center | 35 | 6 | 4 | 8 |
| UTMB at Galveston | 8 | 1 | 0 | 0 |
| UTHSC at Houston | 15 | 7 | 0 | 0 |
| UTHSC at San Antonio | 9 | 1 | 0 | 1 |
| UT M.D. Anderson Cancer | 14 | 6 | 2 | 0 |
| UT Health Center at Tyler | 0 | 0 | 0 | 0 |
| **Texas A&M University System** | | | | |
| Texas A&M | 1 | 1 | 1 | 0 |
| Texas AgriLife Research | 22 | 12 | 1 | 0 |
| Texas Eng. Experiment Station | 4 | 2 | 3 | 0 |
| Texas Transportation Institute | 1 | 1 | 0 | 0 |
| Texas A&M HSC | 3 | 1 | 1 | 0 |
| Office of Technology/Commercialization | 1 | 0 | 0 | 0 |
| **University of Houston System** | | | | |
| Univ. of Houston | 6 | 1 | 0 | 1 |
| **University of North Texas System** | | | | |
| University of North Texas | 1 | 1 | 1 | 0 |
| Univ North Tx HSC | 3 | 3 | 1 | 0 |
| **Texas Tech University System** | | | | |
| Texas Tech | 2 | 0 | 2 | 0 |
| Texas Tech Univ HSC | 0 | 0 | 0 | 0 |
| **Texas State University System** | | | | |
| Sam Houston State | 0 | 0 | 1 | 0 |
| Texas State University - San Marcos | 1 | 0 | 2 | 0 |
| **Non-system Universities** | | | | |
| Stephen F. Austin State | 0 | 0 | 0 | 0 |
| **Totals** | **171** | **53** | **31** | **14** |

**Corporations, partnerships and other business entities formed to commercialize intellectual property owned by your institution.

## Table 2

**Activities to Protect and Commercialize New Intellectual Properties, FY 2012**

| Institution | Invention Disclosures Received | Patents | | | | |
|---|---|---|---|---|---|---|
| | | U.S. | | | Foreign | |
| | | Applications | | Issued | Filed under PCT* or foreign national stage applications not nationalized via a previously filed PCT application | Issued |
| | | First Filings and Provisionals | Divisionals, Continuations, Continuations in Part, and Reissues | | | |
| **University of Texas System** | | | | | | |
| UT at Arlington | 49 | 17 | 16 | 17 | 5 | 1 |
| UT at Austin | 167 | 65 | 46 | 40 | 74 | 32 |
| UT at Dallas | 66 | 40 | 0 | 10 | 20 | 0 |
| UT at El Paso | 26 | 8 | 5 | 5 | 0 | 1 |
| UT-Pan American | 8 | 4 | 2 | 2 | 2 | 0 |
| UT at San Antonio | 26 | 35 | 0 | 3 | 10 | 0 |
| UT at Tyler | 1 | 0 | 0 | 0 | 0 | 0 |
| UT Southwestern Medical Center | 107 | 48 | 4 | 18 | 14 | 16 |
| UTMB at Galveston | 58 | 20 | 30 | 17 | 10 | 13 |
| UTHSC at Houston | 67 | 13 | 21 | 6 | 21 | 4 |
| UTHSC at San Antonio | 47 | 23 | 14 | 9 | 25 | 0 |
| UT M.D. Anderson Cancer | 147 | 61 | 39 | 30 | 103 | 24 |
| UT Health Center at Tyler | 2 | 2 | 0 | 0 | 0 | 0 |
| **Texas A&M University System** | | | | | | |
| Texas A&M | 28 | 15 | 2 | 3 | 7 | 2 |
| Texas AgriLife Research | 97 | 18 | 1 | 2 | 6 | 3 |
| Texas Eng. Experiment Station | 53 | 23 | 5 | 15 | 22 | 6 |
| Texas Transportation Institute | 2 | 2 | 2 | 3 | 2 | 1 |
| Texas A&M HSC | 20 | 16 | 6 | 6 | 5 | 0 |
| Office of Technology/Commercialization | 12 | 3 | 0 | 0 | 0 | 0 |
| **University of Houston System** | | | | | | |
| Univ. of Houston | 49 | 64 | 4 | 18 | 22 | 3 |
| **University of North Texas System** | | | | | | |
| University of North Texas | 14 | 20 | 3 | 4 | 5 | 0 |
| Univ North Tx HSC | 21 | 8 | 2 | 4 | 1 | 0 |
| **Texas Tech University System** | | | | | | |
| Texas Tech | 51 | 12 | 0 | 0 | 3 | 0 |
| Angelo State | 3 | 0 | 0 | 0 | 0 | 0 |
| Texas Tech Univ HSC | 21 | 5 | 0 | 0 | 6 | 0 |
| **Texas State University System** | | | | | | |
| Sam Houston State | 9 | 6 | 0 | 0 | 2 | 0 |
| Texas State University - San Marcos | 12 | 4 | 0 | 0 | 2 | 0 |
| **Non-system Universities** | | | | | | |
| Stephen F. Austin State | 1 | 1 | 0 | 0 | 0 | 0 |
| **Totals** | **1,164** | **533** | **202** | **212** | **367** | **106** |

