College for all Texans

Texas Higher Education Coordinating Board

Technology Development and Transfer FY 2007 and FY 2008

January 2009

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, requires that public universities and health-related institutions report information about their technology transfer activity. This report is a compilation of data provided by each institution for Fiscal Years 2007 and 2008. Highlights include:

- Revenue received from intellectual property increased from $42,664,957 in FY 2007 to $47,549,027 in FY 2008.

- Total direct expenses for technology transfer activities were $19,524,744 in FY 2007 and $23,125,442 in FY 2008. For both years, the single largest expense category was personnel expenses (42-46 percent of all expenses).

- In FY 2007 and 2008, about 120 employees were engaged in technology transfer activities at Texas public universities and health-related institutions across the state.

- In FY 2008, Texas public universities and health-related institutions received 997 invention disclosures, were issued 135 U.S. patents, executed 120 exclusive and 103 non-exclusive licensing agreements, and formed 31 start-up companies. Twenty-one of the start-up companies were formed in Texas.

- In FY 2008, the top five entities signing exclusive licensing agreements were The University of Texas at Austin (32), The University of Texas Southwestern Medical Center at Dallas (25), The University of Texas M.D. Anderson Cancer Center (12), Texas AgriLife (8), and The University of Texas Health Science Center at Houston (7). The University of Texas at Austin executed 20 and The University of Texas M.D. Anderson Cancer Center executed 19 non-exclusive licensing agreements in FY 2008.

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

- In FY 2008, the top five institutions receiving royalty and fee income were: The University of Texas at Austin ($11 million), The University of Texas Southwestern Medical Center ($7 million), Texas Transportation Institute ($4 million), The University of Texas M.D. Anderson Cancer Center ($4 million), and The University of Texas Health Science Center at Houston ($3 million).

- Seven institutions reported receipts for cashed-in equity in FY 2007 totaling $3.3 million.

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Introduction

Through SB 1190 (TEC 153.008), the 77th Legislature authorized the establishment of Centers for Technology Development and Transfer at public higher education institutions to enhance the economic growth and diversification of the state. The legislation also directed the Coordinating Board to compile data relating to technology transfer activities at public higher education institutions. This is the fourth biennial technology transfer report to meet that requirement. The survey form 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. These are presented in Tables 1 and 2. Because protecting intellectual property usually involves a multi-year effort, patents granted during one fiscal year arise 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.

Investigators 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. The institutions typically apply for patents from the U.S. Patent and Trademark Office to legally grant them 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 will grant an exclusive license allowing only one company to use the intellectual property or a non-exclusive license that allows others to also use it. 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 2007 and 2008, all public health-related institutions, 16 public universities, and four Texas A&M service agencies reported activities related to intellectual property protection (Tables 1 and 2). Texas AgriLife and UT-Pan American were the only institutions that pursued Plant Variety Protection Act (PVPA) certificates. Texas AgriLife applied for eight PVPA certificates and was awarded five over fiscal years 2007 and 2008. UT-Pan American was awarded a certificate in 2008.

The University of Texas Southwestern Medical Center at Dallas reported the largest number of invention disclosures for fiscal year 2007, and The University of Texas M. D. Anderson Cancer Center reported the largest number for fiscal year 2008. The University of Texas M. D. Anderson Cancer Center was issued the largest number of patents over both fiscal years (34 U.S. patents in fiscal year 2007 and 34 in 2008). Sixteen institutions filed 10 or more U.S. patent applications for fiscal year 2007. The University of Texas at Austin reported the largest number of licensing agreements over both fiscal years (24 in fiscal year 2007 and 58 in 2008).

Table 1

Activities to Protect and Commercialize New Intellectual Properties, FY 2007

Institution	Invention Disclosures		Patents				
			U.S.			Foreign	
			Applications		Issued or Reissued		
	Received	Software or Unpantentable	First Filings and Provisionals	Divisionals, Continuations, Continuations in Part, and Reissues		Filed under PCT*	Number of technologies seeking protection via direct national or regional filings
Stephen F. Austin State	0	0	0	0	0	0	0
Texas A&M University System							
Prairie View A&M	5	0	1	0	1	0	0
Texas A&M	21	0	25	0	6	4	9
Texas A&M-Corpus Christi	1	0	0	0	0	0	0
Texas A&M-Kingsville	2	0	0	0	0	0	0
Texas AgriLife	46	0	16	0	4	3	2
Texas Eng. Experiment Station	55	0	36	0	7	3	5
Texas Transportation Institute	14	0	10	0	4	3	4
Texas A&M HSC	17	0	12	0	4	3	5
Office of Technology/Commercial	0	0	1	0	0	0	0
Texas State University System							
Texas State University - San Marcos	4	0	3	0	0	0	0
Texas Tech University System							
Texas Tech	18	0	9	2	0	5	0
Texas Tech HSC	13	0	6	2	1	5	0
University of Texas System							
UT at Arlington	50	0	30	2	3	4	1
UT at Austin	139	12	73	22	28	27	11
UT at Brownsville	1	0	1	0	0	0	0
UT at Dallas	30	1	7	7	8	2	0
UT at El Paso	6	0	3	1	5	2	0
UT-Pan American	6	1	7	0	0	1	0
UT at San Antonio	13	0	8	0	2	0	0
UT M.D. Anderson Cancer	131	0	90	0	34	0	0
UTMB at Galveston	76	2	67	0	7	9	0
UTHSC at Houston	70	12	16	1	9	1	0
UT Health Center at Tyler	2	0	1	0	0	0	0
UTHSC at San Antonio	27	1	29	25	4	10	7
UT Southwestern Medical Center	173	8	38	9	16	13	0
University of Houston System							
Univ. of Houston	35	4	21	13	8	3	0
University of North Texas System							
Univ. of North Texas	11	0	3	1	2	1	0
Univ. of North Texas HSC	19	0	12	4	2	1	0
Totals	**985**	**41**	**525**	**89**	**155**	**100**	**44**

