

AUTM U.S. Licensing Survey: FY 2004

Survey Summary

A Survey of Technology Licensing (and Related) Performance for U.S. Academic and Nonprofit Institutions and Technology Investment firms

Dear AUTM members and colleagues,

Dear AUTM members and colleagues,

Each day is a challenge and a reward. Academic technology transfer professionals — who play a crucial role in bringing discoveries and inventions to the public — struggle daily to explain the value and impact of our field not only to journalists and legislators, but also to university provosts and professors.

The Bayh-Dole Act of 1980, which helped to establish the field of technology transfer in the United States, is no stranger to scrutiny and mischaracterization by some legislators and members of the press. But the facts revealed through the AUTM Licensing Survey and numerous government statistics show that academic technology transfer is good for academic research, economic development and the public. Key points include:

- The U.S. Patent and Trademark Office issued more than 3,800 U.S. patents in fiscal year 2004 to universities responding to the AUTM Licensing Survey; less than 250 were issued to universities in 1980, the year The Bayh-Dole Act became law.
- In the U.S. alone, 567 products based on university or nonprofit research results were introduced in fiscal year 2004, and more than 3,100 new products have entered the marketplace since fiscal year 1998.
- Today's product development activity contrasts sharply with the situation before Bayh-Dole, when the government held title to patents discovered with federal funding. A 1968 study found that no drug to which the government held title had ever been commercially developed and become available to the public. By 1980, 28,000 government-funded patents had been issued by the U.S. PTO and were gathering dust.
- Now, more than 300 biotech drug products and vaccines targeting more than 200 diseases — including various cancers, Alzheimer's disease, heart disease, diabetes, multiple sclerosis, AIDS and arthritis — are in clinical trials, the Biotechnology Industry Organization reports.
- Since 1980, U.S. universities, hospitals and research institutes have spun out 4,543 companies based on licenses from those institutions. Two-thirds of these companies are still operating. This very high survival rate demonstrates the successful application of these technologies in the market.
- Academic technology transfer is a boon to small businesses, with more than 65 percent of licenses and options executed in fiscal year 2004 going to companies and organizations with fewer than 500 employees.
- According to BIO, about 200,000 American residents are directly employed in the biosciences field alone. This number does not include the hundreds of thousands of jobs and billions of dollars of economic impact this industry has had on the U.S. economy since Bayh-Dole was enacted.
- Federal policy makers agree that the Bayh-Dole Act is vital to getting research results to the public. A 2004 report from The President's Council of Advisors on Science and Technology lists as its first recommendation: "Existing technology transfer legislation works and should not be altered."

A Message From the President

Countries around the world are expressing their regard for the Bayh-Dole Act by adopting similar laws. Germany, Korea and Taiwan are the most recent countries allowing academic institutions, as opposed to individual professors, to own inventions resulting from research in their labs. In Japan, the government is privatizing the entire university system in part because they want Japanese universities to become economic catalysts, like their counterparts the U.S. The British and Canadian governments have established pools of funds to accelerate the commercialization of university research.

Despite these extraordinary accomplishments, academic technology transfer is an arduous, sometimes grueling, task. Few universities ever achieve blockbuster deals. Most institutions eventually see only a modest surplus, if any, from their technology transfer activities. So why do universities engage in technology transfer?

University of Michigan President Mary Sue Coleman, Ph.D., echoed the thoughts of nearly 1,800 attendees when during the 2005 AUTM Annual Meeting she said:

> "Many people are often confused about why we are interested in technology commercialization, in nurturing startup companies, and in facilitating more patents and license agreements.
>
> "It is not about the promise of future revenues that might be generated from this activity.
>
> "You heard me correctly. It is not about the money. … Technology transfer must serve our core mission: sharing ideas and innovations in the service of society's well-being."

Getting research results to the public is, quite simply, the reason technology transfer professionals are passionate about the work they work every day. And the reason I am honored to call you my colleagues and friends.

W. Mark Crowell
2005–2006 AUTM President

AUTM Publishes Separate U.S. and Canadian *Licensing Survey Summaries*

The AUTM Licensing Survey is a powerful tool for the academic technology transfer profession. To continuously improve its relevance and value, the AUTM Survey, Statistics and Metrics Committee regularly reviews and adjusts the survey instrument, and hones how survey data is presented.

For the first time, fiscal year 2004 data will appear in two separate *Licensing Survey Summaries* — one for data collected from U.S. institutions and one for Canadian institutions. AUTM made this decision to place appropriate emphasis on the productivity of Canadian institutions and clearly distinguish their work from U.S. activities.

AUTM members can download free PDF versions of both *Licensing Survey Summaries* from the Member Connect section of the AUTM Web site. Members and nonmembers can purchase printed copies of both summaries through the Marketplace section of the Web site or by contacting AUTM headquarters at info@autm.net or 847/559-0846.

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AUTM U.S. Licensing Survey™: FY 2004

Survey Summary

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The Association of University Technology Managers® has undertaken this Licensing Survey and is reporting the results herein for the educational benefit of its members and as a public service to government at the federal, state and local levels; the public; the nonprofit technology licensing community; and other stakeholders in the technology commercialization process. AUTM® has assembled the data, including product stories, using responses obtained from its members representing educational and other nonprofit research organizations. The contributors to the data and product vignettes voluntarily reported their results to AUTM using the AUTM Licensing Survey instrument. AUTM has made no independent verification of the data presented herein. The data is included in this report on an as-reported basis.

AUTM U.S. Licensing Survey

The *AUTM U.S. Licensing Survey: FY 2004* was prepared by the AUTM Survey, Statistics and Metrics Committee.

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Copies of the Report

Information about the price and availability of the *AUTM U.S. Licensing Survey: FY 2004 Survey Summary* or *Full Report* is available on the AUTM Web site at www.autm.net; or contact:

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For response to inquiries about the data, contact Ashley Stevens, Vice President for Annual Meeting and Surveys, preferably by e-mail at astevens@bu.edu or by telephone at 617/353-4550.

Acknowledgments

It has been a privilege to be associated with the preparation of this report. I thank all members of the 2005 AUTM Survey, Statistics and Metrics Committee.

Special thanks are due to John Fraser, Florida State University, who in addition to being AUTM President-Elect continues to oversee the Social Impact Analysis Subcommittee of the Survey, Statistics and Metrics Committee. The members of that subcommittee are

Deanna Vandiver, *Louisiana State University, Chair*
Lisa Bonilla, *University of South Florida*
Nikki Borman, *PricewaterhouseCoopers LLP*
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Doug Jamison, *Harris & Harris Group Inc.*
John Snyder, *Idaho National Engineering and Environmental Laboratory*
Tom Walsh, *University of Florida*

These individuals worked with the various institutions that expressed an interest in telling the stories behind products that have emerged from their research.

I thank Rick and Nola Colman for their unflagging support and responsiveness in every aspect of the conduct of the AUTM Licensing Survey.

This report would not exist if not for the directors of institutions' technology transfer offices and their staff, who have diligently gathered and submitted data for the past 14 years. The AUTM Licensing Survey is only as good as the work that AUTM members put into collecting and reporting their institutions' data. The Survey, Statistics and Metrics Committee, speaking for the AUTM board of trustees and all the members of AUTM, recognizes this dedication — which is never part of a director's job description, but represents a considerable extra effort and labor of love — and expresses its gratitude for their considerable contributions.

Like any good author, it is a pleasure to acknowledge and thank my editor, Marcie Valerio of The Sherwood Group Inc., for her thorough fine-tuning of the *Licensing Survey Summary,* which immensely improved its readability.

I thank, as ever, Janine Anderson, my patent paralegal for her conscientious proofreading. No important document leaves my office without her imprimatur.

Finally, I thank the board and membership of AUTM for giving me the privilege of being the guardian of this unique treasure trove of data, information, insight and stories that have been accumulated through the past 14 years thanks to the efforts of so many. Only by having responsibility for the AUTM Licensing Survey is it possible to see its diversity of use and the incredible number of inquiries it generates.

I have had overall responsibility for the last three AUTM Licensing Surveys. It has been hard work, but probably the most satisfying labor of love of my professional career. Over this time, we have transitioned to electronic data entry, established an AUTM Licensing Survey brand identity, developed completely separate country reports for the U.S. and Canada, developed and implemented a methodology to compare the practice of technology transfer between countries, received a major grant from the Ewing Marion Kauffman Foundation to expand our statistical resources, conducted AUTM's first Salary Survey in 16 years, carried out a major Public Benefits Survey and are planning a major Supplemental Survey and Membership Needs Survey. All this activity would not be possible without the commitment and contributions of the long list of members of the Statistics, Survey and Metrics Committee listed above. They have readily formed into subcommittees to carry out these various tasks.

For the past year I have been ably assisted by Dana Bostrom, who the board appointed AUTM's first Assistant Vice President. Next year she will take over the helm. I hope she has as much fun as I have had.

Ashley J. Stevens
Vice President, Annual Meeting and Surveys

Introduction and Overview

The phrase “academic technology transfer” can be used very broadly to describe the movement of ideas, tools and people among institutions of higher learning, the commercial sector and the public. This report focuses on how AUTM members manage intellectual property to make the results of academic research available to the public in the form of commercial products that improve the quality of our lives.

The reader can find quantitative information about various technology transfer parameters in this report, such as the number of patents issued to universities, the number of license/option agreements executed by academic institutions and the like. Additionally, this report includes short summaries of the social impact of several specific products in the first sections of the U.S. and Canadian reports. Much more detail about these and other products is available on AUTM’s Web site at www.autm.net.

AUTM surveys its members annually and has collected data for each fiscal year beginning with fiscal year 1991. A full account of the Licensing Survey methodology — including the definitions of each of the data elements measured in the AUTM Licensing Survey — appears in Attachment C on page 39. These definitions are important to the interpretation of reported data and, in general, provide a glossary of terms recognized by the academic technology transfer community. Additional charts and tables are published in the *AUTM Licensing Survey: FY 2004 Full Report.* In general, the definitions that AUTM uses are the foundation of technology transfer reports generated in technologically advanced countries around the world.

With this year’s Licensing Survey, AUTM is completing the process of increased focus on Canada that started two years ago. AUTM collected data for U.S. and Canadian institutions at the same time and through the same Web site, but this year’s Canadian Licensing Survey is written by a separate committee of Canadian members chaired by Stuart Howe, Vice President for Canada, and is published as a separate document. All AUTM members will have access to both reports through the Member Connect section of the AUTM Web site.

The statistics provided in this may not be directly comparable from one institution to another, in light of the unique culture of each institution and the significant variations between institutions. Some institutions are land-grant universities with unique missions, some have teaching/research hospitals and some are located in rural communities with little entrepreneurial infrastructure.

But one of the themes that emerges — and is reflected in the increase of AUTM’s membership from 1,015 in 1993 when the first Licensing Survey was published to more than 3,600 now — is how the mission of technology transfer is permeating all parts of academia. Even relatively small colleges and universities are responding to the federal mandate by creating the infrastructure to translate the fruits of their research into products that serve the public good.

AUTM does not attempt to analyze the data it generates in this report. AUTM’s role is to survey its members and compile the data as reported, then allow academic economists, policy specialists, ethicists and others to elucidate the underlying causality and implications of these statistics. AUTM reports the facts and leaves others to speculate about the causes and implications.

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Section 1: AUTM U.S. Licensing Survey: FY 2004

1. Executive Summary

The members of the AUTM Survey, Statistics and Metrics Committee are particularly gratified by two aspects of this report.

First, the committee is pleased as practitioners of technology transfer because this year's Licensing Survey shows a continued steady growth in the 6 percent range for most of the performance measures that are considered meaningful indicators within the profession:

- Products available to the public
- Invention disclosures received
- Licenses and options executed
- Licenses and options active
- Licenses and options generating income
- Licenses and options generating running royalties
- Net income

One or two important performance measures, specifically U.S. patents issued, though down from fiscal year 2003, appeared to be consistent with long-term growth trends.

However, the most dramatic results were the clear evidence of a recovery from the very difficult market conditions for new company startups reported in the fiscal years 2002 and 2003 Licensing Surveys. Institutions launched 23.5 percent more new startups in fiscal year 2004 than in fiscal year 2003, and the number of existing startup companies that went out of business declined more than 30 percent.

The new startup company activity reflects the changed circumstances in capital markets. The second half of 2003 will be remembered as the end of the venture industry's hemorrhaging that followed the nearly simultaneous collapse of the e-commerce, telecommunications and biotechnology markets. After three years of steady decline, venture investments finally stabilized at approximately $4 billion per quarter in the third quarter of 2003 before rising above $5 billion per quarter in the fourth quarter of 2003, with that pace continuing through 2004. The bulk of this investment flowed to later-stage investments through 2003, but early-stage investing saw its first uptick in late 2003 and by the second quarter of 2004, early-stage investments — those most likely to impact the university community — attained their highest share of invested dollars since 2001, comprising 30 percent of all deals and 21 percent of all venture dollars invested.

The second half of 2003 also saw the first revitalization of the initial public offering market since 2000. The number of venture-backed IPOs began increasing in the second half of 2003, with 20 of the 22 venture-backed IPOs for 2003 occurring in the third and fourth quarters of the year. The first two quarters of 2004 saw 34 venture-backed IPOs, and the year ended with 67 venture-backed IPOs raising $4.98 billion vs. the $1.4 billion raised in 2003. The conditions for successful IPOs have tightened tremendously since the late 1990s, and companies without earnings still struggled to find buyers for their shares. Mergers and acquisitions also increased from fiscal year 2003 to fiscal year 2004 with $22.4 billion in transactions in 2004 and $12.9 billion in 2003. Finally, venture fundraising was at a two-year high in late 2003 with most venture funds raising smaller amounts than in previous years.

Second, the committee is gratified as researchers because this year's Licensing Survey marks the first time in several years that AUTM has asked respondents to provide some additional information, which the committee believes will provide useful new insights into the technology transfer process.

AUTM took the step of adding new questions cautiously, balancing the value of the new information with the risk of inducing survey fatigue in respondents. This concern is well founded — for the first time in several years the number of respondents did not increase.

The survey asked four new questions pertaining to:

- The types of intellectual property being disclosed
- The types of patent applications being used for filing initial patent applications
- The number of invention disclosures included in licenses granted
- The sources of initial funding for new startup companies.

The first three of these new questions pertain to the detailed mechanics of technology transfer operations and the information will be of most interest to technology transfer professionals. The fourth, however, should be of broad interest to policy makers because it provides some of the best data yet obtained on gap funding mechanisms.

"Gap" is the term given in theories of technology commercialization to the discontinuity in funding between federal funding for research — which typically drops sharply as technologies approach commercialization — and commercial funding for development

and commercialization, which can be very difficult to obtain in the very earliest, highest-risk stages of technology commercialization.

The data shows that, far from there being an academic venture capital complex, which pounces on the results of taxpayer-funded research and reaps enormous profits from products that are ready for the marketplace, as some observers have suggested, the initial steps on the road from lab to market are fraught with difficulties. According to survey results, professors who want to commercialize research results turn most commonly to their own friends and family for initial funding. Individuals unrelated to the founders, known in technology commercialization as angel investors, are the third most common source of seed funding. Overall, individuals provided the initial funding for nearly 50 percent of university startup companies. Fewer than 20 percent of new companies had a technology that was at a stage where it could attract venture capital funding.

Products Made Available to the Public

- 137 institutions reported introducing 567 new commercial products to the marketplace in fiscal year 2004 under license agreements with commercial partners.
- 185 U.S. survey respondents have reported a total of 3,114 new products introduced to the marketplace since fiscal year 1998 when the question was first asked.

