

State of Connecticut
Office of Policy & Management

Intellectual Property

Presented to

Benjamin Barnes
Secretary
Office of Policy & Management

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Intellectual Property

State of Connecticut
Office of Policy and Management
450 Capitol Avenue
Hartford, CT 06106
www.ct.gov/opm

**Report to
Benjamin Barnes, Secretary
March 6, 2012**

Project Team

Joseph J. Kaliko, Esquire
Special Advisor

Thomas Fiore
Section Director, Capital & Revenue Forecasting

Kristin Wirtanen
Principal Budget Specialist

Patrick M. O'Brien
Assistant Division Director, Assets Management

Table of Contents

	<u>Page</u>
Introduction	1
Executive Summary	3
<i>Project Objectives</i>	4
<i>Project Methodology</i>	4
<i>Conclusions</i>	4
<i>Recommendation</i>	6
Commercialization Platforms	9
<i>Stem Cell</i>	9
<i>Seed & Pre-Seed</i>	9
<i>Waterfall</i>	10
<i>University of Connecticut</i>	10
<i>Ad Hoc</i>	10
Target Agency Responses	11
<i>University of Connecticut</i>	12
<i>Agriculture Experiment Station</i>	14
<i>Department of Public Health</i>	15
<i>Connecticut Innovations, Inc.</i>	16
Exhibit A – “Universities that Turn Research into Income” (Forbes Magazine)	18
Exhibit B – Relevant Connecticut General Statutes	19
Exhibit C - Stem Cell Research Advisory Committee	22
Exhibit D - Commercialization Platform in Use at the University of Connecticut	23
Appendix 1 – August 26, 2011 Letter from Secretary Barnes	25

Introduction

The potential for intellectual property assets to generate income is significant.

Companies that receive commercialization rights to a technology usually pay the owner of the intellectual property (a university or hospital) in upfront license fees, royalty payments, and sometimes equity in the resulting venture.

The Association of University Technology Managers (i.e. "AUTM") in 2009 conducted a survey which had 181 U.S. respondents including 153 universities.

The top 15 technology transfer programs among universities included in the AUTM survey, ranked by 2009 licensing income, were:

1. Northwestern University - \$161 million
2. Columbia University - \$154 million
3. New York University - \$113 million
4. University of California System - \$103 million
5. Wake Forest University - \$96 million
6. University of Minnesota - \$95 million
7. University of Washington/Washington Research Foundation - \$87 million
8. University of Massachusetts - \$71 million
9. Massachusetts Institute of Technology - \$66 million
10. Stanford University - \$64 million
11. University of Wisconsin at Madison - \$57 million
12. University of Florida - \$54 million
13. California Institute of Technology - \$48 million
14. University of Rochester - \$46 million
15. University of Iowa Research Foundation - \$43 million

Source: *MedCity News* - January 26, 2011

<http://www.medcitynews.com/2011/01/top-15-u-s-technology-transfer-programs-by-licensing-income/>

Even more revenue was achieved than these figures indicate. For example, in 2009 the University of Massachusetts made not only the reported \$73 million in licensing income from its intellectual property rights; the University also received a \$30 million upfront payment for the licensing of a drug developed at the school's Biologic Laboratories

The survey makes it very clear that 12 of the named universities achieved between \$54 million and \$161 million in revenues each in 2009. The total revenue for the top 12 universities in 2009 was \$1.123 billion.

According to AUTM, the State of New York received \$1.3 billion in 2005, driven largely by the licensing of the drug Remicade. (Source: "2005 AUTM Survey of Universities by States")

According to data provided by the University of Connecticut (i.e. "UCONN") during the course of this project, UCONN in 2009 grossed \$1.7 million from its intellectual property assets, including licensing of its "*Husky*" trademark which accounted for almost half of UCONN's return. The return net of expenses was less than \$1 million.

While some may argue that Connecticut does not have the quantity and/or quality of IP assets necessary to generate the level of income produced by the 15 universities cited in the 2009 AUTM survey; it is clear that Connecticut has been making very substantial investments in technology (for example, stem cell technology). It is also clear that more can and should be done to ensure that Connecticut's intellectual property assets are being properly commercialized to provide the maximum benefit for the State and its taxpayers.

The vision that Connecticut have a well organized, viable, efficient intellectual property oversight infrastructure that maximizes the value of its intellectual property is not unreasonable. Achieving this vision is a goal the State should make every effort to achieve in the near future.

The State should also encourage the interagency "*cross pollination*" of intellectual property policies and procedures. At the same time the State should endeavor to make sure that agencies do not duplicate efforts, recognize that different state agencies have different objectives and implement policies and best practices across state agencies that assure that the State's intellectual property assets are being used for the benefit of its agencies, businesses and the taxpayers at large.

Therefore this report endeavors not only to quantify the current "state" of intellectual property assets, policies, procedures and "commercialization platforms" (defined hereinafter) which exist at the four (4) target agencies which were the subject of study; but to offer for consideration recommendations which will allow the State to standardize its intellectual property policies and procedures in order to maximize the value of its intellectual property assets.

Executive Summary

Intellectual Property - Refers to a number of distinct “creations of the mind” for which a set of exclusive rights are recognized. Under intellectual property law, owners are granted certain exclusive rights to a variety of intangible assets such as musical, literary, artistic works, discoveries, inventions, words, phrases, symbols and designs. Common types of intellectual property rights include copyrights, trademarks, patents, industrial design rights and trade secrets.

Importance of Intellectual Property – Intellectual property assets (i.e. “IP”) when properly protected and commercialized, possess the potential to enhance job creation/retention, foster innovation/research and produce revenue.

Important Note: There are various benefits which can be obtained from properly managing IP assets, these include (1) revenue income which is produced by the commercialization of the IP; (2) economic benefits such as the creation of jobs, the retention of jobs and attracting new businesses; and (3) non-monetary benefits to mankind from the creation of IP assets such as the Polio vaccine.

