College for all Texans

Texas Higher Education Coordinating Board

Technology Development and Transfer FY 2009 and FY 2010

January 2011

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 2009 and 2010. Of note are the following highlights:

- Intellectual property revenues increased from $44,689,393 in fiscal year 2009 to $53,803,574 in fiscal year 2010.

- Total direct expenses for technology transfer activities increased to $21,619,791 in fiscal year 2010, up from $20,664,271 in fiscal year 2009. For both fiscal years, the expense category "personnel expenses" accounted for approximately 55 percent of the total expenditures.

- In both years, about 140 higher education employees were engaged in technology transfer activities at Texas public universities and health-related institutions.

- In fiscal year 2010, Texas public universities and health-related institutions received 1,104 invention disclosures, were issued 199 U.S. patents, executed 105 exclusive and 145 non-exclusive licensing agreements, and formed 41 start-up companies. Thirty-six of the start-up companies were formed in Texas.

- In fiscal year 2010, the top entities signing exclusive licensing agreements were The University of Texas at Austin (26), The University of Texas Southwestern Medical Center (10), and Texas Tech University (9). The top entities signing non-exclusive licensing agreements were Texas Engineering Experiment Station (48), Texas AgriLife Research (21), and The University of Texas Southwestern Medical Center (21).

- 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 2010, the top five institutions receiving royalty and fee income were: The University of Texas at Austin ($13.9M), The University of Texas M.D. Anderson Cancer Center ($8.6M), The University of Texas Southwestern Medical Center ($6.9M), Texas Transportation Institute ($4.9M), and the University of Houston ($4.4M).

- Six higher education institutions reported receipts for cashed-in equity in fiscal year 2009 totaling $1.2 million.

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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 fifth 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. Higher education institutions may protect new plant varieties or cultivars by applying for certificates granted by the United States Department of Agriculture under the Plant Variety Protection Act (PVPA).

In fiscal years 2009 and 2010, eight public health-related institutions, 19 public universities, and three Texas A&M service agencies reported activities related to intellectual property protection (Tables 1 and 2). Texas AgriLife was the only entity that pursued Plant Variety Protection Act (PVPA) certificates. Texas AgriLife applied for five PVPA certificates and was issued six in fiscal years 2009 and 2010.

The University of Texas at Austin (UT Austin) reported the largest number of invention disclosures for fiscal years 2009 and 2010. Additionally, UT Austin was issued the largest number of patents in both fiscal years. Sixteen higher education institutions and related entities filed 10 or more U.S. patent applications in fiscal year 2009. The largest number of licensing agreements was reported by Texas AgriLife Research with 41 in fiscal year 2009, and the Texas Engineering Experiment Station with 56 in fiscal year 2010.

Table 1

Activities to Protect and Commercialize New Intellectual Properties, FY 2009

Institution	Invention Disclosures		Patents				
			U.S.			Foreign	
			Applications				
	Received	Software or Copyrightable but Unpatentable	First Filings and Provisionals	Divisionals, Continuations, Continuations in Part, and Reissues	Issued or Reissued	Filed under PCT* or foreign national stage applications not nationalized via a previously filed PCT application	Issued
University of Texas System							
UT at Arlington	64	3	42	5	9	16	0
UT at Austin	189	17	101	80	30	36	39
UT at Dallas	53	6	42	1	4	11	0
UT at El Paso	27	0	17	1	4	0	0
UT-Pan American	7	1	7	0	1	5	0
UT at Brownsville	4	0	0	0	0	0	0
UT of the Permian Basin	0	0	0	0	0	0	0
UT at San Antonio	24	0	9	0	1	0	0
UT at Tyler	3	0	0	0	0	0	0
UT Southwestern Medical Center	114	5	50	11	29	18	11
UTMB at Galveston	46	7	16	2	10	8	6
UTHSC at Houston	65	3	17	8	4	19	57
UTHSC at San Antonio	38	3	19	0	5	7	5
UT M.D. Anderson Cancer	109	12	35	78	16	32	0
Texas A&M University System							
Texas A&M	21	0	14	16	0	5	0
Texas A&M at Galveston	0	0	0	0	1	0	0
Texas AgriLife Research	70	0	26	26	1	18	0
Texas Eng. Experiment Station	50	1	33	34	6	8	0
Texas Transportation Institute	11	0	5	5	2	5	0
Texas A&M HSC	34	0	32	33	6	6	0
Office of Technology/Commercialization	10	2	5	3	0	1	0
University of Houston System							
Univ. of Houston	31	0	28	4	9	5	0
University of North Texas System							
University of North Texas	17	0	8	1	5	2	0
Univ North Tx HSC	17	4	7	1	3	2	0
Texas Tech University System							
Texas Tech	28	0	10	0	3	1	1
Texas Tech Univ HSC	22	0	5	0	0	4	0
Office of Technology/Commercialization	11	0	0	0	0	0	0
Texas State University System							
Lamar	1	0	0	0	0	0	0
Sam Houston State	0	0	0	1	1	0	0
Texas State University - San Marcos	1	0	0	0	0	0	0
Non-system Universities							
Stephen F. Austin State	1	0	0	0	1	0	0
Texas Southern	0	0	0	0	1	0	0
Totals	**1,068**	**64**	**528**	**310**	**152**	**209**	**119**