Research Expenditures

- Total fiscal year 2004 sponsored research expenditures were $41.245 billion reported by 192 institutions, up 7.1 percent from $38.525 billion reported by 188 institutions in fiscal year 2003.
- Total fiscal year 2004 sponsored research expenditures funded by federal government sources were $27.721 billion reported by 185 institutions, up 8.7 percent from $25.501 billion reported by 182 institutions in fiscal year 2003.
- Total fiscal year 2004 sponsored research expenditures funded by industry were $2.938 billion reported by 178 institutions, up 2.9 percent from the $2.857 billion reported by 177 institutions in fiscal year 2003.

Patent-Related Activity

- 16,871 invention disclosures were reported in fiscal year 2004 by 195 institutions, up 8.8 percent from 15,510 reported by 198 institutions in fiscal year 2003.
- 82 percent of invention disclosures were of potentially patentable inventions; copyrightable materials, other and biologicals made up the balance.
- 10,517 new patent applications were filed in fiscal year 2004 by 183 institutions, up 32.8 percent from 7,921 new U.S. patent applications reported by 194 institutions in fiscal year 2003 (this large increase likely is the result of a change in definition, which is discussed in the body of the report).
- 195 institutions reported 3,680 U.S. patents issued in fiscal year 2004, down 6.4 percent from the 3,933 issued in fiscal year 2003 to 195 institutions. In total, U.S. institutions that have participated in the AUTM Licensing Survey have received a total of 34,542 U.S. patents since fiscal year 1993, the first year AUTM collected data on U.S. patents issued.
- 65 percent of new patent applications were filed as U.S. provisional patent applications. 22 percent were filed as U.S. utility applications and 13 percent were filed as non-U.S. applications.

Licenses and Options

- 4,783 new licenses/options were executed in fiscal year 2004 reported by 198 institutions, up 6.1 percent from 4,507 in fiscal year 2003 reported by 195 institutions.
- On average, 1.14 invention disclosures were included in each license.
- 27,322 licenses/options were active in fiscal year 2004 reported by 191 institutions, up 5.6 percent from 25,864 in fiscal year 2003 reported by 189 institutions. Respondents reported receiving running royalties on product sales from 22.4 percent of these active agreements.
- Of the 4,757 licenses/options characterized by type of exclusivity (99.5 percent of the total reported licenses/options) 45.1 percent of new licenses/options executed were exclusive and 54.9 percent were nonexclusive, compared with 44.9 percent exclusive and 55.1 percent nonexclusive reported in fiscal year 2003.
- For the 4,618 licenses/options executed for which data about exclusivity type and the size and nature of the licensee were reported (96.6 percent of the total reported licenses/options):

  - 67.8 percent of new licenses/options executed were with newly formed or existing small companies (fewer than 500 employees), and 32.1 percent were with large companies.
  - 90.9 percent of licenses/options to startup companies were exclusive.
  - 42.1 percent of licenses to existing small companies were exclusive.
  - 34.7 percent of licenses to large entities were exclusive.

License Income

- 11,414 licenses/options yielded income of some sort in fiscal year 2004 reported by 196 institutions, up 6.9 percent from 10,682 in fiscal year 2003 reported by 195 institutions.
- 6,116 licenses/options generated running royalties on product sales in fiscal year 2004 reported by 193 institutions, up 8.1 percent from 5,659 in fiscal year 2003 reported by 194 institutions.
- License income received from licenses/options in fiscal year 2004, after elimination of double counting by technology co-owners, was $1.385 billion reported by 196 institutions, up 6 percent from $1.306 billion in fiscal year 2003 reported by 194 institutions.
- Running royalties on product sales in fiscal year 2004 were $1.122 billion reported by 187 institutions, up slightly from $1.119 billion in fiscal year 2003 reported by 189 institutions.

Startup Activity

- 462 new companies based on an academic discovery were formed in fiscal year 2004 reported by 191 institutions, up by 23.5 percent from 374 startup companies reported by 190 institutions in fiscal year 2003. This statistic is the first positive indicator suggesting that the economic climate for startup company formation has become more favorable. 74.5 percent of the new companies were located in the state/province of the academic institution where the technology was created.
- Since 1980 4,543 new companies have been formed based on a license from an academic institution, including the 462 established in fiscal year 2004.
- 2,671 startup companies were still operating as of the end of fiscal year 2004.
- Academic institutions received an equity interest in 51.9 percent of their startup companies in fiscal year 2004, compared with 67.4 percent in fiscal year 2003. This percentage has been declining over the past two years.
- Friends and family were the most common source of initial funding for new startup companies; overall, individuals supplied the initial funding for almost 50 percent of new startup companies.
- Venture capital supplied the initial funding for fewer than 20 percent of new startup companies.
- All institutional sources funded less than 45 percent of new startups.

2. New Products and Technologies Resulting From U.S. Licensing Activities

One-hundred twelve respondents reported making at least one new product commercially available to the public in fiscal year 2004, up from 105 in fiscal year 2003. A total of 567 products became available to the public in fiscal year 2004, bringing the total number of products made commercially available by Licensing Survey respondents in fiscal years 1998 though 2004 to 3,114.

In fiscal year 2004, 96 more new products were introduced, a 20.4 percent increase, than in fiscal year 2003. This statistic shows continued momentum in the rate of new product introductions, which is one of the most concrete measures of public benefit from technology transfer. Recurrent responders (see Section 3.2 for definition) introduced 94 more new products in fiscal year 2004 than in fiscal year 2003. Following are several examples illustrating the social impact of products based on research at U.S. academic institutions. For additional information about these and other products resulting from academic research in previous years, visit the AUTM Web site at www.autm.net and click on About Technology Transfer.

Restasis —A New Treatment for Dry Eye

University of Georgia

In 2004, the University of Georgia Research Foundation Inc. began receiving royalties on the sales of a newly approved human drug, Restasis™, sold by Allergan Inc. Before this first therapeutic product for treatment of dry-eye became available, patients with dry-eye could use only artificial tear-drop products. Restasis contains cyclosporine, an immunosuppres-

sant that decreases tear duct inflammation and allows tear ducts to produce natural tears. Natural tears are important for eye health because they contain many compounds that artificial teardrops don't.

This invention was developed in 1984 in the College of Veterinary Medicine to address a problem in certain breeds of dogs. The veterinary product, Opptimune™ was licensed to an inventor-led company called KB Visions Inc. and subsequently introduced to the market by Schering Plough in 1988. FDA approval for human application was received in December 2002 and first sales of Restasis occurred in April 2003. Though the original patent will expire in 2009, this product will be covered by patents beyond 2009 thanks to formulation patents developed by Allergan.

The University of Georgia is proud to be the source of this medical invention, which has earned royalties that represent a very significant increase in licensing income for the Research Foundation. To date, the Foundation has received more than $28 million in licensing royalties from the veterinary and human applications of this technology, and has used a portion of the funds for research in the College of Veterinary Medicine. The remainder has been deposited in the University of Georgia Research Foundation's general research fund, and will provide research grants to faculty and startup funding for new faculty.

A Revolution in Blood Glucose Monitoring

University of Texas at Austin

A breakthrough developed at the University of Texas at Austin paved the way for the development of the FreeStyle® Blood Glucose Monitoring System.

UT researcher Adam Heller, Ph.D., developed a revolutionary approach to the glucose measurement process called wired enzyme technology, which changes biochemical concentrations to electrical signals. Based on the technology, Heller and partner Ephraim Heller went on to found Alameda, Calif.-based TheraSense Inc. in the late 1990s. TheraSense then launched the FreeStyle blood glucose monitoring system and, based on revenue, became one of the Bay Area's fastest growing companies in 2002 with revenues of $177 million. In 2004, TheraSense was acquired by Abbott Laboratories in a deal valued at $1.2 billion.

FreeStyle allows people living with diabetes to measure blood glucose with a sample size that is 50 to 90 percent smaller than most testing systems. This smaller sample greatly reduces the pain associated with testing, which encourages more frequent testing and provides patients with as much data as possible to control the disease. The blood glucose monitoring system is available at many nationwide retailers, including Wal-Mart, Rite Aid, Walgreen's, Eckerd and CVS.

The technology used in FreeStyle also has potential benefits in areas beyond blood glucose testing. Researchers at TheraSense are studying potential applications in biochemicals, immunoassays, DNA sensors and more.

Preventing Parasitic Infection in the Developing World

University of Minnesota

Amebiasis is a disease or infection caused by an enteric protozoan Entamoeba histolytica. E. histolytica is an extremely common parasitic amoeba of humans that can cause breakdown of body tissues during infection. Worldwide, in endemic areas such as India, Africa, Asia, Mexico and South America, up to 20 percent of the population is infected each year. Of those with infections, 10 percent develop symptoms such as colitis or liver abscess. Thus, this parasitic infection is one of the most serious worldwide with 1 million cases of disease annually and 100,000 deaths. Immunity to Entamoeba species intestinal infection is associated with the presence of intestinal IgA antibodies to the parasite's galactose-inhibitable adherence lectin.

University of Minnesota researchers Jonathan I. Ravdin and Mohamed D. Abd-Alla performed pioneering work in this area. They have determined the epitope specificity of serum and intestinal (i.e., mucosal) anti-lectin IgA antibodies and have developed an experimental synthetic peptide vaccine that could be delivered intranasally or via subcutaneous/intramuscular injection. This vaccine could be used for prevention of E. histolytica infection in at-risk subjects.

PUBLIC SAFETY

Nanotechnology in the Fight Against Terrorism

Kansas State University

Emergency workers are often our first line of defense against criminals, fire and even terrorist attacks. But what protects firefighters, police officers, emergency medical personnel, soldiers and others from contamination against dangerous chemicals? A chemical decontaminant released in August 2003, based on research conducted by Kansas State University Professor Ken Klabunde, effectively neutralizes a wide range of contaminants with the added capability to destroy chemical warfare agents.

FAST-ACT™ is a propriety formulation of nanomaterials licensed to and developed by NanoScale Materials Inc., a university startup company developed from Klabunde's research. The nanoparticle material absorbs contaminants, then breaks chemical bonds to detoxify and immobilize them.

Given the ongoing dangers of terrorist threats — and even the handling of chemicals prevalent in everyday life — FAST-ACT could become a standard-issue item, much like fire extinguishers. A major advantage of the FAST-ACT product line is its capacity to immediately treat hazardous chemical incidents of known or unknown origin. The company is encouraging emergency responders, law enforcement, industrial chemical laboratory environments and public safety officials connected with airports, courthouses, sports arenas, amusement parks and other public venues to adopt the product as a part of their regular safety procedures.

Learn about the Kansas State University Research Foundation at www.ksu.edu/tech.transfer, NanoScale Materials, Inc. at www.nanoscalematerialsinc.com/ and FAST-ACT at www.fast-act.com/.

Taking Mass Spectrometery Into the Field

Purdue University

Fingerprints are useful markers used to identify people; similarly, chemicals can be identified by patterns detected by mass spectrometers. Griffin Analytical Technologies is commercializing the first miniature mass spectrometer, based on technology licensed from Purdue University, which is capable of performing highly selective analysis in a portable package. Mass spectrometry provides identification and quantification of chemical targets for many markets including academic research, pharmaceutical, biotechnological, environmental, consumer product and petroleum industries. Griffin also is working to expand mass spectrometry into the areas of defense and homeland security.

Griffin was founded by four Purdue University graduate students. R. Graham Cooks, one of their technical advisors, is a world-renowned leader in mass spectrometry.

Minotaur products are the first series of field-portable, miniaturized, mass spectrometers capable of multidimensional mass analysis, or MSn, assays. The device is designed to detect, identify and confirm — with MSn parts per trillion — concentrations of explosives, chemical warfare agents and toxic industrial chemicals. Minotaur products can accomplish in the field what was once was possible only in a laboratory.

The key to field instrumentation is the capability to distinguish trace level compounds of interest from other background or interfering compounds. The cylindrical ion trap mass analyzer provides unparalleled selectivity through multidimensional mass analysis, MS/MS or MSn. MS/MS provides a first level of mass analysis to determine if a particular analyte of interest may be present, then performs a second analysis within milliseconds to confirm the identity of the analyte. This level of confirmation, never before available in the field, generates the confidence the operator requires to properly respond to the established chemical threat.

Exploring the Seas — EdgeTech Sonar Products

Florida Atlantic University

Florida Atlantic University Professor Steven G. Schock, Ph.D., has been conducting acoustic imaging and sonar research for more than 15 years. His latest project, chirp sonar, is a digital, wideband FM sonar that gets its name from the sound it makes, similar to a bird's chirp. The sonar device emits the sound as it's towed just above the ocean floor and maps images according to echoes reflected off buried targets. The U.S. military, which has funded Schock's research through the Office of Naval Research, is interested in using the technology to locate buried underwater mines. "Traditionally, they have used dolphins," says Schock, adding that chirp sonar is a more exacting way to find mines, which can be difficult to pinpoint because of shifting ocean currents and the migrating waves of sand along the ocean bottom.

EdgeTech, a maker of marine instruments and devices that measure moisture and humidity, wants to use chirp sonar for commercial application. "There is a need to identify where pipes and cables are buried," says EdgeTech President Rick Jablonski. The company has worked with FAU's Department of Ocean Engineering for a decade and in 2002, EdgeTech licensed the chirp sonar device to find buried objects. The deal lead to the development and 2004 launch of a side-scan sonar system and survey-quality sonars for small autonomous underwater vehicles. Under two separate licensing agreements, EdgeTech pays FAU royalties as a percentage of sales as long as a minimum royalty is met.

The partnership between EdgeTech and FAU goes beyond licensing agreements. For the past five years, EdgeTech has donated products, services and underwater equipment to FAU for continued research, and makes its facility in Boca Raton, Fla., available at no cost to FAU ocean engineering researchers. Graduate students also benefit from the relationship. As EdgeTech grows, the company is hiring FAU students and graduates, and provides internships and continued education to EdgeTech employees.

For more information about EdgeTech, visit www.edgetech.com.

FOOD

Resistant Starch Technology Makes Low-Carb, High-Fiber Foods

Kansas State University

With millions of people counting and cutting simple carbohydrates, there's an enormous push to develop and market low-carb food products. Kansas State University Professor Paul Seib and graduate student Kyungsoo Woo developed a resistant starch technology that makes plant-based starches resistant to being broken down during digestion by the enzyme amylase. In many types of foods, the resistant starch enhances fiber content and can be used to reduce carbohydrate levels.

Any product that uses flour can be made with these resistant starches, including breads, buns, crackers, cookies, chips and pastas. When incorporated into food products, the new starches have two potential health benefits. Some of the starch is slowly digested, which results in a sustained, low elevation of blood sugar. That low glycemic load to the blood has been associated with delayed hunger and a reduced incidence of type-II diabetes — a condition affecting nearly 18 million people in the U.S. Secondly, the portion of the starch that totally resists digestion is fermented in the large intestine and is thought to lower the incidence of colon cancer. In food products, the resistant starches contribute to a lower caloric intake and a higher fiber diet.

The university licensed the technology to MGP Ingredients Inc., which has expanded production capacity in anticipation of filling the demand for ingredients that increase fiber and decrease carbohydrate levels. In October 2003, the company released a specialty wheat-based resistant starch, Fibersym 70™. It also produces a potato-based resistant starch, Fibersym 80™.

More information about the Kansas State University Research Foundation is at www.ksu.edu/tech.transfer, and details about Fibersym 70 wheat starches are at www.midwestgrain.com/bakery/00_frame.htm

AGRICULTURE

Optibrand — Safeguarding the Food Chain by Tracking Food Animals

Colorado State University

By positively identifying individual animals from birth through the food processing chain, the Optibrand system helps assure food safety, control the spread of animal disease and manage animal information. Optibrand's retinal imaging technology was recently announced by the state of Indiana as the method to be used to identify 4-H beef, sheep and goat projects.

