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FOR
TECHNOLOGY TRANSFER AND RESEARCH COMMITTEE**

Committee Meeting: 8/22/2012
Austin, Texas

*James D. Dannenbaum, Chairman
R. Steven Hicks, Vice Chairman
Alex M. Cranberg
Printice L. Gary
Brenda Pejovich*

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Convene	<i>9:30 a.m. Chairman Dannenbaum</i>	
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1. **U. T. System: Discussion of "A Plan Forward for Technology Commercialization and Site Visits to Leading Institutions"**

DISCUSSION

Mr. Barry Burgdorf, Vice Chancellor and General Counsel, and Mr. Bryan Allinson, Executive Director of Technology Commercialization, will discuss the document "A Plan Forward for Technology Commercialization and Site Visits to Leading Institutions" set forth on the following pages.

The Plan is consistent with goals set forth for technology transfer actions in the Framework for Advancing Excellence Action Plan, with goals identified by the Chancellor's Technology Commercialization Advisory Cabinet, and by the November 2011 Vinson & Elkins report to the Board of Regents on "Technology Transfer Review."

The discussion will focus on the proposed "Next Steps" set out in Pages 398 - 400.

A Plan Forward for Technology Commercialization and Site Visits to Leading Institutions

Background: A Framework for Advancing Excellence throughout The U. T. System: Action Plan

The U. T. System Board of Regents unanimously adopted *A Framework for Advancing Excellence throughout The University of Texas System: Action Plan* (Framework) presented by Chancellor Francisco G. Cigarroa at the August 2011 meeting of the Board. In particular, four provisions of the Framework are highly correlated to technology commercialization, including promoting strategic research collaboration, augmenting technology transfer and commercialization, support for emerging research universities and advancing technology/biotechnology hubs in Austin and other metropolitan areas.

Exhibit 1 displays relevant portions of the Framework relating specifically to technology transfer.

Background: Chancellor's Technology Commercialization Advisory Cabinet

In April 2012, the U. T. System coordinated the inaugural annual meeting of the Chancellor's Technology Commercialization Advisory Cabinet¹ which was created to help boost the U. T. System mission to enhance the success of translating the remarkable discoveries from System institutions to the benefit of society. Chancellor Cigarroa appointed fourteen individuals from industry to serve on the cabinet. Their expertise, perspectives, and recommendations will undoubtedly help to advance technology commercialization activities throughout the U. T. System. A progress report is planned for October 2012, with the next meeting scheduled for April 2013.

Distinguished industry leaders serving on the cabinet are:

- David G. Booth, Chairman and Co-CEO of Dimensional Fund Advisors
- Clint W. Bybee, Co-founder and Managing Director of ARCH Venture Partners
- Ernest H. Cockrell, Chairman of Cockrell Interests, Inc. and President and Director of The Cockrell Foundation
- Jonathan J. Fleming, Managing General Partner of Oxford Bioscience Partners
- Thomas J. Meredith, Co-founder and General Partner of Meritage Capital, LP
- James J. Mulva, Chairman and Chief Executive Officer of ConocoPhillips
- Ron Nixon, Co-founding Principal at The Catalyst Group, Inc.
- Robert B. Rowling, Owner and Chairman of TRT Holdings, Inc.
- Dr. Joseph C. Salamone, Co-founder of Polymer Technology Corporation
- Charles W. Tate, Chairman and Founding Partner of Capital Royalty

¹ <http://www.utsystem.edu/blog/2012/05/01/chancellors-technology-commercialization-advisory-cabinet>

Framework Focus	Action Items	Responsible Parties	Goals/Metrics (Best estimates)*	Timeline (Best estimates)*	
3. Research A. Promote strategic research collaborations B. Augment technology transfer and commercialization C. Support emerging research universities	A. Promote strategic research collaborations				
	1. Identify and pursue synergistic collaborations among UT System institutions, other higher education institutions, government agencies, as well as public and private entities to produce more externally sponsored research funding and to create shared facilities (e.g., laboratory space, equipment).	<ul style="list-style-type: none"> Institution Presidents EVC for Academic Affairs EVC for Health Affairs EVC for Business Affairs VC for Federal Relations 	A. Increase research expenditures and support	A. May 2012 (Report to Regents)	
	2. Identify new revenue streams, including philanthropy, to support research missions.	<ul style="list-style-type: none"> Institution Presidents VC for External Relations 	A. Enhanced research success	A. Ongoing	
	B. Augment technology transfer and commercialization				
	1. Fund new System initiative to enhance technology transfer and commercialization.	<ul style="list-style-type: none"> Chancellor's Office EVC for Business Affairs 	A. Identified funding	A. August 2011 (Funding recommendation to Regents)	
	C. Support emerging research universities				
	1. Develop business plans, to operationalize the institutional strategic plans required by HB 51 (81 st Texas Legislature) to enhance teaching, student success and research.	<ul style="list-style-type: none"> Emerging Institutions <ul style="list-style-type: none"> UTA President UTD President UTEP President UTSA President EVC for Academic Affairs 	A. Completed institutional business plans to EVC for Academic Affairs B. Briefing for the Board of Regents	A. Spring 2012 B. May 2012 (Report to Regents)	
	8. The Health of Texas				
	A. Implement Transformation in Medical Education (TIME) pilot projects B. Advance medical education and research in Austin C. Advance Austin, and other metropolitan areas, as technology/biotechnology research hubs D. Improve patient safety and quality	C. Advance Austin, and other metropolitan areas, as technology/biotechnology research hubs			
		1. Leverage research productivity and reputation of UT System and UT Austin to attract greater resources for the advancement of UT and Austin as a technology/biotechnology hub (e.g., venture capitalists, angel investors, etc).	<ul style="list-style-type: none"> EVC for Business Affairs EVC for Academic Affairs EVC for Health Affairs AVCs for Research UT Austin President 	A. Increased investments in UT affiliated start-ups and established technology and biotechnology businesses in Austin	A. August 2012 (Report on progress/initiatives to Chancellor)

Exhibit 1. Selected portions of *A Framework for Advancing Excellence throughout The University of Texas System: Action Plan*

Prepared by: Bryan Allinson
 Date: August 2012

- Ralph B. Thomas, Senior Vice President, Portfolio Manager and member of the Investment Committee at Fayez Sarofim & Co.
- John D. Thornton, General Partner at Austin Ventures.
- Rex W. Tillerson, Chairman and Chief Executive Officer of ExxonMobil

In addition to these individuals, U. T. System also invited two institutional leaders to serve as ambassadors to the cabinet. Ambassadors include Ronald DePinho, M.D., President of The University of Texas MD Anderson Cancer Center, and Dr. Gregory L. Fenves, Dean of the Cockrell School of Engineering at The University of Texas at Austin.