Therefore, it is important to note that while this report places strong emphasis on the *revenue* which can be generated through the monetization of IP, revenue generation *may not* be the main objective of a given commercialization platform. Indeed, multiple objectives and benefits may be achieved through proper IP management and commercialization platform design.

Existing Situation - The State of Connecticut (i.e. “the State”), through, for example, its investments of grants, public-private partnerships, employee staff time and loans to businesses of varying size and viability has developed, caused to be developed or may in the future develop “intangible assets” (often referred to as “intellectual property”) which the State owns or in which it has (or should have) a beneficial interest.

While these IP assets hold the potential to produce significant revenue and other benefits for the State through their commercialization, there does not currently exist a centralized, coordinated inventory of all of the State’s IP assets, a process for identifying newly created IP assets or identifying which assets in inventory are no longer viable; or a statewide plan which would ensure assets in inventory are being efficiently and effectively used for the benefit of the State and its taxpayers.

The lack of a current and periodically updated, centralized, coordinated inventory of IP assets, combined with the lack of a statewide plan for IP commercialization, leaves the State unable to maximize job creation/retention, maximize revenue generate through IP commercialization or achieve other benefits that flow when IP is thoughtfully and thoroughly “worked”.

Project Objectives – the objectives of the IP project were to:

1. Identify those “intangible assets” (i.e. IP) which are owned by the State or which the State has (or should have) and ownership interest;
2. Create a centralized, coordinated inventory of all of the State’s IP assets;
3. Determine the appropriate manner to maximize the value of IP assets (revenue, job creation/retention, etc) for the benefit of the State and its taxpayers;
4. Identify how IP is currently being identified, protected and is being used by a sample of State Agencies;
5. Recommend how to best identify, protect and use IP going forward, across all state agencies; and
6. Attempt to measure the rate of return on the State’s investments of, for example, appropriated funds, grants and loans.

Project Methodology - To achieve the above objectives, on August 26, 2011, the Office of Policy and Management (i.e. “the OPM”) requested information related to IP from the *University of Connecticut*, the *Department of Public Health* and the *Connecticut Agriculture Experiment Station*. A copy of the August 26, 2011 letter can be found in *Appendix 1* of this document. The information request was expanded on September 30, 2011 to include *Connecticut Innovations Inc.* with the specific intent to gain an understanding of how IP is dealt with in agreements related to stem cell participants/grantees. While other State agencies may also have IP assets (and likely do), the information request focused on the agencies listed above as they held the most potential to have already perfected IP assets; along with having established policies and procedures for identifying and managing these assets.

Conclusions - The Project Team has concluded the following:

1. In FY 2010-2011, the State, primarily through UCONN, received approximately \$1.09 million in IP revenue (this figure does not include revenue from the Husky trademarks).
2. Monies received by UCONN are retained by the University (net of payouts to inventors required by statute and University policy).
3. Five (5) distinct commercialization platforms were identified. These are discussed in detail in the *Commercialization Platforms* section of this report.
4. The design and implementation of commercialization platforms is believed to be a significant means towards achieving the best possible use of State IP assets.

5. There are varying levels of IP expertise and IP related policies, procedures and protections in place at the target agencies.
6. All State agencies would benefit from standardized, statewide IP policies and procedures; and coordinated IP commercialization efforts.
7. While agencies do create IP, it is not the primary job of agencies to create IP.
8. There is no centralized, statewide coordinated effort to evaluate the potential to favorably license IP assets to companies as part of a plan to create/retain jobs.
9. The State's existing IP related legislation is not as comprehensive as it might otherwise be.
10. The State suffers from a lack of a centralized, IP "in-house" legal expertise.
11. The State has been making significant investments in technology, for example, investments in health science. The principal focus of such investment has been on creating much needed jobs to bolster the State's economy.
12. Creating jobs, while indeed a worthwhile end in and of itself; is not inconsistent with striving to achieve the following objectives:
 - a. To repatriate investments, such as a return of grant funds or other benefits extended to develop IP (tax incentives, film credits and "forgivable" loans, for example), to the General Fund or to a designated agency (like UCONN or Connecticut Innovations); and
 - b. To achieve at least a modest return on investment (an "ROI") used to create IP. (Please see *Exhibit A* for the listing of Forbes Magazine "*Universities that Turn Research into Revenue*" September 2008); and
 - c. To participate more significantly and fairly in the fruits of IP commercialization, particularly where commercial success is, by some measure, deemed significant and would not arguably have been realized "but for" the state's investment (as achieved in the recent Jackson Laboratories agreement).
13. More can and should be done to secure the objectives identified in conclusion 12 (a)-12 (c) above, by structuring "commercialization platforms", along with agreements for commercializing IP included in such platforms, to realize these objectives while incenting innovation and stimulating job creation/retention.
14. IP ownership and related matters affecting state employees in general, is covered by Section 4-61a of the Connecticut General Statutes (C.G.S.). Separate state statutes cover UCONN (C.G.S. Section 10-110a et seq.) and the

Agriculture Experiment Station (Section 10-96 of the C.G.S.). In cases where Federal government money is involved, for example National Science Foundation grants, the Federal Bayh-Dole Act applies and dictates the manner in which IP revenues are used and distributed to inventors and others. Copies of these statutes can be found in *Exhibit B* of this document.

Recommendation

- **It is recommended that the Governor appoint an “*Intellectual Property Czar*”**

IP assets clearly hold the potential to generate significant value for the State; however, the State as a whole does not currently possess the resources necessary (staff time and/or detailed IP expertise) to properly identify, protect and commercialize IP; and to evaluate the cost vs. benefit of doing so across all agencies; therefore the appointment of an “*Intellectual Property Czar*” is recommended. It is envisioned that this would be a full time, durational position housed within the Office of Policy and Management.