*Patent Cooperation Treaty

Table 1 - continued

Activities to Protect and Commercialize New Intellectual Properties, FY 2009								
Institution	Licensing Agreements Executed			U.S. Copyright Registrations	Start-Up Companies Formed**			
					New in this fiscal year		Still in existence	
	Exclusive	Non-exclusive	Optional		In Texas	Outside of state	In Texas	Outside of state
University of Texas System								
UT at Arlington	2	1	1	3	0	0	7	1
UT at Austin	24	11	5	0	8	0	17	10
UT at Dallas	2	2	0	0	4	0	8	0
UT at El Paso	1	0	0	0	1	1	2	0
UT-Pan American	1	1	0	0	0	0	0	2
UT at Brownsville	0	0	0	0	0	0	0	0
UT of the Permian Basin	0	0	0	0	0	0	0	0
UT at San Antonio	3	0	0	0	0	0	2	0
UT at Tyler	0	0	0	0	0	0	0	0
UT Southwestern Medical Center	7	26	1	0	1	0	3	7
UTMB at Galveston	3	10	1	4	0	0	10	1
UTHSC at Houston	7	13	5	1	2	1	15	4
UTHSC at San Antonio	2	3	0	1	0	0	7	2
UT M.D. Anderson Cancer	11	7	9	0	3	0	8	18
Texas A&M University System								
Texas A&M	7	13	3	0	0	0	0	0
Texas A&M at Galveston	0	0	0	0	0	0	0	0
Texas AgriLife Research	8	28	5	0	0	0	0	0
Texas Eng. Experiment Station	5	24	8	0	0	0	0	0
Texas Transportation Institute	0	0	3	0	0	0	0	0
Texas A&M HSC	3	4	0	0	0	0	0	0
Office of Technology/Commercialization	0	1	2	0	0	0	0	0
University of Houston System								
Univ. of Houston	5	1	0	0	2	1	12	3
University of North Texas System								
University of North Texas	1	0	0	0	1	0	1	0
Univ North Tx HSC	1	0	0	1	0	0	0	0
Texas Tech University System								
Texas Tech	6	0	1	0	0	0	0	0
Texas Tech Univ HSC	4	0	0	0	0	0	0	0
Office of Technology/Commercialization	0	0	0	0	3	0	10	0
Texas State University System								
Lamar	0	0	0	0	0	0	1	0
Sam Houston State	1	0	0	0	1	0	0	0
Texas State University - San Marcos	0	0	0	0	0	0	0	0
Non-system Universities								
Stephen F. Austin State	0	0	0	0	0	0	1	0
Texas Southern	0	0	0	0	1	0	0	0
Totals	**104**	**145**	**44**	**10**	**27**	**3**	**104**	**48**

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

Table 2

Activities to Protect and Commercialize New Intellectual Properties, FY 2010							
Institution	Invention Disclosures		Patents				
			U.S.			Foreign	
			Applications				
	Received	Software or Copyrightable but Unpatentable	First Filings and Provisionals	Divisionals, Continuations, Continuations in Part, and Reissues	Issued or Reissued	Filed under PCT* or foreign national stage applications not nationalized via a previously filed PCT application	Issued
University of Texas System							
UT at Arlington	49	0	39	4	14	9	1
UT at Austin	179	21	131	79	37	55	12
UT at Dallas	64	2	30	1	5	8	0
UT at El Paso	18	0	23	4	4	2	0
UT-Pan American	9	1	4	0	0	1	0
UT at Brownsville	1	0	1	0	0	0	0
UT of the Permian Basin	0	0	0	0	0	0	0
UT at San Antonio	30	2	23	0	1	2	0
UT at Tyler	4	0	0	0	0	0	0
UT Southwestern Medical Center	100	6	28	13	28	20	5
UTMB at Galveston	40	1	19	4	7	34	0
UTHSC at Houston	63	6	29	5	11	15	2
UTHSC at San Antonio	25	0	15	6	7	10	2
UT M.D. Anderson Cancer	132	0	36	52	31	32	0
Texas A&M University System							
Texas A&M	32	2	10	11	6	4	0
Prairie View A&M	0	0	0	0	1	0	0
Texas AgriLife Research	83	0	28	28	8	7	0
Texas Eng. Experiment Station	40	1	28	29	8	7	0
Texas Transportation Institute	8	0	2	2	3	0	0
Texas A&M HSC	30	0	14	14	4	5	0
Office of Technology/Commercialization	14	0	0	0	0	1	0
University of Houston System							
Univ. of Houston	46	0	33	7	13	7	2
University of North Texas System							
University of North Texas	23	0	7	0	1	1	1
Univ North Tx HSC	28	10	12	1	2	9	0
Texas Tech University System							
Texas Tech	42	0	9	0	7	8	6
Texas Tech Univ HSC	22	0	8	0	0	1	0
Office of Technology/Commercialization	12	0	3	0	0	0	0
Texas State University System							
Lamar	2	1	2	0	0	0	0
Sam Houston State	1	0	0	0	0	0	0
Texas State University - San Marcos	7	0	6	0	1	0	0
Non-system Universities							
Stephen F. Austin State	0	0	0	0	0	0	0
Texas Southern	0	0	1	0	0	0	0
Totals	**1,104**	**53**	**541**	**260**	**199**	**238**	**31**

*Patent Cooperation Treaty

Table 2 - continued

Activities to Protect and Commercialize New Intellectual Properties, FY 2010								
Institution	Licensing Agreements Executed			U.S. Copyright Registrations	Start-Up Companies Formed**			
					New in this fiscal year		Still in existence	
	Exclusive	Non-exclusive	Optional		In Texas	Outside of state	In Texas	Outside of state
University of Texas System								
UT at Arlington	1	3	1	0	1	0	8	1
UT at Austin	26	6	13	0	12	0	21	10
UT at Dallas	4	2	2	0	5	0	12	0
UT at El Paso	1	0	1	0	1	0	2	0
UT-Pan American	2	0	0	0	1	0	0	1
UT at Brownsville	0	0	0	0	0	0	0	0
UT of the Permian Basin	0	0	0	0	0	0	0	0
UT at San Antonio	4	0	0	0	3	0	5	0
UT at Tyler	0	0	0	0	0	0	0	0
UT Southwestern Medical Center	10	21	3	0	1	0	3	7
UTMB at Galveston	6	6	7	0	1	1	10	1
UTHSC at Houston	6	14	5	0	2	1	16	5
UTHSC at San Antonio	3	3	0	0	2	0	7	2
UT M.D. Anderson Cancer	8	6	10	0	1	1	8	17
Texas A&M University System								
Texas A&M	0	3	1	0	0	0	0	0
Prairie View A&M	0	0	0	0	0	0	0	0
Texas AgriLife Research	8	21	2	0	0	0	0	0
Texas Eng. Experiment Station	6	48	2	0	0	0	0	0
Texas Transportation Institute	0	0	0	0	0	0	0	0
Texas A&M HSC	3	10	3	0	0	0	0	0
Office of Technology/Commercialization	0	0	2	0	0	0	0	0
University of Houston System								
Univ. of Houston	4	2	3	0	1	0	13	3
University of North Texas System								
University of North Texas	0	0	0	0	0	0	0	0
Univ North Tx HSC	1	0	2	1	0	0	0	0
Texas Tech University System								
Texas Tech	9	0	0	0	0	0	0	0
Texas Tech Univ HSC	2	0	0	0	0	0	0	0
Office of Technology/Commercialization	0	0	0	0	4	2	14	2
Texas State University System								
Lamar	0	0	0	0	0	0	0	0
Sam Houston State	0	0	0	0	0	0	1	0
Texas State University - San Marcos	0	0	0	0	0	0	0	0
Non-system Universities								
Stephen F. Austin State	1	0	0	0	0	0	1	0
Texas Southern	0	0	0	0	1	0	0	0
Totals	**105**	**145**	**57**	**1**	**36**	**5**	**121**	**49**