The Chancellor’s Technology Commercialization Advisory Cabinet and ambassadors identified six high-level goals for consideration by the U. T. System Board of Regents:

#	Goals
1	Improve return on investment from research expenditures
2	Leverage strengths of larger institutions
3	Support growth of emerging and comprehensive institutions
4	Better educate faculty about technology transfer, consider offering “boot camps”
5	Create efficiencies and cost savings by leveraging the resources of U. T. System
6	Create a beachhead into industry, build the U. T. “brand”

Exhibit 2. Goals identified at the Chancellor’s Technology Commercialization Advisory Cabinet Meeting, April 2012

Background: Vinson & Elkins Report

In November 2011, Dr. Margaret Sampson from Vinson & Elkins presented a fourmonth consulting review of technology transfer at U. T. System institutions to the U. T. System Board of Regents’ Technology Transfer and Research Committee². Dr. Sampson identified five short-term and four long-term goals, displayed in the exhibit below.

Exhibit 3 displays relevant portions of the Vinson & Elkins Report.

² <http://www.utsystem.edu/sites/utsfiles/offices/board-of-regents/board-meetings/agenda-book-full/11-11CompleteABminusDocket.pdf>

#	Short Term Goals	Recommended Action
1	Mine technology transfer within U. T. System.	Hire more technology managers with business expertise in specific industry sectors.
2	Empower researchers in the technology transfer process.	Provide a central portal for education and actively involve researchers in commercialization.
3	Facilitate licensing of U. T. copyrighted materials.	Provide on-line portal to download copyrighted materials.
4	Remove potential road blocks for increasing inventor participation in commercialization.	Review and update conflict of interest policies.
5	Create consistent incentives for technology managers at U. T. institutions.	Prepare a white paper for the U. T. System on Structured Bonus Programs.

#	Long Term Goals	Recommended Action
6	Provide a significant fund to commercialize U. T. technologies.	(a) Establish a \$50-100M fund; and (b) Target investment in promising early stage technologies and market opportunities.
7	Increase investment in offices of Technology Commercialization.	Considering adequate funding mechanisms to support technology transfer; review options such as indirect costs, royalty revenue and distribution of revenue.
8	Invest in strategic partnerships.	Create a beachhead into industry; establish a high-profile relationship, e.g. University of California – San Francisco/Pfizer partnership.
9	Invest in globalization and international branding.	Establish relationships with foreign investors.

Exhibit 3. Short-term (top) and long-term (bottom) goals and recommendations for U. T. System as prepared by consultant Vinson & Elkins, presented to the U. T. System Board of Regents, November 2011

Follow-up: Site Visits and Data Mining

As a follow-up to the Chancellor's Technology Commercialization and Vinson & Elkins reports, consistent with the objectives of the Framework, U. T. System visited several leading institutions and also analyzed data from 173 public and private institutions.

Site visits to leading institutions. U. T. System officials visited the University of Wisconsin, Stanford University, University of California, Harvard University, the Massachusetts Institute of Technology, and Partners Health System (a partnership among Massachusetts General Hospital, Brigham & Womens, and other hospitals in Boston). Those site visits and conference calls took place between January 2012 and June 2012.

Prepared by: Bryan Allinson

Date: August 2012

	WARF	Stanford	UC System	MIT	Harvard	Partners	U. T. System
Research Expenditures	\$1,029M	\$806M	\$5,172M	\$1,400M	\$770M	\$674M / \$537M ³	\$2,346M
FTE⁴	78	35	33 ⁵	40	37	70	3 ^{1,6}
Licensing Income	\$54.3M	\$65.5M	\$104.4M	\$69.2M	\$10.0M	\$77M / \$23M	\$38M
ROI⁷	5.3%	8.1%	2.0%	4.9%	1.3%	8.3%	1.6%
Fund size	Out of \$2B endowment	\$25M	Yes	In process	None	\$35M	\$10M

Exhibit 4. Comparing U. T. System to best in class institutions.

Key metrics for the University of Wisconsin's technology transfer unit, known as the Wisconsin Alumni Research Foundation (WARF), Stanford University, University of California, Massachusetts Institute for Technology, Harvard University and Partners Health System demonstrate that each institution has a significant base of staff ranging from 33 to 78 with a median of 40 and generates between 1.3% and 8.3% return on investment with a median of 5.3%. Except for Harvard, all of the institutions operate a venture fund.

Summary trip report information is included below for each of the six institutions:

April 17, 2012- University of Wisconsin: Wisconsin Alumni Research Foundation (WARF)

U. T. System: Vice Chancellor and General Counsel Barry Burgdorf, Executive Director Bryan Allinson, Senior Patent Attorney BethLynn Maxwell and Senior Analyst Wei Chen

WARF: Chief Technology Commercialization Officer Leigh Cagan, General Counsel Tom Stafford, Associate General Counsel Stephanie Adamany, Vice President for Finance Debbie Durcan, Vice President for Research and Academic Relations Randy Lambrecht, Managing Director of WiSys Maliyakal John, Chief Medical Officer Paul Summerside, Managing Director for Investments Charles Hoslet, Entrepreneurship & Innovations officer Aaron Hagar, Director Mark Bugher and others.