Optibrand founders are Colorado State University Professors Bruce Golden, who was a full professor of animal genetics and breeding at Colorado State for 19 years and is now an affiliate faculty member; Bernard Rollin, a distinguished professor of philosophy and bioethicist; and Ralph Switzer, a professor of finance in the College of Business and an adjunct professor in the College of Veterinary Medicine and Biomedical Sciences.

The technology provides a new method for tracking animals such as cattle, pigs and sheep by using a device known as the OptiReader — a combination handheld computer and digital video camera — to take an image of retinal vascular patterns, which are unique to each animal. The camera records the pattern and sends it to the handheld computer, which transmits it to an Internet-accessible database.

The OptiReader provides a method of verifying the source, location and ownership of live animals and

identifying those animals at the slaughterhouse. Handlers can easily track animals that contract diseases because the system automatically encrypts each animal's global positioning satellite information every time its eye is imaged. This practice makes it easy to determine not only the diseased animal's location, but also the animals it has come in contact with.

Saving Forests and Creating a New Cash Crop in the Middle East and Asia

University of Minnesota

The high demand for agarwood — wood soaked with a resin produced by a small portion of Aquilaria trees in southeast Asia and Indonesia — nearly decimated the species. The trees produce the resin only when injured and, before researchers stepped in, usually when the trees were 50 or more years old.

Aarwood and the resin within are highly prized in the Middle East and Asia, particularly in Islamic and Buddhist cultures, where the wood and resin are used for perfumes, ceremonial incense, traditional medicine and other uses. Unfortunately, determining whether a particular Aquilaria tree contains agarwood is nearly impossible, so harvesters were falling and cutting up Aquilaria trees until they were on the verge of extinction in much of their natural range.

Robert Blanchette, Ph.D., of the University of Minnesota and a nonprofit organization based in the Netherlands called The Rainforest Project have jointly developed an easy and inexpensive method to induce agarwood formation in trees that are only 3–6 years old. Now, instead of cutting down trees found in the forest, farmers can grow plantations of Aquilaria trees, induce the production of agarwood in those trees, and sell them as a new cash crop. This practice benefits the regional farmers and their local economies, takes pressure off the native populations of Aquilaria trees, and ensures a long-term supply of agarwood for cultural and religious uses that have been practiced for centuries. This technology has been licensed to The Rainforest Project, which is leading the commercialization efforts beginning in southeast Asia.

Enhancing the Efficacy of Herbicides Without Increasing Crop Damage

Michigan State University

Improving herbicide efficacy can address two increasingly sensitive issues: providing food at reasonable prices and protecting the environment through reduced herbicide use. Post-emergence herbicides, which farmers apply to mixtures of weeds and crops after the plants are visible above the soil, represent a significant milestone in advancing efficacy.

Herbicides work by contacting the plant, then moving to the active site within the target plant. Surfactants may increase the amount of contact with the plant, but they do not increase uptake of the herbicide. Therefore, farmers use adjuvants to increase uptake, thus increasing the effective dose of herbicide. This enhances herbicide performance in standard formulations, and may allow use of lower active-ingredient concentrations to maintain herbicide efficacy.

Inventors at Michigan State University have developed a spray adjuvant composed primarily of a sugar derived from cornstarch. This adjuvant is made from renewable resources, and is particularly useful in combination with the popular Roundup® herbicides, where it increases herbicide efficacy on giant foxtail and other weeds that are otherwise poorly controlled with these active ingredients. The adjuvant increases control of herbicide-susceptible weeds but does not increase herbicide injury on herbicide-resistant crop plants. The adjuvant is highly water-soluble and can be supplied as a concentrate mixed in the spray tank with the active ingredient. MSU received a U.S. patent for this technology in 1999.

The technology is now licensed to a U.S. agricultural products company. Last year, the company reported sales of approximately 1.3 million gallons of adjuvant concentrate containing MSU's technology for use with herbicides. Product line extensions to other classes of agricultural active ingredients have been developed as improvements to the licensed technology. These line extensions accounted for an additional 150,000 gallons of adjuvant concentrate in the first year of sales.

MATERIALS

Identifying Defects in Semiconductor Devices — Numerical Aperture Increasing Lens

Boston University

The dimensions of semiconductor devices continue to shrink so rapidly that they are outpacing the performance capabilities of many of the tools used to analyze them. It is becoming increasingly difficult to perform failure analysis with optical imaging systems because the line widths in semiconductor devices are shrinking beyond the diffraction limit inherent to any optical

system. Failure analysis systems are also very expensive, costing several hundred thousand or even several million dollars for a complete system.

Graduate student Stephen Ippolito, working with Professors Bennett Goldberg and Selim Únlú at Boston University discovered how to use a very inexpensive piece of silicon to provide a four-fold enhancement in the performance of these imaging systems. The Numerical Aperture Increasing Lens, or NAIL, is an aplanatic lens made of material that matches the index of refraction of the silicon wafer under examination. When placed on the backside of a silicon wafer it enables imaging systems to look through the wafer and produce very high-resolution images of the circuitry on the front side of the wafer.

Boston University licensed the NAIL technology to Hamamatsu, which is selling it to the semiconductor industry along with compete failure analysis systems.

Custom Thin Films

Florida State University

Thin films — specialized coatings with properties that can be finely tuned layer by layer in the creation process — have thousands of uses. In Japan, for example, they keep melons from rotting.

Thin films' layer-by-layer assembly gained research prominence in the early 1990s. A decade later, researchers are exploring applications primarily in the areas of membrane transport, corrosion protection and biological interface. In the first two areas, thin films can either block substances or allow them to pass through; in biointerface applications, the films render surfaces biocompatible.

A small Tallahassee, Fla.-based technology development company called nanoStrata Inc., or nSI, focuses on the application of a platform technology consisting of polyelectrolyte multilayers and expertise to create their assembly. The company has an exclusive license for the patent on the mechanical part of the robot (U.S. patent 6,460,424 B1) from the FSU laboratory of Professor Joseph Schlenoff, and has created and sells a robotic device to the university research marketplace to replicate the repetitive actions that create multi-layer thin films on surfaces. Sales commenced in fiscal year 2004.

The company is engaged in materials development and early-stage product development in conjunction with Schlenoff's laboratory. Researchers are studying fluorinated polymers with Teflon-like properties as a corrosion protector or stain-repellent (like the fluorinated molecules that once were in Scotchgard™) as well as protein purification where multilayers grab and release proteins on demand.

EDUCATION

Team Learning Assistant — There Is No "I" in Team.

Boston University

People typically spend about 40 percent of their time working in teams, and success often correlates directly with individuals' ability to work as team players and leaders. The Team Learning approach promotes cooperative leadership skills by giving each member a measurable stake in the success (i.e., learning) of every other team member. Students participate in study teams, team projects and team analysis. In each situation, team members assess how well the team works together, troubleshoot obstacles, and leverage each other's strengths to address management initiatives and achieve common goals.

The Team Learning Assistant was developed under the leadership of Professor Jeffrey Miller, faculty director of the Center for Team Learning in Boston University's School of Management, with the support of the General Electric Fund. It is a comprehensive tool kit that supports students and faculty through the entire team learning experience. It is a combination of Web-based tools that assists classes in the implementation of team learning with a corresponding text that describes team learning approaches in more detail. One exciting facet is that team learning cuts across all disciplines, so the Team Learning Assistant is a valuable tool for educators in the life sciences, engineering programs, management schools, social sciences and other areas.

Boston University licensed the Team Learning Assistant, which has been adopted by many higher education institutions, to The McGraw-Hill companies. For product information visit McGraw-Hill at www.mhhe-tla.com; details about the Center for Team Learning are at www.teamlearning.org.

A Virtual Microscope to Teach Science

University of North Carolina at Chapel Hill

In the course of his research in science education curriculum development, UNC psychiatry Professor Gary Duncan, Ph.D., created the Virtual Microscope Explorer, an interactive software that incorporates an

animated 3D microscope with the basic functions of a real microscope. The program views micrographic images created with a high-quality research microscope, allowing students to experience the wonders of state-of-the-art microscopy at home and in the classroom.

With the click of a computer mouse, students can select slides from a variety of plant and animal specimens and see digital microscopic slides that reveal the beauty of the cellular basis of life. With clicks of the mouse on parts of the animated virtual microscope, students can turn on the microscope to illuminate the specimen, adjust the focus knob for clear viewing, choose any of five different magnification objectives and move the microscope stage to see different parts of the specimen.

When Duncan contacted the UNC Office of Technology Development regarding the possibility of launching his own startup company to market the invention, the office responded with a streamlined version of a typical license agreement and spent considerable effort to codify and document the complicated intellectual property issues that often attend the development of software.

The resulting company, Science Learning Resources Inc., is an outstanding example of a small-scale success and went from signed license agreement to selling product within 12 months. The new startup set up shop locally, at the Carrboro Arts Center, and the Virtual Microscope Explorer was eventually listed in the annual Carolina Biological Supply catalog.

Teaching Young Children

Ball State University

During a child's early years, learning takes place at a phenomenal pace. Young children need learning experiences that are appropriate to their ages, abilities, needs and interests — and that respect the social and cultural contexts of their lives. Adults who provide an environment and experiences that support all aspects of a child's development can help children become active participants in lifelong learning.

For more than 15 years, Resa Matlock and Christi Meredith have been developing a collection of videos, print material and other resources whose purpose is to help parents and professionals create positive and appropriate learning experiences for young children. The collection was introduced to the marketplace in 1996 under a license to the National Association for the Education of Young Children, the premier association in the field. That license has generated more than $1 million for Ball State University, which the Child Care Collection draws on to continue producing materials that further its mission of improving the quality of care of young children.

In 2004, the Indiana Department of Education partnered with Ball State and other professionals to establish early learning guidelines (Preschool Foundations to the Indiana Academic Standards). Now, many states are adopting similar guidelines to bring consistency to and improve the quality of early childhood care and education programs. Additional funding allowed program directors to use the Child Care Collection's resources and expertise to produce videos and Web site materials that support implementation of the guidelines. These materials are included in the National Child Care Information Center's list of examples of Early Learning Guidelines Implementation. Other materials now in development will help educators assess children's development and increase parental involvement in the education of young children.

Visit www.childcarecollection.com for more information.

COMMUNICATIONS

Stub Loaded Helix Antenna

Virginia Polytechnic Institute

When you use a wireless Internet connection in an airport, hotel or other public or remote location, you just might be receiving the signal thanks to an invention born at Virginia Polytechnic Institute.

Professor Warren Stutzman and his doctoral student Mike Barts of the Virginia Tech Antenna Group began investigating small helix antennae in the mid-1990s. Their work lead to the refinement of existing models and, a decade later, the team's Stub Loaded Helix Antenna, or SLH, has gone global. In 2004, SLH products experienced a dramatic and increased demand in the market and are now being used in countless countries on every continent of the world.

While conventional communications antennae use linear polarization, the helix, which resembles a bedspring, produces circular polarization and, thus, possesses a higher gain for its size. The popularity of unlicensed wireless connectivity, or WI-FI, has stimulated demand for SLH products, bringing signals to

users who want to access the Internet almost anywhere. SLH provides the possibility of affordable, high-speed wireless broadband connections to suburban and rural areas, where other standard operators such as DSL and cable will not go because of economic or technical limitations.

SLH allows for more complete penetration into buildings such as hotels, hospitals and schools. One customer was able to provide a network for most of a downtown area, with WI-FI coverage scattered across a range of buildings, cafes, retail outlets and city centers.

Other current client applications range from testing the SLH in the development of an unmanned aircraft communicating wirelessly with a ground station, to successfully demonstrating WI-VoIP coverage for an eight-kilometer stretch of highway. The test was completed as part of a U.S. Department of Homeland Security grant and the implementation will begin with a first responders' network — police, fire, ambulance and border patrol.

3. Conduct of the U.S. Licensing Survey

3.1 Data Collection

The Licensing Survey population for fiscal year 2004[i] consisted of 381 institutions[ii], up from 380 in fiscal year 2003, and included 232 U.S. universities and colleges, 69 U.S. hospitals and research institutes, 76 Canadian institutions, and four third-party technology investment firms. The institutions surveyed were asked to provide a best estimate for each question if they could not provide an exact response. Respondents submitted data through a secure Web site. The Web site opened for data collection on April 10, 2005, and closed for data collection on July 15, 2005. AUTM distributed an *Interim Report* on July 10, 2005, to respondents who had replied by July 1, and respondents were allowed to correct errors.

3.2 Respondents

Two-hundred thirty-two organizations responded, 60.9 percent of those contacted — a slight decrease, compared with fiscal year 2003, due to a modest decline in Canadian responses. U.S. respondents comprised:

- 164 U.S. universities, a response rate of 70.7 percent and a decrease of one from 165 in fiscal year 2003
- 33 U.S. hospitals and research institutes, a response rate of 47.8 percent an increase of one compared with fiscal year 2003
- One third-party technology investment firm, a response rate of 25 percent and the same as fiscal year 2003

Further, 224 of the 236 respondents to the fiscal year 2003 Licensing Survey also responded to the fiscal year 2004 Licensing Survey, a recurrent response rate of 95 percent which is high by historic standards. Eight institutions that did not respond to the fiscal year 2003 Licensing Survey responded to the fiscal year 2004 Licensing Survey.

Because the institutions that reported to the fiscal year 2004 Licensing Survey are different from those that reported to the fiscal year 2003 Licensing Survey, this summary reports the changes between fiscal years 2004 and 2003 in two ways. First it reports the totals reported for fiscal year 2004 and the change they represent from the corresponding figure in fiscal year 2003. Second, it reports the change reported by the 224 institutions that responded in fiscal year 2003 and fiscal year 2004 (referred to in the text as the "recurrent responders"). The difference between these two figures is the net change between the responses of the eight new fiscal year 2004 respondents and the 12 who responded in fiscal year 2003 but did not respond in fiscal year 2004 (referred to in the text as the "net new responders") but in the interests of simplifying the report, AUTM does not separately report the amount of the change that is attributable to the net

Table US-1: Overall Response Rate to the Survey and Participation of Major Research Universities, 1992–2004

	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Number Surveyed	211	231	234	254	287	302	311	330	344	284	299	304	305
Overall Response Rate	57%	63%	63%	62%	55%	53%	51%	52%	49%	49%	63%	65%	65%
Top 100 Research Universitites	66%	85%	84%	87%	89%	90%	92%	94%	94%	92%	94%	96%	96%

new responders. The one-year recurrent change gives a more accurate picture of current trends than does the total year-to-year change.

In its efforts to generate a high response rate, AUTM has historically focused follow-up efforts on the top 100 universities according to research expenditures as identified in the National Science Foundation's report titled *Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (fiscal year 2003)*[iii]. This effort resulted in a 96 percent response rate from these top institutions. Of the NSF Top 100 Research Institutions, only Princeton University, the University of Alaska, the University of Medicine and Dentistry New Jersey, and Yeshiva University/Albert Einstein College of Medicine did not report to the fiscal year 2004 AUTM Licensing Survey. The top 100 institutions account for 80.2 percent of all research expenditures reported by 619 institutions to NSF.