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

Equity Interests

Six health-related institutions, six 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 2009 and 2010, 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 University of Texas M.D. Anderson Cancer Center owned the greatest number of shares of private and public stock. The fair market value of all holdings for all higher education institutions and related-entities of public stock totaled approximately $3.6 million in fiscal year 2010.

Table 3

Established and New Equity Interests Held by Institution Through Intellectual Property Agreements, FY 2009

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	1	0	295,202	0	$0
UT at Austin	21	0	3,595,694	0	$0
UT at Dallas	2	0	250	0	$0
UT at El Paso	2	0	10,050	0	$0
UT at San Antonio	1	0	n/a	0	$0
UT Southwestern Medical Center	8	0	8,738,248	0	$0
UTMB at Galveston	7	0	3,039,777	0	$0
UTHSC at Houston	14	1	4,229,381	40,881	$584,598
UTHSC at San Antonio	4	0	1,172,448	0	$0
UT M.D. Anderson Cancer	31	6	15,161,987	7,277,975	$1,084,034
Texas A&M University System*	16	2	6,736,152	1,655,043	$27,346
University of Houston System*	6	2	619,138	35,198	n/a
University of North Texas System					
Univ. of North Texas HSC	1	0	7,900	0	$0
Texas Tech University System*	2	1	591,654	1,271,556	$1
Texas State University System					
Sam Houston State	1	0	n/a	0	$0
Totals	**117**	**12**	**44,197,881**	**10,280,653**	**1,695,979**

*Reported by System Administration.

Table 4

Established and New Equity Interests Held by Institution Through Intellectual Property Agreements, FY 2010

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	3	0	895,202	0	$0
UT at Austin	20	0	3,821,194	0	$0
UT at Dallas	3	0	750,250	0	$0
UT at El Paso	2	0	10,050	0	$0
UT-Pan American	1	0	550,000	0	$0
UT at San Antonio	2	0	n/a	0	$0
UT Southwestern Medical Center	8	0	8,738,248	0	$0
UTMB at Galveston	7	0	3,039,981	0	$0
UTHSC at Houston	17	1	4,408,001	22,242	$495,968
UTHSC at San Antonio	4	0	1,172,448	0	$0
UT M.D. Anderson Cancer	32	5	15,206,822	7,233,140	$3,001,586
Texas A&M University System*	22	2	11,069,901	42,627	$59,586
University of Houston System*	8	2	662,986	35,198	n/a
University of North Texas System					
Univ. of North Texas HSC	1	0	7,900	0	$0
Texas Tech University System*	1	1	130,000	1,421,400	n/a
Texas State University System					
Sam Houston State	1	0	n/a	0	$0
Totals	**132**	**11**	**50,462,983**	**8,754,607**	**3,557,140**

*Reported by System Administration.

Intellectual Property Income

Revenue received from intellectual property increased from $44,689,393 in fiscal year 2009 to $53,803,574 in fiscal year 2010, a 20.4 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.

Ten institutions reported income greater than $1 million in fiscal year 2010: The University of Texas at Austin ($14.3 million), The University of Texas M.D. Anderson Cancer Center ($10.1 million), The University of Texas Southwestern Medical Center ($6.9 million), the Texas Transportation Institute ($4.9 million), University of Houston ($4.4 million), The University of Texas Health Science Center at Houston ($3.8 million), Texas AgriLife Research ($2.1 million), Texas A&M System Office of Technology/Commercialization ($2.0 million), The University of Texas Health Science Center at San Antonio ($1.9 million), and The University of Texas Medical Branch at Galveston ($1.2 million).

Table 5

Revenue Received from Intellectual Property Owned by Institution, FY 2009

Institution	Type of Properties Producing Revenue:				
	Royalties and Fees		Cashed-in Equity	Other	
	Number of Properties	$	$	$	Total
University of Texas System					
UT at Arlington	9	$495,568	$0	$0	$495,568
UT at Austin	60	$10,783,096	$141,382	$0	$10,924,478
UT at Dallas	4	$75,000	$0	$0	$75,000
UT at El Paso	2	$1,184	$0	$0	$1,184
UT-Pan American	1	$2,900	$0	$0	$2,900
UT at San Antonio	1	$20,501	$0	$0	$20,501
UT at Tyler	0	$0	$0	$0	$0
UT Southwestern Medical Center	177	$6,929,081	$38,035	$38,020	$7,005,136
UTMB at Galveston	28	$674,589	$0	$0	$674,589
UTHSC at Houston	87	$3,229,699	$0	$24,287	$3,253,986
UTHSC at San Antonio	62	$1,661,696	$0	$0	$1,661,696
UT M.D. Anderson Cancer	100	$6,823,522	$56,800	$1,144,943	$8,025,265
Texas A&M University System					
Texas A&M	n/a	$151,179	$5,544	$0	$156,723
Texas AgriLife Research	n/a	$2,246,206	$0	$0	$2,246,206
Texas Eng. Experiment Station	n/a	$579,237	$547,352	$0	$1,126,589
Texas Transportation Institute	n/a	$4,916,601	$0	$0	$4,916,601
Texas A&M HSC	n/a	$216,573	$0	$0	$216,573
Office of Technology/Commercialization	n/a	$175,318	$0	$1,072,991	$1,248,309
University of Houston System					
Univ. of Houston	29	$1,536,214	$416,343	$0	$1,952,557
University of North Texas System					
University of North Texas	0	$0	$0	$0	$0
Univ North Tx HSC	8	$51,120	$0	$11,584	$62,704
Texas Tech University System					
Office of Technology/Commercialization	21	$622,791	$0	$0	$622,791
Texas State University System					
Sam Houston State	0	$0	$0	$0	$0
Texas State University - San Marcos	1	$37	$0	$0	$37
Totals	**590**	**$41,192,112**	**$1,205,456**	**$2,291,825**	**$44,689,393**

