Technology Commercialization

Annual Report Fiscal Year 2008

(July 1, 2007 - June 30, 2008)

UNIVERSITY of ROCHESTER

Contents

Letter from the Directors

Dear Colleagues:

The Offices of Technology Transfer and the Office of Research and Project Administration (ORPA) have continued the quest to improve our management and use of the University of Rochester's intellectual property resources. A research university has an "assembly line" for intellectual property asset creation that begins with grant writing and submission, continues through grant award and administration, and ends with patent protection and licensing. We are improving some of the components of this assembly line so that we can build our intellectual property assets as effectively and efficiently as possible. For FY 2008, some of our key initiatives are summarized below:

- We continue to make improvements in research administration processes to better serve our investigators and research sponsors. ORPA participated in a Lean Six Sigma initiative along with faculty, department administrators, finance officials, and Deans' Office representatives that identified areas of improvement, such as enhanced technology and tools to facilitate transactions associated with research funding. ORPA is participating in a national pilot study among NIH Clinical Translational Science Award (CTSA) recipients for industry-supported clinical trial negotiations to develop objective metrics for process improvements in this area. During a year of flattened research funding from federal sponsors, ORPA continued broad educational initiatives to assist administrators and faculty to navigate the complexities of the Grants.gov proposal submission system.

- We have developed a new game plan on what we can do to advance our exciting yet nascent technologies so that they can attract the attention of a corporate champion. We have invested some of the royalty revenues we have received into a handful of our most promising new technologies which are orphaned inside the University because of a lack of follow-on funding needed to mature them. In addition, we have launched a proposal for a new philanthropic Technology Investment Fund that can be similarly invested in future promising, yet orphaned, technologies.

- We have commenced a strategic initiative to improve the management of the information we are acquiring from our external relationships. Industry-academia relationships are getting increasingly complex. Relevant information about our potential and existing industry partners is coming into the University through disparate offices and departments, yet the value of the information crosses these artificial structural boundaries and should be broadly shared. We are working to develop a shared database of information and to develop clear lines of communication and responsibility so that we can build strong relationships with our corporate community.

- In addition to the targeted company-specific marketing we have commonly employed to license our technologies, we are exploring web-based marketing options. For example, we are working toward changes to our web site that will optimize the identification of our technologies in commercial search engines. We have also listed our technologies on sites sponsored by intellectual property aggregators who are attempting to create comprehensive libraries of available technologies. Finally, we are experimenting with the use of YouTube to market—in short video format—some of our technologies to see whether we can connect to a new audience that may provide new opportunities for the successful transfer of our technologies.

This report shows the results achieved in FY 2008. Our Offices continue to be proud of the technologies that are generated at the University of Rochester and of the achievements we have made to allow so many of them to be used for public benefit.

Sincerely,

Gail M. Norris
Director
River Campus

Marjorie D. Hunter
Associate Vice President
URMC

Gunta Liders
Associate Vice President for
Research Administration

The Year's Highlights

- **Record Royalty Revenues.** Royalties in excess of $72 million for FY 2008 represent a 28% increase from the previous year. A majority of this revenue is derived from licenses on life sciences technologies that have led to important vaccine products used throughout the world. Although we do not expect to maintain this rate of growth in coming years due to patent expirations, Rochester continues to be a national leader in generating revenue from its licensed technologies. For FY 2008, the revenues we received represented a 19% return on the dollars invested through research expenditures.

- **Research Funding.** Award activity increased to over $389 million in grants and contracts in research and other sponsored activities. This represents an 8% increase from FY 2007. Given the decrease in federal appropriations to fund basic research, increased award receipt continues to reflect positively on the quality of research activities at the University of Rochester.

- **New Inventions.** The University again received more than 140 invention disclosures from faculty and staff in FY 2008. These technologies represent significant breakthroughs in such areas as stem cell research, microfluidics, Alzheimer's disease, asthma, nanotechnology, and novel medical devices (see "New Additions to the Portfolio-Hottest Technologies of 2008" section on pages 12-13).

- **Patenting and Partnering Remain Priorities.** At the end of Fiscal Year 2008, the University held 424 U.S. and foreign issued patents and, like the year before, over half are under license to commercial entities.

- **CTSI.** The University's Clinical and Translational Science Institute (CTSI) has a primary goal of ensuring that new preventive interventions, diagnostic procedures, and novel therapies get into the healthcare communities and to patients as quickly and safely as possible. Now that a number of research projects have been launched, the Institute will be working with the Offices of Technology Transfer on new paradigms that can "package" the research results we produce into commercial opportunities for development in the for-profit sector.

- **Economic Development.** Six new start-ups were spun out of the University of Rochester this fiscal year involving an array of technologies, including novel robotic systems for conducting biopsies, anti-inflammatory therapeutics, a device to image soft-tissue malignancies, a home-based science curriculum, and home-based health management. One innovative start-up, Codevax, was formed using a commercialization strategy of accumulating a portfolio of novel vaccine technologies in one company and creating a vaccines Center of Excellence in the Rochester area. In addition, we continue to build the necessary resources and infrastructure within the community to launch technologies created at the University into new commercial entities. The University will continue to work with regional and national venture capitalists, angel investors, and entrepreneurs to optimize the transfer of our technologies for the greatest public benefit.

- **Seamless Operations in Our Research and Technology Transfer Areas.** Technology Transfer, Research Administration, Corporate Alliances, and the academic research community at the University of Rochester have increased their harmonization efforts throughout FY 2008. As industry-academia relationships have increased in complexity, the need to coordinate and manage our relationships internally is critical. Some of the initiatives we have instituted in FY 2008 to improve in this area include plans for the launch of a fully integrated Technology Transfer website, regular combined meetings of the various offices who touch our research relationships with industry partners, the increased coordination and oversight of research initiatives and attendant policy implications by the Technology Transfer Policy Committee, the use of a shared database for all external industry contact information, and the introduction of plans to co-locate the offices that interface with industry for corporate relations and alliances.