Readers should note that the NSF's ranking of the leading 100 research institutions includes several individual campuses of state university systems — e.g., seven campuses of the University of California System and two of the University of Illinois System — that report to the AUTM Licensing Survey as part of a single university-wide report. However, other multi-campus state university systems — e.g., the University of Arkansas System, the University of Maryland System, the University of North Carolina System, the University of Texas System and the University of Wisconsin System — chose to report to the AUTM Licensing Survey on an individual campus basis. Overall, because of multi-campus reporting, the 164 U.S. universities that responded to the AUTM Licensing Survey correspond to 208 of the 625 university campuses that responded to the 2003 NSF Survey.

As the table below shows, the AUTM Licensing Survey captured 86.9 percent of total research expenditures at U.S. universities, 93.2 percent of federal research expenditures and 117.3 percent of industrially sponsored research expenditures reported to the NSF. The discrepancy in the industrially sponsored expenditure figure most likely reflects inclusion of funding for clinical trials in the AUTM figures, but not the NSF figures.

Research Expenditures Reported to Fiscal Year 2003 NSF and AUTM Surveys ($billions)

	NSF Survey	AUTM Survey	% of NSF Survey
Total	$40.077	$34.827	86.9%
Federal	$24.734	$23.063	93.2%
Industrial	$2.162	$2.537	117.3%

Table US-2: Survey Respondent Information

	U.S. Universities			U.S. Hospitals & Research Institutes			Technology Investment Firms					
Fiscal Year	Surveyed Population	Respondents	%	Surveyed Population	Respondents	%	Surveyed Population	Respondents	%	Total Surveyed	Total Response	%
1991 and 1992	168	98	58.3%	40	20	50.0%	3	2	66.7%	211	120	56.9%
1993	186	117	62.9%	40	26	65.0%	5	3	60.0%	231	146	63.2%
1994	187	120	64.2%	42	24	57.1%	5	3	60.0%	234	147	62.8%
1995	196	127	64.8%	53	27	50.9%	5	3	60.0%	254	157	61.8%
1996	223	131	58.7%	59	26	44.1%	5	2	40.0%	287	159	55.4%
1997	229	132	57.6%	68	26	38.2%	5	1	20.0%	302	159	52.6%
1998	232	132	56.9%	74	26	35.1%	5	1	20.0%	311	159	51.1%
1999	247	139	56.3%	78	29	37.2%	5	2	40.0%	330	170	51.5%
2000	256	142	55.5%	83	25	30.1%	5	1	20.0%	344	168	48.8%
2001	223	142	63.7%	57	28	49.1%	4	1	25.0%	284	171	60.2%
2002	228	156	68.4%	67	32	47.8%	4	1	25.0%	299	189	63.2%
2003	232	165	71.1%	68	32	47.1%	4	1	25.0%	304	198	65.1%
2004	232	164	70.7%	69	33	47.8%	4	1	25.0%	305	198	64.9%
responded 2003–2004		159	97.0%		31	93.9%		1	100.0%		191	96.5%
responded 1991–2004		69	42.1%		13	39.4%		1	100.0%		83	41.9%

In fact, the inclusiveness of the AUTM Licensing Survey is higher than these figures would seem to indicate because several respondents did not report Research Expenditures: Federal Sources to the AUTM Licensing Survey. These institutions together reported almost $550 million in research expenditures to the NSF survey. If the figures these institutions reported to the NSF survey are added to the reported AUTM figures, the inclusiveness increases to 95.5 percent for federal funding.

Twelve institutions — eight U.S. universities, two U.S. hospitals and research institutes, and two Canadian institutions — requested that their names be withheld. Their responses are included in the totals for the various categories of institutions but are omitted from the listings of data for individual institutions.

Summaries of the Licensing Survey response rate and number of responses by various types of respondents in fiscal year 2004 and previous years appear in Tables US-1 and US-2. Table US-1 highlights the participation of major research institutions. Table US-2 shows the number of responses by type of U.S. respondent.

4. Results

This *Licensing Survey Summary* follows the technology transfer process: resources devoted to technology transfer, research support, invention disclosures, patent applications, issued patents, licensing information and startup companies. The definitions of the terms used in the AUTM Licensing Survey are in Attachment C (see page 41). Defined terms are capitalized and in bold type on first reference.

4.1 Resources

4.1.1 Maturity of Technology Transfer Programs

Institutions launched their technology transfer programs at different times. The age of a program is a significant factor in comparing performance because of the time needed to:

- Develop a portfolio of intellectual property to license
- Build a body of expertise in technology transfer

Figure US-1: Technology Transfer Program Start Date of U.S. Universities

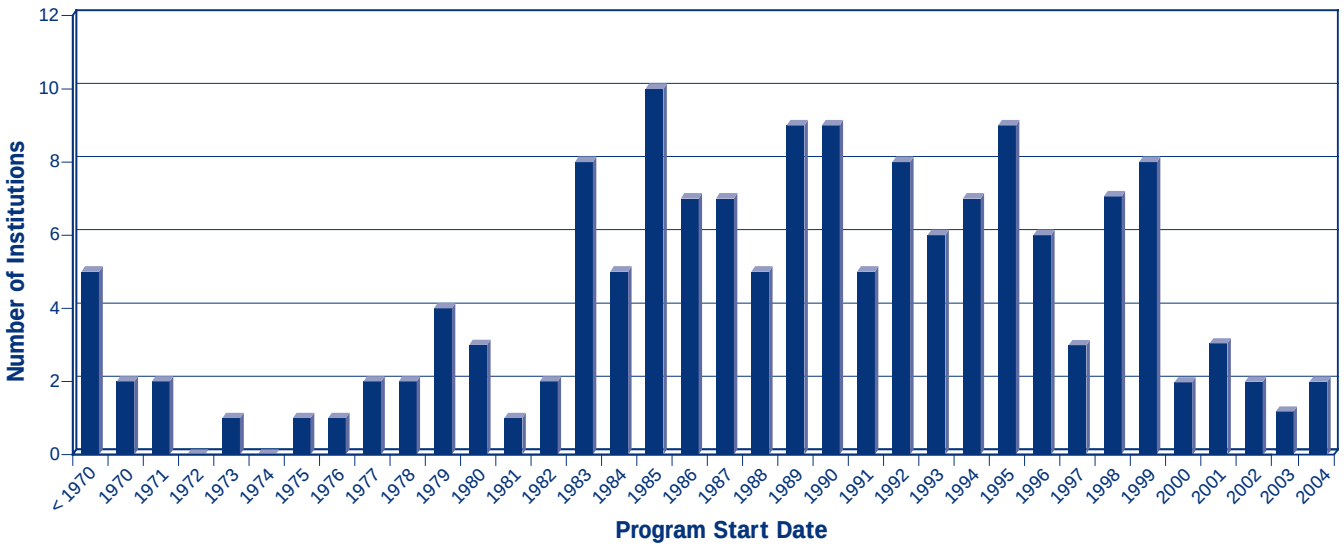


Table US-3: Historic Staffing Levels of U.S. Offices of Technology Transfer 1992–2004

	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Licensing FTEs	237.1	304.1	299	310.6	N.A.*	415.4	452.6	494.2	552.5	627.7	733.7	793.7	832.9
Other FTEs	176.4	211.6	211.9	202.8	N.A.*	461.6	476.0	538.7	575.5	630.8	717.8	759.5	817.0
Total FTEs	413.5	515.7	510.9	513.4	N.A.*	877.0	928.6	1,032.8	1,128.0	1,258.5	1,451.4	1,553.3	1,649.9

** The FTE question asked in the FY 96 Licensing Survey was not consistent with the question asked in subsequent years. For FY 92–95, two questions were asked, one of which was consistent with the 1997 and subsequent questions.*

- Develop a culture in the institution that recognizes the benefits of technology transfer
- Allow for licensees to develop and bring products to market

Though a few institutions established programs before the passage of the Bayh-Dole Act in 1980, the pace of establishment accelerated after Bayh-Dole. Figures US-1 and US-2 show the **Program Start Date** (the year an institution started its technology transfer program, defined as when it first devoted one-half of an FTE to technology transfer) of U.S. universities, and U.S. hospitals and research institutes, respectively.

4.1.2 Staffing

One-hundred ninety-two respondents reported a total of 833 **Licensing FTEs,** an average of 4.3 FTEs per office. This figure was up by 4.9 percent, or 39 FTEs, compared with fiscal year 2003. Recurrent respondents reported 35 of the 39 additional FTEs. One-hundred ninety-one institutions reported a total of 817 **Other FTEs** (i.e., administrative support staff), an average of 4.3 per office. These figures were up 7.5 percent, or 57 FTEs, compared with fiscal year 2003 levels. Recurrent respondents reported 60 additional FTEs.

Figure US-2: Technology Transfer Program Start Date of U.S. Hospitals and Research Institutes

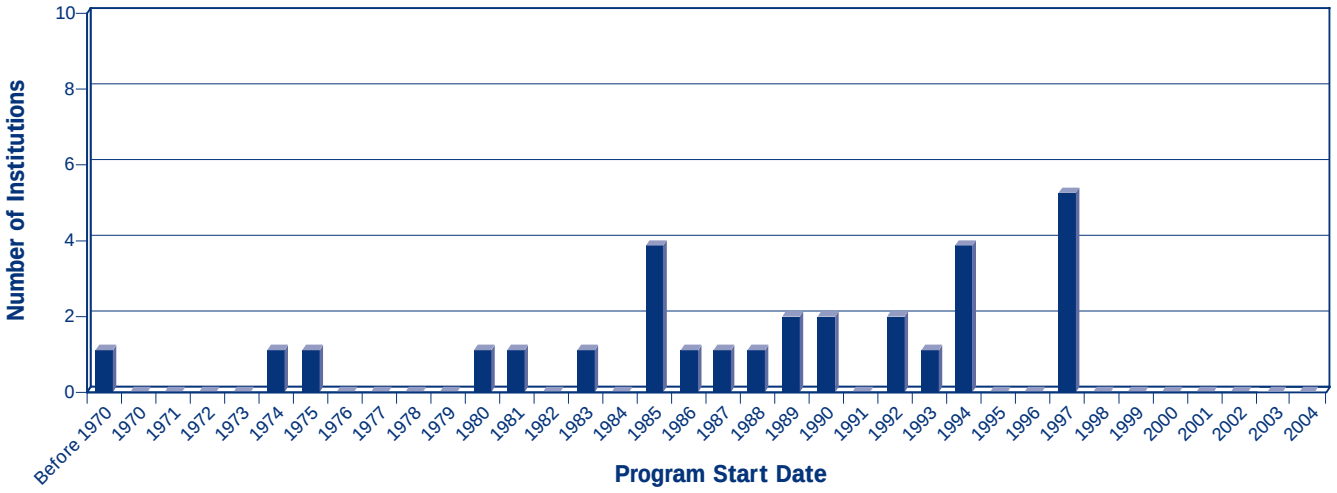
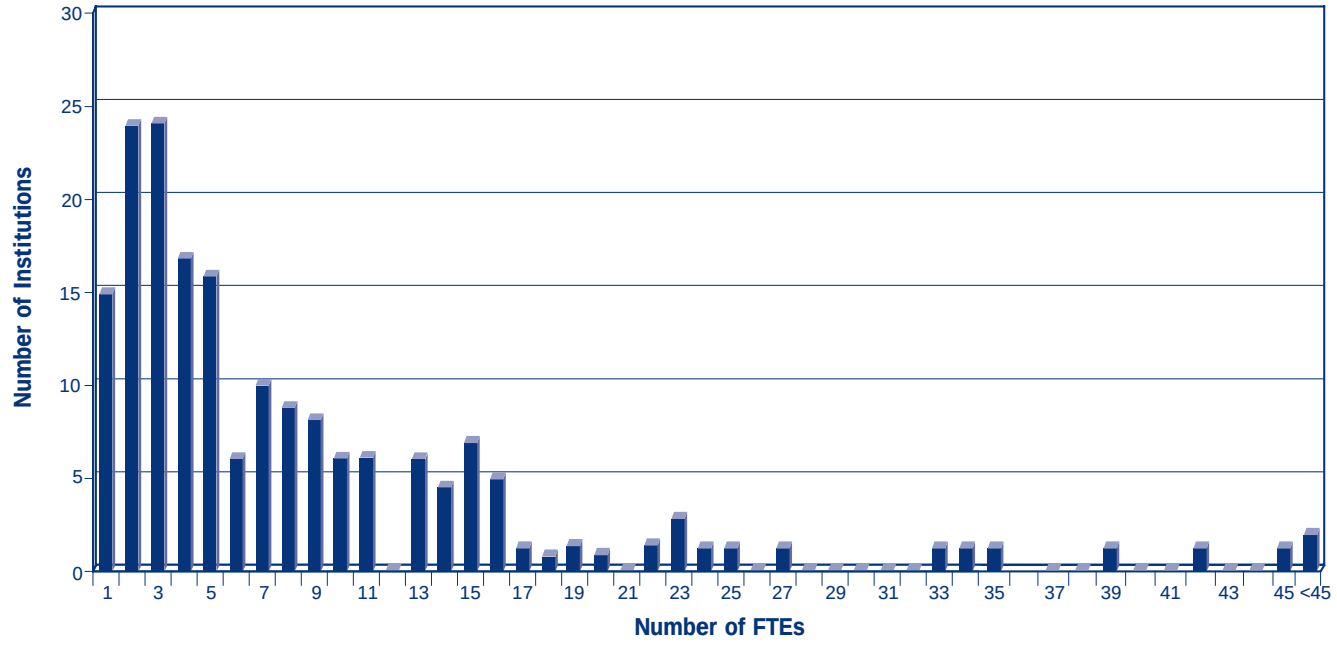


Figure US-3: Technology Transfer Office Staffing Levels at U.S. Universities, 2004



U.S. technology transfer offices range considerably in size. Figures US-3 and US-4 show the staffing levels of responding U.S. universities, and U.S. hospitals and research institutes, respectively. Table US-3 shows staffing level increases since 1992 for all U.S. respondents.

4.2 Research Support

One-hundred ninety-two institutions reported **Total Research Expenditures** of $41.2 billion, an increase of $2.7 billion, or 7.1 percent, compared with the $38.5 billion reported in fiscal year 2003 by 188 institutions. Recurrent respondents reported $2.8 billion in research expenditure increase.

Of total research expenditures, $27.7 billion, or 67.2, percent came from **Federal Government Sources,** an increase of $2.2 billion, or 8.7 percent, compared with the $25.5 billion reported by 182 institutions in fiscal year 2003. Recurrent respondents reported $2.3 billion in new federal funds.

One-hundred seventy-eight institutions reported that **Industrial Sources** funded $3.0 billion, or 7.2 percent, of total research expenditures, an increase of $82 million, or 4.4 percent, compared with the $2.9 billion reported by 177 institutions in fiscal year 2003. Recurrent respondents reported an increase of $79 million in industry funds.

The balance of research funding comes from state and local government sources, foundations, individuals and the institution itself.

Table US-4 shows total research expenditures of U.S. universities, hospitals and nonprofit research institutes that identified the federal and industrial fraction of such expenditures over the 13-year period during which AUTM has collected this data. From 62 percent to 69 percent of the research expenditures were from federal sources, and from 7 percent to 9 percent were from industrial sources. Figure US-5 presents this data graphically.