*Patent Cooperation Treaty

Table 1 - continued

Activities to Protect and Commercialize New Intellectual Properties, FY 2007								
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
Stephen F. Austin State	0	0	0	0	0	0	1	0
Texas A&M University System								
Prairie View A&M	2	0	0	0	0	0	0	0
Texas A&M	0	5	1	0	0	0	0	0
Texas A&M-Corpus Christi	0	4	0	0	0	0	0	0
Texas A&M-Kingsville	0	0	0	0	0	0	0	0
Texas AgriLife	12	8	4	0	0	0	0	0
Texas Eng. Experiment Station	5	6	5	0	0	0	0	0
Texas Transportation Institute	1	2	1	0	0	0	0	0
Texas A&M HSC	4	0	0	0	0	0	0	0
Office of Technology/Commercial	0	0	0	0	0	0	0	0
Texas State University System								
Texas State University - San Marcos	0	0	0	0	1	0	0	0
Texas Tech University System								
Texas Tech	2	1	0	0	0	0	0	0
Texas Tech HSC	2	0	0	0	0	0	0	0
University of Texas System								
UT at Arlington	4	1	0	0	3	0	3	0
UT at Austin	12	11	1	0	2	1	16	14
UT at Brownsville	0	0	0	0	0	0	0	0
UT at Dallas	3	0	0	0	1	0	1	0
UT at El Paso	0	0	0	0	0	0	2	0
UT-Pan American	1	0	0	0	0	0	0	0
UT at San Antonio	0	0	0	0	0	0	0	0
UT M.D. Anderson Cancer	19	16	6	0	3	3	3	3
UTMB at Galveston	8	10	3	0	2	0	9	0
UTHSC at Houston	8	14	3	5	4	1	11	3
UT Health Center at Tyler	0	0	0	0	0	0	0	0
UTHSC at San Antonio	1	6	0	0	0	0	4	6
UT Southwestern Medical Center	2	32	1	0	0	0	3	7
University of Houston System								
Univ. of Houston	2	0	0	1	0	0	0	0
University of North Texas System								
Univ. of North Texas	0	0	0	0	0	0	0	0
Univ. of North Texas HSC	0	11	0	0	0	0	0	0
Totals	**88**	**127**	**25**	**6**	**16**	**5**	**53**	**33**

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

Table 2

Activities to Protect and Commercialize New Intellectual Properties, FY 2008

Institution	Invention Disclosures		Patents				
			U.S.			Foreign	
			Applications		Issued or Reissued		
	Received	Software or Unpantentable	First Filings and Provisionals	Divisionals, Continuations, Continuations in Part, and Reissues		Filed under PCT*	Number of technologies seeking protection via direct national or regional filings
Stephen F. Austin State	0	0	0	0	0	0	0
Texas A&M University System							
Prairie View A&M	2	0	1	0	1	0	0
Texas A&M	35	0	24	0	9	3	2
Texas A&M-Corpus Christi	2	0	0	0	0	0	0
Texas A&M-Kingsville	1	0	0	0	0	0	0
Texas AgriLife	62	0	17	0	3	3	1
Texas Eng. Experiment Station	47	0	40	0	3	12	3
Texas Forest Service	0	0	0	0	0	0	0
Texas Transportation Institute	9	0	10	0	3	1	0
Texas A&M HSC	27	0	19	0	4	4	0
Office of Technology/Commercial	1	0	0	0	0	0	0
Texas State University System							
Texas State Univ. - San Marcos	4	1	3	0	0	0	0
Texas Tech University System							
Texas Tech	24	0	5	3	4	5	0
Texas Tech HSC	19	0	4	2	0	3	0
University of Texas System							
UT at Arlington	60	0	34	2	8	7	1
UT at Austin	152	9	67	65	25	59	7
UT at Dallas	28	1	18	3	3	5	0
UT at El Paso	13	0	5	0	1	1	0
UT-Pan American	9	2	9	0	0	1	0
UT at San Antonio	9	0	5	0	1	1	0
UT at Tyler	4	1	0	0	0	0	0
UT M.D. Anderson Cancer	153	0	43	0	26	0	0
UTMB at Galveston	65	15	62	2	9	15	0
UTHSC at Houston	62	10	13	2	2	0	1
UT Health Center at Tyler	1	0	1	0	1	1	0
UTHSC at San Antonio	34	1	23	18	5	7	10
UT Southwestern Medical Center	122	6	44	16	16	21	0
University of Houston System							
Univ. of Houston	32	2	26	32	5	6	0
University of North Texas System							
Univ. of North Texas	4	0	5	0	4	2	0
Univ. of North Texas HSC	16	0	8	0	2	3	0
Totals	**997**	**48**	**486**	**145**	**135**	**160**	**25**