*Patent Cooperation Treaty

## Table 2 - continued

| Activities to Protect and Commercialize New Intellectual Properties, FY 2012 | | | | |
|---|---|---|---|---|
| Institution | Licensing Agreements Executed | Option Agreements Executed | Start-Up Companies Formed** | |
| | | | In Texas | Outside of state |
| **University of Texas System** | | | | |
| UT at Arlington | 4 | 1 | 2 | 1 |
| UT at Austin | 15 | 7 | 2 | 0 |
| UT at Dallas | 8 | 2 | 2 | 0 |
| UT at El Paso | 1 | 0 | 6 | 6 |
| UT-Pan American | 1 | 0 | 0 | 0 |
| UT at San Antonio | 1 | 2 | 3 | 0 |
| UT at Tyler | 0 | 0 | 0 | 0 |
| UT Southwestern Medical Center | 22 | 6 | 7 | 8 |
| UTMB at Galveston | 10 | 2 | 1 | 0 |
| UTHSC at Houston | 18 | 5 | 3 | 1 |
| UTHSC at San Antonio | 8 | 1 | 0 | 0 |
| UT M.D. Anderson Cancer | 24 | 1 | 2 | 0 |
| UT Health Center at Tyler | 0 | 0 | 0 | 0 |
| **Texas A&M University System** | | | | |
| Texas A&M | 3 | 1 | 0 | 0 |
| Texas AgriLife Research | 14 | 31 | 1 | 0 |
| Texas Eng. Experiment Station | 1 | 2 | 1 | 0 |
| Texas Transportation Institute | 2 | 0 | 0 | 0 |
| Texas A&M HSC | 3 | 1 | 2 | 0 |
| Office of Technology/Commercialization | 0 | 2 | 0 | 0 |
| **University of Houston System** | | | | |
| Univ. of Houston | 7 | 0 | 1 | 0 |
| **University of North Texas System** | | | | |
| University of North Texas | 1 | 1 | 0 | 1 |
| Univ North Tx HSC | 2 | 4 | 0 | 0 |
| **Texas Tech University System** | | | | |
| Texas Tech | 2 | 0 | 0 | 0 |
| Angelo State | 0 | 1 | 0 | 0 |
| Texas Tech Univ HSC | 3 | 1 | 1 | 0 |
| **Texas State University System** | | | | |
| Sam Houston State | 1 | 0 | 0 | 0 |
| Texas State University - San Marcos | 1 | 0 | 0 | 0 |
| **Non-system Universities** | | | | |
| Stephen F. Austin State | 0 | 0 | 0 | 0 |
| **Totals** | **152** | **71** | **34** | **17** |

**Corporations, partnerships and other business entities formed to commercialize intellectual property owned by your institution.

## Equity Interests

Five health-related institutions, seven public universities, the Texas A&M University System, the Texas Tech University System, and the University of Houston System held equity interests under intellectual property agreements for fiscal years 2011 and 2012, as shown in Tables 3 and 4. The total number of shares of publicly and non-publicly traded stock increased from fiscal year 2009 to 2010. The fair market value of all holdings for all higher education institutions and related-entities of public stock totaled approximately $2.9 million in fiscal year 2012.

### Table 3

**Established and New Equity Interests Held by Institution Through Intellectual Property Agreements, FY 2011**

| Institution | Number of Enterprises | | Number of Non-public Shares of Stock Held | Shares of Public Stock Held | |
|---|---|---|---|---|---|
| | Non-public | Public | | Number | Fair Market Value |
| **University of Texas System** | | | | | |
| UT at Arlington | 4 | 0 | 905,202 | 0 | $0 |
| UT at Austin | 21 | 0 | 4,862,861 | 0 | 0 |
| UT at Dallas | 14 | 0 | 1,398,607 | 0 | 0 |
| UT at El Paso | 2 | 0 | 15,210 | 0 | 0 |
| UT-Pan American | 1 | 0 | 550,000 | 0 | 0 |
| UT at San Antonio | 5 | 0 | 1,050,221 | 0 | 0 |
| UT Southwestern Medical Center | 8 | 0 | 8,261,206 | 0 | 0 |
| UTMB at Galveston | 7 | 0 | 3,039,253 | 0 | 0 |
| UTHSC at Houston | 21 | 1 | 4,408,001 | 25 | 746 |
| UTHSC at San Antonio | 5 | 0 | 1,340,998 | 0 | 0 |
| UT M.D. Anderson Cancer | 31 | 7 | 91,791,258 | 13,374,906 | 2,572,447 |
| **Texas A&M University System*** | 27 | 2 | 11,956,469 | 42,627 | 173,153 |
| **University of Houston System*** | 14 | 2 | 672,065 | 35,198 | NA |
| **Texas Tech University System*** | 10 | 1 | 644,892 | 1,421,400 | 56,856 |
| **Texas State University System** | | | | | |
| Sam Houston State | 1 | 0 | 27,500 | 0 | 0 |
| **Totals** | **171** | **13** | **130,923,743** | **14,874,156** | **$2,803,202** |

*Reported by System Administration.

NA indicates not applicable.

