

Office of Technology Licensing

Executive Summary

The Office of Technology Licensing (OTL) executed five options and six licenses covering University intellectual property this year, and six of the deals were with Arkansas-based companies. The OTL also continued its support of the University of Arkansas Technology Development Foundation (UATDF) by assigning patent rights to significant technology, which led to UATDF consummating a licensing contract with an experienced IP marketing firm.

A new strategy for maximizing the benefits of tech licensing, while minimizing expenses, has been implemented. The new strategy calls for marketing new technologies before patenting. The new method should reduce the number of unlicensed patents – thereby reducing the amount of unsupported patent costs.

The University received 17 patents in FY07, the largest number in the last nine years. 20 invention disclosures were received and 24 patent applications filed.

Gross licensing income rose 1.8% in FY07 to \$404,378. The OTL finished FY07 in the black but with far less positive margin than in FY06. \$98,344 was remitted to inventors, and \$12,282 was remitted to the University for patenting and licensing support and professional services.

FY07 also saw a significant development for the OTL with the hiring of the University of Arkansas' first ever patent attorney. Dr. Lisa Childs has greatly added to the OTL's mission of protecting University intellectual property by providing timely advice and support on patents, licenses, confidentiality agreements, and other legal questions.

Scott Hancock, the first Director of the Office of Technology Licensing, left the University in May 2007. A new director is expected to be hired soon.

Technology Licensing

The OTL has responsibility for the Fayetteville campus and the Division of Agriculture. The OTL helps faculty to identify, protect, and commercialize intellectual property (IP) developed in their University research programs.

Faculty inventors are encouraged to contact the OTL before submitting a formal invention disclosure to discuss whether one is warranted. Formally submitting an invention disclosure begins a review process to determine the disposition of the IP. The OTL then guides the faculty inventors through the Patent & Copyright Committee review process. The OTL may introduce faculty inventors to private sector venture capital and to the UATDF. In the first case, private venture capital sources can explore with the inventors whether to form a University spin-out company of which the inventor can be a founding member and perhaps serve as Chief Technology Officer. In the second case, a faculty inventor may consider working with the UATDF, a newly formed 501(3)(c) organization that is to provide resources to validate technologies and enable further development and commercialization.

In FY07 the University, through the OTL, formally assigned significant IP rights to the UATDF based on a disclosure form by Dr. Ryan Tian. The disclosure has generated three patent applications to date.

This new advance in nanotechnology and chemistry marks the first time that anyone has created macroscale objects from nanoscale materials. The technology has numerous possible applications including membrane catalysts, solar cell and energy applications, drug delivery, and others. This is the first technology to be assigned to the UATDF and is a milestone in its development. It is expected that income will result from this license that will go to support a validation fund for future IP from other inventors.

The OTL also:

- markets University IP by finding partners who will commercialize the technology.
- negotiates and monitors licenses for University IP.
- coordinates with the Office of Research Support and Sponsored Programs on intellectual property language within sponsored research agreements with private sector entities.
- negotiates confidentiality agreements to facilitate faculty discussions with prospective private sector research collaborations.
- manages IP reporting requirements to federal agencies under the Bayh-Dole Act and to private sector research sponsors in coordination with the Office of Research Support and Sponsored Programs.
- coordinates patent protection, filing, prosecution, and maintenance.
- manages fiduciary responsibilities under UA System Patent and Copyright Policy (Sections 210.1 and 210.2) by making bi-annual distribution of net licensing income to the inventors, the UA System, and the UAF campus.

Performance for Fiscal Year 2007

License/Option Activity

The OTL executed five options and six licenses covering University intellectual property. Five of the deals were with Arkansas-based companies. Three additional options resulted from sponsored research agreements with outside companies. The University also assigned patent rights to the UATDF for one invention. Two licenses were terminated due to non-performance.

In a fiscal-year-to-fiscal-year comparison, gross licensing income rose 1.8 % percent to \$404,378. Overall, income was not much different in FY07 than in FY06. The OTL continues to have a majority of its licenses with primarily local start-up companies, several of which are proceeding toward positive cash flow, but have not yet started to pay royalties.

As seen in Table 1, the percentage breakdown of licensing income by source is virtually unchanged in FY07 from FY06. The biggest producers in gross licensing income for FY07 are from the same licenses as in FY06 – patents covering the use of alum in poultry production provided 27% of the total, and animal health technology provided another 18% of income.

Table 1. The Composition of Licensing Income in Fiscal Year 2007

College or Division	Examples of Technologies	Percent Share
Agriculture	alum, avian vaccines, animal health, vineyard mechanization, biosensors	76.3 %
Arts & Sciences	nanocrystals, superconducting compounds, <i>ab initio</i> drug design computational software, assays, microfluidic devices,	17.4 %
Engineering	environmental quality, roadbed inspection equipment, nanoparticle coatings, ethanol conversion, electronics packaging	5.4 %
Miscellaneous	educational publications, displays, exhaust screen	0.9 %

Intellectual Property Assets

The Fayetteville campus and the Division of Agriculture received seventeen U.S. utility patents in FY07.