*Patent Cooperation Treaty

Table 2 - continued

Activities to Protect and Commercialize New Intellectual Properties, FY 2008								
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
Stephen F. Austin State	1	0	0	0	0	0	1	0
Texas A&M University System								
Prairie View A&M	0	0	0	0	0	0	0	0
Texas A&M	2	2	1	0	0	0	0	0
Texas A&M-Corpus Christi	1	0	0	0	0	0	0	0
Texas A&M-Kingsville	0	0	0	0	0	0	0	0
Texas AgriLife	8	11	3	0	0	0	0	0
Texas Eng. Experiment Station	5	2	3	0	0	0	0	0
Texas Forest Service	0	1	0	0	0	0	0	0
Texas Transportation Institute	0	0	0	0	0	0	0	0
Texas A&M HSC	2	0	0	0	0	0	0	0
Office of Technology/Commercial	0	0	0	0	0	0	0	0
Texas State University System								
Texas State Univ. - San Marcos	0	0	0	2	1	0	0	0
Texas Tech University System								
Texas Tech	2	2	0	0	2	0	3	0
Texas Tech HSC	6	1	0	0	1	1	4	1
University of Texas System								
UT at Arlington	2	1	0	0	2	0	1	0
UT at Austin	32	20	6	0	6	4	19	17
UT at Dallas	0	1	0	0	1	0	2	0
UT at El Paso	2	0	1	0	0	0	2	0
UT-Pan American	1	0	0	0	1	1	0	0
UT at San Antonio	0	0	0	0	0	0	0	0
UT at Tyler	0	0	0	1	0	0	0	0
UT M.D. Anderson Cancer	12	19	5	0	1	1	1	1
UTMB at Galveston	9	6	3	0	2	1	11	1
UTHSC at Houston	7	14	4	2	1	1	12	4
UT Health Center at Tyler	0	0	0	0	0	0	0	0
UTHSC at San Antonio	1	3	1	0	0	0	3	6
UT Southwestern Medical Center	25	14	4	0	2	1	5	8
University of Houston System								
Univ. of Houston	1	0	0	0	0	0	0	0
University of North Texas System								
Univ. of North Texas	0	0	0	0	0	0	0	0
Univ. of North Texas HSC	1	6	0	0	1	0	0	0
Totals	**120**	**103**	**31**	**5**	**21**	**10**	**64**	**38**

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

Equity Interests

Six health-related institutions, four 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 2007 and 2008, as indicated in Tables 3 and 4. The total number of shares of both publicly and non-publicly traded stock increased over the biennium. The University of Texas M.D. Anderson Cancer Center owns the largest number of shares in private and public stock. The fair market value of all holdings of public stock was about $13 million in Fiscal Year 2008.

Table 3

Established and New Equity Interests Held by Institution Through Intellectual Property Agreements, FY 2007

Institution	Number of Enterprises		Number of Non-public Shares of Stock Held	Shares of Public Stock Held	
	Non-public	Public		Number	Fair Market Value
Texas A&M University System*	10	1	5,229,606	41,823	$54,788
Texas Tech University System*	3	0	2,044,163	0	$0
University of Texas System					
UT at Arlington	2	0	1,280,000	0	$0
UT at Austin	31	0	3,363,337	0	$0
UT at Dallas	2	0	151	0	$0
UT at El Paso	2	0	10,050	0	$0
UT M.D. Anderson Cancer	24	5	10,104,987	5,532,859	$4,011,541
UTMB at Galveston	3	0	2,044,163	0	$0
UTHSC at Houston	7	2	1,547,650	49,682	$898,484
UTHSC at San Antonio	4	0	1,222,248	0	$0
UT Southwestern Medical Center	6	1	3,760,265	1.6	$9.82
University of Houston System*	1	0	70	0	$0
University of North Texas System					
Univ. of North Texas HSC	0	1	0	300,000	$94,109
Totals	**95**	**10**	**30,606,690**	**5,924,365.6**	**$5,058,931.82**

*Reported by System Administration.

Table 4

Established and New Equity Interests Held by Institution Through Intellectual Property Agreements, FY 2008					
Institution	Number of Enterprises		Number of Non-public Shares of Stock Held	Shares of Public Stock Held	
	Non-public	Public		Number	Fair Market Value
Texas A&M University System*	10	2	5,227,606	1,655,043	$122,305
Texas Tech University System*	5	0	2,404,777	0	$0
University of Texas System					
UT at Arlington	2	0	1,280,000	0	$0
UT at Austin	31	0	3,545,694	0	$0
UT at Dallas	2	0	151	0	$0
UT at El Paso	2	0	10,050	0	$0
UT M.D. Anderson Cancer	32	5	13,976,908	7,379,456	$12,183,209
UTMB at Galveston	5	0	2,404,777	0	$0
UTHSC at Houston	11	1	3,504,618	40,881	$750,984
UTHSC at San Antonio	4	0	1,222,248	0	$0
UT Southwestern Medical Center	7	1	8,374,473	1.6	$2.58
University of Houston System*	4	0	215	0	$0
University of North Texas System					
Univ. of North Texas HSC	1	0	7,900	0	$0
Totals	**116**	**9**	**41,959,417**	**$9,075,381.6**	**$13,056,500.58**

*Reported by System Administration.

Intellectual Property Income

Revenue received from intellectual property increased slightly from $42,664,957 in FY 2007 to $47,549,027 in FY 2008, an 11.4 percent increase (Tables 5 and 6). This small increase in revenue does not represent a stall in the intellectual property value or activity for the institutions because the fair market value of shares of stock in publicly traded companies increased significantly (Table 3) over the same period. 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 FY 2008: The University of Texas Southwestern Medical Center ($7.2 million), The University of Texas at Austin ($11.6 million), The University of Texas M.D. Anderson Cancer Center ($8.1 million), the Texas Transportation Institute ($4.5 million), the Texas Engineering Experiment Station ($3.7 million), The University of Texas Health Science Center at Houston ($3.4 million), Texas AgriLife ($2.7 million), The University of Texas Health Science Center at San Antonio ($2.5 million), University of Houston ($1.1 million), and The University of Texas Medical Branch at Galveston ($1.1 million). The Texas Transportation Institute continues to deploy a smaller number of properties producing a sizeable revenue stream as compared with other institutions.