Duties & Objectives of the Intellectual Property Czar

It is envisioned that the *Intellectual Property Czar* would be responsible for the following:

1. Developing a cost vs. benefit analysis relating to aggressively pursuing IP commercialization on a statewide basis.
2. Conducting a study to identify “*Best Practices*” of the top five (5) IP revenue producing State Governments to determine the applicability and adaptability of their use for Connecticut.
3. Identifying additional areas (for example tax credits, economic development efforts and bond funds usage) where State investment may result in IP and from which the State could secure value.
4. Developing a statewide “*Intellectual Property Action Plan*” which establishes clearly defined polices related to:
 - a. Education and Awareness – outlining what IP consists of, why it may be worthy of protection and which articulates the expectations and rewards for the identification, protection and commercialization of IP.
 - b. Disclosure – create a uniform mechanism to elicit disclosure of potential IP assets from State agencies, departments, institutions, the Judicial Branch and quasi-public entities.
 - c. Protection – develop guidelines to assist agencies in determining what IP is worthy of protection and the most appropriate manner by which to

protect the IP.

- d. “Cross Pollination” - encourage interaction between those State agencies which create or possess IP and those agencies which currently vet and commercialize IP.
 - e. Commercialization – outline appropriate commercialization platforms for State agency use in order to maximize the value (monetary and other things of value) of identified IP assets for the benefit of the State and its taxpayers.
 - f. Repayment – developing plans that ensure that the State is repaid, at a minimum, its initial investment (i.e. loans, grants, bond funds, etc) should the initial investment (or a portion thereof) result in the creation of commercially viable IP assets.
5. Expanded the initial information request to all State agencies in order to identify all IP assets owned by the State and determine which are worthy of protection and/or commercialization.
 6. Establish policies and procedures which best utilize IP to bring further innovation and jobs to Connecticut, to retain jobs in Connecticut, to repatriate funds used to create IP to the General Fund or a predetermined agency fund, to secure a reasonable rate of return on the State’s investments and to commercialize State owned IP for the benefit of the State and its taxpayers.
 7. Review all existing IP related legislation to ensure that it adequately protects the State with regard to:
 - a. Assignment of IP to the State at the time of its creation by its employees/sub-contractors; and
 - b. Clearly detailing IP ownership and profit sharing; and
 - c. Requiring agencies to maintain a detailed inventory of their IP
 - d. Any other relevant subject area as determined by the *Intellectual Property Czar*
 8. Evaluate existing IP commercialization platforms to determine if changes are necessary to provide more favorable terms to allow the State to maximize the value received from its IP.
 9. Develop new IP commercialization platforms that “*reach over the horizon*” in order to provide for a return to the State “running with” the IP over time, even long after the IP is first commercialized, particularly in instances when the value

of the IP cannot easily be determined until well after commercialization first takes place.

10. Investigate the feasibility of having UCONN's IP Law Clinic provide basic IP related legal services to State agencies.

11. Establish policies and procedures to secure rights (i.e. the fruits of commercialization) when IP is created through State investment.

12. Establish procedures for monitoring the State's IP efforts on an on-going basis.

Lacking the appointment of an "*Intellectual Property Czar*" to implement these recommendations, it is highly likely that meaningful statewide change with regard to IP will not occur and Connecticut will remain "*status quo*".

Commercialization Platforms

Commercialization Platform – the combination of stated objectives (such as return on investment, return of investment, job creation/retention and social benefits) and methodologies (such as development contracts, license agreements, grants, "incubator" assistance programs and loans) by which IP is "put to work" in order to secure the stated objectives in the most efficient and effective manner possible. Commercialization platforms typically include a process for evaluating the novelty and commercial viability of the IP.

The five (5) distinct and unique commercialization platforms which were identified and are presently in use in Connecticut are listed below:

1. **Stem Cell** – This commercialization platform is comprised of a standard "*Stem Cell Assistance Agreement*", a standard "*Stem Cell Royalty Agreement*", a "*Stem Cell Advisory Committee*" (see *Exhibit C*) and funds provided by the State of Connecticut. Connecticut Innovations, Inc. does not own the IP assets developed through the Connecticut Stem Cell Research Program but rather all rights to the IP remain with the grantee who is obligated to pay the State a royalty payment of 5% based on income earned through the commercialization of the IP (and 5% if and when they dispose of IP assets).
2. **Seed & Pre-Seed** – The investor, in this instance Connecticut Innovations Inc, becomes an owner of early stage (i.e. "seed") technology companies by purchasing preferred stock (usually series A or B) issued by the company.

The investments in pre-seed companies (very early stage) are limited to \$150,000 two year promissory notes which allows Connecticut Innovations to participate in future equity financing of the company (thus participating in the company's success) while assisting these entrepreneurs to develop and market their ideas.

Connecticut Innovations strives to enter into its equity and near equity investments with private investors thus helping to leverage the State's investment dollars with private investment dollars. To date the strategy for recouping investments has been to essentially "*cash out*" at the Initial Purchase Offer if a company in which an equity share was taken succeeds. Connecticut Innovations also bears the risk of failure with a resultant zero return.

The new Connecticut "*CT SBIR Acceleration and Commercialization Program*" being set up at Connecticut Innovations, Inc. is a grant/loan oriented program being to some extent modeled after the above described seed and pre-seed portfolio company platform. Thus, it has been mentioned here with reference to Connecticut Innovations, Inc. for completeness as the new program takes shape.

3. **Waterfall** – typified by the platform used in the recent Jackson Labs (“Jackson”) agreement; provides for an up-front investment by the State in return for significant and increasing returns in future years.

This type of platform allows a venture to get up and running; is mindful of not creating an upfront disincentive to partnering (i.e. giving the partner something to look forward to early on); and secures rewards for the State out of the activity that might not otherwise have been possible for the partner absent the State’s involvement in the form of a loan, grant or other arrangement.