## Table 4

**Established and New Equity Interests Held by Institution Through Intellectual Property Agreements, FY 2012**

| Institution | Number of Enterprises | | Number of Non-public Shares of Stock Held | Shares of Public Stock Held | |
|---|---|---|---|---|---|
| | Non-public | Public | | Number | Fair Market Value |
| **University of Texas System** | | | | | |
| UT at Arlington | 5 | 0 | 7,405,202 | 0 | $0 |
| UT at Austin | 22 | 0 | 4,751,213 | 0 | 0 |
| UT at Dallas | 19 | 0 | 2,761,965 | 0 | 0 |
| UT at El Paso | 3 | 0 | 43,210 | 0 | 0 |
| UT-Pan American | 1 | 0 | 798,312 | 0 | 0 |
| UT at San Antonio | 5 | 0 | 1,050,221 | 0 | 0 |
| UT Southwestern Medical Center | 11 | 0 | 12,487,817 | 0 | 0 |
| UTMB at Galveston | 9 | 0 | 3,794,777 | 0 | 0 |
| UTHSC at Houston | 25 | 1 | 5,623,458 | 25 | 707 |
| UTHSC at San Antonio | 6 | 0 | 1,454,840 | 0 | 0 |
| UT M.D. Anderson Cancer | 37 | 5 | 16,034,458 | 7,233,137 | 2,828,596 |
| **Texas A&M University System*** | 31 | 1 | 13,602,617 | 804 | 474 |
| **University of Houston System*** | 15 | 2 | 685,065 | 35,198 | NA |
| **Texas Tech University System*** | 11 | 1 | 644,892 | 1,421,400 | 35,535 |
| **Texas State University System** | | | | | |
| Sam Houston State | 1 | 0 | 27,500 | 0 | 0 |
| **Totals** | **201** | **10** | **71,165,547** | **8,690,564** | **$2,865,312** |

*Reported by System Administration.

NA indicates not applicable.

### Intellectual Property Income

Revenue received from intellectual property increased from $ $93,727,753 in fiscal year 2011 to $97,189,009 in fiscal year 2012, a 3.7 percent increase (Tables 5 and 6). Revenue streaming from intellectual property is expected to vary over time at an institution as new licensing agreements are executed, older agreements expire, and equity is held or sold. Technology transfer officers may elect to hold equity rather than sell it to better position their institution for future gains.

Eleven institutions reported income greater than $1 million in fiscal year 2012: The University of Texas M.D. Anderson Cancer Center ($29.3 million), The University of Texas at Austin ($21.4 million), University of Houston ($12.5 million), The University of Texas Southwestern Medical Center ($8.4 million), Texas Transportation Institute ($7.0 million), Texas AgriLife Research ($5.6 million), The University of Texas Health Science Center at Houston ($4.3 million), Texas Engineering Experiment Station ($2.2 million), The University of Texas at Dallas ($1.9 million), The University of Texas Health Science Center at San Antonio ($1.4 million), and The University of Texas Medical Branch at Galveston ($1.2 million).

## Table 5

| Revenues Received from Intellectual Property Owned by Institution, FY 2011 | | | | | |
|---|---|---|---|---|---|
| Institution | Revenues Received from: | | | | |
| | Royalties and Fees | Reimbursed Patent Expenses | Cashed-in Equity | Other | Total |
| **University of Texas System** | | | | | |
| UT at Arlington | $329,415 | $59,439 | $0 | $0 | $388,854 |
| UT at Austin | 25,608,232 | 872,298 | 33,499 | 0 | 26,514,029 |
| UT at Dallas | 107,900 | 32,528 | 0 | 2,817,834 | 2,958,262 |
| UT at El Paso | 1,291 | 0 | 0 | 0 | 1,291 |
| UT-Pan American | 5,359 | 28,318 | 0 | 0 | 33,677 |
| UT at San Antonio | 6,666 | 18,022 | 0 | 0 | 24,688 |
| UT Southwestern Medical Center | 9,030,731 | 697,125 | 0 | 6,497,037 | 16,224,893 |
| UTMB at Galveston | 974,839 | 0 | 0 | 96,269 | 1,071,108 |
| UTHSC at Houston | 3,150,185 | 758,623 | 625,578 | 57,668 | 4,592,054 |
| UTHSC at San Antonio | 1,226,571 | 293,091 | 0 | 703,321 | 2,222,983 |
| UT M.D. Anderson Cancer | 17,694,900 | 769,416 | 35,932 | 0 | 18,500,248 |
| UT Health Center at Tyler | 0 | 0 | 0 | 0 | 0 |
| **Texas A&M University System** | | | | | |
| Texas A&M | 20,340 | 13,707 | 0 | 3,352 | 37,399 |
| Texas AgriLife Research | 2,089,550 | 269,490 | 0 | 3,903 | 2,362,943 |
| Texas Eng. Experiment Station | 1,758,593 | 365,235 | 0 | 1,118 | 2,124,946 |
| Texas Transportation Institute | 4,839,434 | 1,907,124 | 0 | 0 | 6,746,558 |
| Texas A&M HSC | 365,325 | 212,058 | 0 | 0 | 577,383 |
| Office of Technology/Commercialization | 21,281 | 0 | 0 | 0 | 21,281 |
| **University of Houston System** | | | | | |
| Univ. of Houston | 8,861,112 | 44,737 | 0 | 0 | 8,905,849 |
| **University of North Texas System** | | | | | |
| University of North Texas | 2,500 | 0 | 0 | 0 | 2,500 |
| Univ North Tx HSC | 78,475 | 9,881 | 0 | 29,988 | 118,344 |
| **Texas Tech University System*** | 198,920 | 23,543 | 0 | 0 | 222,463 |
| **Texas State University System** | | | | | |
| Sam Houston State | 0 | 75,000 | 0 | 0 | 75,000 |
| Texas State University - San Marcos | 1,000 | 0 | 0 | 0 | 1,000 |
| **Non-system Universities** | | | | | |
| Stephen F. Austin State | 0 | 0 | 0 | 0 | 0 |
| **Totals** | **$76,372,619** | **$6,449,635** | **$695,009** | **$10,210,490** | **$93,727,753** |

*Reported by System Administration.