Table 5

Revenue Received from Intellectual Property Owned by Institution, FY 2007

Institution	Type of Properties Producing Revenue:				
	Royalties and Fees		Cashed-in Equity	Other	
	Number of Properties	$	$	$	Total
Texas A&M University System					
Texas A&M	41	$171,594	$0	$0	$171,594
Texas A&M-Corpus Christi	1	$3,895	$0	$0	$3,895
Texas AgriLife	155	$2,038,001	$0	$0	$2,038,001
Texas Eng. Experiment Station	185	$812,541	$0	$0	$812,541
Texas Transportation Institute	40	$4,411,941	$0	$0	$4,411,941
Texas A&M HSC	41	$36,699	$0	$0	$36,699
Texas Tech University System					
Texas Tech	10	$143,664	$0	$59,592	$203,256
Texas Tech Univ HSC	3	$19,806	$2,000	$6,639	$28,444
University of Texas System					
UT at Arlington	9	$4,564,326	$0	$0	$4,564,326
UT at Austin	67	$6,751,565	$15,222	$0	$6,766,787
UT at Dallas	3	$22,000	$0	$0	$22,000
UT at El Paso	3	$3,557	$0	$0	$3,557
UT-Pan American	1	$945	$0	$0	$945
UT M.D. Anderson Cancer	20	$2,384,967	$2,024,123	$2,622,933	$7,032,023
UTMB at Galveston	27	$948,437	$8,000	$0	$956,437
UTHSC at Houston	67	$3,717,858	$833,885	$84,698	$4,636,441
UT Health Center at Tyler	0	$0	$0	$0	$0
UTHSC at San Antonio	60	$1,606,882	$0	$0	$1,606,882
UT Southwestern Medical Center	148	$7,070,989	$367,154	$43,624	$7,481,767
University of Houston System					
Univ. of Houston	42	$1,728,698	$0	$0	$1,728,698
University of North Texas System					
Univ. of North Texas	0	$0	$0	$0	$0
Univ. of North Texas HSC	11	$64,614	$94,109	$0	$158,723
Totals	**934**	**$36,502,978**	**$3,344,493**	**$2,817,486**	**$42,664,957**

Table 6

Revenue Received from Intellectual Property Owned by Institution, FY 2008

Institution	Type of Properties Producing Revenue:				
	Royalties and Fees		Cashed-in Equity	Other	Total
	Number of Properties	$	$	$	
Texas A&M University System					
Prairie View A&M	2	$17,500	$0	$0	$17,500
Texas A&M	58	$290,600	$0	$0	$290,600
Texas A&M-Corpus Christi	1	$3,350	$0	$0	$3,350
Texas AgriLife	175	$2,691,683	$0	$0	$2,691,683
Texas Eng. Experiment Station	190	$703,136	$0	$3,000,000	$3,703,136
Texas Transportation Institute	45	$4,489,992	$0	$0	$4,489,992
Texas A&M HSC	45	$429,157	$0	$0	$429,157
Texas State University System					
Texas State University - San Marcos	3	$30,095	$0	$0	$30,095
Texas Tech University System					
Texas Tech	6	$287,995	$38,975	$97,450	$424,420
Texas Tech HSC	3	$16,190	$8,173	$15,540	$39,903
University of Texas System					
UT at Arlington	19	$173,596	$0	$0	$173,596
UT at Austin	62	$10,927,783	$625,944	$0	$11,553,727
UT at Dallas	2	$185,000	$0	$0	$185,000
UT at El Paso	3	$4,762	$0	$0	$4,762
UT-Pan American	1	$5,226	$0	$0	$5,226
UT M.D. Anderson Cancer	26	$3,807,967	$1,752,732	$2,570,289	$8,130,988
UTMB at Galveston	24	$998,782	$0	$110,000	$1,108,782
UTHSC at Houston	72	$2,822,281	$448,851	$104,774	$3,375,906
UTHSC at San Antonio	58	$2,491,100	$0	$0	$2,491,100
UT Southwestern Medical Center	180	$7,175,561	$283	$46,324	$7,222,168
University of Houston System					
Univ. of Houston	24	$1,129,314	$0	$0	$1,129,314
University of North Texas System					
Univ. of North Texas HSC	14	$48,622	$0	$0	$48,622
Totals	**1,013**	**$38,729,692**	**$2,874,958**	**$5,944,377**	**$47,549,027**

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 120 employees, primarily professional and support staff, are engaged in technology transfer activities at the public higher education institutions across the state. The single largest outlay is for personnel followed by patent prosecution costs. Reimbursed legal expenses totaled $4.1 and $4.3 million for Fiscal Years 2007 and 2008 respectively and are not shown in the tables.