Table 6

Revenue Received from Intellectual Property Owned by Institution, FY 2010

Institution	Type of Properties Producing Revenue:				
	Royalties and Fees		Cashed-in Equity	Other	
	Number of Properties	$	$	$	Total
University of Texas System					
UT at Arlington	8	$73,435	$0	$0	$73,435
UT at Austin	59	$13,935,236	$379,837	$0	$14,315,073
UT at Dallas	6	$40,005	$0	$0	$40,005
UT at El Paso	3	$7,836	$0	$0	$7,836
UT-Pan American	2	n/a	$0	$0	$0
UT at San Antonio	1	$6,666	$0	$0	$6,666
UT at Tyler	0	$0	$0	$0	$0
UT Southwestern Medical Center	178	$6,888,903	$0	$12,339	$6,901,242
UTMB at Galveston	28	$1,154,394	$0	$0	$1,154,394
UTHSC at Houston	92	$3,385,729	$382,805	$36,291	$3,804,825
UTHSC at San Antonio	61	$1,923,847	$0	$0	$1,923,847
UT M.D. Anderson Cancer	72	$8,614,576	$0	$1,469,183	$10,083,759
Texas A&M University System					
Texas A&M	n/a	$264,701	$0	$0	$264,701
Texas AgriLife Research	n/a	$2,079,693	$0	$0	$2,079,693
Texas Eng. Experiment Station	n/a	$637,566	$0	$0	$637,566
Texas Transportation Institute	n/a	$4,944,001	$0	$0	$4,944,001
Texas A&M HSC	n/a	$317,451	$0	$0	$317,451
Office of Technology/Commercialization	n/a	$377,477	$0	$1,601,016	$1,978,493
University of Houston System					
Univ. of Houston	32	$4,420,473	$0	$0	$4,420,473
University of North Texas System					
University of North Texas	0	$0	$0	$0	$0
Univ North Tx HSC	12	$51,608	$0	$43,068	$94,676
Texas Tech University System					
Office of Technology/Commercialization	18	$692,828	$0	$0	$692,828
Texas State University System					
Sam Houston State	1	$62,500	$0	$0	$62,500
Texas State University - San Marcos	1	$111	$0	$0	$111
Totals	**574**	**$49,879,035**	**$762,642**	**$3,161,897**	**$53,803,574**

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. About 140 employees, primarily professional and support staff, are engaged in technology transfer activities at the public higher education institutions across the state. The greatest amount is expended on personnel, followed by costs related to patent prosecutions. Reimbursed legal expenses totaled $6.9 and $5.9 million for fiscal years 2009 and 2010 respectively. However, that information is not reflected in the following tables.

Table 7

Total Direct Expenses for Activities Conducted Under Technology Transfer, FY 2009

Institution	Personnel	Facilities, Rent	Unreimbursed Legal Expenses	
			Patent Prosecution	Other
University of Texas System				
UT at Arlington	$200,324	$0	$319,619	$2,218
UT at Austin	$1,737,523	$13,783	$466,015	$80,175
UT at Dallas	$277,000	$0	$167,018	$0
UT at El Paso	$210,365	$0	$100,783	$0
UT-Pan American	$89,000	$0	$35,530	$3,372
UT at San Antonio	$0	$0	$45,838	$0
UT at Tyler	$69,225	$0	$0	$0
UT Southwestern Medical Center	$2,048,424	$0	$703,140	$0
UTMB at Galveston	$549,419	$0	$365,849	$0
UTHSC at Houston	$761,384	$0	$31,726	$30,125
UTHSC at San Antonio	$1,116,501	$77,732	$17,254	$0
UT M.D. Anderson Cancer	$1,884,260	$0	$1,284,533	$0
Texas A&M University System*	$1,788,189	$77,979	$780,550	$23,035
University of Houston System*	$370,945	$0	$346,265	$0
University of North Texas System				
University of North Texas	$69,942	$0	$203,146	$0
Univ North Tx HSC	$186,344	$0	$69,994	$0
Texas Tech University System*	$443,838	$35,891	$194,519	$0
Texas State University System				
Sam Houston State	$60,000	$0	$0	$0
Texas State University - San Marcos	$94,421	$0	$10,868	$2,112
Totals	**$11,957,104**	**$205,385**	**$5,142,647**	**$141,037**

*Reported by System Administration.

Table 7 - continued

Total Direct Expenses for Activities Conducted Under Technology Transfer, FY 2009				
Institution	**Operating Expenses**	**Travel**	**Other and Equipment Purchases in excess of $5,000**	**Total**
University of Texas System				
UT at Arlington	$26,845	$11,171	$13,125	$573,302
UT at Austin	$366,483	$36,682	$0	$2,700,661
UT at Dallas	$19,073	$9,729	$16,800	$489,620
UT at El Paso	$0	$510	$0	$311,658
UT-Pan American	$5,000	$1,945	$0	$134,847
UT at San Antonio	$0	$0	$346,014	$391,852
UT at Tyler	$1,479	$0	$0	$70,704
UT Southwestern Medical Center	$446,451	$54,124	$0	$3,252,139
UTMB at Galveston	$56,313	$6,422	$0	$978,003
UTHSC at Houston	$50,561	$4,738	$29,225	$907,759
UTHSC at San Antonio	$89,708	$18,134	$0	$1,319,329
UT M.D. Anderson Cancer	$1,884,260	$32,085	$10,886	$5,096,024
Texas A&M University System*	$344,154	$39,936	$35,646	$3,089,489
University of Houston System*	$11,318	$1,066	$0	$729,594
University of North Texas System				
University of North Texas	$2,363	$0	$0	$275,451
Univ North Tx HSC	$92,521	$3,921	$0	$352,780
Texas Tech University System*	$71,373	$20,506	$5,270	$771,397
Texas State University System				
Sam Houston State	$0	$2,000	$0	$62,000
Texas State University - San Marcos	$600	$5,182	$0	$113,182
Totals	**$3,468,502**	**$248,151**	**$456,966**	**$21,619,791**

*Reported by System Administration.