## Table 6

| Revenues Received from Intellectual Property Owned by Institution, FY 2012 | | | | | |
|---|---|---|---|---|---|
| Institution | Revenues Received from: | | | | |
| | Royalties and Fees | Reimbursed Patent Expenses | Cashed-in Equity | Other | Total |
| **University of Texas System** | | | | | |
| UT at Arlington | $116,062 | $103,436 | $0 | $0 | $219,498 |
| UT at Austin | 20,318,337 | 1,057,591 | 14,846 | 0 | 21,390,774 |
| UT at Dallas | 35,000 | 81,000 | 0 | 1,836,855 | 1,952,855 |
| UT at El Paso | 13,796 | 5,565 | 0 | 148 | 19,509 |
| UT-Pan American | 53,571 | 46,334 | 0 | 0 | 99,905 |
| UT at San Antonio | 17,756 | 36,502 | 0 | 0 | 54,258 |
| UT Southwestern Medical Center | 7,509,112 | 927,842 | 0 | 0 | 8,436,954 |
| UTMB at Galveston | 1,084,381 | 0 | 0 | 97,574 | 1,181,955 |
| UTHSC at Houston | 3,247,380 | 1,053,730 | 0 | 0 | 4,301,110 |
| UTHSC at San Antonio | 518,962 | 218,231 | 0 | 679,406 | 1,416,599 |
| UT M.D. Anderson Cancer | 28,316,648 | 1,026,899 | 0 | 0 | 29,343,547 |
| UT Health Center at Tyler | 0 | 0 | 0 | 0 | 0 |
| **Texas A&M University System** | | | | | |
| Texas A&M | 307,355 | 74,806 | 0 | 0 | 382,161 |
| Texas AgriLife Research | 5,363,238 | 237,068 | 0 | 125 | 5,600,431 |
| Texas Eng. Experiment Station | 1,805,656 | 440,948 | 0 | 68 | 2,246,672 |
| Texas Transportation Institute | 5,012,667 | 1,974,249 | 0 | 0 | 6,986,916 |
| Texas A&M HSC | 363,825 | 0 | 158,028 | 0 | 521,853 |
| Office of Technology/Commercialization | 39,627 | 0 | 0 | 11,000 | 50,627 |
| **University of Houston System** | | | | | |
| Univ. of Houston | 12,516,996 | 27,496 | 0 | 0 | 12,544,492 |
| **University of North Texas System** | | | | | |
| Univ North Tx HSC | 73,789 | 9,528 | 0 | 50,333 | 133,650 |
| **Texas Tech University System*** | 206,803 | 25,319 | 0 | 0 | 232,122 |
| **Texas State University System** | | | | | |
| Sam Houston State | 27,000 | 38,621 | 0 | 0 | 65,621 |
| **Non-system Universities** | | | | | |
| Stephen F. Austin State | 0 | 0 | 0 | 7,500 | 7,500 |
| **Totals** | **$86,947,961** | **$7,385,165** | **$172,874** | **$2,683,009** | **$97,189,009** |

*Reported by System Administration.

### Technology Transfer Expenses

Direct expenses related to intellectual property transfer are shown in Tables 7-8. Technology transfer offices are typically small operations considering the size of the institutions served. Small numbers of employees, primarily professional and support staff, are engaged in technology transfer activities at the public higher education institutions across the state. The greatest amounts are expended on personnel and legal expenses.

## Table 7

**Total Expenditures for Activities Conducted Under Technology Transfer, FY 2011**

| Institution | Personnel | Legal Expenses | Other Expenses | Total |
|---|---|---|---|---|
| **University of Texas System** | | | | |
| UT at Arlington | $114,667 | $218,696 | $15,395 | $348,758 |
| UT at Austin | 1,964,621 | 1,529,967 | 308,333 | 3,802,921 |
| UT at Dallas | 337,912 | 324,950 | 22,236 | 685,098 |
| UT at El Paso | 235,770 | 109,679 | 3,314 | 348,763 |
| UT-Pan American | 125,140 | 99,903 | 0 | 225,043 |
| UT at San Antonio | 0 | 213,918 | 358,689 | 572,607 |
| UT Southwestern Medical Center | 2,820,756 | 1,081,539 | 293,838 | 4,196,133 |
| UTMB at Galveston | 429,055 | 873,224 | 0 | 1,302,279 |
| UTHSC at Houston | 708,004 | 1,040,924 | 33,064 | 1,781,992 |
| UTHSC at San Antonio | 907,831 | 456,216 | 154,748 | 1,518,795 |
| UT M.D. Anderson Cancer | 1,573,720 | 1,883,937 | 54,850 | 3,512,507 |
| UT Health Center at Tyler | 0 | 18,273 | 0 | 18,273 |
| **Texas A&M University System*** | 1,493,175 | 1,784,261 | 281,311 | 3,558,747 |
| **University of Houston System*** | 476,014 | 761,735 | 16,088 | 1,253,837 |
| **University of North Texas System** | | | | |
| University of North Texas | 49,280 | 208,550 | 68,528 | 326,358 |
| Univ North Tx HSC | 222,359 | 72,084 | 73,316 | 367,759 |
| **Texas Tech University System*** | 334,800 | 43,683 | 0 | 378,483 |
| **Texas State University System** | | | | |
| Sam Houston State | 36,250 | 46,105 | 1,000 | 83,355 |
| Texas State University - San Marcos | 100,500 | 5,684 | 14,468 | 120,652 |
| **Non-system Universities** | | | | |
| Stephen F. Austin State | 0 | 0 | 0 | 0 |
| **Totals** | **$11,929,854** | **$10,773,328** | **$1,699,178** | **$24,402,360** |

*Reported by System Administration.