Table 7

Total Expenses for Activities Conducted Under Technology Transfer, FY 2007

Institution	Personnel	Facilities, Rent	Unreimbursed Legal Expenses	
			Patent Prosecution	Other
Stephen F. Austin State	$0	$0	$3,029	$0
Texas A&M University System*	$1,739,515	$67,632	$1,017,345	$0
Texas State University System				
Texas State - San Marcos	$32,500	$0	$0	$2,659
Texas Tech University System*	$505,060	$0	$503,947	$0
University of Texas System				
UT at Arlington	$172,379	$15,000	$232,328	$0
UT at Austin	$1,380,437	$0	$665,223	$294,111
UT at Dallas	$0	$0	$229,000	$0
UT at El Paso	$170,556	$0	$39,974	$0
UT-Pan American	$42,539	$0	$39,379	$0
UT at San Antonio	$62,604	$0	$66,708	$0
UT M.D. Anderson Cancer	$1,384,607	$0	$897,684	$0
UTMB at Galveston	$505,060	$0	$503,947	$0
UTHSC at Houston	$416,085	$0	$70,048	$18,971
UT Health Center at Tyler	$0	$0	$0	$45,292
UTHSC at San Antonio	$351,240	$69,186	$298,337	$0
UT Southwestern Medical Center	$1,816,965	$0	$686,214	$0
University of Houston System*	$0	$0	$0	$348,570
University of North Texas System				
Univ. of North Texas	$174,992	$0	$172,679	$0
Univ. of North Texas HSC	$178,832	$0	$81,969	$0
Totals	**$8,933,371**	**$151,818**	**$5,507,811**	**$709,604**

*Reported by System Administration.

Table 7 - continued

Total Expenses for Activities Conducted Under Technology Transfer, FY 2007				
Institution	**Operating Expenses**	**Travel**	**Other and Equipment Purchases in excess of $5,000**	**Total**
Stephen F. Austin State	$0	$0	$0	$3,029
Texas A&M University System*	$186,985	$116,065	$0	$3,127,542
Texas State University System				
Sull Ross State	$500	$7,800	$0	$43,459
Texas Tech University System*	$122,504	$10,195	$0	$1,141,706
University of Texas System				
UT at Arlington	$14,365	$5,786	$0	$439,858
UT at Austin	$327,691	$40,151	$14,394	$2,722,007
UT at Dallas	$0	$0	$0	$229,000
UT at El Paso	$0	$4,630	$0	$215,160
UT-Pan American	$3,000	$6,302	$0	$91,220
UT at San Antonio	$0	$456	$46,958	$176,726
UT M.D. Anderson Cancer	$1,467,082	$61,077	$21,298	$3,831,748
UTMB at Galveston	$122,504	$10,195	$0	$1,141,706
UTHSC at Houston	$63,282	$14,152	$0	$582,538
UT Health Center at Tyler	$0	$0	$0	$45,292
UTHSC at San Antonio	$58,168	$4,690	$0	$781,621
UT Southwestern Medical Center	$234,338	$61,201	$0	$2,798,718
University of Houston System*	$949,769	$22,811	$0	$1,321,150
University of North Texas System				
Univ. of North Texas	$0	$0	$0	$347,671
Univ. of North Texas HSC	$43,951	$7,162	$0	$311,914
Totals	**$3,594,139**	**$372,673**	**$82,650**	**$19,352,065**

*Reported by System Administration.

Table 8

Total Expenses for Activities Conducted Under Technology Transfer, FY 2008				
Institution	**Personnel**	**Facilities, Rent**	**Unreimbursed Legal Expenses**	
			Patent Prosecution	**Other**
Stephen F. Austin State	$0	$0	$9,824	$0
Texas A&M University System*	$1,737,176	$67,632	$840,923	$1,094,737
Texas State University System				
Texas State - San Marcos	$94,421	$0	$26,515	$0
Texas Tech University System*	$561,395	$0	$863,307	$0
University of Texas System				
UT at Arlington	$192,869	$15,000	$244,978	$0
UT at Austin	$1,323,903	$0	$793,050	$427,357
UT at Dallas	$0	$0	$222,000	$0
UT at El Paso	$176,479	$0	$8,785	$16,900
UT-Pan American	$57,628	$0	$39,854	$0
UT at San Antonio	$64,482	$0	$52,551	$0
UT at Tyler	$6,875	$0	$0	$0
UT M.D. Anderson Cancer	$1,403,504	$0	$1,427,267	$0
UTMB at Galveston	$561,395	$0	$863,307	$0
UTHSC at Houston	$652,073	$0	$0	$9,402
UT Health Center at Tyler	$0	$0	$0	$43,269
UTHSC at San Antonio	$663,793	$77,732	$541,995	$0
UT Southwestern Medical Center	$1,866,235	$0	$850,625	$0
University of Houston System*	$0	$0	$0	$200,903
University of North Texas System				
Univ. of North Texas	$111,394	$0	$102,254	$0
Univ. of North Texas HSC	$179,982	$0	$104,642	$0
Totals	**$9,653,604**	**$160,364**	**$6,991,877**	**$1,792,568**

*Reported by System Administration.

Table 8 - continued

Total Expenses for Activities Conducted Under Technology Transfer, FY 2008				
Institution	**Operating Expenses**	**Travel**	**Other and Equipment Purchases in excess of $5,000**	**Total**
Stephen F. Austin State	$0	$0	$0	$9,824
Texas A&M University System*	$323,571	$94,482	$90,051	$4,248,572
Texas State University System				
Texas State - San Marcos	$200	$5,089	$5,000	$131,225
Texas Tech University System*	$79,299	$13,849	$0	$1,517,850
University of Texas System				
UT at Arlington	$23,129	$9,492	$0	$485,468
UT at Austin	$292,098	$16,825	$42,106	$2,895,339
UT at Dallas	$0	$0	$0	$222,000
UT at El Paso	$0	$5,829	$0	$207,993
UT-Pan American	$5,000	$5,393	$0	$107,875
UT at San Antonio	$0	$2,376	$295,000	$414,409
UT at Tyler	$0	$1,000	$0	$7,875
UT M.D. Anderson Cancer	$1,467,296	$43,736	$20,055	$4,361,858
UTMB at Galveston	$79,299	$13,849	$0	$1,517,850
UTHSC at Houston	$60,517	$12,268	($3,550)	$730,710
UT Health Center at Tyler	$0	$0	$0	$43,269
UTHSC at San Antonio	$150,364	$13,678	$0	$1,447,562
UT Southwestern Medical Center	$530,077	$58,450	$0	$3,305,387
University of Houston System*	$719,259	$6,640	$0	$926,802
University of North Texas System				
Univ. of North Texas	$0	$0	$0	$213,648
Univ. of North Texas HSC	$37,508	$7,794	$0	$329,926
Totals	**$3,767,617**	**$310,750**	**$448,662**	**$23,125,442**

*Reported by System Administration.