The Technology Commercialization Process

Results for FY 2008 are organized in the order they appear in the technology commercialization process.

Research

Government-Funded and Industry Sponsored

Invention Disclosure

Invention Disclosure Assessment

Patent Prosecution

Marketing and Licensing to Existing Businesses and Start-Up Companies

Commercialization of Invention

Revenue

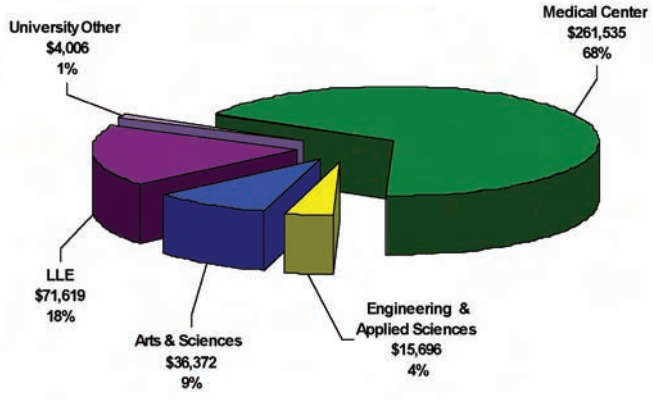
Sponsored Research

The principles and practices of research extend to every academic undertaking of the University, including the humanities, social sciences, arts, education, and business. All of these research endeavors, relying on various internal and external sources of sponsorship, contribute significantly to Rochester's standing as a national research university.

In FY 2008, the University received over $389 million in grants and contracts to advance its mission in research and other sponsored activities. At 159 years of age, the University is both more diverse and more focused on its research than ever before, and shows every promise of delivering the next generation of science and scientists.

This strong foundation of research funding has fueled the steady growth in invention disclosures and a pool of intellectual property that can be tapped for commercialization purposes.

University of Rochester Award Funding—FY 2008
(Dollars in Thousands)



For the University as a whole, the dollar value of awards represented a $29 million (8%) increase from FY 2007. Given the decrease in federal appropriations to fund basic research, increased award receipt continues to reflect positively on the University.

Award dollars in the Medical Center increased by over $13 million. This increase is significant, considering the flattening of the NIH budget in recent years. NIH is the largest single source of funds for University research and for the Medical Center. Two departments within the Medical Center contributed to this notable rise in funding. The Wilmot Cancer Center experienced an increase of over $5 million, half of which came from a National Cancer Institute grant that funds the Community Clinical Oncology Program. This is an area-wide program and the University serves as its coordinating center. The Department of Radiation Oncology's funding increased by $4.4 million, the majority of which came from two large federal grants related to bioterrorism response.

The School of Arts and Sciences experienced an $8 million decrease in award funding. The bulk of this decrease was due to the expiration of two large grants in the Department of Clinical and Social Sciences in Psychology. In addition, a five-year, $6 million grant from the U.S. Department of Education was awarded to this department for the full amount in FY 2007, resulting in an anomaly for that fiscal year.

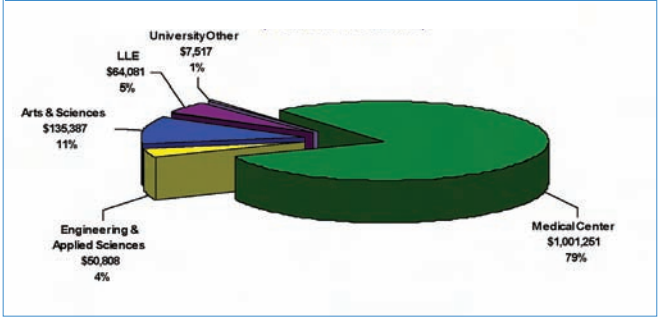
Elsewhere within the College, the School of Engineering and Applied Sciences (excluding LLE) experienced a decrease in award dollars of $3.7 million.

Within the Other Schools and Divisions category, the Memorial Art Gallery, the Eastman School of Music, and the Simon School of Business all experienced a slight decrease, while the Warner School of Education and Human Development saw an increase of $1.3 million.

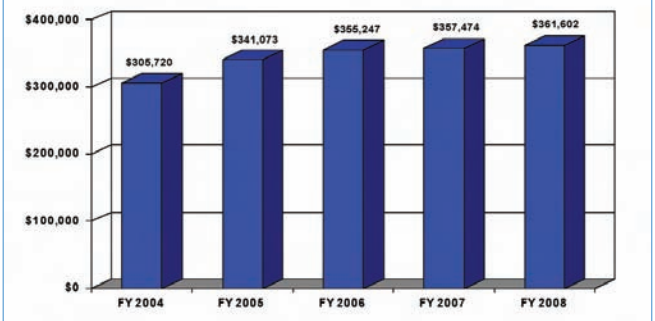
The amounts reported represent 2,779 total awards made during FY 2008.

Additional information is available at http://www.rochester.edu/ORPA/AnnualReport/index.html.

University of Rochester
Dollar Value of Proposals Submitted—FY 2008
(Dollars in thousands)

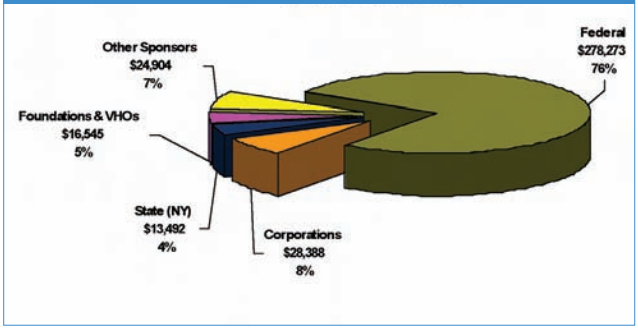


Sponsored Program Expenditures by Fiscal Year
Total University
(Dollars in thousands)



As shown by the chart above, expenditures rose by 1 percent from FY 2007. In FY 2008, expenditures exceeded $361 million. The flattening of the NIH budget in recent years has affected and will continue to affect future expenditure figures.