## Table 8

**Total Expenditures for Activities Conducted Under Technology Transfer, FY 2012**

| Institution | Personnel | Legal Expenses | Other Expenses | Total |
|---|---|---|---|---|
| **University of Texas System** | | | | |
| UT at Arlington | $133,000 | $236,598 | $16,161 | $385,759 |
| UT at Austin | 1,794,942 | 2,035,942 | 322,320 | 4,153,204 |
| UT at Dallas | 543,103 | 310,667 | 43,138 | 896,908 |
| UT at El Paso | 243,216 | 145,215 | 4,045 | 392,476 |
| UT-Pan American | 85,095 | 41,689 | 0 | 126,784 |
| UT at San Antonio | 0 | 176,274 | 304,299 | 480,573 |
| UT Southwestern Medical Center | 1,577,024 | 1,318,450 | 209,009 | 3,104,483 |
| UTMB at Galveston | 576,836 | 1,082,717 | 0 | 1,659,553 |
| UTHSC at Houston | 668,351 | 1,167,989 | 33,856 | 1,870,196 |
| UTHSC at San Antonio | 928,566 | 399,747 | 106,441 | 1,434,754 |
| UT M.D. Anderson Cancer | 1,712,726 | 2,289,121 | 48,063 | 4,049,910 |
| UT Health Center at Tyler | 0 | 23,406 | 0 | 23,406 |
| **Texas A&M University System*** | 1,706,692 | 1,271,241 | 580,562 | 3,558,495 |
| **University of Houston System*** | 458,915 | 1,091,122 | 12,580 | 1,562,617 |
| **University of North Texas System** | | | | |
| University of North Texas | 49,280 | 219,084 | 85,168 | 353,532 |
| Univ North Tx HSC | 225,834 | 57,957 | 95,274 | 379,065 |
| **Texas Tech University System*** | 253,928 | 96,087 | 0 | 350,015 |
| **Texas State University System** | | | | |
| Sam Houston State | 36,250 | 114,972 | 2,500 | 153,722 |
| Texas State University - San Marcos | 120,322 | 64,030 | 46,474 | 230,826 |
| **Non-system Universities** | | | | |
| Stephen F. Austin State | 0 | 2,425 | 7,500 | 9,925 |
| **Totals** | **$11,114,080** | **$12,144,733** | **$1,917,390** | **$25,176,203** |

*Reported by System Administration.

### Technology Transfer Net Income

Higher education institutions' intellectual property income has been steadily increasing since the Coordinating Board began collecting these data (Figure 1, page 16). However, most technology transfer offices operate at a deficit due to high administrative costs. More than half of the institutions report expenses that exceed revenues (Tables 9 and 10). Expenses to protect intellectual property are incurred before revenue, if any, flows from success in securing licensing agreements, distributions from shares held, or cashing in of equity interests. Most of the institutions that were successful at securing revenues in the millions of dollars had intellectual property revenues that exceeded direct expenses (Tables 9 and 10).

## Table 9

**Net Income for Activities Conducted Under Technology Transfer, FY 2011**

| Institution | (a) Total Expenses for Technology Transfer | (b) Revenue Received from Intellectual Properties | (b - a) Net Income |
|---|---|---|---|
| **University of Texas System** | | | |
| UT at Arlington | $348,758 | $388,854 | $40,096 |
| UT at Austin | 3,802,921 | 26,514,029 | 22,711,108 |
| UT at Dallas | 685,098 | 2,958,262 | 2,273,164 |
| UT at El Paso | 348,763 | 1,291 | (347,472) |
| UT-Pan American | 225,043 | 33,677 | (191,366) |
| UT at San Antonio | 572,607 | 24,688 | (547,919) |
| UT Southwestern Medical Center | 4,196,133 | 16,224,893 | 12,028,760 |
| UTMB at Galveston | 1,302,279 | 1,071,108 | (231,171) |
| UTHSC at Houston | 1,781,992 | 4,592,054 | 2,810,062 |
| UTHSC at San Antonio | 1,518,795 | 2,222,983 | 704,188 |
| UT M.D. Anderson Cancer | 3,512,507 | 18,500,248 | 14,987,741 |
| UT Health Center at Tyler | 18,273 | 0 | (18,273) |
| **Texas A&M University System*** | 3,558,747 | 11,870,510 | 8,311,763 |
| **University of Houston System*** | 1,253,837 | 8,905,849 | 7,652,012 |
| **University of North Texas System** | | | |
| University of North Texas | 326,358 | 2,500 | (323,858) |
| Univ North Tx HSC | 367,759 | 118,344 | (249,415) |
| **Texas Tech University System*** | 378,483 | 222,463 | (156,020) |
| **Texas State University System** | | | |
| Sam Houston State | 83,355 | 75,000 | (8,355) |
| Texas State University - San Marcos | 120,652 | 1,000 | (119,652) |
| **Non-system Universities** | | | |
| Stephen F. Austin State | 0 | 0 | 0 |
| **Totals** | **$24,402,360** | **$93,727,753** | **$69,325,393** |

*Reported by System Administration.