In the Jackson example the State, in return for its initial capital investment, will receive, in years 10 through 25 of the Jackson project, 10% of “net royalty revenue “(as defined in the agreement); unless such revenue exceeds \$3 million in a given year. In the event that revenue exceeds \$3 million in a given year, the State gets a 50% share, i.e., becomes a true 50/50 partner with Jackson in the net royalty revenue proceeds.

4. **University of Connecticut** – An example of one of the commercialization platforms presently in use at UCONN is described in their “*Inventor’s Guide*”. The UCONN commercialization platform(s) presently being used are well thought out and “robust”, with a core feature being the evaluation of IP for its viability to support and potentially evolve into a “new business”.

If the IP is determined to be viable for supporting a new business, UCONN then decides whether (1) it should “incubate” the new business or (2) simply go out and create the new business straight away. If the IP is not viable to support a new business, UCONN then typically either licenses the IP to its inventor or to an existing business.

NOTE: The above represents a greatly simplified description of the commercialization platform used by UCONN. A more detailed description can be found in *Exhibit D* of this document and in the above referenced “*Inventor’s Guide*” which can be found on the UCONN website.

5. **Ad Hoc** – This represents instances where an agency developed, protected and licensed IP via a commercialization platform other than those listed above.

TARGET AGENCY RESPONSES

University of Connecticut

University Staff Involved

- Richard Orr, Executive Officer – *Office of the President*
- Rita Zangari – Director – *Office of Technology Commercialization*
- Michael Newborg – Executive Director – *Center for Science & Technology Commercialization*

Meetings/Interviews Held

- In person interview held on December 12, 2011
- In person interview held on January 9, 2012
- Multiple via telephone

Types of IP Identified

The University identified a significant number of IP assets across multiple subject areas; these range from the Husky trademark to IP related to low cost bipolar plate for portable fuel cells, the use of hat shock proteins to enhance efficacy of antibody therapeutics and many more issued patents, patents pending, active licenses and disclosures being evaluated.

University Held Patents, Patent Applications, Licenses, etc

In response to the August 26, 2011 information request, the University provided the following:

Fiscal Year	Invention Disclosures Received (Total/Health Center)	U.S. Patent Applications Filed	Licenses & Options Signed	Licenses & Options Producing Income	Licensing Income Received
2011	67/14	29	7	53	\$1,090,000
2010	91/20	33	12	57	\$1,215,000
2009	86/13	34	14	42	\$1,174,000
2008	77/14	30	17	42	\$1,030,000
2007	75/21	32	9	38	\$905,000
2006	67/16	30	13	36	\$814,000
2005	85/18	30	10	33	\$1,530,000

Existing Organizational IP Units

The following internal IP units were identified within the University of Connecticut:

- Office of Technology Commercialization
- Center for Science & Technology Commercialization

Commercialization Platform(s) Utilized

- The University of Connecticut Platform (see the “*Commercialization Platforms*” section and *Exhibit D* of this document for additional information)

Existing IP Policies, Procedures & Practices

- The University publishes an “*Inventor’s Guide*” which covers subjects such as research considerations, technology transfer agreements, invention disclosure, IP ownership, invention assessment, conflicts of interest, etc.
- The Office of Technology and Commercialization maintains an IP related website (<http://otc.uconn.edu/>)

Conclusions

- The University has “robust” policies and procedures in place which identify, protect IP and commercialize IP to meet University objectives.
- Other State agencies may benefit from replicating or otherwise making use of the policies, procedures and practices which have been established and are in place at the University.

Agriculture Experiment Station

Agency Staff Involved

- Michael Last, Chief Financial Officer
- Dr. Janes LaMondia (an inventor)
- Commissioner Reviczky

Meetings/Interviews Held

- Multiple via telephone

Types of IP Identified

The Agriculture Experiment Station identified a multi-pathogen resistant broad leaf tobacco seed (a “tobacco cultivar”); and new and distinct “*short day*” strawberry plant.

Organizational IP Units

No existing internal IP units were identified by the Agriculture Experiment Station.

Commercialization Platform(s) Utilized

- Ad Hoc

The Agriculture Experiment Station specifically licensed a seed vendor on a non-exclusive basis in June 2011, to sell the tobacco seeds.

Existing IP Policies, Procedures & Practices

- The Agricultural Experiment Station did not report any policies, procedures or practices specifically related to IP, its protection or commercialization other than proceeding on an ad hoc basis as IP is identified.

Conclusions

- The Agricultural Experiment Station would likely benefit from the support that could be provided by the IP Czar and the establishment of a set of statewide IP policies and procedures.

Department of Public Health

Agency Staff Involved

- Mary Ann Horn
- Commissioner Mullen

Meetings/Interviews Held

- In person interview held on September 8, 2011
- Multiple via telephone

Types of IP Identified

None identified.

Organizational IP Units

No existing internal IP units were identified within the Department of Public Health Experiment Station.

Commercialization Platform(s) Utilized

- Not applicable

Existing IP Policies, Procedures & Practices

- The Department of Public Health did not report a set of policies, procedures or practices specifically related to IP, its protection or commercialization.

Conclusions

- The Department of Public Health did not report any IP created within the department.

Connecticut Innovations, Inc.

Staff Involved

- George Bellas
- Deb Santy

Meetings/Interviews Held

- In person interview held on October 25, 2011
- Multiple via telephone

Types of IP Identified

All IP identified resides with third parties but is a subject address (via IP royalties) in numerous agreements between Connecticut Innovations and the third parties.

Organizational IP Units

No existing internal IP units were identified within Connecticut Innovations Inc.

Commercialization Platform(s) Utilized

- Stem Cell
- Seed & Pre-Seed
- Waterfall

Existing IP Policies, Procedures & Practices

- Connecticut Innovations did not report having a set of policies, procedures or practices specifically related to IP, its protection or commercialization.