- U.S. Patent 7,073,822 for Cable Steering System
- U.S. Patent 7,105,051 for Semiconductor Nanocrystals
- U.S. Patent 7,112,545 for Crystalline GaAs
- U.S. Patent 7,135,585 for Fungicidal Amides and Carboxamides
- U.S. Patent 7,141,260 for Removal of Seed Pericarp
- U.S. Patent 7,141,261 for Pectin from Soybeans
- U.S. Patent 7,144,486 for Integrated Electrodes
- U.S. Patent 7,147,441 for Redox Magnetohydrodynamics
- U.S. Patent 7,153,703 for Inorganic Nanocrystals
- U.S. Patent 7,160,525 for Synthesis of Noble Metal Nanocrystals
- U.S. Patent 7,160,580 for Edible Antimicrobial Films
- U.S. Patent 7,169,272 for Recessed Disk Microelectrodes
- U.S. Patent 7,174,709 for Turboscreen
- U.S. Patent 7,202,143 for Formation of Large-Grain Silicon
- U.S. Patent 7,202,404 for Fungicidal Amides and Carboxamides
- U.S. Patent 7,205,331 for Fungicidal Amides and Carboxamides
- U.S. Patent 7,238,496 for Detection of Salmonella

As FY07 ended, the portfolio contained 106 issued U.S. utility patents, 16 plant patents, 17 foreign patents (mostly covering superconducting compounds and animal immune complex vaccine technologies), and 96 pending U.S. utility patent applications. In line with the goal of rationalizing the portfolio, the campus abandoned four issued U.S. patents. Lack of commercialization prospects and technology or market shifts also prompted the OTL to discontinue prosecution of nine U.S. and six foreign patent applications.

As shown in Table 2 below, gross legal fees were \$407,538, which include payments to outside counsel and patent office fees associated with applications and maintenance of rights. This exceeded gross licensing income by \$3,160 (less than 1%). The OTL paid \$255,124 in unreimbursed legal fees while option holders and licensees reimbursed \$137,414 of the gross legal fees and an outside attorney reimbursed \$7,500, bringing the reimbursed fees to \$144,914 for a reimbursement rate of nearly 36%. Thus, the OTL did not meet AUTM's benchmark of 40%, but the reimbursement rate and absolute dollars reimbursed were the second best in the last eight years.

The OTL made royalty distributions to inventors in the amount of \$98,344 and remitted \$12,282 to the UA System for patenting and licensing support and professional services. The balance went to support the OTL and Office of the Vice Provost for Research. The OTL had no expenses for litigation in FY07.

Table 2. Intellectual Property Protection Expenses

Fiscal Year	Legal Expenses	Reimbursed Legal Expenses	Percent Reimbursed	Net OTL Patenting Costs
2000	172,205.60	37,753.27	21.9	134,452.33
2001	230,317.63	65,614.90	28.5	164,702.73
2002	383,559.68	71,967.68	19.3	311,592.00
2003	399,313.57	140,369.16	35.2	258,944.41
2004	327,514.55	122,609.49	37.4	204,905.06
2005	249,789.79	73,025.98	29.2	176,763.81
2006	335,330.61	162,361.98	48.4	172,968.63
2007	407,538.77	144,914.47	35.6	262,624.30

Inventors submitted twenty disclosures in FY07, a nearly fifty percent reduction from FY06. However, as seen below in Table 3, a record number of patents issued (seventeen) and a four-year high of twenty-four applications were filed. Because more patents were issued, government issue fees increased as well (\$17,000 for FY07 vs. \$5,000 for FY06), as well as attorney fees (not tabulated).

Table 3. Summary Statistics – Intellectual Property Pipeline

Fiscal Year	Invention Disclosures	U.S. Patent Applications	Issued U.S. Patents
1999	26	27	13
2000	12	18	9
2001	30	31	10
2002	25	37	16
2003	27	33	8
2004	31	23	11
2005	39	22	12
2006	39	20	5
2007	20	24	17

New Strategy for Managing Patent Costs

In FY07 the OTL instituted a new practice to reduce patent costs and increase the return of patent investment to the University. This new practice focuses on marketing an invention *before* significant patent costs are incurred. If no industry sponsor is found, then patent protection is not sought. This should reduce the University's unreimbursed legal fees. Of course the University does risk not protecting technology that may, in the future, be valuable, but this practice is a more prudent way of managing limited resources.

Another strategy for identifying potentially important inventors entails using an outside evaluator. The OTL is experimenting with this technique and will consider whether to continue using it.

Quantitative Measures of FY 2007 Performance

Goal: Balance Patent & Copyright expenses with available licensing income.

Result: Goal achieved.

Goal: Work with the faculty Patent and Copyright Committee to make early and informed go/no-go decisions regarding patenting of invention disclosures so that finite budget resources will flow to technologies holding the promise of higher returns on investment.