Sponsored Program Expenditures by Agency Type
Total University—FY 2008
(Dollars in Thousands)



Sponsored Program Expenditures by Agency Type
Total University—FY 2008
(Dollars in Thousands)

Agency Type	FY 2008	FY 2007	Increase/Decrease
Federal	$278,273	$278,017	+$256 (+0.001%)
Corporate	$28,388	$26,956	+$1,432 (+5.3%)
State & Local Government	$13,492	$12,019	+$1,473 (+12.3%)
Foundations & Voluntary Health	$16,545	$14,394	+$2,151 (+14.9%)
Other Sponsors	$24,904	$26,088	-$1,184 (-4.5%)
Total	$361,602	$357,474	+$4,128 (+1.1%)

Federal expenditures rose by $256,000 over FY 2007. Given the relatively flat budgets received by all federal agencies in the last few years, any increase can be considered a positive statistic.

Corporate funded expenditures increased by $1.4 million, primarily for clinical trials.

New York State and Local Government expenditures also increased by $1.4 million.

Expenditures in the "Other Sponsors" category decreased by $1.2 million. This category includes expenditures from research subawards or subcontracts received from other collaborating institutions, primarily other schools and colleges.

Total Federal Expenditures (Detail)
Total University—FY 2008
(Dollars in Thousands)

Federal Agency	FY 2008	FY 2007	Increase/Decrease
Public Health Service (includes NIH)	$181,303	$171,736	+$9,567 (+5.5%)
Department of Energy	$62,212	$73,277	-$11,065 (-15.1%)
National Science Foundation	$10,661	$10,224	+$437 (+4.3%)
Department of Defense	$12,889	$10,024	+$2,865 (+28.6%)
Department of Education	$8,023	$7,793	+$231 (+3.0%)
National Aeronautics & Space Administration	$424	$2,152	-$1,728 (-80.3%)
National Endowment for the Arts/Humanities	$51	$61	-$10 (-16.1%)
Other Sponsors	$2,710	$2,750	-$40 (-1.4%)
Total	$278,273	$278,017	+$256 (+0.1%)

Award expenditures under Public Health Service grants and contracts, which include the National Institutes of Health, increased by $9.6 million. When compared to the almost flat NIH budget for FY 2008 this increase is notable. NIH is the University's largest source of sponsored research support.

Expenditures for National Science Foundation grants remained relatively flat.

Department of Defense award expenditures increased by nearly $2.9 million.

Department of Energy award expenditures decreased by $11 million, primarily due to the completion of the petawatt laser facility at the LLE.

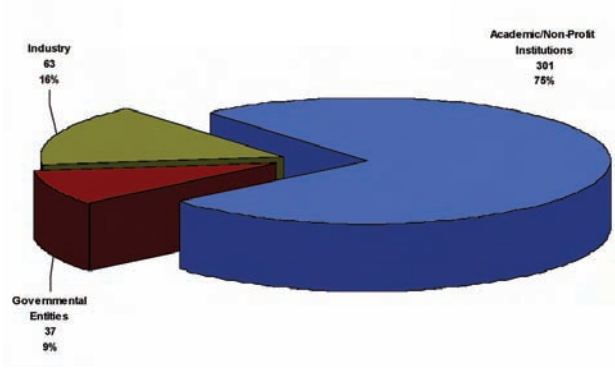
Sponsored program expenditures from National Aeronautics and Space Administration awards saw a decrease of $1.7 million.

Overview of Material Transfer Agreements Activity

As a general definition, a Material Transfer Agreement (hereinafter MTA) is a contract executed between two entities which outlines the rights and responsibilities of each party that arise due to the transfer of materials for research purposes from one party to the other. The MTA dictates how the materials and the results from using the materials can be used, along with other significant terms, conditions, and obligations. Typically, there is no fee associated with such a transfer. Occasionally, a small fee is assessed to cover the cost of transporting the materials or to offset a portion of the costs associated with maintaining the materials at the originating site.

In Fiscal Year 2008, the University of Rochester received a total of 401 MTA requests. Of these requests, 315 were for incoming materials requested by UR researchers, and 86 were for outgoing materials requested of UR researchers.

MTAs Processed by Institution Type
Total University—FY 2008



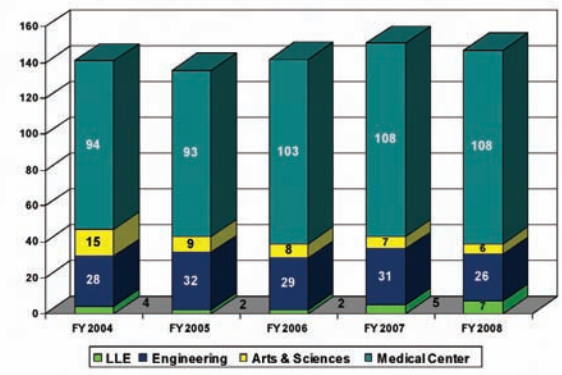
The University of Rochester executed a total of 330 agreements in FY 2008. This number includes 299 of the 401 MTA requests received during FY 2008 and 31 pending from the previous fiscal year.

Technology Transfer Data

Discoveries

The Offices of Technology Transfer continue to receive a steady stream of invention disclosures from a wide number of academic disciplines throughout the University. The number consistently remains above 130 disclosures per year.