Table 8

Total Direct Expenses for Activities Conducted Under Technology Transfer, FY 2010

Institution	Personnel	Facilities, Rent	Unreimbursed Legal Expenses	
			Patent Prosecution	Other
University of Texas System				
UT at Arlington	$162,823	$0	$235,041	$21,347
UT at Austin	$1,959,262	$9,072	$810,506	$163,113
UT at Dallas	$290,000	$0	$193,687	$0
UT at El Paso	$234,819	$0	$154,656	$0
UT-Pan American	$100,000	$0	$50,114	$33,332
UT at San Antonio	$0	$0	$118,228	$0
UT at Tyler	$22,542	$0	$0	$0
UT Southwestern Medical Center	$2,158,786	$0	$527,253	$0
UTMB at Galveston	$422,586	$0	$436,805	$0
UTHSC at Houston	$786,297	$0	$248,080	$20,969
UTHSC at San Antonio	$923,060	$79,162	$336,340	$0
UT M.D. Anderson Cancer	$1,671,696	$0	$268,419	$0
Texas A&M University System*	$1,572,754	$0	$617,515	$17,789
University of Houston System*	$443,841	$0	$501,680	$0
University of North Texas System				
University of North Texas	$71,341	$0	$138,395	$0
Univ North Tx HSC	$229,611	$0	$56,799	$0
Texas Tech University System*	$478,852	$36,520	$30,000	$0
Texas State University System				
Sam Houston State	$65,000	$0	$0	$0
Texas State University - San Marcos	$153,088	$66,690	$5,314	$2,579
Totals	**$11,746,358**	**$191,444**	**$4,728,832**	**$259,129**

*Reported by System Administration.

Table 8 - continued

Total Direct Expenses for Activities Conducted Under Technology Transfer, FY 2010				
Institution	**Operating Expenses**	**Travel**	**Other and Equipment Purchases in excess of $5,000**	**Total**
University of Texas System				
UT at Arlington	$14,534	$9,583	$13,108	$456,436
UT at Austin	$238,287	$12,882	$0	$3,193,122
UT at Dallas	$11,807	$5,553	$0	$501,047
UT at El Paso	$0	$1,332	$0	$390,807
UT-Pan American	$5,000	$3,363	$0	$191,809
UT at San Antonio	$0	$0	$423,215	$541,443
UT at Tyler	$2,606	$1,565	$0	$26,713
UT Southwestern Medical Center	$415,847	$44,689	$0	$3,146,575
UTMB at Galveston	$77,696	$5,900	$0	$942,987
UTHSC at Houston	$63,044	$9,376	$37,494	$1,165,260
UTHSC at San Antonio	$59,039	$9,855	$0	$1,407,456
UT M.D. Anderson Cancer	$1,671,696	$31,709	$4,540	$3,648,060
Texas A&M University System*	$157,725	$38,035	$30,645	$2,434,463
University of Houston System*	$9,820	$1,919	$0	$957,260
University of North Texas System				
University of North Texas	$2,363	$0	$35,000	$247,099
Univ North Tx HSC	$84,854	$7,664	$0	$378,928
Texas Tech University System*	$72,095	$25,183	$92,331	$734,981
Texas State University System				
Sam Houston State	$0	$2,500	$0	$67,500
Texas State University - San Marcos	$200	$4,454	$0	$232,325
Totals	**$2,886,613**	**$215,562**	**$636,333**	**$20,664,271**

*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 2009

Institution	(a) Total Expenses for Technology Transfer	(b) Revenue Received from Intellectual Properties	(a - b) Net Income
University of Texas System			
UT at Arlington	$573,302	$495,568	($77,734)
UT at Austin	$2,700,661	$10,924,478	$8,223,817
UT at Dallas	$489,620	$75,000	($414,620)
UT at El Paso	$311,658	$1,184	($310,474)
UT-Pan American	$134,847	$2,900	($131,947)
UT at San Antonio	$391,852	$20,501	($371,351)
UT at Tyler	$70,704	$0	($70,704)
UT Southwestern Medical Center	$3,252,139	$7,005,136	$3,752,997
UTMB at Galveston	$978,003	$674,589	($303,414)
UTHSC at Houston	$907,759	$3,253,986	$2,346,227
UTHSC at San Antonio	$1,319,329	$1,661,696	$342,367
UT M.D. Anderson Cancer	$5,096,024	$8,025,265	$2,929,241
Texas A&M University System*	$3,089,489	$9,911,001	$6,821,512
University of Houston System*	$729,594	$1,952,557	$1,222,963
University of North Texas System			
University of North Texas	$275,451	$0	($275,451)
Univ North Tx HSC	$352,780	$62,704	($290,076)
Texas Tech University System*	$771,397	$622,791	($148,606)
Texas State University System			
Sam Houston State	$62,000	$0	($62,000)
Texas State University - San Marcos	$113,182	$37	($113,145)
Totals	**$21,619,791**	**$44,689,393**	**$23,069,602**

*Reported by System Administration.