Structure

- 501(c)(3) corporation separate from university
- 78 FTEs

³ Where separated by a "/", represents individual results for Massachusetts General Hospital and Brigham & Womens Hospital

⁴ Full-time equivalent

⁵ Only System not institutions

⁶ Executive Director, Senior Business Analyst and Administrative Assistant (with at least 2 more planned)

⁷ Return on investment, calculated by dividing revenue from technology transfer by research expenditures

Prepared by: Bryan Allinson

Date: August 2012

- Licenses 100 technologies annually with a focus on “significant large deal potential” licenses; Manages an endowment of \$2 billion generated solely from licensing revenue
- Provides annual gifts to UW-Madison to support educational and research mission objectives, including 11 faculty recruits (\$5M), 19 fellowships (\$8.5M), 18 matching fund projects (\$7.75M), 1 graduate school administrator (\$0.6M), 16 fall research committee competition (\$6.8M), 3 WARF faculty fellowship (\$1.46M), 21 department and laboratory shares (\$9.04M) and 11 cluster hires (\$5M) in FY 09-10
- In 2007, WARF created WiSys as a unit serving 11 emerging and comprehensive institutions, generating nearly \$500,000 net new licensing income annually off of \$750,000 annual research budget

History

- WARF's creation traces back to UW-Madison biochemistry professor Dr. Harry Steenbock, who demonstrated in late 1923 that irradiation with ultraviolet light increased the vitamin D content of foods and other materials. The rationale was that without proper professional management, his scientific contributions might never reach its full potential.
- The UW Board of Regents officially sanctioned WARF on June 22, 1925, and the organization's charter was filed with Wisconsin's Secretary of State on November 14th that same year. The new agency was named the Wisconsin Alumni Research Foundation to reflect both its governing body of UW-Madison alumni and its mission to support UW-Madison research.
- Distinctly Wisconsin, the five original WARF trustees were President George I. Haight (UW-Madison class of 1899), a Chicago, Ill. lawyer; Vice President Thomas E. Brittingham, Jr. (class of 1921), a financier from Madison, Wis.; Secretary-Treasurer L.M. Hanks (1911), a banker also from Madison; William S. Kies (1899), a New York City banker; and Timothy Brown (1911) a Madison, Wis. lawyer.
- Support for comprehensives: In 2006, WARF created WiSys as an initiative to support technology transfer at its more than 20 comprehensive institutions, with a focus on 11 core comprehensives where most of the research takes place. For these core 11 comprehensives, there are 90,000 students and 3,200 faculty members. The annual research expenditure is less than \$1M (approx. \$750K). WiSys has partnered with local industry and state programs (such as Wisconsin Small Company Advancement Program and Wisconsin Medical Entrepreneurship Foundation), to create 5 regional centers of excellence. Those centers attracted total \$5.2M extramural R&D funds, \$800K SBIR / STTR funding to startups and 33,000 hours of student R&D internships. The impact of WiSys is shown below in Exhibit 5:

Prepared by: Bryan Allinson

Date: August 2012

	Pre-WiSys 1997-2005 (8 yrs)	WiSys 2005-2011 (6 yrs)
Comprehensives		
R&D funding	\$893K	\$3 million
Discoveries	2	56
\$ per discovery	\$446,000	\$53,000
Startups	0	9
Private equity	0	\$2.6 million
High-paying jobs	0	32
Licensing income	0	~\$1.4 million

Exhibit 5. Performance of UW comprehensives before and after WiSys

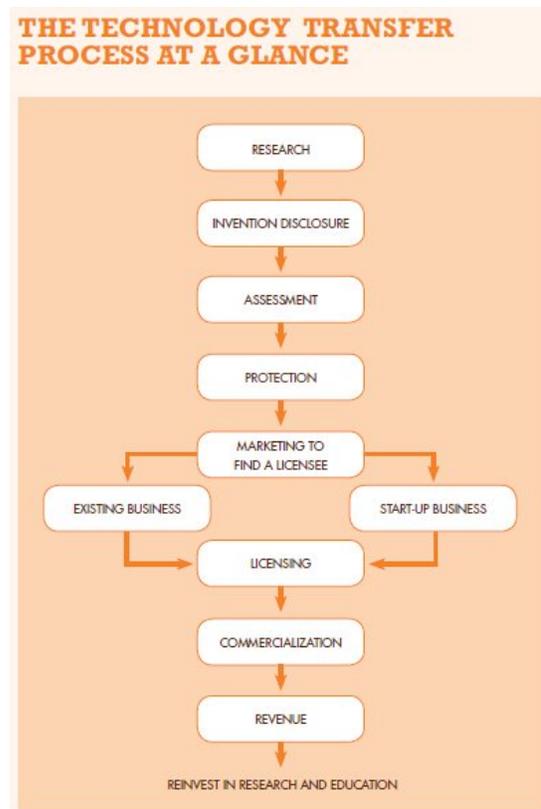
June 11, 2012 – Stanford University Office of Technology Licensing (OTL)

U. T. System: Executive Director Bryan Allinson, Senior Patent Attorney BethLynn Maxwell and Senior Business Development Analyst Wei Chen (phone)

Stanford: Director Katherine Ku, Manager Sally O’Neill

Structure

- Operates as the technology transfer office for Stanford University with a direct report to the vice president for research.
- 35 FTEs
- Generates revenues far in excess of costs.
- Industry sponsored research reports to OTL, not to sponsored research office (SRO). This is because OTL is staffed with professionals skilled in term negotiation familiar to industry.
- Established [Stanford University OTL Limited Liability Corporation](#) as a way to allow Stanford’s OTL to act as a licensing agency for other university, comprehensive universities and other not for profit institutions. Katherine Ku is President of Stanford University OTL, LLC.



Prepared by: Bryan Allinson
Date: August 2012

- Following the success of Stanford's investment and equity monetization of Google®, Stanford established the Stanford University fund in 2005, which reports to the Chief Financial Officer of Stanford. The SUF is a \$25M fund that makes investments from pre-emptive rights (similarly to the UT Horizon Fund).

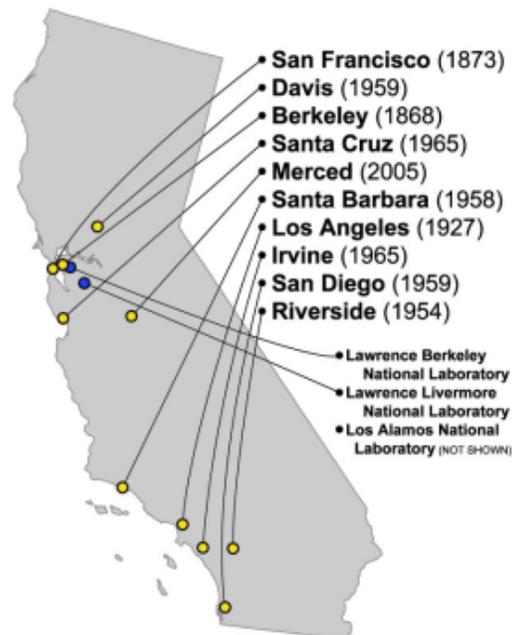
History

- The Office of Technology Licensing was established in 1970 to transfer technologies developed at Stanford.
- Started as a one person office generating \$55,000 in license revenue from three technologies.
- In 1995, was 20 person office managing 1,100 active inventions and \$44 million in license revenue.