Result: Goal achieved. Each invention disclosure presented to the P & C Committee was investigated for its likely ability to be commercialized.

Goal: Maintain the patenting cost reimbursement ratio at or above the AUTM standard of 40 percent.

Result: Goal not achieved. Patent cost reimbursement ratio for FY07 was almost 36%. The ratio would have been maintained at about 40 percent had two companies reimbursed the University as previously agreed.

Goal: Generate \$400,000 in gross licensing income, effectively the same level as in FY06. Said projection is based on scheduled drop-off in certain license milestone payments.

Result: Goal achieved. Gross licensing income for FY07 was \$407,538.

Goal: Execute five license agreements with Arkansas companies.

Result: Goal not achieved. Two licenses and two amendments to a license were negotiated with Arkansas companies in FY07. However, eight patents and applications were licensed and four were optioned with Arkansas companies.

Goal: Provide faculty inventors an annual status report on the technologies that the OTL is actively working to assess/protect/market. Use the InfoEd technology transfer module and database to generate a report showing patent status, revenues, expenses, commercialization agreements.

Result: Goal not achieved. The InfoEd module upgrade resulted in OTL not being able to easily retrieve this information.

Goal: Become current in meeting reporting requirements on inventions made with federal funds, in compliance with the Bayh-Dole Act.

Result: Goal achieved.

Goal: Revise the invention disclosure form in consultation with the Patent & Copyright Committee.

Result: Goal achieved. The new invention disclosure form has been revised and is in use.

Other achievements

In FY07, the OTL continued its relationship with a local technology accelerator company that specializes in starting and developing businesses based on University technology. The OTL has licensed or optioned 29 University technologies to ten local start-up companies associated with the technology accelerator. Four of these companies have reported their first sales in FY07. This is important to the success of OTL not only because the licensing agreements require royalty payments to the University, but also because the University has equity in the companies.

In October of FY07, the OTL was fortunate to begin working with Dr. Lisa Childs, a licensed patent attorney. Working closely with the OTL, Dr. Childs provides advice and support on the wording of contracts such as licenses, confidentiality agreements, assignments and other legal documents. Dr. Childs also provides oversight and support with regard to the OTL's dealings with outside patent attorneys. With Dr. Childs' help, the OTL is now on a much stronger footing when dealing with the myriad legal issues that are part of technology licensing.

Even though the OTL was strengthened by the arrival of Dr. Childs, the OTL also suffered the loss of its first ever Director and friend, Scott Hancock. Scott left the OTL and the University in May of this year to take a new job at SUNY Binghamton in upstate New York. Scott had been the Director of the OTL for the last five years and had a great deal of experience and a large number of personal connections that will be sorely missed. Scott pioneered the existence of the OTL as a separate entity from the Office of Research Support and Sponsored Programs and initiated many of the most important changes that the OTL has undergone.

At the time of this report, several prospects for the OTL Director have been interviewed. The new director will take over an office with a fresh team, as no one will have had more than three years of experience in the OTL. New ideas, combined with professional capabilities, will strengthen the OTL and provide the basis for future growth and support for the University's IP commercialization goals.

Goals for FY08

- Continue to balance Patent & Copyright expenses with available licensing income.
- Hire a new OTL Director.
- Achieve the patenting cost reimbursement ratio at or above the AUTM standard of 40 percent.
- Execute agreements with Arkansas companies for three intellectual properties.
- Remain current in meeting reporting requirements on inventions made with federal funds, in compliance with the Bayh-Dole Act.
- Improve information management to generate reports tracking IP expenses and income by college.
- Complete internal OTL audit of existing intellectual property.
- Update information posted on the OTL Website.

Guiding Objectives

- Support RSSP and UATDF on intellectual property issues.
- Continue to educate students, faculty, department heads, and UAF and Division management on the benefits of participating in the University's technology transfer program.
- Increase faculty participation in the disclosure process so that the inventor community grows.
- Use internal and external resources and expertise to improve OTL recommendations to the Patent & Copyright Committee on invention disclosures.
- Market disclosures before patenting to enable decision-making based on likelihood of commercialization.
- Deepen business and research relationships of licensees with University and faculty inventors.
- Consider the impact of licensee's location on the University's desire to improve Arkansas' knowledge-based economy.
- Educate stakeholders statewide about the positive impact technology transfer is making in Arkansas, e.g., through press releases about newly issued patents or license agreements.

Looking Ahead

The OTL will continue to market University IP to companies that can commercialize the technology, thus bringing to the public the benefits of new knowledge produced at the University of Arkansas. Where possible and prudent, the OTL will continue to give weight to Arkansas companies in a conscious effort to improve the economic well-being of the state, providing jobs, services and products to the taxpayers and income to the state government in new tax revenue. A new Director of Technology Licensing will soon join the OTL, adding new skills and expertise. The OTL will continue to refine its information management, will expand its marketing contacts with industry, and will work to find productive licenses for every disclosure possible.