The federal government has substantially increased funding of academic research since 1991. The National Institutes of Health budget doubled between fiscal years 1999 and 2003, and in fiscal year 2002 HR4664 was passed, starting a five-year process to double the National Science Foundation budget. Figures US-6 and US-7 show the distribution of research program sizes at U.S. universities, and U.S. hospitals and research institutes, respectively

Figure US-4: Technology Transfer Office Staffing Levels at U.S. Hospitals and Research Institutes, 2004

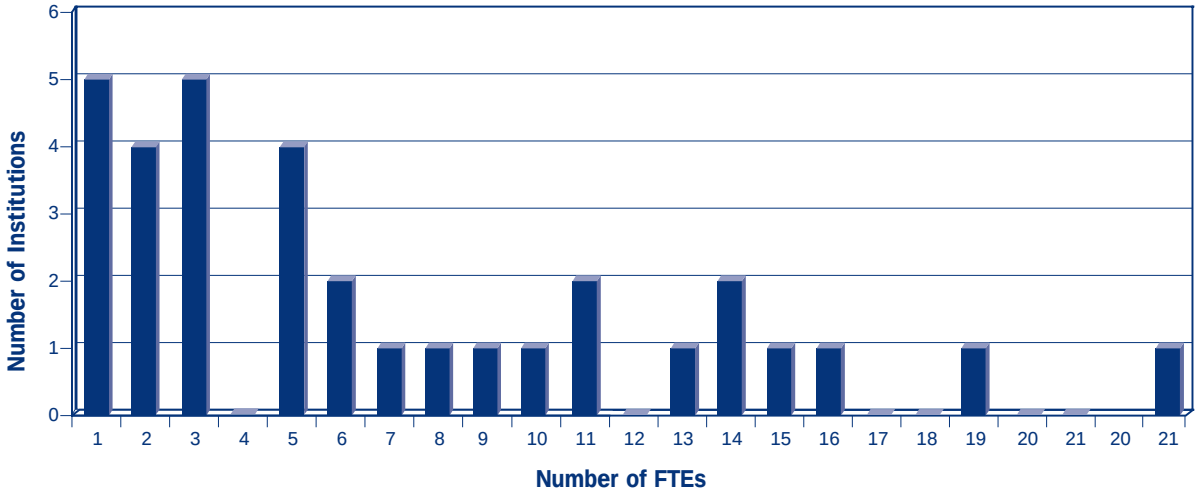


Table US-4: Amount of Total Research Support From Federal and Industrial Sources for U.S. Universities, Hospitals and Research Institutes, 1991–2004

	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Total Research Expenditures ($ billions)	12.8	14.2	17.1	18.2	19.9	20.6	21.6	23.2	25.7	27.9	30.0	35.0	38.50	41.20
% Federal	69%	69%	67%	66%	67%	67%	68%	65%	65%	65%	67%	62%	66%	67%
% Industrial	7%	8%	8%	8%	8%	9%	9%	9%	9%	9%	8%	8%	7%	7%

4.3 Invention Disclosures and Patents

4.3.1 Invention Disclosures

In fiscal year 2004, 195 institutions received 16,871 **Invention Disclosures,** an increase of 1,361, or 8.8 percent, compared with the 15,510 disclosures that 198 institutions received in fiscal year 2003. Recurrent respondents reported an additional 1,461 invention disclosures. Table US-5 shows invention disclosures received for all respondents since 1991.

The first new question asked this year was the type of intellectual property being disclosed. The results for U.S. respondents are shown in Table US-6. Potentially patentable invention disclosures overwhelmingly dominated, accounting for 82 percent of the total. Copyrightable disclosures accounted for 8 percent of the total and biological disclosures accounted for 4 percent of the total, while all other types of intellectual property accounted for the remaining 6 percent.

Figure US-6: Distribution of Size of Research Programs at U.S. Universities, 2004

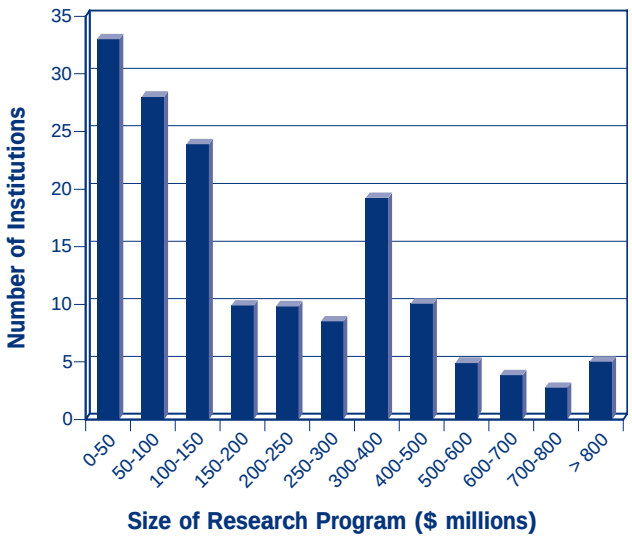


Figure US-5: Research Expenditures for U.S. Universities, Hospitals and Research Institutes, 1991–2004

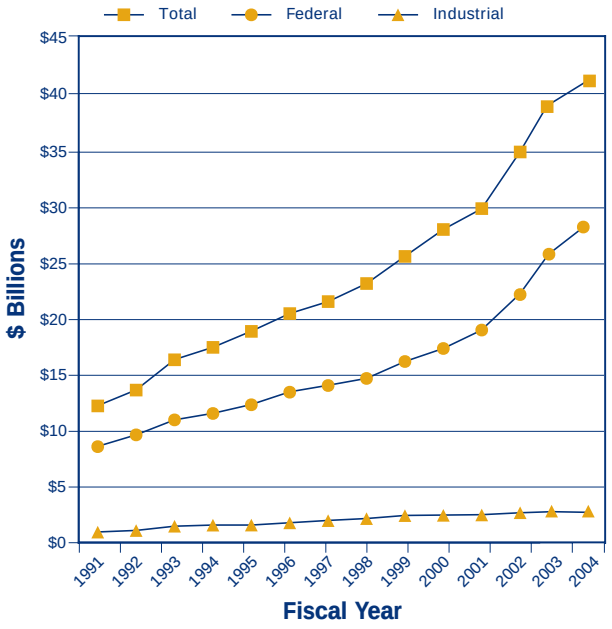


Figure US-7: Distribution of Size of Research Programs at U.S. Hospitals and Research Institutes, 2004

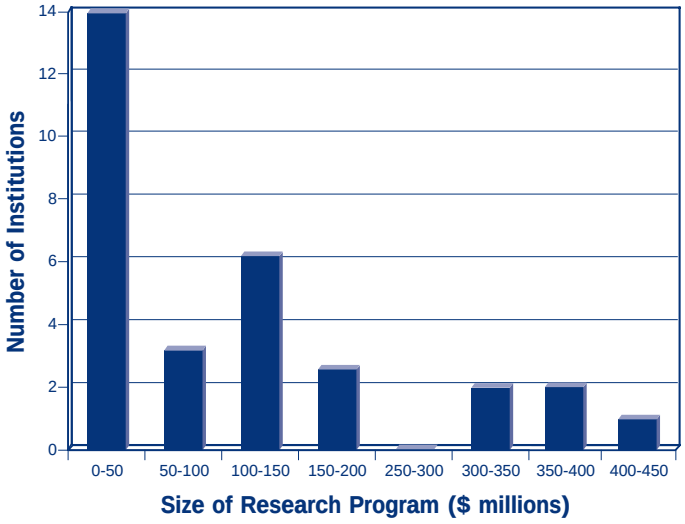


Table US-5: Invention Disclosures Received by US Respondents, 1991–2004

	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Number of U.S. Respondents	111	113	142	146	157	159	158	159	169	167	170	188	198	198
Invention Disclosures Received	6,087	7,061	8,188	8,298	9,211	9,669	10,613	10,987	11,607	11,974	12,636	14,398	15,510	16,871

Figures US-8 and US-9 show the distribution of invention disclosures received by U.S. universities, and U.S. hospitals and research institutes, respectively.

4.3.2 Patents

New U.S. Patent Applications Filed by 192 institutions rose 32.8 percent in fiscal year 2004 to 10,517, up from 7,921 filed by 194 institutions in fiscal year 2003. Recurrent respondents reported 2,568 of the increased patent applications filed.

Table US-7 shows new U.S. patent applications filed since 1991. Figures US-10 and US-11 show the distribution of new U.S. patent applications filed by U.S. universities, and U.S. hospitals and research institutes, respectively.

Figure US-8: Invention Disclosures Received by U.S. Universities, 2004

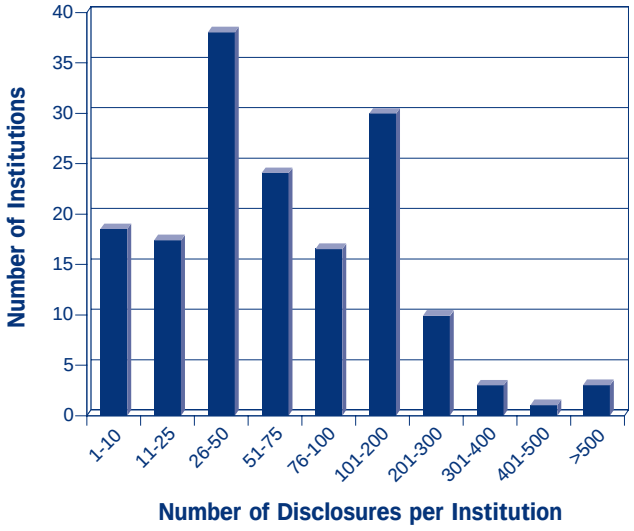


Table US-6: Types of Intellectual Property Disclosed by U.S. Respondents in 2004

	Number	%
Potentially Patentable	11,482	81.9%
Copyright	1,120	8.0%
Biological	581	4.1%
Other	842	6.0%
Total	**14,025**	**100.0%**

Table US-8: Type of New Patent Applications Filed by U.S. Respondents in 2004

	Number	%
U.S. Provisional Application	6,191	64.7%
U.S. Utility Application	2,095	21.9%
Non-U.S. Application	1,276	13.3%
Total	**9,562**	**99.9%***
Number of Respondents	183	

* *Because of rounding, total does not equal 100%.*

Figure US-9: Invention Disclosures Received by U.S. Hospitals and Research Institutes, 2004

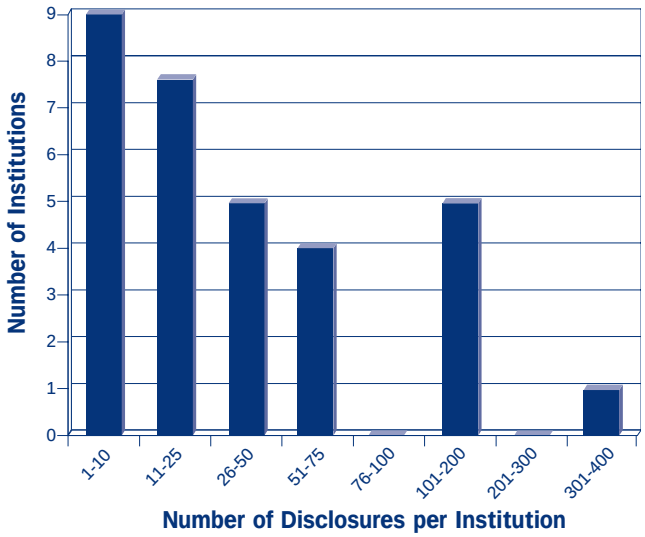


Table US-7: New and Total U.S. Patent Applications Filed and U.S. Patents Issued to U.S. Respondents, 1991–2004

	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Number of U.S. Respondents*	116	116	145	147	157	159	159	159	170	167	168	189	198	192
New U.S. Patent Applications Filed	1,584	1,871	2,368	2,331	2,715	3,124	4,077	4,605	5,339	6,073	6,389	7,319	7,921	10,517
Total Patent Applications Filed	2,396	2,874	3,743	4,163	6,183	4,508	6,313	7,339	8,457	9,557	10,687	12,222	13,280	13,803
U.S. Patents Issued			1,530	1,822	1,746	2,002	2,570	3,141	3,501	3,567	3,549	3,501	3,933	3,680

* *Not all respondents answered each question.*

A 32.8 percent growth rate is higher than most of the other annual changes in the fiscal year 2004 Licensing Survey and warrants further discussion in light of a change in methodology in the fiscal year 2004 Licensing Survey.

This question and the associated definitions were changed this year as part of identifying three different types of initial patent applications. In previous years, question 13C asked:

"Of the TOTAL U.S. PATENT APPLICATIONS FILED, how many of these were NEW U.S. PATENT APPLICATIONS FILED?"

In 2004, question 13C was changed and three subsections were added:

13C Of the TOTAL U.S. PATENT APPLICATIONS FILED, how many of these were NEW PATENT APPLICATIONS FILED?

13C1 Of NEW PATENT APPLICATIONS FILED, how many were filed as U.S. PROVISIONAL PATENT APPLICATIONS?

13C2 Of NEW PATENT APPLICATIONS FILED, how many were filed as U.S. UTILITY PATENT APPLICATIONS?

13C3 Of NEW PATENT APPLICATIONS FILED, how many were filed as NON-U.S. PATENT APPLICATIONS?

Patent applications reported in questions 13C1 and 13C2 were reported in prior years; question 13C3 was intended to identify new patent applications that were not previously reported. The results of these questions are shown in Table US-8. Respondents reported filing almost two-thirds of new patent applications as **U.S. Provisional Patent Applications. U.S. Utility Patent Applications** accounted for two-thirds of the balance and **Non-U.S. Patent Applications** accounted for the remainder.

Comparing the new U.S. provisional and new U.S. utility patent applications filed with the corresponding fiscal year 2003 new U.S. patent applications filed shows a 16.7 percent increase.

The filing of a new U.S. patent application most frequently corresponds with a decision to seek patent protection of a single invention disclosure, though sometimes two or more invention disclosures are combined into a single new U.S. patent application. Conversely, a single invention disclosure can occasionally generate more than one new U.S. patent application. In addition, sometimes filing of a new U.S. patent application may not take place immediately after submission of an invention disclosure, so seeking protection for an invention disclosure may not occur in the same year that the invention disclosure is received.

With these caveats in mind, the ratio of new U.S. patent applications filed to invention disclosures received has increased as technology transfer programs have matured. Figure US-12 illustrates this increase, from 26 percent in fiscal year 1991 to 62.3 percent in fiscal year 2004, which was up sharply from

Figure US-10: New U.S. Patent Applications Filed by U.S. Universities, 2004

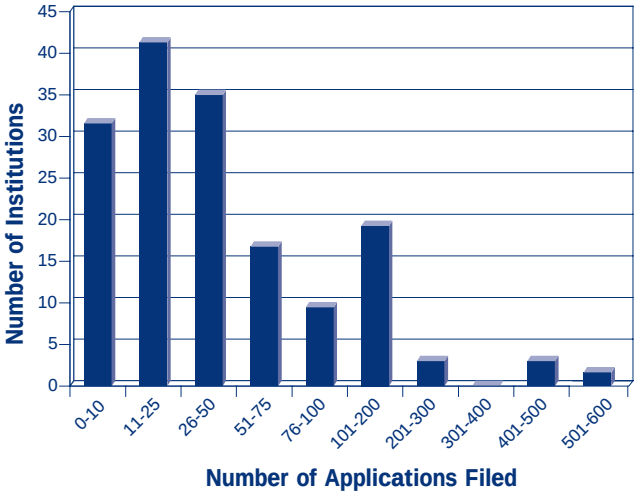
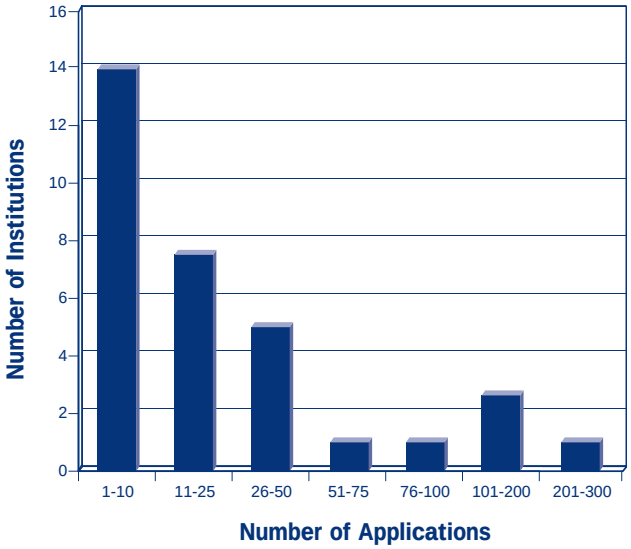


Figure US-11: New U.S. Patent Applications Filed by U.S. Hospitals and Research Institutes, 2004



51.1 percent in fiscal year 2003, reflecting the large jump in new patent applications filed, identified above.