Conclusions

- While Connecticut Innovations, Inc. did not identify any IP assets, there is the potential for IP assets to be created via their investments, along with revenue prospects based on the agreements Connecticut Innovations, Inc. has executed with third parties and will likely execute with third parties going forward.
- Connecticut Innovations would likely benefit from the support that would be provided by the establishment of a set of statewide IP policies and procedures. and a review of its ad hoc commercialization platform by the IP Czar.

Recommendations

It is recommended that Connecticut Innovations, Inc. consider the following as a condition of its investments:

1. Secure an ownership interest in any IP generated by virtue of such investment, to the extent possible; and
2. Via the commercialization of any such IP, obtain a “repatriation” of capital and a reasonable rate of return on its investments, particularly where the IP has the potential to be a commercial success (as was contemplated and achieved contractually by the Department of Economic and Community Development in the Jackson Laboratories agreement being managed by Connecticut Innovations, Inc.).

EXHIBIT A – Forbes Magazine “Universities That Turn Research into Revenue” September 12, 2008

http://www.forbes.com/2008/09/12/google-general-electric-ent-tech-cx_mf_0912universitypatent.html

Rank	University	Expenditures	Research Related Income	Yield
1	New York University	\$210 million	\$157 million	75%
2	Wake Forest University	\$146.3 million	\$60.5 million	41%
3	Stevens Institute of Technology	\$28 million	\$4.56 million	16%
4	Ohio University	\$24 million	\$3.26 million	13%
5	Brigham Young University	\$26 million	\$3.07 million	11.7%
6	University of Rochester	\$355 million	\$38 million	11%
7	University of Minnesota	\$594 million	\$56 million	9.4%
8	University of Florida	\$459 million	\$42.9 million	9.3%
9	Stanford University	\$699 million	\$61.3 million	8.7%
10	Northwest University	\$348 million	\$29.9 million	8.6%
11	Mount Sinai School of Medicine	\$269 million	\$20.1 million	7.5%
12	University of Massachusetts	\$409.9 million	\$27.2 million	6.7%
13	University of Utah	\$246.5 million	\$16.3 million	6.6%
14	University of California System	\$3.04 billion	\$193.4 million	6.4%
15	University of South Alabama	\$20.6 million	\$1.2 million	5.9%

EXHIBIT B - *Relevant Connecticut General Statutes*

CGS 4-61a “*Inventions and discoveries by state employees.*”

As used in this section, "invention" shall mean any invention or discovery and shall be divided into the following categories: (1) Any invention conceived by one state employee solely, or by state employees jointly; (2) any invention conceived by one or more state employees jointly with one or more other persons; (3) any invention conceived by one or more persons not state employees. The state shall be entitled to own, or to participate in the ownership of, and to place in the custody of the state to the extent of such ownership, any invention on the following conditions: (a) The state shall be entitled to own the entire right, title and interest in and to any invention in category (1), in any instance in which such invention is conceived in the course of performance of customary or assigned duties of the employee inventor or inventors, or in which the invention emerges from any research, development or other program of the state, or is conceived or developed wholly or partly at the expense of the state, or with the aid of its equipment, facilities or personnel. In each such instance, the employee inventor shall be deemed to be obligated, by reason of his employment by the state, to disclose his invention fully and promptly to an authorized executive of the state; to assign to the state the entire right, title and interest in and to each invention in category (1); to execute instruments of assignment to that effect; to execute such proper patent applications on such invention as may be requested by an authorized executive of the state, and to give all reasonable aid in the prosecution of such patent applications and the procurement of patents thereon; (b) the state shall have the rights defined in subsection (a) of this section with respect to inventions in category (2), to the extent to which an employee has or employees have disposable interest therein; and to the same extent the employee or employees shall be obligated as defined in said subsection (a); (c) the state shall have no right to inventions in category (3), except as may be otherwise provided in contracts, express or implied, between the state and those entitled to the control of inventions in category (3). This section shall not apply to employees or inventions covered by sections 10a-110 to 10a-110g, inclusive, or section 22-82a.

CGS 10a-110 - “*Research foundation. Definitions.*”

As used in sections 10a-110a to 10a-110g, inclusive, "university" means The University of Connecticut; "board" means the board of trustees of the university; "foundation" means the research foundation established in accordance with section 10a-110a; "employee" means any member of the faculty or staff of the university or the foundation, or any other employee thereof; "invention" means any invention or discovery and shall be divided into the following categories: A. Any invention conceived by one employee solely, or by employees jointly; B. any invention conceived by one or more employees jointly with one or more other persons; C. any invention conceived by one or more persons not employees.

CGS 10a-110g - “Rights as to products of authorship.”

The provisions of sections 10a-110 to 10a-110g, inclusive, shall not entitle the university or the foundation to claim any literary, artistic, musical or other product of authorship covered by actual or potential copyright under the laws of the United States; but the university and the foundation shall each be authorized to make and enforce any contract, express or implied, which it may make with reference to any such subject matter.

CGS 22-82a - “Inventions and discoveries by employees.”

(a) As used in subsections (b) to (h), inclusive, of this section: (1) "Station" means the Connecticut Agricultural Experiment Station; (2) "director" means the director of the Connecticut Agricultural Experiment Station; and (3) "board" means the board of control of the Connecticut Agricultural Experiment Station.

(b) The station shall be entitled to own the entire right, title and interest in any invention or discovery of an employee of the station that (1) is conceived in the course of the performance of customary or assigned duties of the employee, (2) emerges from any research, development or other program of the station, or (3) is conceived or developed wholly or partly at the expense of the station or with the aid of the equipment, facilities or personnel of the station.

(c) In each such instance, the employee shall be deemed to be obligated, by reason of his or her employment by the station, to (1) disclose his or her invention or discovery fully and promptly to the director, (2) assign to the station the entire right, title and interest in each invention or discovery, and execute instruments of assignment to that effect, and (3) execute such proper patent or license application or other instrument of assignment concerning such invention or discovery as may be requested by the director, and give all reasonable aid in the prosecution of such application or assignment and the procurement of such patent, license or assignment.