Invention Disclosures Received by University Division

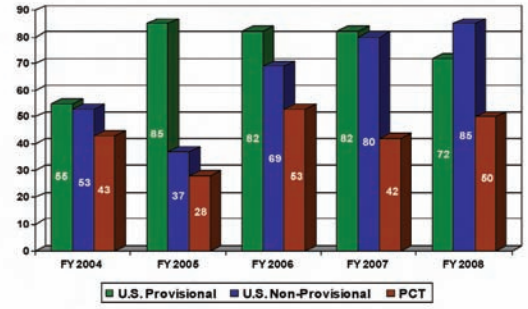


The Offices of Technology Transfer's faculty and researcher outreach and education programs will continue to foster invention disclosures and to involve researchers in the technology commercialization process.

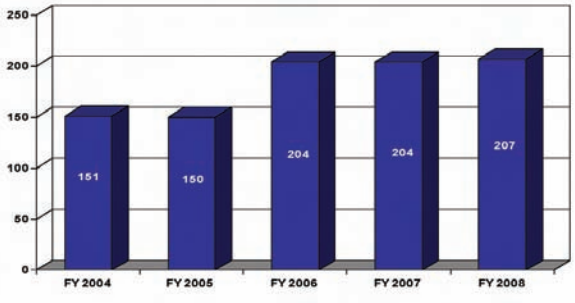
Patent Prosecution

New invention disclosures, total U.S. provisional, U.S. utility, and PCT patent applications have remained steady for the past five years. This trend is the result of two overlapping factors. First, the Offices of Technology Transfer have adopted a more disciplined approach to technology and commercialization assessment to ensure that the patents we obtain can be marketed or otherwise made available for licensing in a responsible fashion. Secondly, costs of patent protection are rising. Both legal fees for the lawyers who assist in the preparation and prosecution of patent applications, and the filing fees at the government patent offices around the world, are increasing. As a result, we continue to challenge ourselves to make better patenting decisions and prosecute patents more efficiently so that we can stay within reasonable expense budgets.

Patent Application Filed by Application type

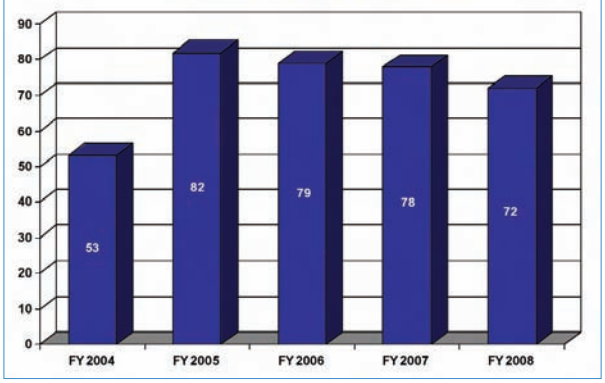


Total Patent Applications Filed by Fiscal Year



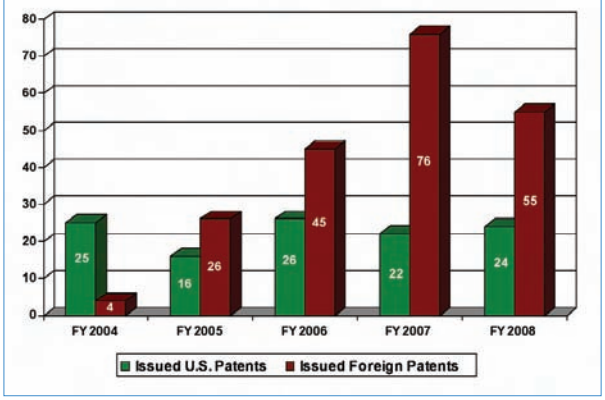
Many patent applications are merely the geographical expansion of intellectual property protection already begun in the U.S. or in Europe. Perhaps a better indicator of annual patenting activity is new matter filings, or the first time an application is filed on a particular invention. This is different than a count of Provisional filings, because not all Provisional applications represent the first filing on an invention, and not all new matter filings are Provisional applications. The following graph illustrates the number of new matter filings per fiscal year.

New Matter Filings by Fiscal Year



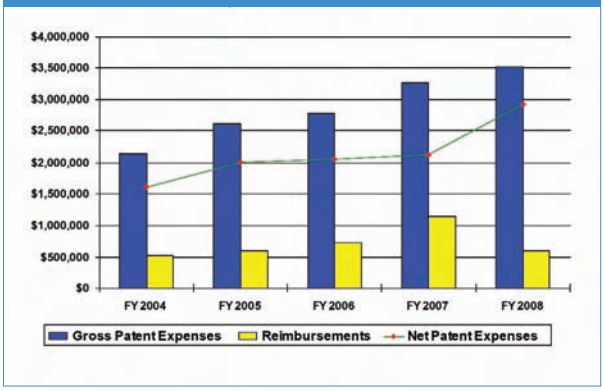
The University of Rochester continues to prosecute patent applications successfully, resulting in dozens of issued patents each year.

Patents Issued by Fiscal Year—Total University



As the costs related to patent prosecution continue to rise, the University Offices of Technology Transfer are making every effort to contain those costs in a responsible manner while protecting our intellectual property assets in the best ways possible. The graph below shows the increased total patenting expenses but also shows the portion of our patenting expenses being reimbursed by our licensees. The Offices continue our efforts to notify our licensees of their obligations to reimburse patent expenses, to monitor compliance, and to work with licensees to arrive at mutually beneficial solutions to non-compliance.