One-hundred ninety-three institutions reported that **Total U.S. Patent Applications Filed**[iv] rose in fiscal year 2004 to 13,803, a slight increase of 3.9 percent, compared with the 13,280 filed by 197 institutions in fiscal year 2003. Of the 523 new patent applications filed, recurrent respondents reported 560. (See Table US-7.)

The number of total U.S. patent applications filed is greater than the number of new U.S. patent applications filed because of procedures at the U.S. Patent and Trademark Office that allow applicants to re-file a patent application if the USPTO rejects the application twice or determines that there are multiple inventions in a single new patent application, necessitating the filing of divisional applications. Thus, a single invention can be associated, procedurally, with more than one U.S. patent application. Figure US-13 shows that offices manage roughly one extra U.S. patent applications for every two to three new U.S. patent applications filed. The fiscal year 1995 fluctuation in total U.S. patent applications filed is discussed in footnote v.

One-hundred ninety-five respondents reported receiving 3,680 **U.S. Patents Issued**[vi] in fiscal year 2004, a decrease of 253, or 6.4 percent, compared with fiscal year 2003. Recurrent responders reported a decrease of 224 patents. As shown in Table US-7, the 3,933 U.S. patents issued in fiscal year 2003 was up sharply from fiscal year 2002 and fiscal year 2001, which each showed modest declines. The fiscal year 2004 figure is the second highest total ever.

Figure US-12: New Patent Filings and Invention Disclosures Received, All Respondents, 1991–2004

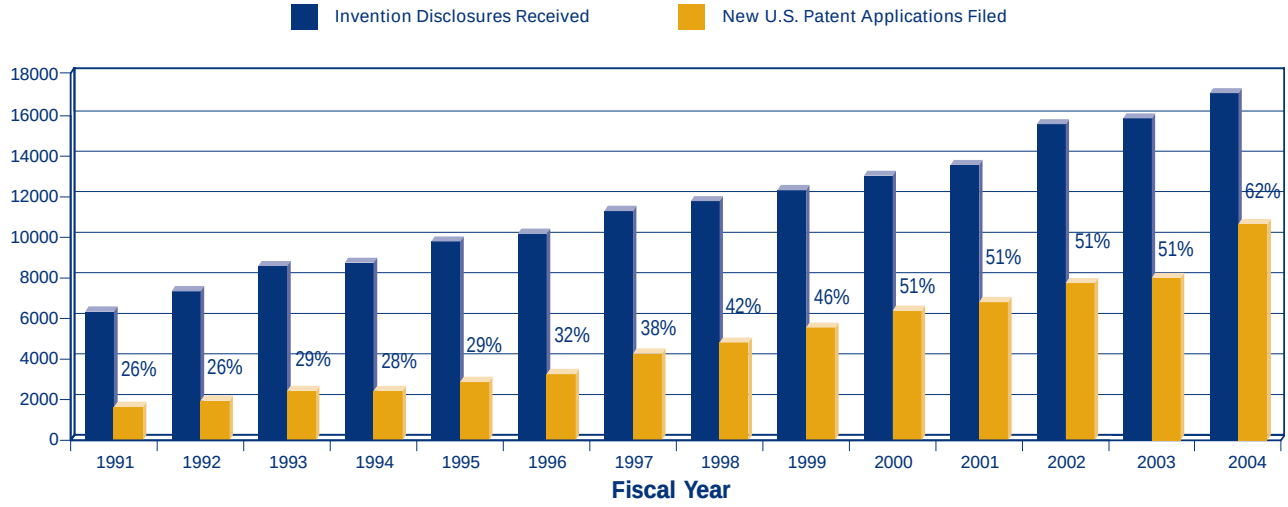


Figure US-13: New U.S. Patent Filings and Total U.S. Patent Filings, All Respondents, 1991–2004

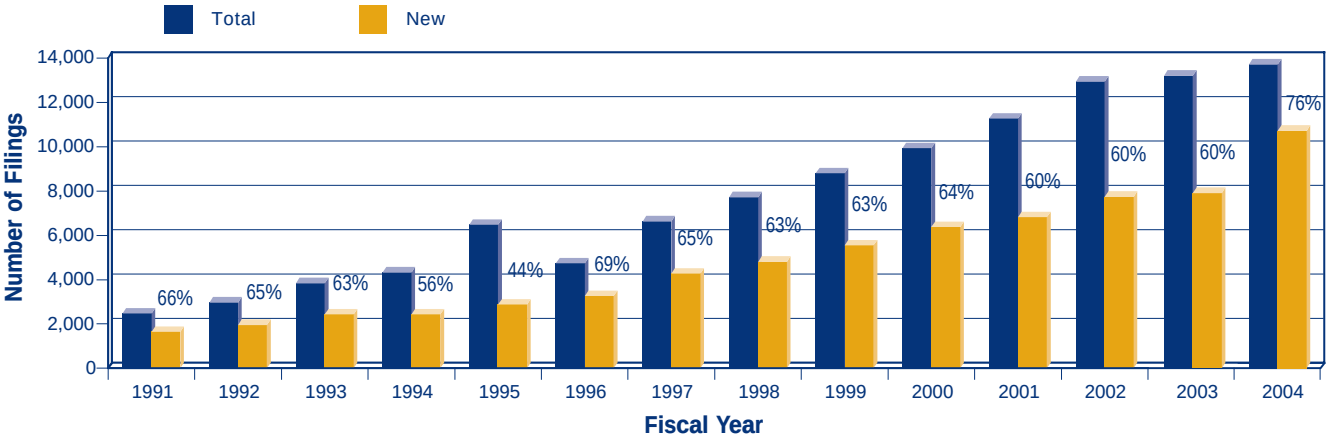


Table US-7 shows U.S. patents issued for all U.S. respondents since fiscal year 1993 and Figure US-14 shows U.S. patents issued as a percentage of new U.S. patent applications filed and total U.S. patent applications filed since 1993.

The 3,680 U.S. patents issued represented 2.2 percent of the 170,637 utility patents granted by the USPTO in fiscal year 2004, down from 2.3 percent in fiscal year 2003. Figures US-15 and US-16 show the distribution of the numbers of new U.S. patent applications filed by U.S. universities, and U.S. hospitals and research institutes, respectively.

Legal Fees Expenditures[vii] were $221.4 million in fiscal year 2004 reported by 191 institutions, an increase of $16.3 million, or 8.0 percent, compared with the $205.1 million reported by 193 institutions in fiscal year 2003. Recurrent respondents reported an additional $17 million in legal fees expenditures.

Legal fees expenditures are partially offset by licensees through **Legal Fees Reimbursements.** In fiscal year 2004, 188 institutions reported legal fees reimbursements of $91.4 million, 41.3 percent of legal fees expenditures and an increase of $5.1 million, or 5.9 percent, compared with the $86.4 million reported by 189 institutions in fiscal year 2003. Recurrent respondents reported $5.5 million in additional legal fees reimbursements. The reimbursement rate in fiscal year 2003 was 42.1 percent.

The definitions for legal fees expenditures and legal fees reimbursements have changed over time to enable better reporting and analysis of these costs.

Figure US-15: U.S. Patents Issued to U.S. Universities, 2004

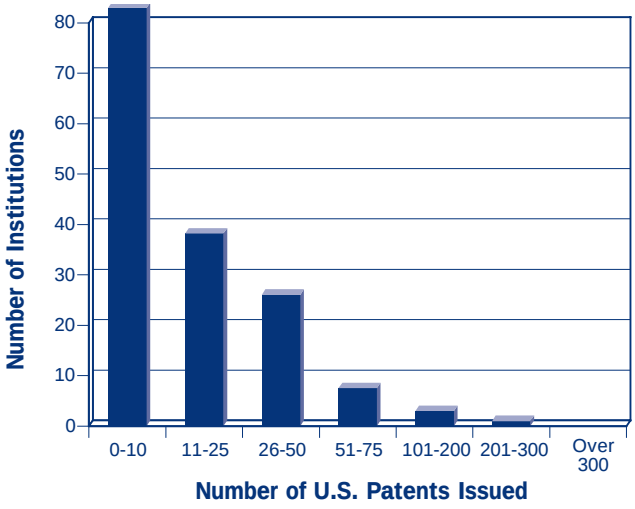


Figure US-16: U.S. Patents Issued to U.S. Hospitals and Research Institutes, 2004

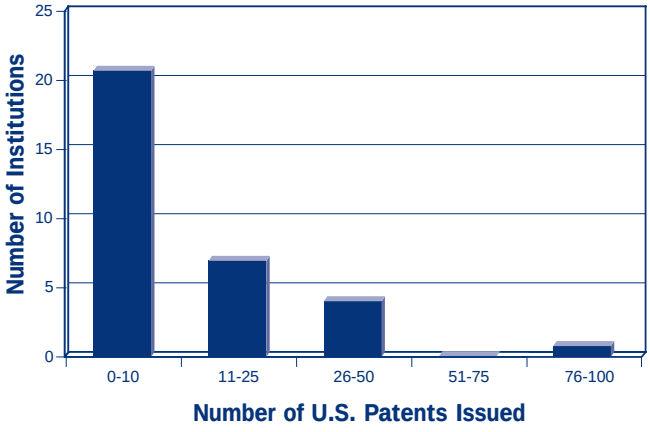
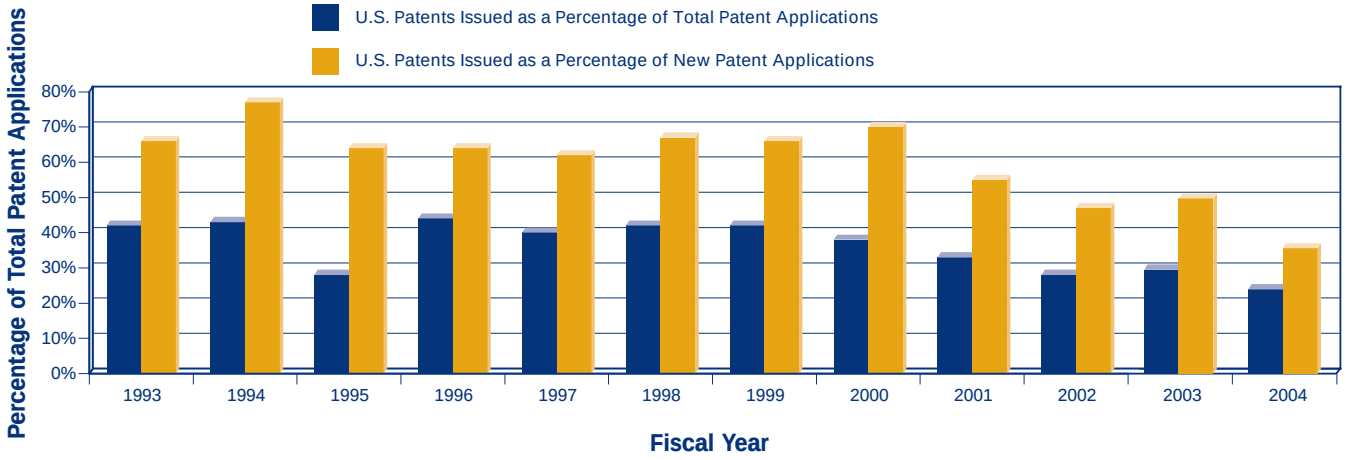


Figure US-14: U.S. Patent Applications Issued as a Percentage of Total U.S. Patent Applications Filed and New U.S. Patent Applications Filed, 1993–2004



Specifically, in fiscal year 1999 the definition for legal fees expenditures was modified to explicitly omit major litigation expenses to ensure that the figures more accurately track patent prosecution costs. A September 2005 article in *Fortune* incorrectly stated that the nearly $200 million in legal expenditures reported in 2003 was money U.S. universities spent suing corporations for patent infringement — an outright error. AUTM is not aware of any data about expenditures by U.S. academic institutions on patent infringement lawsuits. Anecdotally, the vast majority of patent infringement suits involving academic institutions are initiated and paid for by exclusive licensees.

Table US-9 shows legal fees expenditures, legal fees reimbursements and the percentage of legal fees expenditures reimbursed since 1991. These numbers populate Figure US-17, which shows that the percentage of reimbursed costs has ranged between 30 percent and 48 percent, and most recently has hovered around 43 percent. The absolute magnitude of non-reimbursed costs — which represents the discretionary investment made to protect the intellectual property that the $41.2 billion U.S. academic research enterprise creates — has increased by about 250 percent since 1991. Figures US-18 and US-19 show the distribution of legal fees expenditures for U.S. universities, and U.S. hospitals and research institutes, respectively.

4.4 Licensing

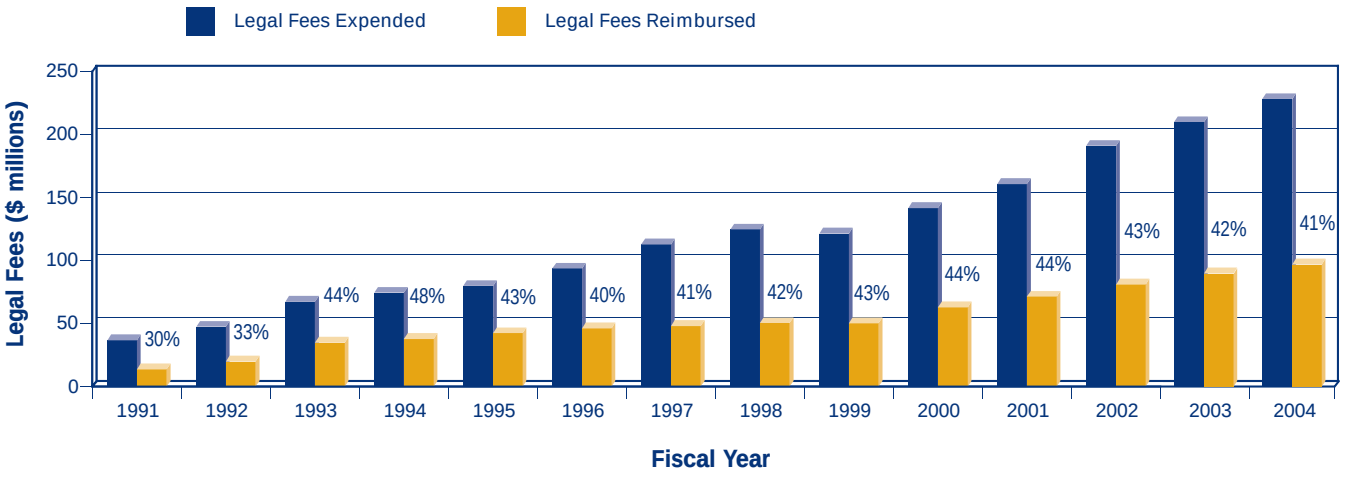
4.4.1 Transactions

One-hundred ninety-eight respondents reported 4,783 **Licenses/Options Executed** in fiscal year 2004, up 276, or 6.1 percent compared with fiscal year 2003. Recurrent respondents reported an additional 271 licenses/options executed. Though this increase is still modest compared with the 13.6 percent increase between fiscal years 2001 and 2002, it is greater than the 5 percent increase from 2002 to 2003 and reflects a resumption of normal growth rates and a recovery from the severe downturn of the 2000–2001 period,

Table US-9: Legal Fees Expended and Legal Fees Reimbursed by U.S. Respondents FY 1991–2004

	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Legal Fees Expended ($ millions)	37	45	64	67	76	90	108	118	117	136	155	188	205	221
No. of U.S. Respondents	100	104	140	142	155	152	154	154	166	164	165	181	193	191
Legal Fees Reimbursed ($ millions)	11	15	28	32	33	36	44	49	50	60	68	80	86	91
No. of U.S. Respondents	93	97	132	138	150	149	152	153	163	162	162	176	189	189
% Reimbursed	29.7%	33.3%	43.8%	47.8%	43.4%	40.0%	40.7%	41.5%	42.7%	44.1%	43.9%	42.6%	42.0%	41.3%

Figure US-17: Legal Fees Expended and Reimbursed by U.S. Hospitals and Research Institutes, 1991–2004



when there was a decrease of 7 percent in licenses/options executed between fiscal years 2000 and 2001.