(d) Except where the invention or discovery is subject to federal grant restrictions, the entire beneficial ownership of any such invention or discovery, including all monetary proceeds, property and rights of every character, tangible and intangible, shall be deposited with the station and vest in the station for use in scientific inquiries and experiments and the board shall exercise complete control thereof.

(e) Each employee who conceives or makes any invention or discovery and fulfills his or her obligations to the satisfaction of the station as provided in subsections (b) to (d), inclusive, of this section shall be entitled to share in any net proceeds that may be

derived from the assignment, grant, license or other disposal of such invention or discovery. The amount of such net proceeds shall be computed by, or with the approval of, the board, with reasonable promptness after collection thereof, and after deducting from gross proceeds any and all costs and expenses as may be reasonably allocated to the particular invention or discovery including, but not limited to, costs or expenses associated with seeking and obtaining any patent, trademark or licensing agreement, maintenance or litigation costs, and the costs of evaluating the commercial potential of the invention or discovery. A minimum of twenty per cent of the amount of such net proceeds shall be paid to an employee who solely conceived or made the invention or discovery, and shall be paid in shares to two or more employees who jointly conceived or made the invention or discovery in such respective proportions as the board may determine. The board in its discretion may increase the amount by which any employee or employees may participate in such net proceeds.

(f) Disagreements as to the allocation of any invention or discovery, as to the obligations of any employee, or due performance thereof, or as to the participation of any employee of the station in any net proceeds, shall be disposed of as follows: (1) By voluntary arbitration of all relevant issues, if the disagreeing parties approve and agree to be bound by the decision upon such arbitration; (2) by compulsory arbitration if that is provided for in any applicable contract between the disagreeing parties; or (3) by recourse to a court of competent jurisdiction in this state if arbitration cannot be resorted to under either subdivision (1) or (2) of this subsection.

(g) The board may establish and regulate, equitably in the public interest, such measures as the board deems necessary for the purposes of such arbitration, and to make contracts for compulsory arbitration, in the name of the station.

(h) The board may adopt regulations in accordance with chapter 54 to govern the operations of the station in accordance with the provisions of subsections (a) to (g), inclusive, of this section.

EXHIBIT C - Stem Cell Research Advisory Committee 2011

	Appointee	Responsibility	Appointing Authority
1	Jewel Mullen, M.D., M.P.H., M.P.A. Commissioner Department of Public Health	Chair, SCRAC	Statute
2	Ronald Hart, Ph.D.	Nationally Recognized, Active Investigator in Stem Cell Research	Office of the Governor
3	Treena Arinzeh, Ph.D	Nationally Recognized, Active Investigator in Stem Cell Research	Office of the Governor
4	Richard Dees, Ph.D.	Bioethics Background and Experience	Office of the Governor
5	Anne Hiskes, Ph.D.	Academic Researcher Specializing in Stem Cell Research	House Majority Leader
6	Milton B. Wallack, DDS	Private Sector Stem Cell Research and Development	Speaker of the House
7	Myron Genel, M.D.	Academic Researcher Specializing in Stem Cell Research	Senate Majority Leader
8	David Goldhamer, Ph.D	Private Sector Stem Cell Research and Development	President Pro Tempore
9	Ann Kiessling, Ph.D.	Private Sector Stem Cell Research and Development	President Pro Tempore
10	Gerald Fishbone, M.D.	Private Stem Cell Research and Development	Speaker of the House
11	Paul Pescatello	Business or Financial Investments	House Minority Leader
12	<i>[Vacant as of March 5, 2012]</i>	Private or Public Sector Stem Cell Research and Development (or related research fields)	Senate Minority Leader
13	<i>[Vacant as of March 5, 2012]</i>	Private or Public Sector Stem Cell Research and Development (or related research fields)	Senate Minority Leader
14	<i>[Vacant as of March 5, 2012]</i>	Academic Researcher Specializing in Stem Cell Research	Senate Majority Leader
15	<i>[Vacant as of March 5, 2012]</i>	Academic Researcher Specializing in Stem Cell Research	House Majority Leader
16	<i>[Vacant as of March 5, 2012]</i>	Bioethics Background and Experience	Office of the Governor
17	<i>[Vacant as of March 5, 2012]</i>	Business or Financial Investments	House Minority Leader

EXHIBIT D - *Commercialization Platform in Use at UCONN*

An exemplary UCONN commercialization platform is described in the UCONN “Inventor’s Guide” and on the Office of Technology Commercialization (OTC) website. This UCONN commercialization platform features an IP evaluation process through which identified IP, once evaluated, takes one of two commercialization paths.

One path is triggered by identifying IP as a “platform technology” (which differs from a “commercialization platform”). A platform technology is defined as a technology best suited for a start-up company; here a new business is envisioned, entry to a Technology Incubation Program (i.e. “TIP”) is possible, followed by commercialization of concept by a new company, independent of whether or not the business goes through the TIP.

The TIP is selective in its acceptance of clients as well as rigorous in its focus on instilling sound business practices. Depending on the focus of the incubator, businesses accepted into a program are provided shared office services; office, lab and/or manufacturing space, access to university and college facilities and personnel; preferred access to banks and other funding groups; legal and accounting services; and intensive mentoring. All incubators have a defined incubation period, at the end of which the business graduates from the facility and a new sustainable business emerges.

The platform technology path is initiated after the UCONN R&D Corporation has taken a look at all technology submitted for evaluation; and selects those concepts they view as most promising for a startup. If promise is shown, UCONN’s Center for Science and Technology Commercialization (CSTC), operating within the OTC, executes a license with the R&D Corporation and the R&D Corporation seeks funding, talent etc., parsing out equity as necessary.

On the second path, the IP evaluation process typically ends with a “license back” to faculty of the IP or commercialization by a licensee (e.g., a faculty member or an entrepreneur). In instances where, in the view of the CSTC, there is no commercial potential for a concept, the faculty inventor can get the “license back” (for an agreed royalty in favor of UCONN) and independently pursue patents and commercialization.