Patent Expenses and Reimbursements



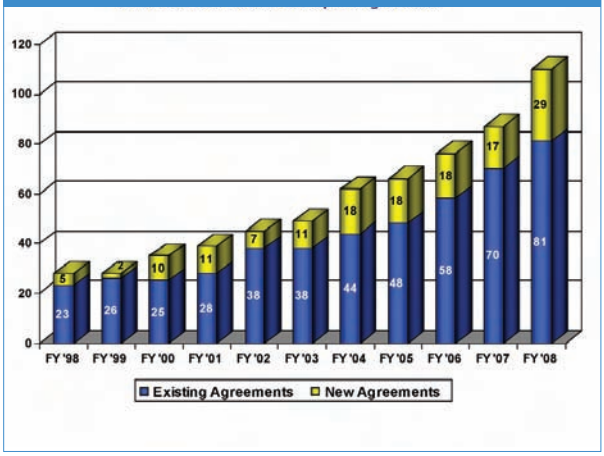
Licensing

Licensing the patents that result from our research for commercial use is at the heart of technology transfer. Patents that do not have claims that indicate a clear path to a profit-making use may not have commercial value even though the scientific discovery behind the patent may be important. A good scientific discovery and a good development opportunity for a commercial product can be two different things. Moreover, many inventions which appear to offer a commercial advantage to what is presently in the marketplace are still at such an early stage that we cannot find an industry partner who can afford to take the risk in the development of the invention. The Offices of Technology Transfer continue to think creatively and to collaborate to find ways of getting our novel technologies noticed by potential commercial partners. We always have a number of new technologies that we think are exciting opportunities, but we have not yet been able to find a willing corporate partner to champion those technologies into the marketplace.

The "New Additions to the Portfolio-Hottest Technologies of 2008" section on pages 12-13 gives examples of these early stage technologies.

The University of Rochester has more than 100 active license and option agreements in its portfolio. The Offices of Technology Transfer continue to marshal our resources to ensure that these agreements are monitored for compliance and that appropriate royalties are collected and distributed in accordance with our royalty sharing policies.

Active and New License and Option Agreements



Of the University's total portfolio of 228 issued U.S. Utility patents, 103, or 45% are licensed. In addition to U.S. patents, the University also holds 196 issued foreign patents on the strongest of our technologies. Of these foreign patents, 137, or 70% are licensed. The University holds a total of 424 U.S. and foreign patents. 56% of our overall patent portfolio is licensed to commercial partners.

The University of Rochester's Technology Portfolio

The University of Rochester's portfolio consists of more than 800 technologies at various stages in our technology transfer process, from the newest inventions just being reviewed for commercial viability to the older technologies which have patents issued and are already under a license.

The **Technology Evaluation** stage includes the work of business evaluation and also the time when the technology is being developed in the laboratory to a point of readiness for marketing.

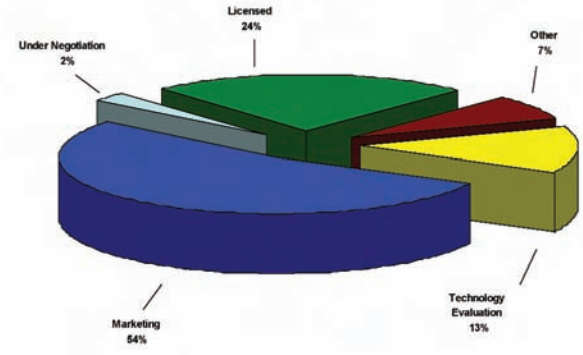
During the evaluation process, some invention disclosures are **Combined** with other cases for patenting and marketing purposes. In the following graphic representation of Rochester's portfolio, these cases will be categorized as **"Other."**

The **Marketing** process includes "push" marketing with active presentations of the technology to potential licensees, "pull" marketing through press releases and advertising on the web site, and **Inter-Institutional** collaborations in which our technology is marketed by another university, often in combination with an invention from the partner institution.

A license negotiation is often a protracted process in which the firm does its due diligence on the technical concept and the business and legal terms of the license are discussed. In some of these situations the firm pays for an option to the technology to hold it during this period of assessment and while it is **Under Negotiation.**

Of our entire portfolio of all actively considered inventions at all stages of the process, 24% are **Licensed.**

University of Rochester Technology Portfolio by Status



Hottest Technologies of 2008

The University had no shortages of innovation this year. Among the 140+ inventions received the following technologies are not only noteworthy, but also confirm the University of Rochester's reputation as a ground-breaking research institution. All of these have been targeted for technology advancement funding since each is approaching a significant commercialization milestone.

- **Optical Detection and Monitoring of Cervical Cancer Using a Novel Protein Biomarker** – Dr. Eugene Toy of Obstetrics and Gynecology has invented a method that replaces physical biopsy with non-invasive optical biopsy techniques, offering immediate results without the complications of tissue removal. The method will allow *in vivo* screening, diagnosis, and staging of disease progression by directly measuring a novel protein involved in cervical cancer progression.

- **Nerve Regeneration** – Drs. Mark Noble and Margot Mayer-Pröschel of the Medical Center's Department of Genetics have discovered that certain support cells of the central nervous system, called astrocytes, can be used to improve spinal cord injuries that cannot be treated with present therapies. These astrocytes provide a means to suppress scarring, rescue the survival of nerve populations, and promote regeneration. The development of astrocyte transplantation therapies has the potential to treat all traumatic injuries to the CNS and chronic degenerative disorders.

- **Ultrasound Imaging of Tissue Stiffness** – The University's Dr. Steve McAleavey of the Department of Biomedical Engineering has taken ultrasound into a new diagnostic dimension. For example, liver "stiffness" that is associated with irreparable disease can be detected far in advance of the current blood testing protocols. Using an advanced ultrasound technique called Acoustic Radiation Force Impulse (ARFI), Dr. McAleavey's invention will benefit the diagnosis of other diseases as well like diffuse vascular disease, prostate cancer, and other organ-specific cancers in a very patient-friendly and non-invasive manner.