Technology Transfer Net Income

Although intellectual property income has been steadily growing (Figure 1, page 16), most technology transfer offices have been in place for a relatively short period of time and may continue to operate at a deficit. 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 2007

Institution	(a) Total Expenses for Technology Transfer	(b) Revenue Received from Intellectual Properties	(a - b) Net Income
Stephen F. Austin State	$3,029	$0	($3,029)
Texas A&M University System*	$3,127,542	$7,474,671	$4,347,129
Texas State University System			
Texas State - San Marcos	$43,459	$0	($43,459)
Texas Tech University System*	$1,141,706	$231,700	($910,006)
University of Texas System			
UT at Arlington	$439,858	$4,564,326	$4,124,468
UT at Austin	$2,722,007	$6,766,787	$4,044,780
UT at Dallas	$229,000	$22,000	($207,000)
UT at El Paso	$215,160	$3,557	($211,603)
UT-Pan American	$91,220	$945	($90,275)
UT at San Antonio	$176,726	$0	($176,726)
UT M.D. Anderson Cancer	$3,831,748	$7,032,023	$3,200,275
UTMB at Galveston	$1,141,706	$956,437	($185,269)
UTHSC at Houston	$582,538	$4,636,441	$4,053,903
UT Health Center at Tyler	$45,292	$0	($45,292)
UTHSC at San Antonio	$781,621	$1,606,882	$825,261
UT Southwestern Medical Center	$2,798,718	$7,481,767	$4,683,049
University of Houston System*	$1,321,150	$1,728,698	$407,548
University of North Texas System			
Univ. of North Texas	$520,350	$0	($520,350)
Univ. of North Texas HSC	$311,914	$158,723	($153,191)
Totals	**$19,524,744**	**$42,664,957**	**$23,140,213**

*Reported by System Administration.

Table 10

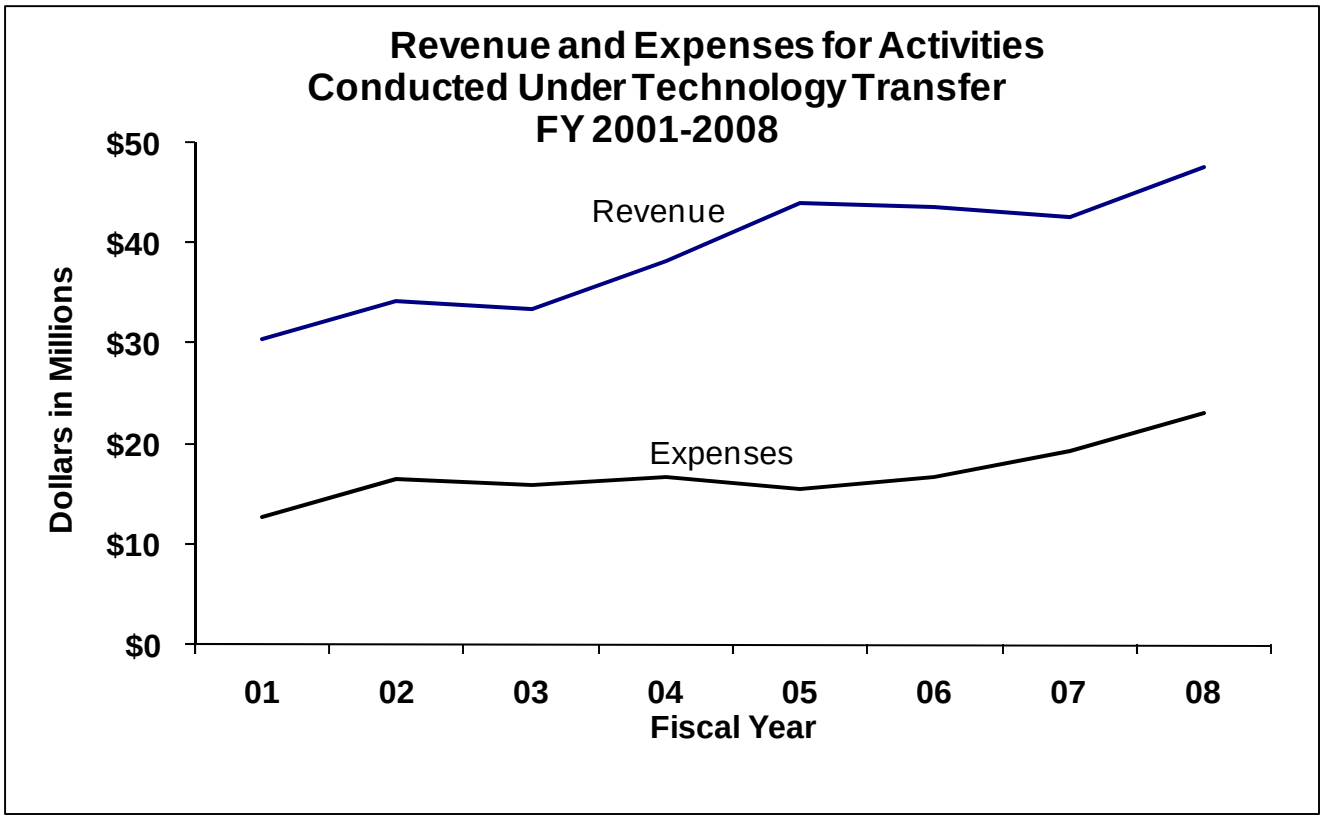
Net Income for Activities Conducted Under Technology Transfer, FY 2008			
Institution	**(a) Total Expenses for Technology Transfer**	**(b) Revenue Received from Intellectual Properties**	**(a - b) Net Income**
Stephen F. Austin State	$9,824	$0	($9,824)
Texas A&M University System*	$4,248,572	$11,625,418	$7,376,846
Texas State University System			
Texas State - San Marcos	$131,225	$30,095	($101,130)
Texas Tech University System*	$1,517,850	$464,323	($1,053,527)
University of Texas System			
UT at Arlington	$485,468	$173,596	($311,872)
UT at Austin	$2,895,339	$11,553,727	$8,658,388
UT at Dallas	$222,000	$185,000	($37,000)
UT at El Paso	$207,993	$4,762	($203,231)
UT-Pan American	$107,875	$5,226	($102,649)
UT at San Antonio	$414,409	$0	($414,409)
UT at Tyler	$7,875	$0	($7,875)
UT M.D. Anderson Cancer	$4,361,858	$8,130,988	$3,769,130
UTMB at Galveston	$1,517,850	$1,108,782	($409,068)
UTHSC at Houston	$730,710	$3,375,906	$2,645,196
UT Health Center at Tyler	$43,269	$0	($43,269)
UTHSC at San Antonio	$1,447,562	$2,491,100	$1,043,538
UT Southwestern Medical Center	$3,305,387	$7,222,168	$3,916,781
University of Houston System*	$926,802	$1,129,314	$202,512
University of North Texas System			
Univ. of North Texas	$213,648	$0	($213,648)
Univ. of North Texas HSC	$329,926	$48,622	($281,304)
Totals	**$23,125,442**	**$47,549,027**	**$24,423,584**