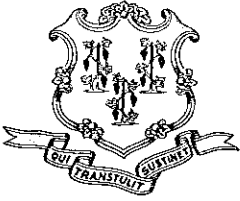
If a faculty member or an entrepreneur takes a license from CSTC and goes forward independently to commercialize the IP, licenses have been negotiated on a case by case basis. UCONN plans to have a standard faculty license. Agreements typically have contained provisions relating to up-front payments, annual license fees, minimum payments, a royalty rate, an equity position for the University and patent cost reimbursement terms, among other things.

License revenue derived by the CSTC is shared with inventors according to the universities distribution policy, which is constrained by a statutory minimum (see Sections 10a-110 to 10a 110g, inclusive of the C.G.S.) for inventors, which the University chooses to exceed; and federal law where federal grant money is involved with producing the IP being commercialized. It should be noted in cases like the State

funded stem cell project, the federal restrictions on the use of IP proceeds (substantively re-using the proceeds for University research purposes), may not apply.

It should also be noted that in the UCONN commercialization platform, the CSTC also has the ability to issue technology licenses directly to established companies, i.e., companies with an established track record in a technology area.

Appendix 1 – August 26, 2011 Letter From Secretary Barnes



STATE OF CONNECTICUT
OFFICE OF POLICY AND MANAGEMENT

M E M O R A N D U M

To: Susan Herbst, President – University of Connecticut
Dr. Jewell Mullen, Commissioner – Department of Public Health
Dr. Louis A. Magnarelli, Director – Connecticut Agriculture Experiment Station

From: Benjamin Barnes, Secretary 

Date: August 26, 2011

Subject: Request for Information - Intellectual Property

The State of Connecticut, through its investments of grants, public-private partnerships, employee staff time, etc., has developed or caused to be developed, numerous “intangible assets” (often referred to as “intellectual property”) which the State owns or in which it has (or should have) an ownership interest. Intellectual property includes, but is not limited to, items such as patents, trademarks and copyrights.

While these intellectual property assets hold the potential to produce significant revenue for the State through their commercialization, there does not currently exist a centralized, coordinated inventory of all of the State’s intellectual property assets or a statewide plan which would ensure their efficient and effective commercialization.

Therefore, the State of Connecticut, through the Office of Policy and Management (OPM), is undertaking a project that at the outset will identify the State’s intellectual property. While the scope of this project may ultimately include all agencies, departments, institutions and universities, your agency has been selected for the initial phase of this project given your existing work in this area.

A principal objective of this endeavor will be to identify these intangible assets and determine the most appropriate manner to maximize their value for the benefit of the State and its taxpayers. Additionally, the project will also attempt to measure the rate of return on the State’s investments (i.e. appropriated funds, grants, loans, etc).

In order to best accomplish this, the State will be formulating an *Intellectual Property Action Plan* which will ultimately:

- Identify the State’s “*intangible assets*” that are in and/or should be in the state’s portfolio as a result of investment by the state (i.e. who presently owns intellectual property, what is being done to protect the state’s interest’s in such property and what the property identified presently contributes to the state, etc.);
- Analyze how best to use intellectual property in order to bring innovation and jobs to Connecticut; and secure for the State a reasonable return on its investments;

- Determine which “*intangible assets*” are, and which are not, worthy of being protected via patents, trademarks and copyrights;
- Identify best practices as to how to commercialize the intangible assets which are already held (or which may be pending) by the State and which the state should be seeking an interest in going forward;
- Articulate a policy which clearly defines what intangible assets are and what the expectations and rewards are for identifying, protecting and commercializing these assets; and
- Monitoring on an on-going basis the execution of the aforementioned best practices.

Note: For those agencies which are found to have adequate intellectual property policies, procedures and commercialization efforts, no changes to those policies and procedures are anticipated at this time.

Requested Information - At this time I am requesting your assistance by providing the OPM with:

1. The contact information for a staff person who is, or will be, responsible for your agency’s “intellectual property” assets;
2. A brief narrative of your agency’s policies and procedures for identifying, protecting and commercializing its intellectual property assets. Please indicate if your agency has existing policies and/or form agreements regarding the disclosure and assignment of inventions by employees, third party contractors and/or grantees;
3. Patents and Patents Pending - list each by title, when filed and who has title (assignee);
4. Unfiled Invention Disclosures - list by title, when disclosure received and who has title (assignee);
5. Trademarks - identify mark, registration number if any (state or federal) and who has title (assignee);
6. Copyrights - identify copyrighted material; is it registered federally and who has title (assignee);
7. Please list the number of active invention disclosure/assignment agreements with employees, third party contractors and grantees (list each separately); and
8. A list of grants (January 2008 to present) made by your agency and/or partnerships entered into which have, or reasonably should, result in the development of intellectual property. Please state which entities have a beneficial interest in such property; and
9. A list of your agency’s efforts (including income received) to commercialize your agency’s intellectual property assets (January 2008 to present). Please specify to which fund(s) such income is deposited.

A detailed set of working definitions for each of the above can be found at the end of this document.

Please submit this information no later than October 3, 2011; electronic submissions are preferred (PDF, Excel, etc). Information and questions should be forwarded to:

Office of Policy and Management
Patrick M. O'Brien
450 Capitol Avenue
Hartford, CT 06106
(860) 418-6353
patrick.obrien@ct.gov

In order to assist OPM with this important project, we have enlisted the assistance of Mr. Joseph Kaliko who may be responding to any questions submitted, contacting you for additional information or making recommendations to this office regarding the State's future efforts with regard to handling its intellectual property assets.

Based upon your agency's experience in this area, in addition to the information being requested above, I would ask that you feel free to submit any additional information which you believe to be relevant and please feel free to submit any ideas you may have for how the State can best utilize its intellectual property assets.