Table US-10 shows that the cumulative total of licenses/options executed since fiscal year 1991 is 43,862. Figures US-20 and US-21 show the distribution of licenses/options executed by U.S. universities, and U.S. hospitals and research institutes, respectively.

One-hundred ninety-one institutions reported that 27,322, or 62.3 percent, of the 43,862 cumulative total of licenses/options executed since fiscal year 1991 were **Active Licenses/Options** in fiscal year 2004, an increase of 1,458, or 5.6 percent, compared with the 25,864 active licenses/options reported by 189 institutions in fiscal year 2003. Recurrent respondents reported an additional 1,375 active licenses/options.

The third new question asked this year was the number of different invention disclosures included in the licenses/options executed. An institution may include more than one invention disclosure within an exclusive license, which would raise the ratio of invention disclosures licensed to licenses/options executed above 1.0; conversely, if an institution licensed the same invention disclosure nonexclusively to a number of licensees, the ratio would be below 1.0.

Table US-11 shows that 184 institutions reported that they included 4,831 invention disclosures in 4,235

Table US-11: Number of Inventions Included per License / Option Executed in 2004

Number. of Inventions Licensed	4,831
Number of Licenses/Options Executed	4,325
Invention Disclosures per License/Option	1.14
Number of U.S. Respondents	184

Figure US-18: Legal Fees Expended by U.S. Universities, 2004

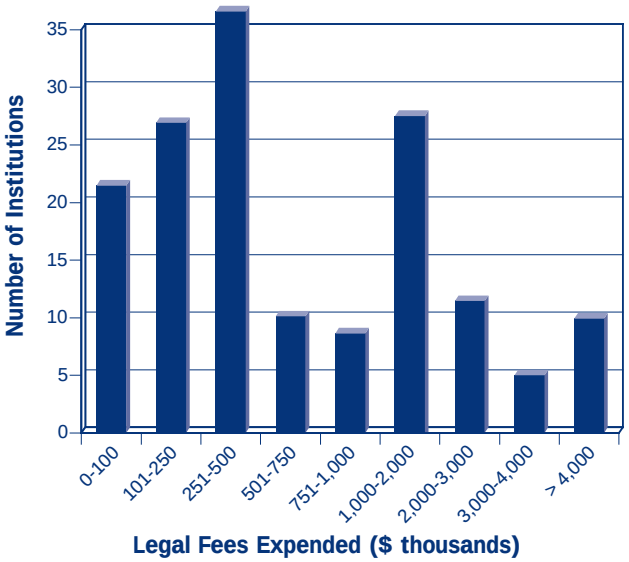


Figure US-19: Legal Fees Expended by U.S. Hospitals and Research Institutes, 2004

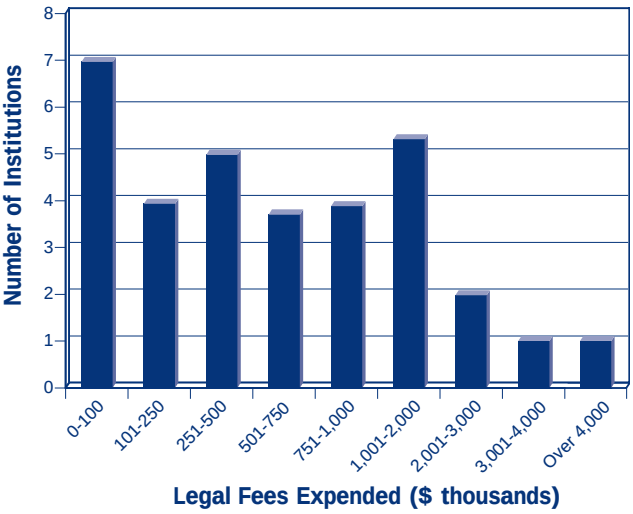


Table US-10: Licenses and Options Executed and Cumulative Active Licenses by U.S. Respondents, 1991–2004

	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	1991 – 2004
Number of U.S. Respondents	109	114	142	144	156	156	158	158	168	167	169	188	195	198	
Licenses and Options Executed	1,229	1,687	2,050	2,343	2,444	2,535	3,101	3,422	3,687	4,028	3,725	4,312	4,507	4,783	43,862
Number of U.S. Respondents		115	139	141	154	156	154	150	165	163	164	185	190	191	
Cumulative Licenses Active		6,948	8,354	9,414	11,037	12,224	14,491	16,138	17,636	19,547	21,495	24,374	25,864	27,322	62.3%

licenses/options executed, so that overall 1.14 invention disclosures were included per license/option executed.

4.4.2 Size of Licensee Company

The AUTM Licensing Survey asked respondents to provide information about the type of companies with which they executed licenses/options, identifying them as mutually exclusive **Startup Companies, Small Companies** and **Large Companies.** As Table US-12 shows, respondents provided company information for 4,624 of all licenses/options executed, which was 96.6 percent of the 4,783 licenses/options executed.

Of these, 14.2 percent of the licenses were with startup companies (i.e., companies established specifically to develop the licensed technology), up from 12.8 percent in fiscal year 2003. A further 53.6 percent of the licenses/options executed were with existing small companies (companies employing fewer than 500 people), up from 52.5 percent in fiscal year 2003.

Figure US-20: Licenses/Options Executed by U.S. Universities, 2004

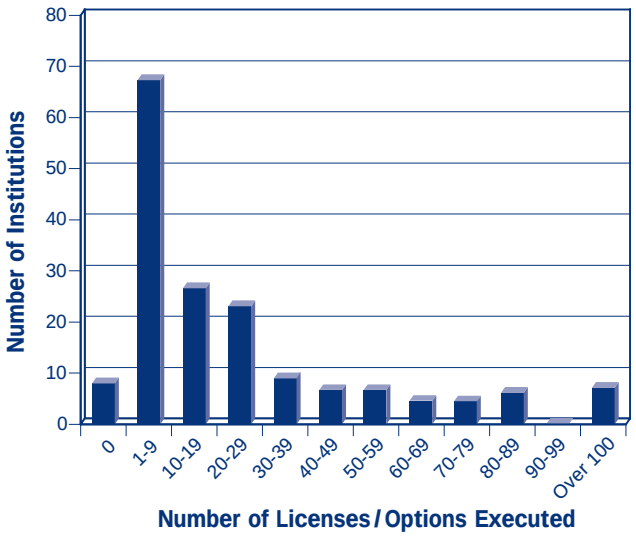


Figure US-21: Licenses/Options Executed by U.S. Hospitals and Research Institutes, 2004

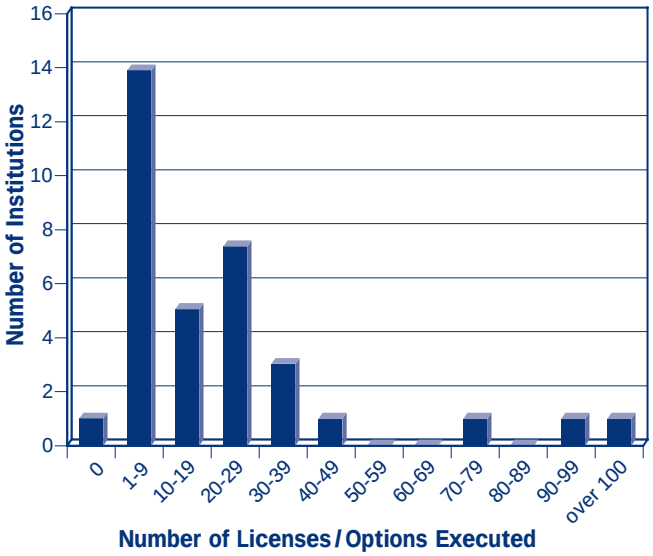


Table US-12: Licenses and Options Executed by U.S. Respondents in 2004: Type of Licensee Company

		Licenses and Options Executed						
FY 2004	Number of Respondents	Total	Startup Companies	% of Total	Small Companies	% of Total	Large Companies	% of Total
U.S. Universities	159	3,928	618	15.7%	2,133	54.3%	1,177	30.0%
U.S. Hospitals and Research Institutes	32	671	40	6.0%	338	50.4%	293	43.7%
Technology Investment Firms	1	25	--	0%	6	24.0%	19	76.0%
All U.S. Respondents	192	4,624	658	14.2%	2,477	53.6%	1,489	32.2%

Table US-13: Licenses and Options Executed by U.S. Respondents in 2004: Exclusive vs. Nonexclusive

		Licenses and Options Executed				
FY 2004	Number of Respondents	Total	Exclusive	% of Total	Nonexclusive	% of Total
U.S. Universities	159	4,062	1,852	46%	2,210	54%
U.S. Hospitals and Research Institutes	32	670	297	44%	373	56%
Technology Investment Firms	1	25	1	4%	24	96%
All U.S. Respondents	192	4,757	2,150	45%	2,607	55%

Finally, 32.2 percent of the licenses/options executed were with large companies (companies employing more than 500 people), down from 34.7 percent in fiscal year 2003.

The Bayh-Dole Act requires licensors of inventions supported by U.S. federal funds to show a preference for licensing these inventions to small U.S. companies. U.S. universities, hospitals and research institutes reported that 67.8 percent of licenses/options executed were with startup and small companies combined, and 32.2 percent were with large companies, as compared with 65.3 percent and 34.6 percent, respectively, in fiscal year 2003. These findings show that respondents are fulfilling this requirement of the Bayh-Dole Act.

4.4.3 Exclusivity

One-hundred ninety-two respondents reported on the exclusivity of 4,757, or 99.5 percent, of the licenses/options executed (see Table US-13). Of the total, 45.1 percent were **Exclusive Licenses,** slightly up from 44.9 percent in fiscal year 2003. The balance, 54.9 percent, comprises **Nonexclusive Licenses.**

Participants also reported about the exclusivity of the licenses granted to the three categories of companies that the AUTM Licensing Survey distinguishes — startup companies, small companies and large companies. Respondents provided information for 4,618, or 96.6 percent, of the total licenses/options executed. The results are presented in Table US-14.

Of the licenses/options executed with startup companies, 90.9 percent were exclusive, compared with 93.8 percent in fiscal year 2003; 42.1 percent of the licenses/options executed with small companies were exclusive, compared with 44 percent in fiscal year 2003; and 34.7 percent of the licenses/options executed with large companies were exclusive, compared with 39.1 percent in fiscal year 2003.

Figure US-24 illustrates the percent of licenses/options executed that are exclusive by company type for fiscal year 2004. Since the AUTM Licensing Survey began collecting this data in fiscal year 1998, the

Figure US-22: Cumulative Active Licenses / Options With U.S. Universities, 2004

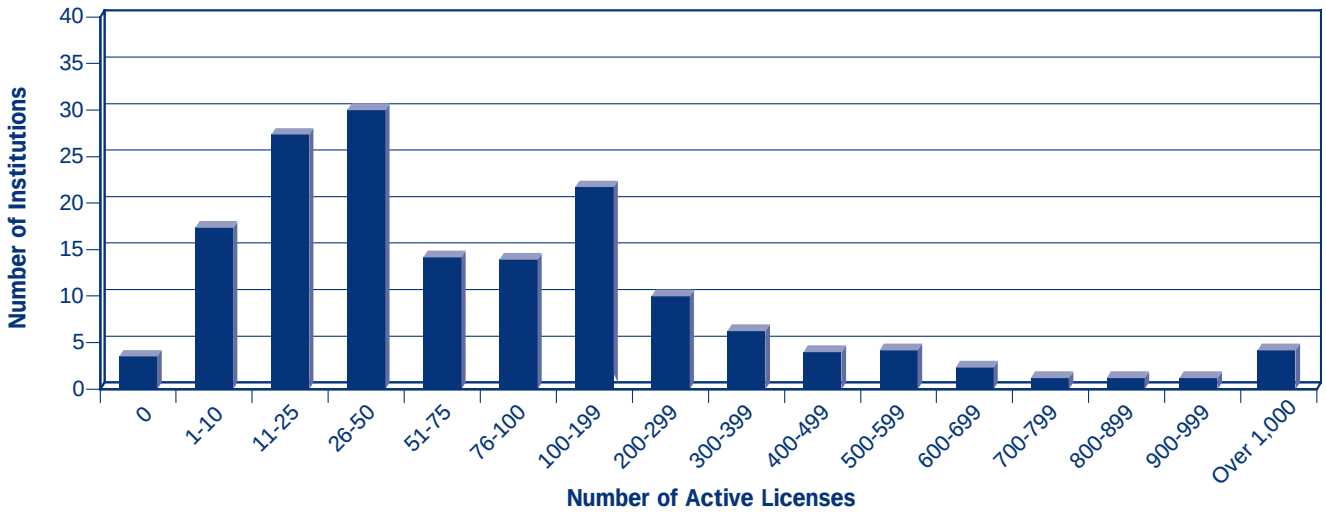


Table US-14: Exclusivity of Licenses and Options Executed by U.S. Respondents in 2004 by Type of Licensee Company

			Licenses and Options Executed					
			Startup		Small		Large	
FY 2004	Respondents	Total	Exclusive	Nonexclusive	Exclusive	Nonexclusive	Exclusive	Nonexclusive
U.S. Universities	157	3,922	558	60	887	1,245	415	757
U.S. Hospitals and Research Institutes	32	671	40	--	156	182	100	193
Technology Investment Firms	1	25	--	--	--	6	--	19
All U.S. Respondents	190	4,618	598	60	1,043	1,433	515	969

proportion of exclusive licenses granted to startup and small companies has remained essentially stable, while the percentage of exclusive licenses/options to large companies has been decreasing steadily, with an uptick in 2003.

4.4.4 License Income

One-hundred ninety-six institutions reported 11,414 **Licenses/Options Yielding License Income** in fiscal year 2004, an increase of 732, or 6.9 percent, over the 10,682 reported in fiscal year 2003. Recurrent respondents reported an additional 716 licenses/options yielding income. In other words, 41.8 percent of active licenses/options yielded some type of **License Income Received,** compared with 41.3 percent in fiscal year 2003. Table US-15 shows the historical trend in licenses/options yielding license income.

License Income Received[viii ix] in fiscal year 2004, as reported by 196 institutions, was $1.474 billion, an increase of $60 million, or 4.2 percent, compared with the $1.414 billion reported by 194 institutions in fiscal year 2003. Recurrent respondents reported an additional $55 million in license income received.