## Table 10

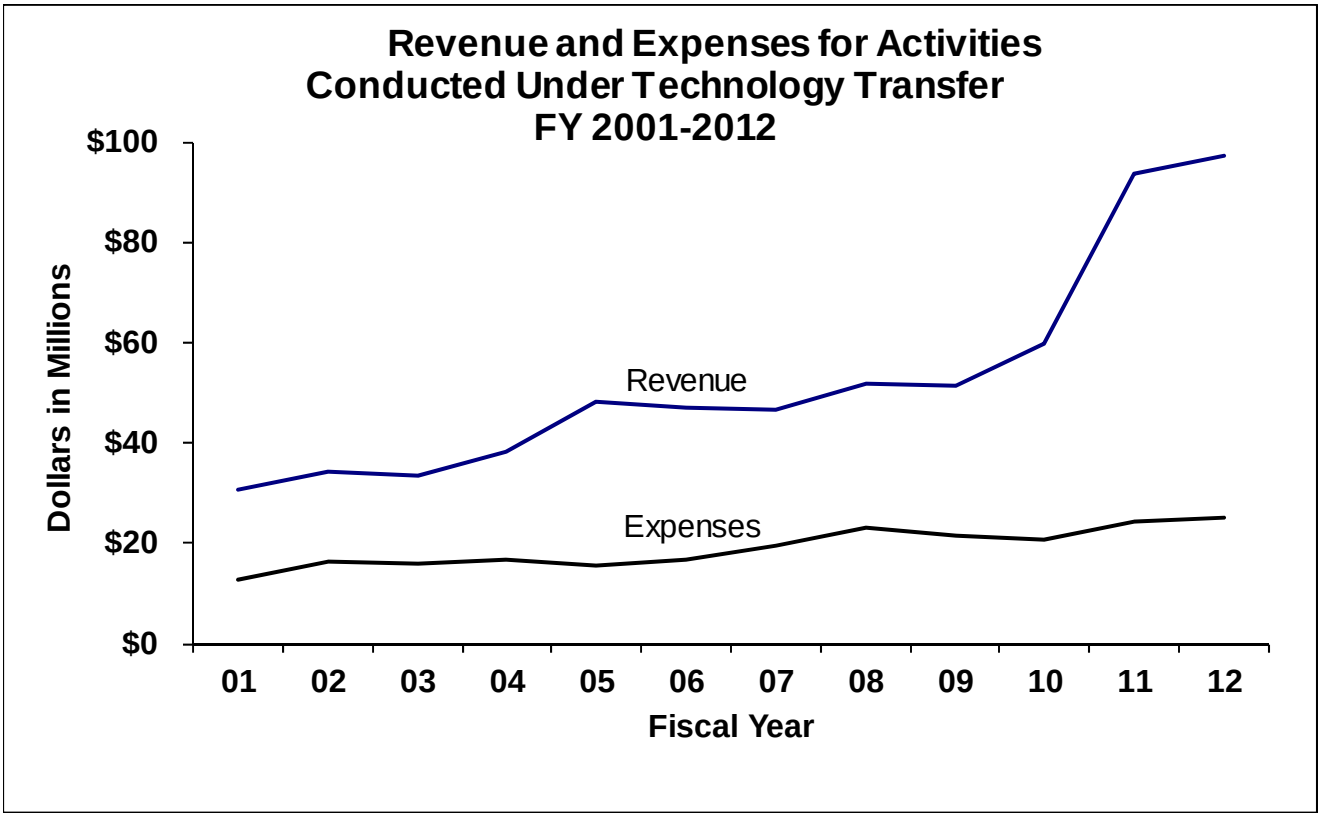
| Net Income for Activities Conducted Under Technology Transfer, FY 2012 | | | |
|---|---|---|---|
| **Institution** | **(a) Total Expenses for Technology Transfer** | **(b) Revenue Received from Intellectual Properties** | **(b - a) Net Income** |
| **University of Texas System** | | | |
| UT at Arlington | $385,759 | $219,498 | ($166,261) |
| UT at Austin | 4,153,204 | 21,390,774 | 17,237,570 |
| UT at Dallas | 896,908 | 1,952,855 | 1,055,947 |
| UT at El Paso | 392,476 | 19,509 | (372,967) |
| UT-Pan American | 126,784 | 99,905 | (26,879) |
| UT at San Antonio | 480,573 | 54,258 | (426,315) |
| UT Southwestern Medical Center | 3,104,483 | 8,436,954 | 5,332,471 |
| UTMB at Galveston | 1,659,553 | 1,181,955 | (477,598) |
| UTHSC at Houston | 1,870,196 | 4,301,110 | 2,430,914 |
| UTHSC at San Antonio | 1,434,754 | 1,416,599 | (18,155) |
| UT M.D. Anderson Cancer | 4,049,910 | 29,343,547 | 25,293,637 |
| UT Health Center at Tyler | 23,406 | 0 | (23,406) |
| **Texas A&M University System*** | 3,558,747 | 15,788,660 | 12,229,913 |
| **University of Houston System*** | 1,562,617 | 12,544,492 | 10,981,875 |
| **University of North Texas System** | | | |
| University of North Texas | 353,532 | 0 | (353,532) |
| Univ North Tx HSC | 379,065 | 133,650 | (245,415) |
| **Texas Tech University System*** | 350,015 | 232,122 | (117,893) |
| **Texas State University System** | | | |
| Sam Houston State | 153,722 | 65,621 | (88,101) |
| Texas State University - San Marcos | 230,826 | 0 | (230,826) |
| **Non-system Universities** | | | |
| Stephen F. Austin State | 9,925 | 7,500 | (2,425) |
| **Totals** | **$25,176,455** | **$97,189,009** | **$72,012,554** |

*Reported by System Administration.