- **Detection, Diagnosis, and Monitoring of Alzheimer's Disease** – The diagnosis of Alzheimer's disease currently is made by cognitive assessment in conjunction with identifications of other symptomatic indications of the disease. There is a need for a more objective diagnostic marker and Drs. Kerry O'Banion, Ross Tallents, and others have identified a protein, called E-Cadherin, which may serve as a prognostic, diagnostic, and monitor for the disease.

- **Nano-Particle Size Detection** – Professor Lukas Novotny of Rochester's renowned Institute of Optics has invented a device for detecting single particles below 40 nanometers in diameter-in real-time and with very low background noise. This technique is extremely useful in detecting and sizing biological entities such as anthrax spores and virus particles. Other non-biological applications will involve the sizing of catalysts, milled ceramics, and water-borne pollutants.

- **Treating Elevated Cholesterol and Lipids in Blood** – The elevation of cholesterol, triglycerides, and/or low high-density lipoprotein levels all contribute to the development of atherosclerosis and other heart diseases. Dr. Ned Ballatori from the Medical Center's Department of Environmental Medicine has come up with a better method of inhibiting bile absorption in the gut that has significant benefits over the present bile absorption drugs like Cholestyramine, a synthetic resin that has many side effects. This method may also have improvements over other approved cholesterol reducing drugs like Lipitor.

- **Evaluation of Visual Discrimination** – Dr. Krystel Huxlin, in the Department of Ophthalmology recently disclosed an invention with the unique application of retraining and evaluating a patient's damaged visual system. This technique has applications for patients with cortical blindness and other forms of extra-ocular visual impairments, patients with neurodegenerative diseases (Alzheimer's, Parkinson's), aging humans interested in retarding visual decline, as well as athletes and military personnel who need to improve visual performance. It is novel in its approach because it employs complex, dynamic visual stimuli to stimulate and increase function in higher level visual cortical areas affected by damage. This technology has performed well in initial studies and a 100-150 patient study is planned to carry out proof of principle experiments.

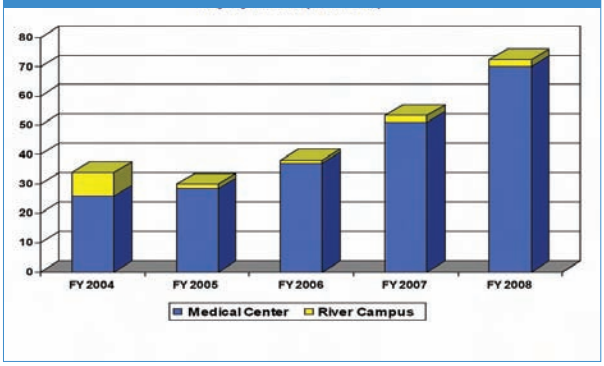
This is but a small sample of the inventions received by the Offices of Technology Transfer in FY 2008. These, and all others being marketed, are summarized and can be viewed on http://www.urmc.rochester.edu/technology-transfer.

Licensing Royalties

Technologies developed at the University of Rochester are among the most productive in the nation. For the past seven years, the University has been among the top ten institutions in the nation in terms of the amount of royalty revenue received from its licensed technologies, according to the Association of University Technology Managers (AUTM). Although we are highly successful in revenue generation, we view the royalties we receive as only one indication of the public utility of our technologies. We do not believe that revenue generation should be a leading metric of the success of the technology transfer function at our University.

Royalty revenue exceeded $72 million for FY 2008 which should maintain Rochester's ranking among the top 10 universities nationally for royalty income.

Royalty Income in Millions



Licensing Royalty Revenue, Based on the AUTM 2007* Annual Survey of University Technology Transfer
(in Millions)

Ranking	Institution	Revenue
1	New York University	$791.2
2	Columbia University	$135.6
3	University of California System	$97.6
4	Northwestern University	$85.3
5	Wake Forest University	$71.2
6	University of Minnesota	$63.3
7	University of Washington	$63.3
8	MIT	$61.6
9	University of Rochester	$53.3
10	Stanford University	$50.3

*FY 2007 represents the most recent data available

Licensing Royalty Revenue as a Ratio to Research Expenditures
(Source AUTM)

Institution	FY 2004 -2007 Research Expenditures	FY 2004 -2007 Royalty Revenues	Research Expenditures Returned in Royalties
Emory	$1,402,541,679	$633,997,461	45.2%
University of Rochester	$1,359,560,381	$155,560,472	11.4%
Washington University	$2,402,332,207	$96,103,558	4%
Case Western	$1,180,040,151	$41,391,433	3.5%
MIT	$4,589,600,000	$161,342,085	3.5%
Harvard	$2,468,031,496	$68,978,901	2.8%
University of Chicago	$1,393,586,726	$39,567,714	2.8%
Carnegie Mellon	$924,811,000	$21,483,903	2.3%
Vanderbilt	$1,501,277,184	$26,556,070	1.8%
Penn	$2,625,465,259	$30,365,861	1.2%
Pitt	$2,383,157,000	$22,878,915	1%
Dartmouth	$715,327,221	$7,392,995	1%
Cornell	$2,363,743,200	$22,260,700	0.9%
Duke	$2,295,577,812	$18,218,974	0.8%
Johns Hopkins	$6,869,241,318	$45,515,939	0.6%
USC	$1,699,062,000	$10,281,465	0.6%

The University of Rochester is first in the nation in terms of royalties earned per dollar of research expenditures (adjusted for Emory University's one-time $540 million royalty monetization).

For the past several years, the bulk of the University of Rochester's revenue stream has been comprised of a handful of very successful technologies. These include technologies such as the vaccine against *haemophilus* influenza type b that has virtually wiped out a leading cause of meningitis in preschoolers and another vaccine (Prevnar®) that uses the same technology to prevent infection by pneumococcal bacteria, which causes meningitis, ear infections, pneumonia, and other maladies. Another highly successful technology is the Blue Noise Mask that is used by virtually every printer manufacturer in the world.