June 12, 2012 – University of California System

U. T. System: Executive Director Bryan Allinson, Senior Patent Attorney BethLynn Maxwell and Senior Business Development Analyst Wei Chen (phone)

California: Executive Director William Tucker, Chief Financial Officer Michelle Fraysse, Executive Director of Research Policy Analysis and Coordination Wendy Streitz, Managing Counsel Martin Simpson, Director of Innovation Alliances and Patent Prosecution Patricia Anderson Cotton, Associate Director of Innovation Alliances Gonzalo Barrera-Hernandez and Director of Information Services Ron Frank



Structure

- The UC System technology transfer office reports to research of University of California Office of the President (UCOP).
- 33 FTEs
 - 20 FTEs in prosecution and accounting (includes IP and contract attorneys, paralegals, etc. and 12 accounting FTE's to cover outgoing and incoming expense processing and license auditing), plus 6 people to do their annual report.

Prepared by: Bryan Allinson

Date: August 2012

- Under the California Master Plan for Higher Education, the University of California is a part of the state's three-tier public higher education system, which also includes the California State University System and the California Community Colleges System. Constitutionally independent of the state of California.
- As of 2011, the University of California has a combined student body of 234,464 students, 18,896 faculty, 189,116 staff members, and over 1,600,000 living alumni.
- Each campus has an OTC office through Vice Chancellor for Research (the "Chancellor" is equivalent to the "President" at U. T. System similarly to WARF's structure).
- Many, but not all, campuses have industry sponsored research report to OTC.
- The UC institutional technology transfer offices utilize a centralized database and also maintain separate databases.

History

- First public university system in the U.S.
- The first campus, UC Berkeley, was founded in 1868, while its tenth and newest campus, UC Merced, opened for classes in fall 2005. Nine campuses enroll both undergraduate and graduate students; one campus, UCSF, enrolls only graduate and professional students in the medical and health sciences. In addition, the independently administered UC Hastings — located in San Francisco but not part of the UCSF campus — enrolls only graduate and professional students in legal studies.

June 18-19, 2012 – Massachusetts Institute of Technology

U. T. System: Executive Director Bryan Allinson, Senior Patent Attorney BethLynn Maxwell and Senior Business Development Analyst Wei Chen (phone)

MIT: Director Lita Nelson and Associate Director Jack Turner

Structure

- 40 FTEs including 17 licensing professionals, 3 license and patent accounting / billing, 3 compliance and reporting, 2 patent database and cost control, 2 computer database, 1 desktop support and other professionals.

History / Mission

- The mission of the MIT Technology Licensing Office is to benefit the public by moving results of MIT research into societal use via technology licensing, through

Prepared by: Bryan Allinson

Date: August 2012

a process which is consistent with academic principles, demonstrates a concern for the welfare of students and faculty, and conforms to the highest ethical standards.

- This process benefits the public by creating new products and promoting economic development.
- It helps MIT:
 - show tangible benefits of taxpayers' support for fundamental research
 - attract faculty and students
 - encourage industrial support of research
 - create discretionary income
 - produce new job opportunities for graduates
 - contribute to economic development locally and nationally
- MIT has as its mission to continue to be a world class model of excellence in university technology licensing.

June 19 – Partners (Massachusetts General Hospital, Brigham & Womens Hospital, Spaulding Rehabilitation and McLean Hospital)

U. T. System: Executive Director Bryan Allinson, Senior Patent Attorney BethLynn Maxwell and Senior Business Development Analyst Wei Chen (phone)

Partners: Executive Director Trung Do, Executive Director Roger Kitterman, Executive Director Brian Hicks

Structure

- Partners is the corporate system organization for Massachusetts General Hospital, Brigham & Womens Hospital, Spaulding Rehabilitation and McLean Hospital.
- 70 FTEs
 - 5 in Partners Innovation Fund
 - 5 in business development (corporate IP and alliances)
 - 60 in technology licensing
- Research Ventures and License (RVL) works directly with inventors at all Partners hospitals and is staffed with over 70 FTEs. RVL receives 460 new invention disclosures annually, has over 115 issued patents and over \$110 million in annual income from license agreements (\$93 million from MGH, \$16 million from B&W).
- In prior fiscal year, launched a new collaborative model of technology commercialization between research teams and industry to be more responsive and efficient. The Translational Research Centers (TRC) or “technology

Prepared by: Bryan Allinson

Date: August 2012

incubators” promotes technology advancement from concept level to the point where the technology is clinically validated or relevant (similar to U. T. System’s “proof of relevance”). The goal is to enable an industry partner to drive product and market development and market introduction more effectively. Goals include:

- Close coordination with research programs
- Better management and/or elimination of conflict of interests
- Ability to leverage clinical and business knowledge from within Partners
- Greater success in licensing institutional technologies
- Ability to capture greater financial value for Partners and its hospitals
- Royalty split:
 - No Partner Innovation Fund investment
 - 25% inventor, 75% institution
 - With Partners Innovation Fund investment
 - 20% inventor, 80% institution

History

- Significant growth at MGH and B&W during the 1990s when National Institute of Health’s budget expanded significantly.
- Co-located in 2002 when Partners was formed.

Data mining for technology transfer return metrics for 173 public and private institutions.

U. T. System evaluated 173 universities and medical centers across the world (majority based in the United States) as reported to the Association of University Technology Managers trade association⁸. Of these 173 institutions, 108 are public institutions and 65 are private.

The average return on investment (revenue from technology transfer divided by total research expenditures) for all 173 institutions is 4.0% with a median of 1.1%. The average return on investment for the 108 public institutions is 1.6% with a median of 0.7%. The average return on investment for the 65 private institutions is 8.0% with a median of 2.1%.