*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 the following success stories related to technology transfer activities for Fiscal Years 2007 and 2008.

- Two companies, Terapio and Texas Piezoelectric, Inc., based on exclusively licensed UT-Arlington technologies, were awarded almost $2 million in funding from the Texas Emerging Technology Funds for commercialization. (http://www.terapio.com/)

- Texas Piezoelectric, Inc., a licensee of UT Arlington technology, develops material and device technologies that harvest energy from naturally available sources such as the wind or sun into micro-power. This micro-power will be transferred into battery-free, isolated electronic devices such as medical implants and wireless environmental sensors or used to further complement traditional storage components. UT-Arlington and UT-Dallas are collaborators in these developments as well.

- Resonant Sensors, Inc., a licensee of UT-Arlington technology, has received a $600,000 award from the Texas Emerging Technology Fund to further develop and commercialize a new class of sensors. These revolutionary sensors will be used in the production of biomedical compounds and drugs and allow researchers to rapidly and accurately evaluate the performance of experimental new drug compounds. (http://64.78.30.83/index.htm)

- In August, UT-Arlington launched the Venture Lab, envisioned as a way to promote technology commercialization and economic development activity among faculty, staff, and students. The Venture Lab provides market analysis, patentability assistance, technology evaluation, and business planning among other resources. The lab features dedicated graduate students from engineering, science, business, graphic arts, and legal experts.

- UTHSC at San Antonio and Azaya Therapeutics, Inc. announced a licensing agreement for a novel nano-scale, lipid-sphere technology conceived and pre-clinically tested by Health Science Center faculty. Azaya Therapeutics will develop and commercialize the novel cancer treatment, which is based on the work of Ande Bao, Ph.D., William T. Phillips, M.D., and Beth Goins, Ph.D., professors of radiology at the Health Science Center. (http://www.azayatherapeutics.com/)

- LifeCell, Inc. develops and markets products in the field of regenerative medicine for use in reconstructive surgical procedures. LifeCell began with technology developed by UTHSC at Houston's Dr. John Linner. LifeCell's products include ALLODERM®, a regenerative tissue matrix for plastic reconstruction. Revenues for 2008 are estimated at $233 million, and Kinetics Concepts, Inc. has recently announced that it will acquire LifeCell for $1.7 billion. (http://www.lifecell.com/ http://www.kci1.com/)

- NanoMedical Systems (NMS) a recent UTHSC at Houston portfolio company, is developing novel implantable nanochannel-based drug delivery systems developed by Dr. Mauro Ferrari and colleagues. Nano-channel chips allow for controlled drug release from subcutaneous reservoirs. NMS is pioneering personalized medicine by integrating semiconductor, biotechnology, MEMS/NEMS and pharmaceutical. (http://www.nanomedsys.com/)

- Leonardo BioSystems, Inc. uses multi-stage nanovector drug delivery technology developed by UTHSC at Houston's Dr. Mauro Ferrari and colleagues to facilitate chemotherapy and

biological anti-cancer agent delivery. The Company's first target market is drug refractory breast cancer.

- BioCenter at Southwestern Medical District is a 15.5 acre biomedical business venue for the development of a robust biomedical industry in the heart of Dallas, at Southwestern Medical District. Developed and principally funded by UT Southwestern Medical Center, the phase I building will open in July 2009 and house 100,000 sq. ft of biomedical commercial operations. Three additional buildings of equal size are planned, plus two parking garages. The first building will also house a biomedical business incubator to develop new companies in the field arising from UT Southwestern Medical Center as well as new biomedical companies from elsewhere. (http://biocenterdallas.com/)

- A mutant form of tPA resistant to inhibition was developed by investigators at UT Southwestern Medical Center. This product, called TNKase®, is a new and improved form of the popular "clot busting" drug Activase®, which is used to dissolve clots causing acute myocardial infarction. This advance, commercialized by two licensees, has generated over $20 million in license revenues for the University.