While the patents—and license agreements—on many of these technologies have or will expire in the next few years, new University of Rochester-based technologies are coming to the market and revenue streams from these agreements should keep Rochester among the nation's leaders for the next several years. Royalty revenue for FY 2008 exceeded $70 million and is projected to surpass $45 million in FY 2009.

One of our more prominent emerging technologies is the cervical cancer vaccine that was approved by the Food and Drug Administration in 2006 and is being marketed by Merck under the name Gardasil®. Another version of the same vaccine developed by GlaxoSmithKline is also entering the market. Other technologies include a new drug for hot flashes that is in the final stages of development by Pfizer and the licensing of a portfolio of patents for adaptive optics in laser refractive surgery to major manufacturers.

In Re: Start-Up Companies

The University of Rochester realizes that Start-up companies are special cases, often finding themselves rich in potential, but limited in capital resources, especially in very early stages. Therefore, the University is willing to forgo immediate payments in exchange for future considerations, partnering with fledgling companies by assuming some of the risks of ownership. The University has taken equity positions in more than a dozen small companies over the last five years.

Economic Development

Technology Commercialization for Economic Growth

The University of Rochester continues to be one of the pillars of the region's economy, both in terms of its employment and spending as well as a catalyst for the development of knowledge-based commercial ventures.

According to a report issued by the **Center for Governmental Research (CGR)** earlier this year, the Medical Center alone has 12,700 full time equivalent employees and spends $170 million per year in the Rochester region on goods and services. Capital projects support an average of 2,100 construction-related jobs per year. In total, the spending of URMC and its employees support another 7,000 jobs in the region.

In October 2008, the Medical Center held a ceremonial groundbreaking for the Clinical and Translational Science Building. CGR estimates that, once completed, the project will support the creation of 600 jobs both inside and outside the Medical Center and $30 million annual economic impact. The construction phase of the project will employ an estimated 830 people.

The University of Rochester has a strong history in translational activities and takes great pride in its contributions to the local region. Through the **Rochester BioVenture Center**—the region's first biotechnology incubator—and **High Technology Rochester (HTR),** we are providing early stage companies access to cost-effective lab and office space, shared administrative resources, production and storage areas, and specialized equipment. **Excell Partners, Inc.** continues with their assistance with new company formation. These collaborative relationships are strong assets for growth not only to the University, but to the region as a whole.

The University of Rochester spawned six new start-up companies in FY 2008, with five located here in the Rochester area contributing to the region's growing high technology sector. These new companies add significantly to the 30+ companies already located in the region as a result of the University's efforts and assets.

Start-Up Activity

Six new companies were formed in FY 2008 based on University Technologies.

Science Take-Out, LLC.
http://www.sciencetakeout.com/index.htm
Science Take-Out, LLC (STO), is a Rochester-based start up directed toward providing home-based science laboratory experiment curriculum for high school level students. New York, as well as other states, requires a certain number of hours of science laboratory education prior to graduation. When students miss sessions taught to the general student population, it becomes an inconvenient and costly problem for the school districts. STO's tools will be marketed directly to schools, and potentially, to home schools.

Rock Pharmaceuticals, Inc.
Rock Pharmaceuticals was formed in May of 2008 and is a start-up focused on the use of naturally occurring molecules as therapeutics. Beginning with vinpocetine, a composition approved in Europe and Japan for memory loss, they have the IP for a new indication; anti-inflammatory, and heart failure prevention.

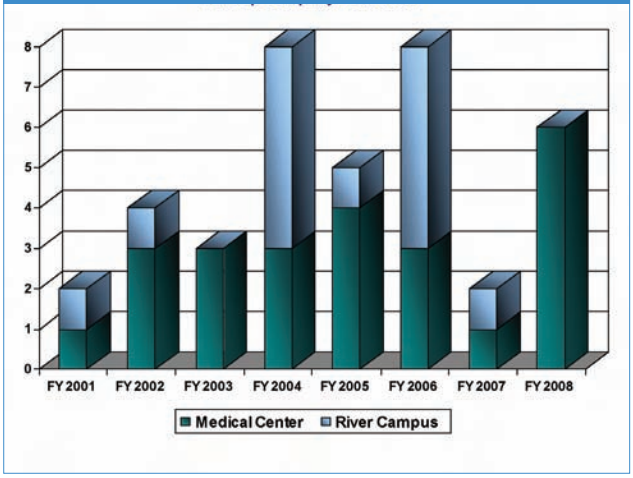
Advanced Acoustic Imaging Technologies (AAIT), LLC
http://www.manta.com/coms2/dnbcompany_76vqb5
Advanced Acoustic Imaging Technologies (AAIT) is a Rochester-based start-up focused on developing a low cost device for c-scan photoacoustic imaging of prostate gland cancer. The University of Rochester's technology relates to the early detection, precision location, and identification of malignancy in the prostate gland using a relatively inexpensive and small probe. The basic approach can be extended to other soft-tissue cancers with critical changes to imaging and excitation. The technology will allow construction of a 3-D map of the prostate and any malignancies within it. The device will generate high contrast 3-D images of the prostate tissue malignancies in real time using the photoacoustic effect. Other devices involving photoacoustic detection of cancer in soft tissue utilize a different imaging technique (B-Scan) that renders it relatively unsuitable for a rectal examination of the prostate.

Robotic Therapeutics and Imaging, LLC
Robotic Therapeutics and Imaging, LLC is a Rochester-based start-up directed toward the design, manufacture, and sale of robotic systems for use during biopsies to prevent excessive bleeding following the procedure. The system employs high intensity ultrasound signals which are focused on the tissue of interest essentially to cauterize the wound upon removal of the biopsy needle.