Of the 108 public institutions surveyed, 14 have privatized⁹ their technology transfer unit as a separate corporation. Of these 14 privatized offices, the average return on investment is 2.7%

⁸ Statistics Access for Technology Transfer, <http://www.autm.net/source/STAT/>, accessed August 7, 2012

⁹ Including Kansas State University Research Foundation, Purdue Research Foundation, The Research Foundation of SUNY, The UAB Research Foundation, the University of Dayton Research, the University of Iowa Research Foundation, the University of New Mexico Science and Technology Corporation, the University of Virginia Patent Foundation, the University of Washington Research Foundation, UTI Inc. representing the University of Calgary, Virginia Technology Intellectual Properties, WARF and Washington State University Research Foundation

with a median of 1.7%. Of the 94 public institutions that have not elected to privatize, the average return on investment is 1.4% with a median of 0.5%.

Next Steps: A Proposed Plan Forward for Technology Commercialization

In consideration of feedback received from the Chancellor's Technology Commercialization Cabinet meeting, the Vinson & Elkins report, and from the site visits to leading institutions, we now prepare next steps for U. T. System. The proposal continues the Framework covering improved strategic research collaborations, augmenting technology transfer and commercialization, supporting emerging research universities and advancing metropolitan areas including technology and biotechnology research hubs.

In preparation of this proposed plan, we identified several key issues for discussion:

- (1) How should the proposal deliver on goals of the Framework, including improved strategic research collaborations, augmenting technology transfer and commercialization, supporting emerging research universities; and, what value-added services should be considered? How can the new approach best meet the goals established by the Chancellor's Technology Commercialization Advisory Cabinet and the Vinson & Elkins Report? What can be gleaned from the site visits and trade association data?
- (2) Evaluate structures and models. In particular, consider the advantages and disadvantages of setting up models that are "nimble". Toward that end, what can U. T. System learn from government universities that have elected to privatize their technology transfer efforts (WARF, Kansas State, Purdue, SUNY, Iowa, Virginia, Washington, Virginia Tech, etc.)?
- (3) Evaluate how to best position the new effort as sustainable. Evaluate the possibility of accessing future technology transfer revenue through royalties, equity monetization and reimbursements as a revenue sharing source to fund investments made by U. T. System Board of Regents both locally (at the institution) and centrally (managed by System).
- (4) Discuss with stakeholders services that are viewed to be value-added, and flag for removal services that are deemed to be duplicative. Consider an elective model of participation.

In addition to addressing the questions raised above, we propose creating three new institutes, each with a report to the U. T. System Board of Regents through the Office of Technology Commercialization. Each institute represents a center of excellence with a particular mission objective.

- **The Institute for Thematic Partnering (ITP)** will serve to enable net new industry partnering broadly across thematic strengths. ITP will help increase the availability of

Prepared by: Bryan Allinson

Date: August 2012

research and development funding toward industry and applied research projects. Overall, ITP will serve to improve return on investment, leverage strengths of U. T. institutions, support growth of emerging and comprehensive institutions and create a beachhead into industry.

- **The Institute for Technology Management (ITM)** will serve to improve basic and enhanced technology transfer functions. These include funding to hire highly qualified staff, a market based incentive program and patent expenses, including both U.S. and foreign filings. Any U. T. System campus can join ITM, and the decision is completely elective. In return, elections will utilize a share of future royalty proceeds to offset the U. T. System investment. Based on initial (hypothetic) modeling, we anticipate that the total benefit to participating institutions to be well over \$100M over 10 years. Overall, ITM will serve to improve return on investment, support growth of U. T. institutions and create efficiencies and cost savings.
- **The Institute for Entrepreneurship (IE)** will provide programs and resources to U. T. institutions, serving to better educate faculty on entrepreneurial activities. IE will build off of current activities including symposia, colloquia and faculty boot camps already in place at several U. T. institutions. Any faculty member will be welcome and courses will be offered in person and on-line. Overall, IE will serve to improve return and better educate faculty.

U. T. System should evaluate structures and models that are nimble and consistent with the objectives of the Framework, the Chancellor's Technology Commercialization Advisory Cabinet, the Vinson & Elkins Report, site visits to leading institutions, and data mining efforts.

U. T. System should consider how the new institutes can enhance the ability of the U. T. Horizon Fund to commercialize technologies through startups. The increased availability of capital will better enable the System to start highly competitive new startup, and better enable U. T. to re-invest in existing companies to complete the commercialization life cycle. We expect that the Horizon Fund will work closely with ITP for thematic and disruptive ventures, the ITM for technology licensing and with IE to help educate faculty about startups.

To summarize, Exhibit 6 on the next page displays proposed new efforts against actions and goals of the Framework, the Chancellor's Technology Commercialization Advisory Cabinet and

Vinson & Elkins Report in greater detail:

Prepared by: Bryan Allinson

Date: August 2012

Goals:	Actions:						
	Evaluate New Models and Structures	Institute for Thematic Partnering	Institute for Technology Management	Institute for Entrepreneurship	UT Horizon Fund		
Framework Action Plan							
• Promote strategic research collaborations	✓	✓					
• Augment technology transfer and commercialization	✓	✓	✓	✓	✓		
• Support emerging research universities	✓		✓	✓	✓		
• Advance metropolitan areas including technology and biotechnology hubs	✓	✓	✓	✓	✓		
Chancellor's Technology Commercialization Advisory Cabinet							
• Improve return	✓	✓	✓	✓	✓		✓
• Leverage strengths	✓	✓					✓
• Support growth	✓	✓	✓				✓
• Better educate faculty	✓				✓		
• Create efficiencies and cost savings	✓		✓				
• Create a beachhead into industry	✓	✓					✓
Vinson & Elkins Report							
• Mine Technology Transfer within UT System	✓	✓	✓				
• Empower researchers in the tech transfer process	✓	✓		✓			
• Facilitate licensing of U. T. copyrighted materials	✓	✓	✓				
• Remove potential road blocks for increasing inventor participation in commercialization	✓		✓				
• Create consistent incentives for technology managers at U. T. institutions	✓		✓				
• Provide a significant fund to commercialize U. T. technologies	✓						✓
• Increase investment in offices of technology commercialization	✓		✓				
• Invest in strategic partnerships	✓	✓					✓
• Invest in globalization and international branding	✓	✓					✓

Exhibit 6. Comparing the goals of the Chancellor's Technology Commercialization Advisory Cabinet and the Vinson & Elkins Report to the U. T. System Board of Regents with proposed new actions forward.