- Starr Frame LLC is a start up company developed at the instigation of, and in collaboration with, UT Southwestern Medical Center to commercialize the Starr Frame Pelvic Reduction Device, invented at UT Southwestern Medical Center. Starr Frame LLC has also licensed from UT Southwestern Medical Center new surgical tools that amplify the utility of the Frame device in the percutaneous reduction of displaced fractures of the pelvic ring. This greatly reduces the morbidity of the surgery and the risk of infection. The university is compensated by royalties and a percentage in the proceeds upon the acquisition by a third-party company of Starr Frame LLC as a whole, or of one or more of the product lines based on a university license. (http://starrframe.com/)

- An intravascular device technology developed by a UT Southwestern Medical Center interventional neuroradiologist was licensed in early 2000. Upon obtaining regulatory approval, UT Southwestern Medical Center's licensee introduced the intravascular devices to the market in 2006. During the following year, these products generated over $26 million in sales for the company and even greater sales are anticipated for 2008. Since its conception, the technology has generated more than $2.4 million in revenue for UT Southwestern and is anticipated to generate a strong royalty stream in the future.

- ActaCell, Inc. is an Austin-based company that is pioneering refinements to battery technology that will deliver long cycle life at low cost with safety as the number one priority. Based on lithium-ion battery technology developed at UT-Austin, ActaCell will significantly impact industries that rely on rechargeable batteries, such as hybrid electric vehicles. ActaCell's innovative technologies can revolutionize the world of batteries by reducing costs while improving longevity, performance and safety. The company has recently received $5.8 million in Series A financing from an investment consortium led by DFJ Mercury that includes Google.org, Applied Ventures and Good Energies. The proceeds from the financing will be used to hire key technical talent and to further develop ActaCell's technology for commercial purposes. Still in the development phase, ActaCell's technology has not been publicly disclosed. Full product and technology announcements will follow in early 2009. (http://www.actacell.com/)

- nanoTox, Inc., is a Houston-based company offering advanced technology capable of

identifying minute concentrations of nano-particles in living tissue. Developed by Dr. James Tunnell of the UT-Austin's Department of Biomedical Engineering, this technology addresses a growing concern in the development of safe and effective healthcare treatments: the ability to determine what becomes of nano-particles that are applied or administered to the body. Nano-particles designed to concentrate in certain locations such as tumor tissue for diagnostic or therapeutic purposes could cause harm if accumulated in other healthy tissues, such as the brain or heart. This technology creates tools that provide a non-invasive procedure to establish whether nano-particles remain in tissue or are flushed out after being applied or administered to the body. The license grants nanoTox® exclusive, worldwide rights to the technology which includes the development of medical diagnostic applications. The company also plans to further develop the technology for other uses such as the nanotechnology risk-assessment market. (http://www.nanotox.com/)

- In 2004, UT-Austin professor Dr. John McDevitt and CEO Richard Hawkins founded LabNow, Inc., a company poised to revolutionize the way in which HIV/AIDS patients are staged for treatment throughout the world. The LabNow "lab-on-a-chip" platform has the capability to automate complex fluid analysis quickly, accurately, and at a lower cost than current methods. Although there is greater access to pharmaceutical treatments for HIV/AIDS, adequate patient monitoring systems remain unavailable for most of the people afflicted by this disease. LabNow's initial focus is on point-of-care testing markets for in vitro diagnostic applications. Additionally, the microfluidics sensor technology has broad uses in medical, homeland security, environmental chemistry, and process engineering applications. After signing an exclusive, worldwide licensing agreement, LabNow initially received $14 million in investment capital and was cited by Business Week as poised to cash in on the $5 billion global market for point-of-care testing. In 2007, LabNow raised an additional $20 million from a syndicate of private and venture investors. (http://www.labnow.com/)

Appendix A

Technology Development and Transfer Survey
Fiscal Years 2007 and 2008

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, November 3, 2008

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 2007	FY 2008
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 new U.S. patent applications filed: First patent applications and provisionals		
Divisionals, continuations, continuations in part, and reissues		
Number of new U.S. patents issued or reissued		
Number of new Patent Cooperation Treaty (PCT) applications filed		
If foreign protection on a technology was not sought via a PCT application, the number of new technologies for which foreign patent protection is sought via direct national or regional filings		
Number of new Plant Variety Protection Act (PVPA) applications filed through USDA		
Number of new PVPA certificates issued		

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

Number of new licensing agreements executed:		FY 2007	FY 2008
	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 2007			FY 2008		
	Number of shares of stock held at end of FY 2007	Number of entities	Fair Market Value at End of FY 2007	Number of shares of stock held at end of FY 2008	Number of entities	Fair Market Value at End of FY 2008
Total for publicly-traded enterprises						
Total for nonpublicly-traded enterprises						

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

	FY 2007		FY 2008	
	Number of Properties Producing Income in FY 2007	Revenue Received in FY 2007	Number of Properties Producing Income in FY 2008	Revenue Received in FY 2008
Royalties and fees				
Cashed-in equity				
Other				
Total				

Section VI: Direct Expenditures for Activities Conducted under Technology Transfer

	FY 2007		FY 2008	
	Number of FTEs at end of FY 2007	Expenses for FY 2007	Number of FTEs at end of FY 2008	Expenses for FY 2008
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 2007-2008. (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.

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