**Technology Transfer Distributions**

Texas higher education institutions have intellectual property policies that govern distribution of revenues received from technology transfer activities. Revenue, after expenses, is typically divided among faculty or staff members who made the discovery, their department(s), and the institution.

**Figure 1**



**Technology Transfer Success Stories**

Texas public institutions reported selected success stories from their technology transfer activities during fiscal years 2011 and 2012.

Texas Tech University System

- Faculty submitted a record number of invention disclosures.
- Texas Tech University System signed seven license/option agreements in fiscal year 2012.
- Texas Tech supported the formation of a startup company, LyteGro, Abilene, Texas.
- The National Institute for Renewable Energy (NIRE) saw its first patent application related to wind energy. <http://www.groupnire.com/>
- Six high-potential technologies received a total of $155,475 in commercial development grants.

The University of Texas - Pan American

- FibeRio Technology Corporation, McAllen, Texas, was co-founded by UT-Pan American in 2009. It continues to deliver nanofibers in high volumes and offers a wide variety of materials, which can be customized for specific demands such as conductivity or strength, or with, e.g., hydrophobe or antimicrobial behaviors. FibeRio sponsored research, e.g., at The University of Texas-Pan American and at The University of Texas at Austin. <http://fiberiotech.com/>

The University of Texas at Arlington

- Digital Light Innovations, DLi, Austin, Texas, develops novel hyper-spectral imaging technology. The DLHsi® platform technology was created jointly by The University of Texas at Arlington and The University of Texas Southwestern Medical Center. <http://www.dlinnovations.com>

The University of Texas at Austin

- The University of Texas at Austin signed an agreement with Hydro-Quebec, the Canadian hydroelectric and electricity power generator, for the development of lithium-ion material technology invented and patented by faculty member Dr. John Goodenough, who has been collaborating with Hydro-Quebeck on his new cathode materials since 1996. <http://cec.cm.utexas.edu/content/university-texas-austin-announces-agreement-rechargeable-battery-patents-hydro-quebec>

The University of Texas at Dallas

- Since the establishment of the Office of Technology Commercialization at the University of Texas at Dallas in 2008, thirteen spin-off companies created over 50 employment positions and sponsored over $3 million in research at the institution. <http://www.utdallas.edu/research/otc/start_up_ventures/utdallas_start_ups/>
- Robert Robb, Associate Vice President for Technology Commercialization, received a 2012 Tech Titan Award from the Metroplex Technology Business Council, for his leadership of the Office of Technology Commercialization. <http://www.utdallas.edu/news/2012/9/18-19721_Technology-Commercialization-Chief-Earns-Tech-Tita_article-wide.html>

- The University of Texas at Dallas' business incubator, the Venture Development Center (VDC), is becoming the focal point for the institution's technology commercialization and startup facilitation. The12,600 square foot facility opened in 2011 and provides services and space for university-affiliated start-up companies. The VDC earned the 2012 Innovation Catalyst Award of the Dallas Regional Chamber's Momentum Awards. <http://www.dallaschamber.org/index.aspx?id=PressReleaseMoAwards10102012>

- The Venture Development Center (VDC) plays a significant role with development of student entrepreneurship, by working together with the Naveen Jindal School of Management. <http://www.utdallas.edu/research/otc/start_up_ventures/venture_development_center/ >

- Diagtronix Inc., a 2011 start-up company, moved into The University of Texas at Dallas' Venture Development Center (VDC) in January 2012. Since then, the company built laboratories, among others, for chip functionalization, bacteria processing and sensing, and development of electronic prototype systems. The company received $300,000 in grants from the National Science Foundation and the Food and Drug Administration. It concluded an initial "Series A Investment" financing for $1 million. Diagtronix filed 9 patent applications in 2012. <http://www.diagtronix.com/>

The University of Texas at El Paso

- Photokinetics, LLC, El Paso, Texas, was founded in 2011 to commercialize patents for biomedical technologies by faculty member Dr. Carl Dirk and his student. The company will manufacture prototypes and conduct clinical trials through cooperation with the El Paso William Beaumont Army Medical Center. <http://newsuc.utep.edu/index.php/latest-news-2/120-new-business-based-on-utep-chemistry-professors-research>

The University of Texas at San Antonio

- The University of Texas at San Antonio continues its on-campus incubation of start-up companies by faculty and students and its development of partnerships with commercialization companies. These initiatives received federal funding from the Small Business Innovation Research (SBIR) program, increased their research funding, and produced technology licenses and equity holdings.

The University of Texas Health Science Center at Houston

- EMIT Corporation, Houston, Texas, founded in 2009, received two patents for a device used to control hypothermia in trauma patients. It was developed by faculty members Drs. Charles Cox, Jr. and Brijish (Billy) Gill. In 2011, the U.S. Food and Drug Administration gave clearance to EMIT to market the device, which is now trademarked as "HypothermX™ HX100." EMIT is preparing two companion devices for commercialization. <http://www.emitcorp.com/>

University of Houston

- The University of Houston carried out 183 sponsored projects with industry partners during fiscal years 2011 and 2012, generating a total of $25.2 million in research funding. These partnerships resulted in 20 U.S. and foreign patent applications in a variety of areas, most notably for the energy and advanced materials industry sectors.