Prepared by: Bryan Allinson
Date: August 2012

2. **U. T. System: Report on Technology Commercialization Metrics**

REPORT

The following presenters will provide a report on technology commercialization metrics submitted to the Association of University Technology Managers for its 2011 annual report:

- Mr. Bryan Allinson, Executive Director of Technology Commercialization
- Dr. Sandra Woodley, Vice Chancellor for Strategic Initiatives
- Dr. Dale Klein, Associate Vice Chancellor for Research for Academic Affairs
- Dr. Patricia Hurn, Associate Vice Chancellor for Health Science Research.

The report, as set forth on the following pages, reviews the longitudinal metrics for commercialization and compares those metrics to other institutions in the world.

Report on Technology Commercialization Metrics

Mr. Bryan Allinson, Executive Director of Technology Commercialization

U. T. System Board of Regents' Meeting
Technology Transfer and Research Committee
August 2012



Key metrics for FY11

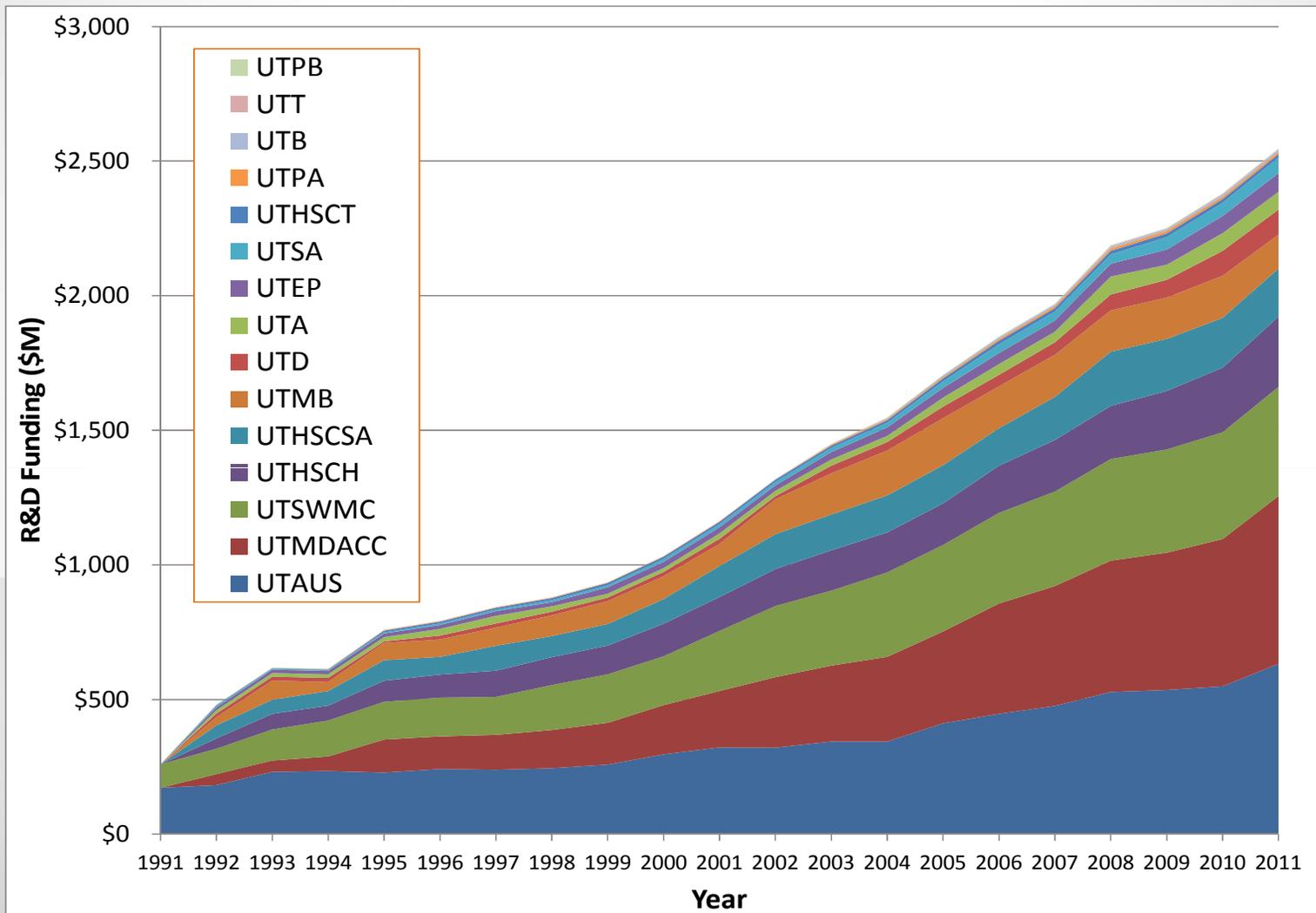
- \$2.5B research expenditures, \$65M royalties
- License income, issued patents up

Total Research Expenditures	Total Patent Applications (New, U.S.)	Issued Patents	Licenses	License income	Startups
U. C. System	U. C. System	U. C. System	U. C. System	City of Hope	U. C. System
U. T. System ↔	MIT	MIT	Washington	Northwestern	MIT
Johns Hopkins	Johns Hopkins	U. T. System ↑	Cornell	U. C. System	Illinois
MIT	California Institute of Technology	Wisconsin	Johns Hopkins	Sloan Kettering	U. T. System ↓
Michigan	Stanford	California Institute of Technology	U. T. System ↓	Columbia	Utah
Wisconsin	U. T. System ↓	Illinois	Georgia	U.T. System (12th) ↑	Columbia