MyHealth, Inc.
MyHealth, Inc. is a start-up focused on software-based solutions for home-based health management. The company licensed the URMC owned patent on home-based treatment management integrating the Internet, medical providers, and other resources to monitor and treat chronically ill patients. It benefits patients that have one or more diagnosed conditions and are at a remote location. This method for monitoring and treating a patient includes the following steps: First, an assessment, based on objective and subjective data of each of the diagnosed condition, is carried out. Then, an existing treatment plan for each diagnosed condition is updated. The updated treatment plan for each of the diagnosed conditions is then transmitted to the patient at the remote location. The Company will initially focus on the management of asthma, obesity, hypertension, CHF, and diabetes.

Codevax, Inc.
http://codevax.com/
Codevax is a privately held start-up biopharma company focused on the development of prophylactic and therapeutic vaccines against infectious diseases.

START-UP COMPANY FORMATION



Outreach, Education, and Marketing

The Offices of Technology Transfer continued the highly successful F.I.R.E. (For Inventors, Researchers, and Entrepreneurs) Series, holding educational sessions on patent reform legislation, laboratory notebooks, overcoming the obviousness objection, material transfer agreements, and other topics. Expert presenters came from our own ranks, from the Rochester community, and from as far away as Philadelphia, New York, and Atlanta.

In FY 2008, the offices continue to play an active role in Simon Graduate School of Business entrepreneurship programs, and OTT staff members teach courses in the Technology Transfer and the Technology Commercialization programs.

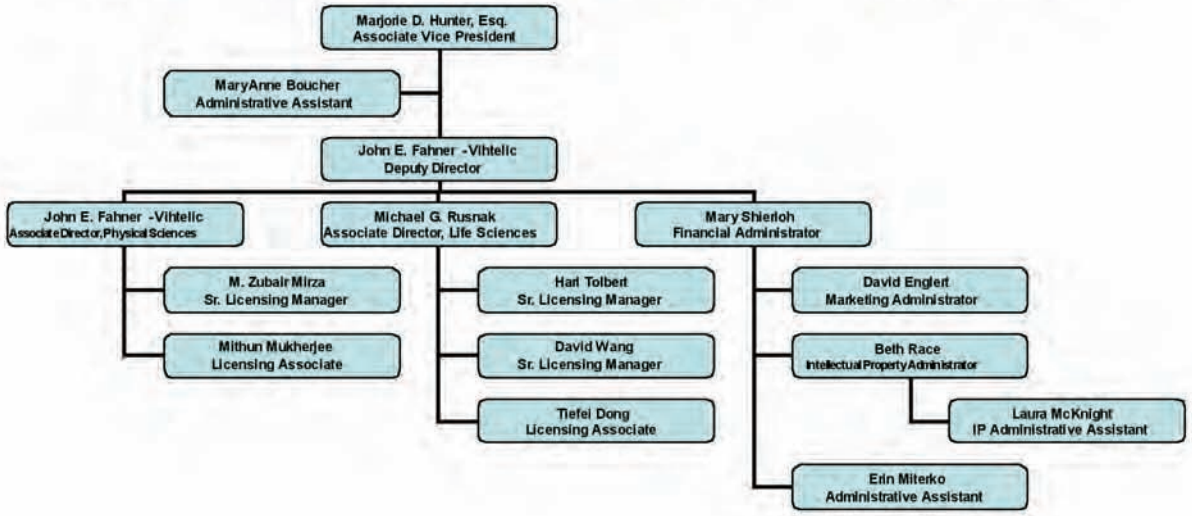
University technologists, entrepreneurs from HTR, venture capital experts from Excell Partners, Inc., and other local business professionals collaborate on annual events, including UNYTECH/SmartStart venture forum, the Rochester Pre-Seed Workshop, and various business plan contests. Our involvement with these events helps us network in our community and educate and mentor budding entrepreneurs.

The University of Rochester is working with other Upstate New York universities through UNYTECH/SmartStart to obtain venture capital funding for university startup companies and to promote university technologies ready for company formation. The offices have become more active in internet marketing and have laid the groundwork to merge their working databases so that available technologies can be collectively listed on aggregating web sites such as iBridge, SparkIP, and a newly combined University of Rochester OTT web site planned for launch in early FY 2009.

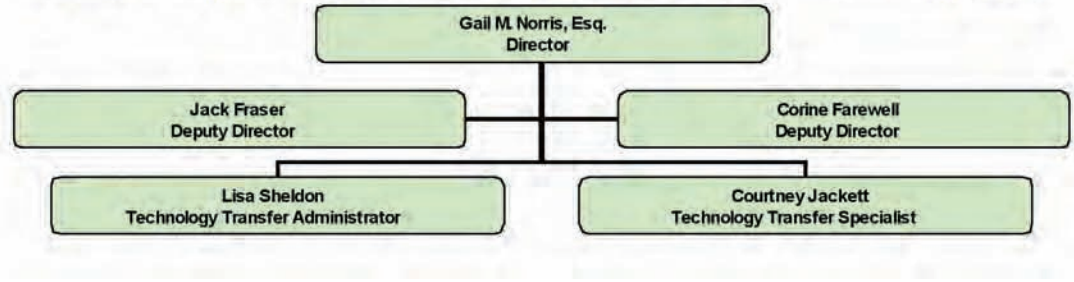
The Offices of Technology Transfer also actively market University technologies through participation in trade shows such as the Biotech Industry Organization (BIO)'s international conference, as well as at other venues.

The offices have also been working with the newly-formed New York Loves Bio organization (www.nylovesbio.net), an initiative coordinated by the New York State Economic Development Council that was created to promote the state's bioscience sector. These efforts include assisting the organization in the creation of a map that catalogues the state's biotech resources.

FY 2008 Staffing University of Rochester Medical Center Office of Technology Transfer



FY 2008 Staffing University of Rochester River Campus Office of Technology Transfer



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