Table 10

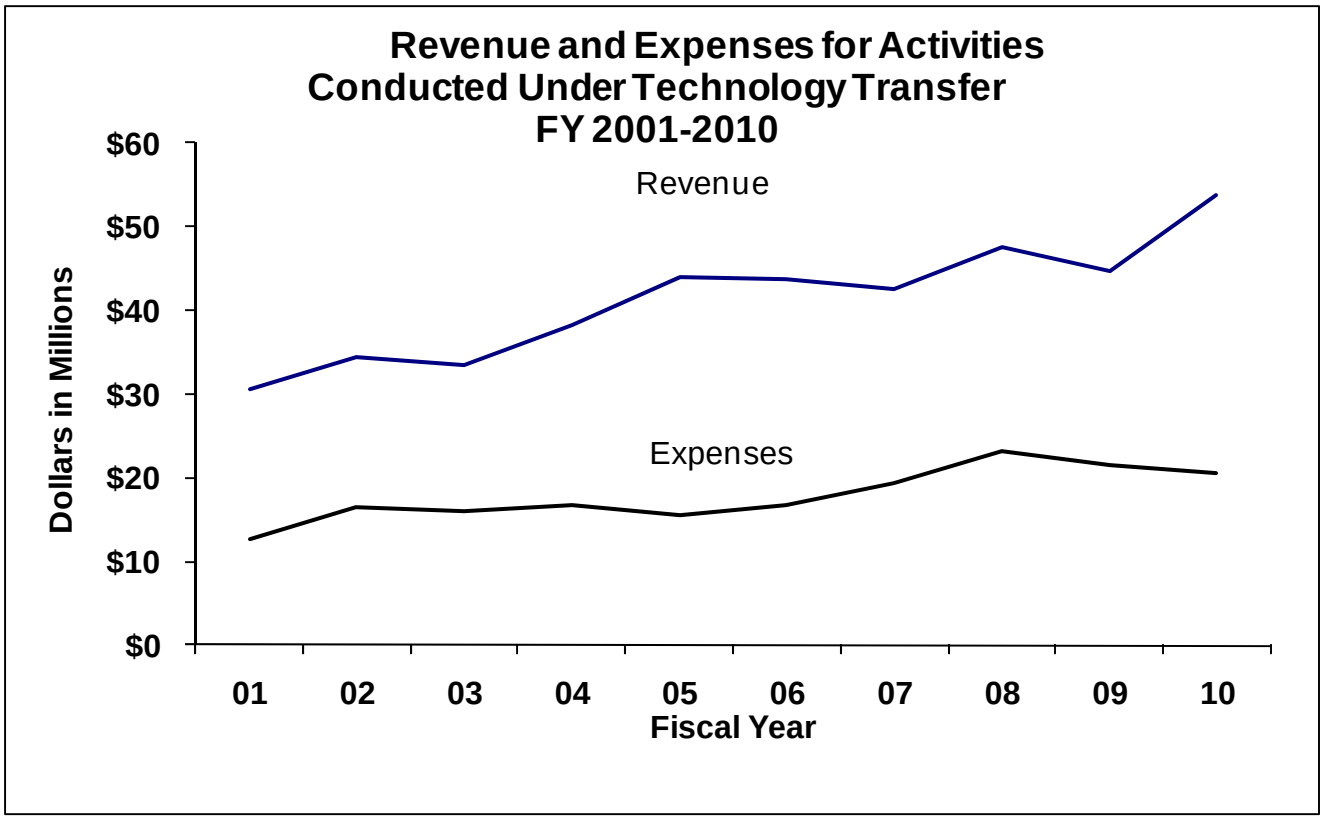
Net Income for Activities Conducted Under Technology Transfer, FY 2010			
Institution	**(a) Total Expenses for Technology Transfer**	**(b) Revenue Received from Intellectual Properties**	**(a - b) Net Income**
University of Texas System			
UT at Arlington	$456,436	$73,435	($383,001)
UT at Austin	$3,193,122	$14,315,073	$11,121,951
UT at Dallas	$501,047	$40,005	($461,043)
UT at El Paso	$390,807	$7,836	($382,971)
UT-Pan American	$191,809	$0	($191,809)
UT at San Antonio	$541,443	$6,666	($534,777)
UT at Tyler	$26,713	$0	($26,713)
UT Southwestern Medical Center	$3,146,575	$6,901,242	$3,754,667
UTMB at Galveston	$942,987	$1,154,394	$211,407
UTHSC at Houston	$1,165,260	$3,804,825	$2,639,565
UTHSC at San Antonio	$1,407,456	$1,923,847	$516,391
UT M.D. Anderson Cancer	$3,648,060	$10,083,759	$6,435,699
Texas A&M University System*	$2,434,463	$10,221,905	$7,787,442
University of Houston System*	$957,260	$4,420,473	$3,463,213
University of North Texas System			
University of North Texas	$247,099	$0	($247,099)
Univ North Tx HSC	$378,928	$94,676	($284,252)
Texas Tech University System*	$734,981	$692,828	($42,153)
Texas State University System			
Sam Houston State	$67,500	$62,500	($5,000)
Texas State University - San Marcos	$232,325	$111	($232,214)
Totals	**$20,664,271**	**$53,803,574**	**$33,139,304**

*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

Institutions reported success stories of technology transfer activities for fiscal years 2009 and 10.

The University of Texas at Arlington

- Terapio Corporation is developing a pipeline of therapeutic applications based on a unique transport protein that helps move large molecules across the cell membrane. Applications are for radiation countermeasures or as a drug delivery platform. Terapio has secured equity financing from Santé Ventures to continue preclinical development and to begin human clinical trials. <http://www.terapio.com/>

- Surgeons from UT Southwestern Medical Center Dallas and engineers from The University of Texas at Arlington have developed Magnetic Anchored Surgical Tools (MAGS), surgical instruments that can be supported inside the abdominal cavity with magnets, thus eliminating the need to puncture the abdominal wall in multiple locations. The MAGS platform was licensed by Ethicon Endo-Surgery, Inc. and will go through the FDA approval process in the near future. <http://www.the33tv.com/news/kdaf-magnetic-surgery-story,0,6858486.story>

- Texas Micropower, Inc. is a start-up company developing "green" energy sources for portable and remote electronics. The company works on harvesting solar and vibration energy so that devices can become battery-free or need only supplemental traditional power storage. <http://www.texasmicropower.com/>

The University of Texas at Austin

- The University of Texas at Austin (UT Austin) and the Chevron Energy Technology Company partnered via a licensing agreement that was based on surfactants developed by UT Austin's Center for Petroleum and Geosystems Engineering (CPGE). This technology will allow the recovery of previously unrecoverable hydrocarbons in nearly depleted oil fields throughout the world. <http://www.cpge.utexas.edu/>

The University of Texas at El Paso

- SeneXta Therapeutics is a biopharmaceutical company engaged in the research and development of therapies for neurodegenerative disorders. Researchers at The University of Texas at El Paso (UTEP) completed Phase I testing for the company's Alzheimer drug candidate. <http://www.senexta.com/>

- Mayan Pigments, Inc. created a new line of eco-friendly arts and crafts paints and crayon kits, commercializing UTEP research that investigated organic/inorganic pigments found at Mayan art work. <http://www.mayanpigments.com/>

- UTEP incorporated Nanofabrica Technologies LLC. with plans to commercialize a new manufacturing process for solar cells that enhances control for the deposition of critical materials. Licensing discussions are underway.