Source: Preliminary AUTM STATT, THECB



Steady growth in research expenditures

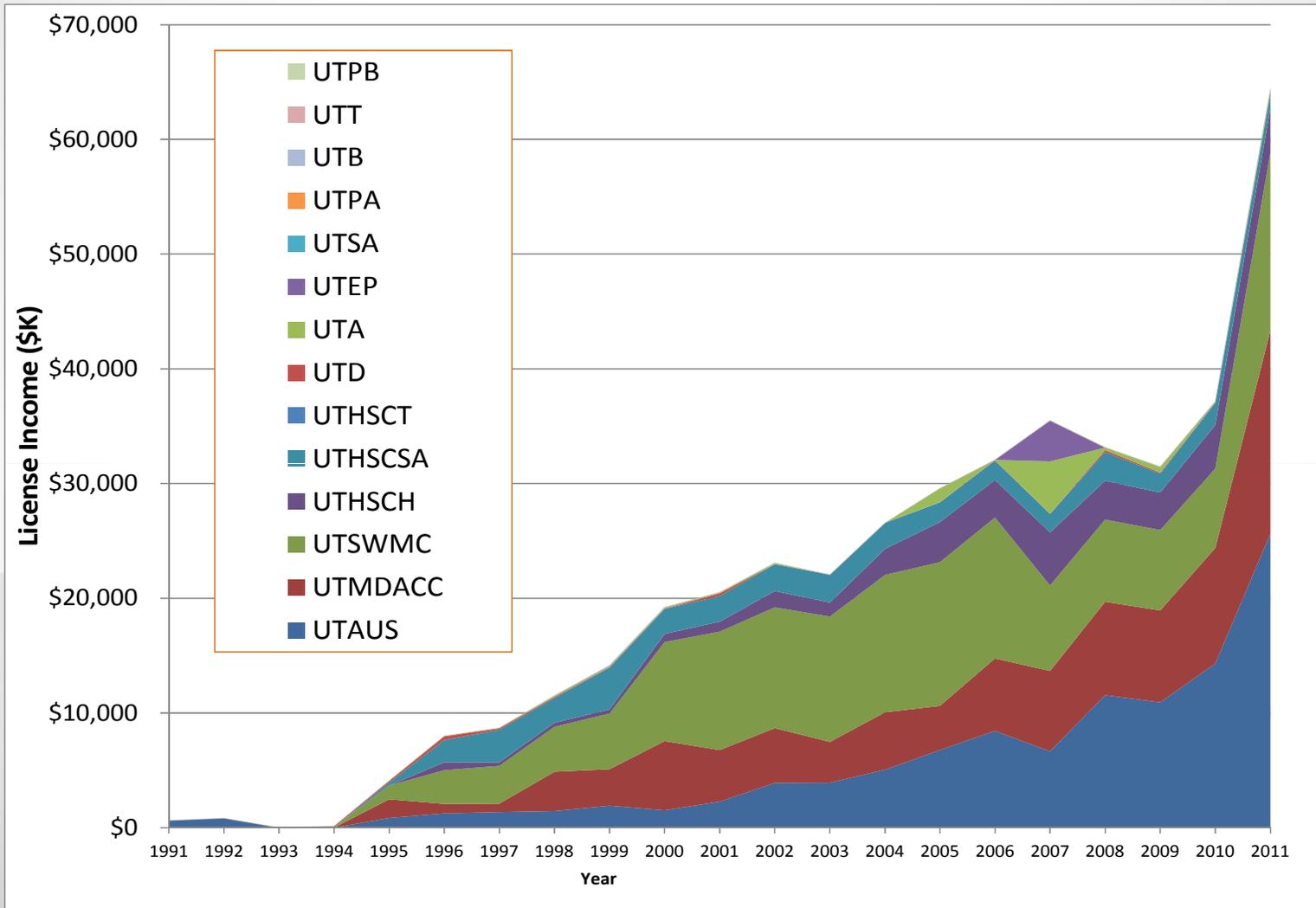


Source: Preliminary AUTM STATT, THECB

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UTAUS, UTMDACC drove license income



Source: Preliminary AUTM STATT, THECB



Comparing U. T. to selected peer institutions

Institution (type)	Research Expenditures (rank)	License Income (rank)	ROI (rank)
Massachusetts General Hospital (Partners Health) (private)	\$742M (22)	\$93.3M (8)	12.6% (11)
Stanford* (private)	\$806M (17)	\$66.8M (11)	8.13 (17)
Wisconsin (public, foundation)	\$1,112M (6)	\$57.7M (13)	5.2% (28)
M. I. T. (private)	\$1,490M (4)	\$76.1M (9)	5.1% (29)
U. C. System (public)	\$5,419M (1)	\$182M (3)	3.4% (38)
U. T. System (public)	\$2,546M (2)	\$65.4M (12)	2.6% (46)
– U. T. Austin (public)	\$632M	\$25.6M	4.1%
– U. T. M. D. Anderson (public)	\$623M	\$17.7M	2.8%
Harvard University (private)	\$833M (14)	\$13.8M (33)	1.7% (65)

Source: Preliminary AUTM STATT

* Did not report for 2011, used 2010 data

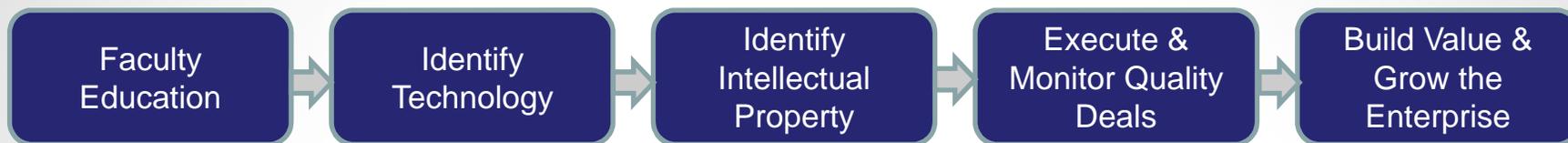
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Meeting of the U. T. System Board of Regents - Technology Transfer and Research Committee