- The University of Houston formed the Texas Manufacturing Assistance Center in order to build on its existing research strengths and growing intellectual property portfolio, with over 300 issued and pending U.S. patents. <http://www.tmacgc.org/>

- A joint investment between the University of Houston and SuperPower, Inc. created a laboratory and manufacturing facility for high temperature super-conducting wire. The 17,500 square feet facility has one-third of the world's manufacturing capacity and is part of the University of Houston Energy Research Park, which is adjacent to the university's main campus.

- SuperPower Inc. licensed the manufacturing rights to a second generation of high temperature superconducting materials from the University of Houston. <http://www.superpower-inc.com/>

# Appendix A

## Technology Development and Transfer Survey

**Fiscal Years 2011 and 2012**

Completion of this biennial survey will satisfy reporting requirements under
Texas Education Code Chapter 153.008

**Please email the completed survey to:**
**Dale Cherry, Academic Research and Grant Programs, at research@thecb.state.tx.us.**

Any questions regarding the survey should also be directed to Dale Cherry at 512-427-6136 or research@thecb.state.tx.us

**Deadline : Monday, October 23, 2012**

| Contact Information | |
|---|---|
| Institution Name | |
| Contact Person's Name | |
| Title | |
| Department or Office | |
| Address | |
| Phone Number | |
| Email Address | |

**Section I: Activities to Protect and Commercialize Intellectual Properties**

| 1. Invention disclosures received | | FY 2011 | FY 2012 |
|---|---|---|---|
| (1.0) | Number of invention disclosures | | |

| 2. Patents applications filed | | FY 2011 | FY 2012 |
|---|---|---|---|
| (2.0) | Number of patent applications accorded a filing number | | |
| | Of the number above, how many of these filings are: | | |
| (2.1) | U.S. Provisional Patent Applications | | |
| (2.2) | U.S. Nonprovisional Patent Applications - First Filings | | |
| (2.3) | U.S. Patent Applications - All Other Filings | | |
| (2.4) | Patent Cooperation Treaty (PCT) Applications | | |
| (2.5) | Foreign Filings | | |

3. Patents issued

| | | FY 2011 | FY 2012 |
|---|---|---|---|
| (3.0) | Number of patents issued | 0 | 0 |
| | Of the number above, how many of the patents issued are: | | |
| (3.1) | U.S. Patents Issued | | |
| (3.2) | Foreign Patents Issued | | |

4. Agreements executed

| | | FY 2011 | FY 2012 |
|---|---|---|---|
| (4.1) | Number of License Agreements Executed | | |
| (4.2) | Number of Option Agreements Executed | | |
| (4.3) | Number of Material Transfer Agreements (MTA) with face value greater than $1,000 | | |

5. Start-ups formed to commercialize intellectual property owned by the institution:

| | | FY 2011 | FY 2012 |
|---|---|---|---|
| (5.1) | Number of start-ups with substantial operations in Texas: | | |
| (5.2) | Number of start-ups with substantial operations outside of Texas: | | |

**Section II: Established and New Equity Interests Held by Your Institution under Intellectual Property Agreements**

| 6. | | FY 2011 | | | FY 2012 | | |
|---|---|---|---|---|---|---|---|
| | | Number of enterprises | Number of shares of stock held at end of FY 2011 | Fair Market Value at end of FY 2011 | Number of enterprises | Number of shares of stock held at end of FY 2012 | Fair Market Value at end of FY 2012 |
| (6.1) | Total for publicly traded enterprises | | | | | | |
| (6.2) | Total for non-publicly traded enterprises | | | | | | |
| (6.3) | Other Equity Interests | | | | | | |

**Section III: Revenues Received from Intellectual Property Owned by Your Institution**

7. Revenues

| | | FY 2011 | FY 2012 |
|---|---|---|---|
| (7.1) | Royalties and fees | | |
| (7.2) | Cashed-in equity | | |
| (7.3) | Reimbursement of patent expenses | | |
| (7.4) | Other forms of income | | |
| | Total | $0.00 | $0.00 |

**Section IV: Direct Expenses for Activities Conducted under Technology Development and Transfer**

8. Expenses

| | | FY 2011 | FY 2012 |
|---|---|---|---|
| (8.1) | Personnel expenses | | |
| (8.2) | Legal expenses | | |
| (8.3) | Other expenses | | |
| | Total | $0.00 | $0.00 |

| | |
|---|---|
| Net Income for Activities Conducted Under Technology Development and Transfer - Total Revenues Minus Total Expenses | |

## Section V: Commercial Successes

9. For possible inclusion in reports to the Legislature and other publications, please briefly describe significant and most successful commercial accomplishments for FY 2011-2012.
(Expand space as needed.)

## Section VI: Additional Comments

10. Please provide comments or cautionary statements, if any, regarding reported data, survey, and/or previous Technology Development and Transfer Reports. Also include suggestions, if any, for improving this survey or the report.
(Expand space as needed.)

# Appendix B

## Institutional Contacts

Following is a list of the institutional representatives who submitted the data for this report. They may be contacted directly for additional information regarding research activities on individual campuses.

Sam Houston State University
Dan G. Davis
Director Technology Development,
Office of Research and Sponsored Programs
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The University of Texas at Dallas
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The University of Texas-Pan American
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The University of Texas at San Antonio
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This document is available on the Texas Higher Education Coordinating Board Website: **http://www.thecb.state.tx.us**. **For more information, contact:**

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