Once we have received and reviewed the above information, representatives from OPM will contact your agency to discuss these issues in depth to determine if any additional action or information is required.

I appreciate your assistance with this matter.

WORKING DEFINITIONS

Assignee

An entity (for example, a natural person, a corporation, partnership or the state) to whom an assignment is made. An entity to whom a right or property is legally transferred. Intangible assets are capable of being assigned from the legal owner (the "assignor") to an assignee.

Assignment Agreement

An agreement to transfer, for example, a legal right or set of rights, such as the rights associated with an intangible asset. For example, a granted patent, or even a patent application.

Beneficial Interest

That right which a "person" has in a contract made with another (third) person. For example, a contract between a state university and a private research institution where the university provides funds obtained from the state that the private research institution uses to generate intellectual property (like a patent). The contract between the university and the research institution could, for example, provide a defined beneficial interest in the intellectual property to a third person.

More generally, a beneficial interest is any "*interest of value, worth, or use in property (tangible or intangible) one does not own*". Another example is the interest that a beneficiary of a trust has in the trust.

Commercializing Intangible Assets

The act of licensing or selling intangible assets for profit or advantage. For example, the proceeds or other advantages gained from the licensing, cross-licensing or sale of inventions/discoveries, etc., emerging from research at our state universities or as a product of state funded third party research.

Copyright

A copyright protects works of authorship, such as writings, music, and works of art that have been tangibly expressed. Copyright protection may be obtained by applying a copyright notice to the work; and/or by registering the work in the U.S. Copyright Office, a division of the Library of Congress.

Disclosure

In the context of intangible property that could result, for example, in the filing of a patent application, a “*disclosure*” is typically a document that describes the invention with enough detail to enable those skilled in the art (to which the invention pertains) to make and use (practice) the invention.

Items such as the identity of the inventors, their citizenship, date of conception of the invention, and other material needed to evaluate the invention’s worth and prepare a patent application, are typically all included in the “*disclosure*”.

Disclosure Agreement

The undertaking of a first party to a contract (usually part of a broad non-disclosure agreement to protect the divulging of ideas to third parties), to provide a written disclosure to another party to the contract or a specified third party, whenever the work product of the first party may reasonably be believed to be the basis for claiming and/or perfecting an intangible asset.

For example, a non-disclosure agreement between a state university and a private research institution may provide that the research organization keep its’ work confidential; yet be obliged to provide a written disclosure to the university of any fruits of the research that are potentially patentable or otherwise marketable.

Intellectual Property

A term that refers to a number of distinct types of “*creations of the mind*” for which a set of exclusive rights are recognized.

Under intellectual property law, owners are granted certain exclusive rights to a variety of intangible assets such as musical, literary, and artistic works, discoveries and inventions and words, phrases, symbols, and designs.

Common types of intellectual property rights include copyrights, trademarks, patents, industrial design rights and trade rights in some jurisdictions.

Intangible Assets

Assets that are not physical in nature (i.e. have no physical existence). Intellectual property (items such as patents, trademarks, copyrights, business methodologies), goodwill, know-how and brand recognition are all common intangible assets.

They derive their value from intellectual or legal rights, and from the value they add to other assets. Intangible assets are generally classified into two broad categories:

1. Limited-life intangible assets, such as patents, copyrights, and goodwill, and
2. Unlimited-life intangible assets, such as trademarks.

In contrast to tangible assets, intangible assets cannot be destroyed by fire, hurricane, or other accidents or disasters. However, some intangible assets (goodwill, patents and trademarks, for example) can be destroyed by carelessness or improper use.

While intangible assets don't have the obvious physical value of a factory or equipment, they can prove very valuable for to a company or governmental entity.

Patent

A set of exclusive rights granted by a government to an inventor or their assignee for a limited period of time (typically 20 years from the filing of an application for a patent in the United States), in exchange for the public disclosure of an invention.

The procedure for granting patents, the requirements placed on the patentee, and the extent of the exclusive rights vary widely between countries according to national laws and international agreements.

Typically, however, a patent application must include one or more claims defining the invention (like a deed to real property, setting forth the “metes and bounds” of this type of intangible asset), which must be new, non-obvious and useful. These are commonly referred to as “*utility patents*” and generally protect the functional features of an invention.

A class of patents also exists for protecting designs. These are called “*design patents*” and protect a products appearance, such as an ornamental design.

In some countries certain subject areas are excluded from patent protection, such as business methods and mental acts. The exclusive right granted to a patentee in most countries is the right to prevent (exclude) others from making, using, selling, or distributing the patented invention without permission of the patent holder or it's assignee (this is the case in the United States of America).

A patent does not give the proprietor of the patent the right to *use* the patented invention, should it fall within the scope of an earlier patent (referred to as a dominating patent).

Patent Application

A patent application is a request pending at a patent office for the grant of a patent for the invention described and claimed by the applicant.

An application consists of a description of the invention (the “*patent specification*”), together with official forms and correspondence relating to the application. The term patent application is also used to refer to the process of applying for a patent, or to the patent specification itself (i.e. the content of the document filed with a view to initiating the process for obtaining a patent).

Patent Pending

A designation given to an application made for a patent (actually filed), prior to the issuance or abandonment of the patent application.

Trademark/Service Mark

A trademark is a word, phrase, symbol or design, or a combination thereof, that identifies and distinguishes the source of the goods of one party from those of others, in commerce.

A service mark is a word, phrase, symbol or design, or a combination thereof, that identifies and distinguishes the source of a service rather than goods, in commerce. The term "*trademark*" is often used to refer to both trademarks and service marks.

Trademarks may be registered federally or under state law. Trademark rights accrue through "*use*" and therefore need not be registered at all. However, registration provides certain benefits regarding notice of one's rights and access to, for example, federal courts in the case of federal registration.

Unfiled Invention

An invention, disclosed or undisclosed, that reasonably could be the subject of a patent application.

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