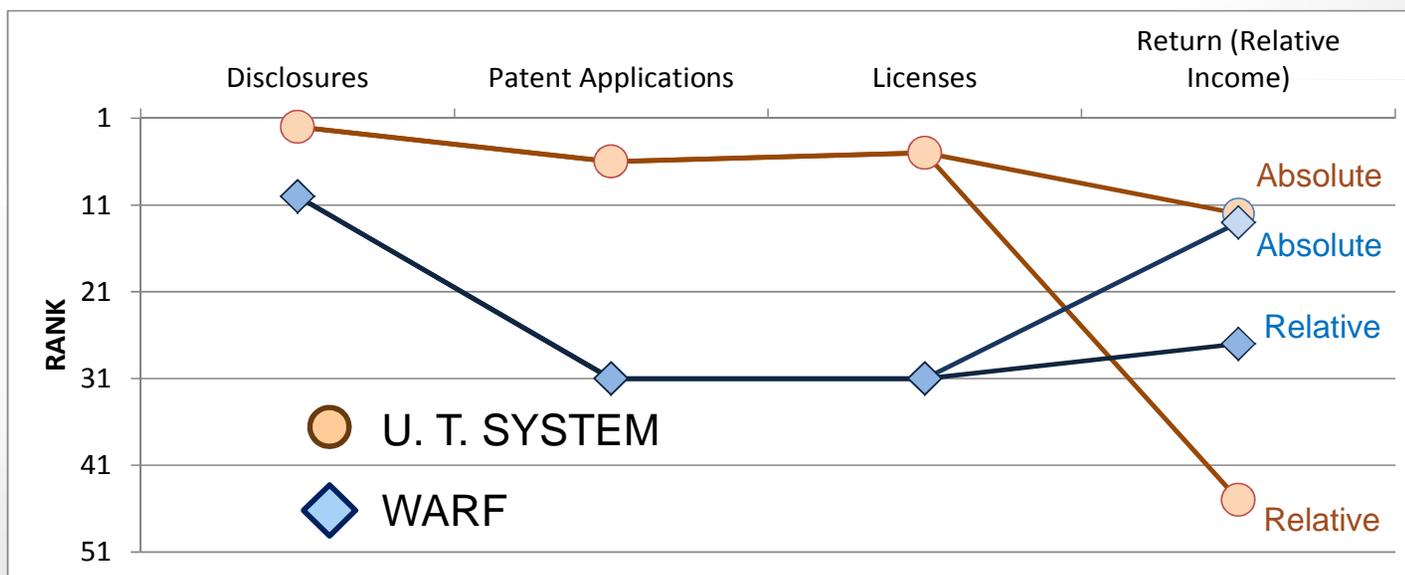
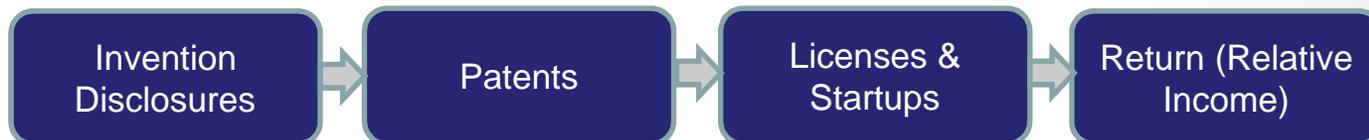


Comparing activity and assets of U. T. to WARF*

Activity



Assets / Metrics



Source: Preliminary AUTM STATT

* Wisconsin Alumni Research Foundation

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Meeting of the U. T. System Board of Regents - Technology Transfer and Research Committee



Philanthropy and technology transfer can and do work together

Public Institution (type)	Donations (rank)	Research Expenditures (rank)	License Staff (rank)	License Income	ROI
Washington (foundation)	\$334M (15)	\$887M (11)	15 (14)	\$69M (11)	7.8% (19)
Wisconsin (foundation)	\$315M (16)	\$1,029M (8)	24 (3)	\$54M (13)	5.3% (27)
Minnesota (foundation)	\$272M (20)	\$654M (27)	16 (11)	\$84M (8)	12.8% (12)
UTAUS (public)	\$354M (12)	\$549 (34)	14 (19)	\$14M (31)	2.6% (52)
UTMDACC (public)	\$154M (unr)	\$547 (35)	5 (85)	\$10M (44)	1.8% (66)

Private Institution (type)	Donations (rank)	Research Expenditures (rank)	License Staff (rank)	License Income	ROI
Stanford	\$709M (1)	\$806M (15)	17 (9)	\$65M (12)	8.1% (18)
Columbia	\$496M (5)	\$662M (26)	14 (19)	\$147M (4)	22.2% (7)
NYU	\$338M (14)	\$336M (61)	5 (84)	\$178M (3)	48.8% (2)

Source: FY10 CAE, AUTM STATT

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Meeting of the U. T. System Board of Regents - Technology Transfer and Research Committee



3. U. T. System: Report on Cardioate, Inc.

REPORT

President Romo and Interim President Kalkwarf will introduce the following co-founders for a report on Cardioate, Inc., a start-up company based on technology developed in collaboration between faculty and students at U. T. Health Science Center - San Antonio and U. T. San Antonio:

- Dr. C. Mauli Agrawal, Ph.D., P.E., Dean, College of Engineering and Peter Flawn Professor of Biomedical Engineering and Director, Institute for Bioengineering & Translational Research at U. T. San Antonio
- Dr. Steven Bailey, Division Chief for Cardiology in the School of Medicine at U. T. Health Science Center - San Antonio
- Dr. Jordan Kaufmann, alumna of the U. T. San Antonio College of Engineering's Department of Biomedical Engineering.

BACKGROUND INFORMATION

Cardioate will soon market a new and revolutionary cardiovascular stent-graft to prevent aneurysm leakage following cardiovascular surgeries. In May 2012, Cardioate received the inaugural annual U. T. Horizon Fund Student Investment Competition award - an investment in the company of \$50,000.

Approximately 1.2 million people in the United States suffer from an abdominal aortic aneurysm. Aneurysm rupture is the nation's 13th leading cause of death. Surgeons perform approximately 65,000 abdominal aortic aneurysm repairs annually. However, in a surgical repair procedure called endovascular aneurysm repair, one of every six patients experiences stent-graft leakage from traditional stent-grafts in the month following surgery. Additionally, 20-30% of patients require additional corrective surgery as much as six to eight years later.

While pursuing her doctoral degree in biomedical engineering at U. T. San Antonio under the supervision of Dr. Agrawal and Dr. Bailey, Dr. Kaufmann developed a unique scaffold, which promotes tissue formation. The product, called a tissue-engineering scaffold for aneurysm repair (TESAR), creates a tissue barrier between the blood and the aneurysm after it is implanted. The scaffold promotes healthy tissue formation to repave the aneurysm wall. Once the scaffold is in place, the aneurysm stops expanding and the risk of rupture decreases. After new tissue is in place, the scaffold degrades and is safely reabsorbed by the body.

Cardioate is in the final stages of finalizing a license agreement with U. T. San Antonio and U. T. Health Science Center - San Antonio covering the jointly held intellectual property.