- The Center for Research Entrepreneurship and Innovative Enterprises (CREIE) at UTEP expanded its efforts in promoting innovation, entrepreneurship, and commercialization. A total of 25 projects, in various stages of commercialization, are under development. <http://research.utep.edu/creie/>

The University of Texas-Pan American

- The University of Texas-Pan American's Office of Innovation and Intellectual Property founded FibeRio Technology Corporation jointly with an experienced nanotechnology entrepreneur. The company will commercialize Forcespinning Technology™, a fiber creation process. <www.fiberiotech.com/>. The technology was placed on the 2010 list "Innovations That Could Change the Way you Manufacture" by the Society of Manufacturing Engineers' Manufacturing Enterprise Council.

The University of Texas at San Antonio

- The University of Texas at San Antonio's (UTSA) Center for Innovation and Technology Entrepreneurship opened up the New Venture Incubator to foster the development of more home-grown tech firms. The New Venture Incubator is located on the campus of UTSA. <http://business.utsa.edu/cite/>

- Infant head guard device Invictus' Magic Hat™ won first place in UTSA's Center for Innovation and Technology Entrepreneurship (CITE) Student Technology Venture Competition. The program promotes student entrepreneurship by pairing engineering students who create new technologies with business students who develop business plans to market those technologies through a viable start-up. <http://business.utsa.edu/news/2010/citetech_winners.aspx>

The University of Texas Medical Branch at Galveston

- The University of Texas Medical Branch (UTMB) granted a worldwide exclusive license to Avalon Laboratories, LLC. for a novel double lumen catheter that allows respiratory support for Intensive Care Unit patients. Avalon is preparing to sell the product in the United States, Canada, Australia, and the European Union. <http://www.avalonlabs.com/>

- UTMB took the lead in forming a medical device start-up company, Apollo Endosurgery, to develop technologies from UTMB and four other institutions (Mayo Clinic, Johns Hopkins University, Chinese University of Hong Kong, and Medical University of South Carolina). Early products are the OverStitch™ Endoscopic Suturing System, a unique device that mimics the way physicians deploy sutures, and the FlexShears™ Endoscopic Scissors, a continuous rotation device for precise orientation of blades relative to tissue. <http://www.apolloendo.com/>

- UTMB licensed a patent to the Houston-based start-up Nanospectra Biosciences for the use of nanoparticles in cancer therapy. The technology, in which AuroLase® particles allow the conversion of light into heat with the goal to thermally destroy a solid tumor, is now in clinical trials for head and neck cancer therapy. <http://www.nanospectra.com/technology/aurolasetherapy.html>

- NuPhysicia offers worldwide Medicine at Work™, InPlace Medical Solutions™, and NuPhysicia Technology through an exclusive license of telemedicine methods developed by UTMB. Client examples are offshore oil operators who gain reduced operating costs and higher workforce productivity. <http://www.nuphysicia.com/>

The University of Texas Health Science Center at Houston

- Emergency Medical Interventional Technologies (EMIT) Corporation is developing trauma care products based on devices developed by the Departments of Pediatric Surgery of The University of Texas Health Science Center at Houston (UTHSC-H). EMIT's first products include a portable fluid warmer for therapeutic temperature management of patients with hypothermia.

- Accumed Systems, Inc. commercializes innovative tools for interventional cardiovascular medicine. Recently, Accumed became a UTHSC-H portfolio company by licensing technology pioneered by UTHSC-H in the area of thermal detection of atherosclerotic plaque. <http://www.accumedsystemsinc.com/>

- Cerevast Therapeutics, Inc. is marketing an innovative Transcranial Doppler (TCD) ultrasound device as a non-invasive therapy for disrupting blood clots and restoring blood flow in the brain in the case of acute ischemic stroke. <http://www.cerevast.com/>

- Neogenis, Inc. was created to develop novel formulations of nutritional supplements for daily cardiovascular health as well as enhanced exercise performance based on research developed by UTHSC-H's Institute of Molecular Medicine.

- Assurance Biosciences, Inc. is developing a salivary-based cancer detection assay to improve the differential diagnosis between benign and malignant tumors. The company's diagnostic is based on technology developed by UTHSC-H's Dental Branch.

The University of Texas Health Science Center at San Antonio

- The University of Texas Health Science Center at San Antonio (UTHSC-SA) and The University of Texas at San Antonio (UTSA) entered into a license and sponsored research agreement with Merck & Co., Inc., to develop a vaccine for Chlamydia, targeting the common sexually transmitted bacterium Chlamydia trachomatis. The license is the first exclusive license negotiated and executed by South Texas Technology Management (STTM) for technology shared by two of the four University of Texas System institutions the office serves.

University of Houston

- One of University of Houston's (UH) prime royalty producers is Vimpat®, an epilepsy drug. First invented 25 years ago, it took years for Vimpat to become ready for the commercial market, but it has recently received Food and Drug Administration (FDA) and European Medicines Agency (EMA) approvals. The drug is commercialized by UCB, a Belgium company, in the U.S. and Europe. <http://www.ucb.com/products/product-list/cns/vimpat>

- Together with The University of Texas M.D. Anderson Cancer Center, UH developed an intravenous formulation of Busulfan. To date, it has received regulatory approval for use in chemotherapy preceding stem cell transplantation in more than 40 countries. IV Busulfex® is marketed by Otsuka America Pharmaceuticals. More than 65 percent of all myeloid leukemia patients transplanted in North America received an intravenous Busulfan-based pre-transplant regimen. <http://www.ivbusulfex.com/>

The Texas A&M University System

- Global BioDiagnostics, Inc. (GBDC) was formed to commercialize the Rapid TB Diagnostic Assay, a technology from the Texas A&M University Health Science Center College of Medicine. This technology would be the world's first easy-to-use, low-cost tuberculosis diagnostic, which also provides the accuracy of bacteriological culture while being as simple as smear microscopy.

- Lisam America, Inc. was formed to commercialize safety software for chemical safety issues that was developed by the Texas Engineering Experiment Station (TEES) and Lisam Systems, a Belgian company. The technologies are compliant with European Union regulations, and significant market opportunity may also open up in the Americas.

- Phluorescent Technology is an early stage company for developing and marketing test and detection systems used to identify molecular contaminant markers. This methodology will find applications through accurate, hand-held devices in the food safety and quality industry as well as for water treatment.

- TheraPyxis, Inc. is a Texas-based biopharmaceutical company for discovering, developing, and commercializing small molecule drugs and biologics. Its first product targets commercialization drug candidates that can overcome multi-drug resistance in patients with Non Hodgkin's lymphoma.

- ProduClear partnered with Texas A&M University to design a state-of-the-art facility for pasteurization of fruits and vegetables through Electron Beam ("E-beam") Cold Pasteurization. The facility will remove parasites and pathogens from imports into the U.S. for increased consumer safety.

- The Texas Transportation Institute TTI <http://tti.tamu.edu/>and the Office of Technology Commercialization work together to license prototype security devices and full-scale research test installations so they can be installed on Texas highways. TTI technologies are responsible for approximately half of all of the license income received by the Texas A&M System. Examples of successfully commercialized innovations are:
  - The ET2000 Plus® guardrail treatment, commercialized by Trinity Industries, Inc., improves the chances of drivers surviving a run-off-the-road crash.
  - The TTI-developed breakaway sign support that allows vehicles to pass safely underneath after impact.
  - Cost-effective and easy to install, the ADIEM™ is a soft concrete crash cushion end treatment for concrete barriers in highway construction zones.
  - The HEART® crash cushion collapses on impact in an accordion-type fashion. After most crashes, the cushion expands back into place and thus may have a longer life cycle than conventional crash cushions.
  - The Shallow Bollard and the Single Pier Barriers, both developed for the U.S. Department of State, have simplified the construction of perimeter security devices and allowed for easier installation around roadway obstacles.

Appendix A

Technology Development and Transfer Survey
Fiscal Years 2009 and 2010

Completion of this biennial survey will satisfy reporting requirements under Chapter 153.008 (Texas Education Code). Any questions regarding the survey should be directed to Dale Cherry (512-427-6136; Dale.Cherry@thecb.state.tx.us). Please email, mail, or fax the completed survey to Dale Cherry, Academic Research and Grants Programs, Texas Higher Education Coordinating Board, P.O. Box 12788, Austin, TX 78711 Dale.Cherry@thecb.state.tx.us (Fax: 512-427-6168)

Deadline: Monday, October 25, 2010

Contact Information

Institution Name	
Contact Person's Name	
Title	
Department or Office	
Address	
Phone Number	
Fax Number	
E-Mail Address	

Section I: Activities to Protect and Commercialize New Intellectual Properties

Disclosures:	FY 2009	FY 2010
Number of new invention disclosures received		
How many of the new invention disclosures were software or other copyrightable material that are disclosed but not patentable?		
Number of patent applications filed: New (include first patent applications and provisionals)- U.S.		
Foreign		
Divisionals, continuations, continuations in part, and reissues- U.S.		
Foreign		
Number of new patent applications granted: U.S.		
Foreign		
Number of new Plant Variety Protection Act (PVPA) applications filed through USDA		
Number of new PVPA certificates granted		

Section I: Activities to Protect and Commercialize New Intellectual Properties, Continued

Number of new licensing agreements executed:		FY 2009	FY 2010
	Exclusive		
	Non-exclusive		
	Optional		
Number of new U.S. copyright registrations			
Number of corporations, partnerships, and other business entities established to commercialize intellectual property owned by your institution (i.e., the intellectual property is owned by the institution)			
New:	In Texas		
	Outside of Texas		
Still in existence:	In Texas		
	Outside of Texas		

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

	FY 2009			FY 2010		
	Number of shares of stock held at end of FY 2009	Number of entities	Fair Market Value at End of FY 2009	Number of shares of stock held at end of FY 2010	Number of entities	Fair Market Value at End of FY 2010
Total for publicly-traded enterprises						
Total for nonpublicly-traded enterprises						

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

	FY 2009		FY 2010	
	Number of Properties Producing Income in FY 2009	Revenue Received in FY 2009	Number of Properties Producing Income in FY 2010	Revenue Received in FY 2010
Royalties and fees				
Cashed-in equity				
Other				
Total				

Section VI: Direct Expenditures for Activities Conducted under Technology Transfer

	FY 2009		FY 2010	
	Number of FTEs at end of FY 2009	Expenses for FY 2009	Number of FTEs at end of FY 2010	Expenses for FY 2010
Personnel involved in technology transfer activities (FTE – full time equivalent, this can be a fraction)				
Facilities, Rent				
Legal Expenses: *Reimbursed by licensees* Patent Prosecution Costs				
Other Legal Expenses				
Not reimbursed by licensees Patent Prosecution Costs				
Other Legal Expenses				
Equipment (purchases in excess of $5,000)				
Operating Expenses				
Travel				
Other				
Total				

Section V: Commercial Successes

For possible inclusion in reports to the Legislature and other publications, please briefly describe up to five of your most successful commercial accomplishments for FY 2009-2010. (Expand as needed.)

Section VI: Additional Comments

Please provide comments or cautionary statements, if any, regarding reported data, survey, and or previous Technology Development and Transfer Report. Also include suggestions, if any, for improving this survey or the report.

Thank you!

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.

Lamar University
Stuart A. Wright
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Carrie Brown
Director of Office of Research and Sponsored Programs/General Counsel
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Texas A&M University System
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Director, Commercialization Services
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Texas Tech University System
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