Because of the inter-institutional collaborations characteristic of science, two or more institutions frequently co-own intellectual property. These institutions generally will agree to manage the intellectual

Figure US-24: Exclusivity Patterns Within Company Types, All U.S. Respondents, 2004

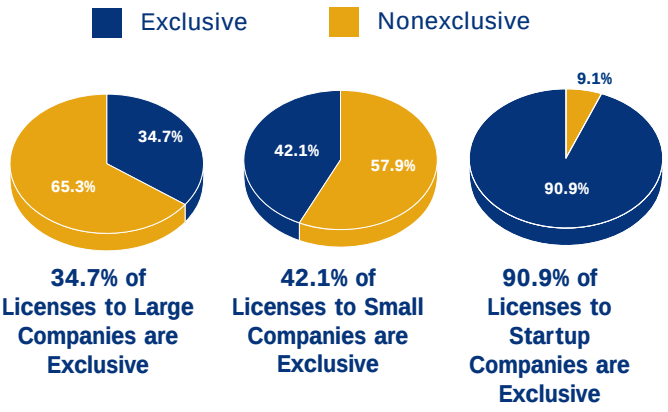


Figure US-23: Active Licenses / Options With U.S. Hospitals and Research Institutes, 2004

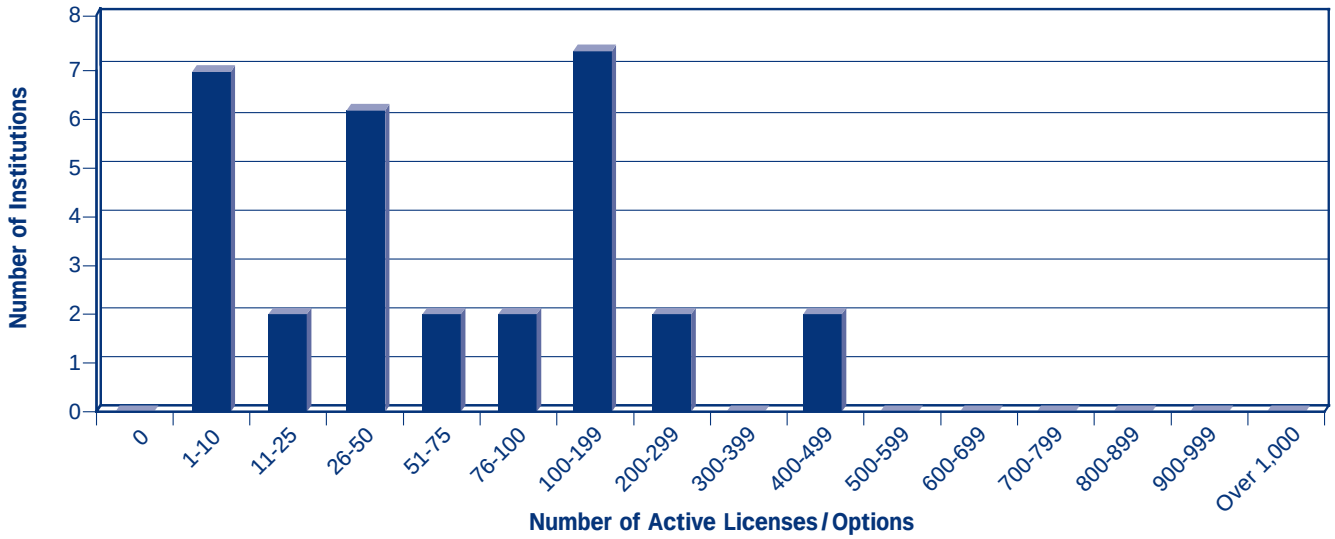


Table US-15: Net License Income and Licenses / Options Yielding Income by U.S. Respondents, 1991–2004

	FY 1991	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Number of U.S. Respondents	111	114	144	147	157	159	159	159	170	167	170	186	194	196
Net License Income ($ millions)	$218	$283	$318	$355	$414	$503	$601	$712	$849	$1,230	$1,030	$1,235	$1,306	$1,385
Number of U.S. Respondents	111	112	143	146	156	157	157	158	169	166	167	186	195	196
Licenses / Options Yielding Income	2,602	3,266	4,016	4,292	5,096	5,851	6,560	7,013	7,861	8,523	9,046	10,128	10,682	11,414

property jointly, with one institution designated as the lead institution and having responsibility to license the intellectual property, collect the royalties and distribute agreed-upon shares to co-owner(s).

To avoid double counting of the amounts paid to co-owners — who also report the amounts received from the other institution as income to the Licensing Survey — respondents are asked to report the **License Income Paid to Other Institutions.** In fiscal year 2004 license income paid to other institutions was $89.3 million reported by 187 institutions, down $19.1 million, or 17.6 percent, from the $108.4 million reported by 185 institutions in fiscal year 2003. Recurrent respondents reported the total decrease of $19.1 million.

Therefore, **Net License Income Received** in fiscal year 2004 was $1.385 billion, an increase of $79 million, or 6 percent, compared with the $1.306 billion reported in fiscal year 2003. Figures US-25 and US-26 show the distribution in total license income received by U.S. universities, and U.S. hospitals and research institutes, respectively.

The AUTM Licensing Survey distinguishes between three sources of license income received: **Running Royalties** from the sale of licensed products; **Cashed-In Equity** from the sale of equity in the licensee received as part of the license consideration; and **All Other Types** of license income such as upfront fees, annual minimum royalties, milestone payments, litigation settlements and so forth. Survey respondents provided detailed data for 96 percent of license income received, down from 98.9 percent in fiscal year 2003. Table US-16 summarizes these data.

In fiscal year 2004:

- $1.122 billion, or 79.3 percent, of license income received was derived from running royalties from product sales, a slight increase of $3 million, compared with $1.119 billion in fiscal year 2003. This type of revenue accounted for 79.9 percent of license income received in fiscal year 2003. Recurrent respondents reported a decrease of $4 million.

Figure US-25: Total License Income Received by U.S. Universities, 2004

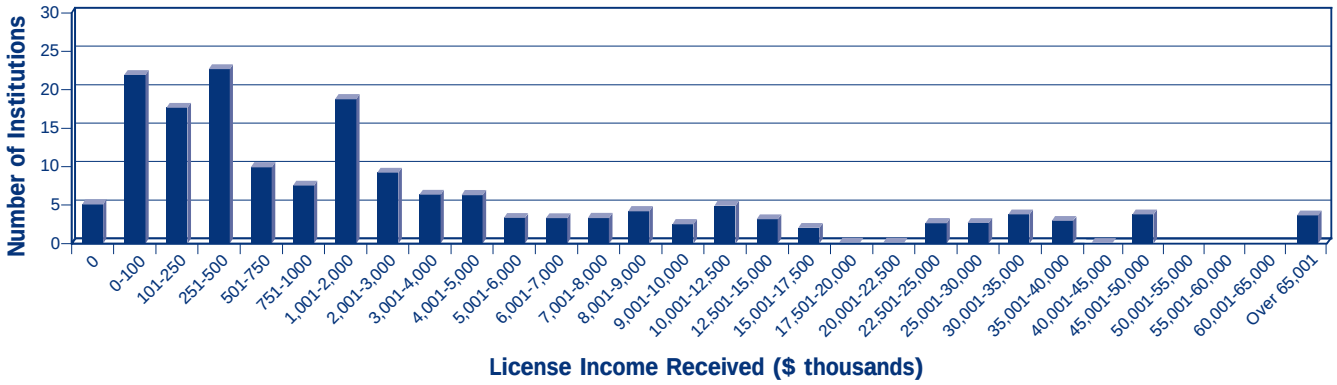
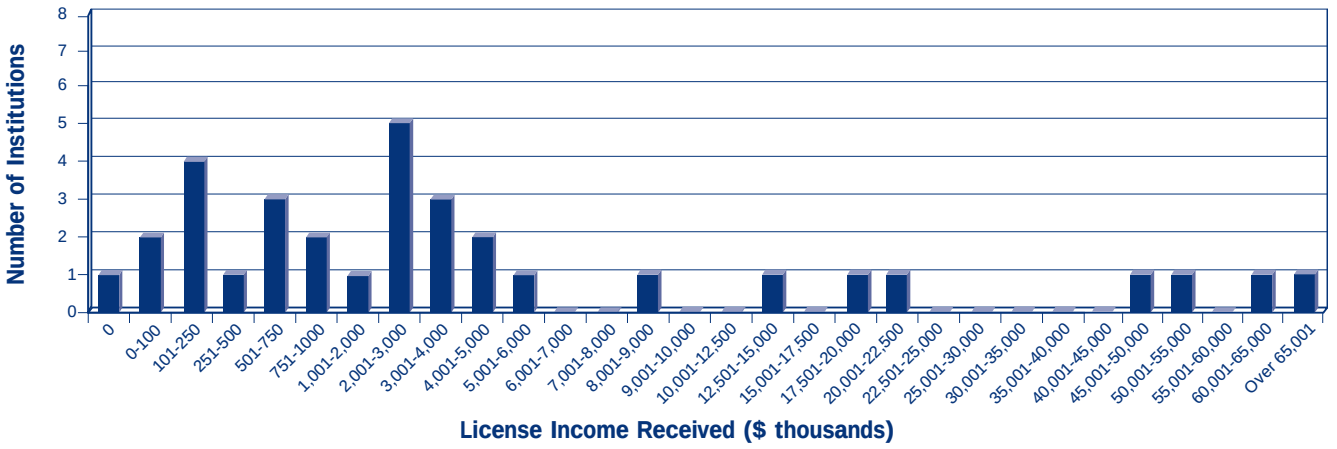
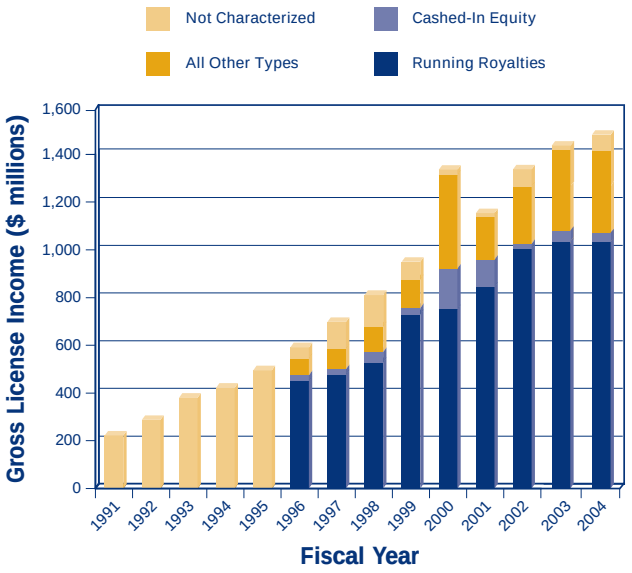


Figure US-26: Total License Income Received by U.S. Hospitals and Research Institutes, 2004



- $264.3 million, or 18.7 percent, of license income received was derived from other types of license income, an increase of $23.7 million, or 9.9 percent, compared with $240.6 million in fiscal year 2003. This type of revenue accounted for 17.3 percent of license income received in fiscal year 2003. Recurrent respondents reported $22.5 million of the increase.
- $29 million, or 2.0 percent, of license income received was derived from cashed-in equity from the sale of equity in the licensee, a decrease of $10.0 million, or 25.7 percent, compared with $38.8 million in fiscal year 2003. This type of revenue accounted for 2.8 percent of license income received in fiscal year 2003. In fiscal year 2004, recurrent respondents reported the total decrease of $10.0 million in cashed-in equity.

Figure US-27: Gross Income Received by Income Type, All U.S. Respondents, 2004



One-hundred ninety-three institutions reported that 6,116 licenses/options yielded running royalties, an increase of 457, or 8.1 percent, compared with the 5,659 reported by 194 institutions in fiscal year 2003. Recurrent responders reported 434 of the additional running royalty-earning deals. This figure implies that at least 6,116 products resulting from licenses/options are reaching the public — and because some licenses/options are fully paid up, the actual number is undoubtedly higher. The figure also indicates that at least 22.4 percent of active licenses/options and 53.6 percent of licenses/options yielding income have resulted in products that are now available in the public marketplace.

Figure US-27 illustrates the relative contributions of the types of income to the total reported income since 1996, when the Licensing Survey first included this question. Table US-15 reports the number of licenses/options yielding income for all U.S. respondents.

Sixty-six institutions reported that they had at least one license/option that generated more than $1 million in license income received during fiscal year 2004, up from 59 in 2003, including three institutions that reported having 10 or more licenses/options that each generated more than $1 million in license income received during fiscal year 2004. In total, 167 licenses/options generated more than $1 million in license income received during fiscal year 2004, up 16, or 10.6 percent, compared with 151 reported in fiscal year 2003. Recurrent responders reported all 16 of the additional high-revenue licenses/options.

These mega-licenses account for only 1.5 percent of all licenses/options yielding income, up from 1.4 percent in fiscal year 2003. Figure US-28 illustrates these Licensing Survey results.

The Bayh-Dole Act requires institutions to share the proceeds from licensing federally funded inventions with inventors and to use the balance, after the recovery

Table US-16: Source of Gross License Income by U.S. Respondents in 2004: Running Royalties, Cashed-In Equity and Other*

		Gross License Income Received						
FY 2004	Number of Respondents	Total	Running Royalties	% of Total	Cashed-In Equity	% of Total	Other	% of Total
U.S. Universities	154	1,030	810	78.6%	23	2.2%	197	19.1%
U.S. Hospitals and Research Institutes	32	345	277	80.3%	6	1.7%	62	18.0%
Patent Management Firms	1	40	35	87.5%	-	0.0%	5	12.5%
All U.S. Respondents ($ millions)	$187	$1,415	$1,122	79.3%	$29	2.0%	$264	18.7%

* *Data from institutions that did not provide a breakdown of source of gross licensing income received are omited from this table.*

Figure US-28: Active Licenses Generating More Than $1 Million in 2004

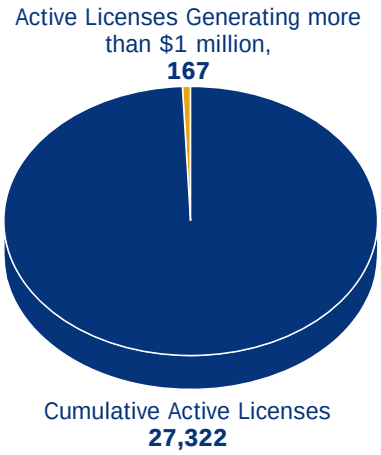


Figure US-29: Startup Companies Formed by U.S. Universities, 2004

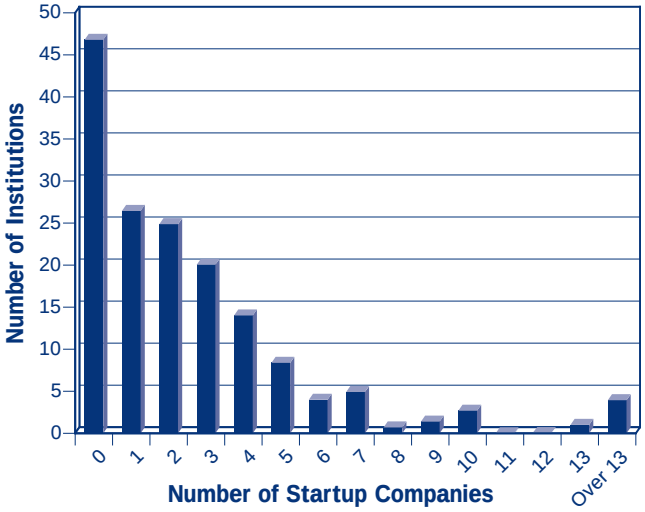
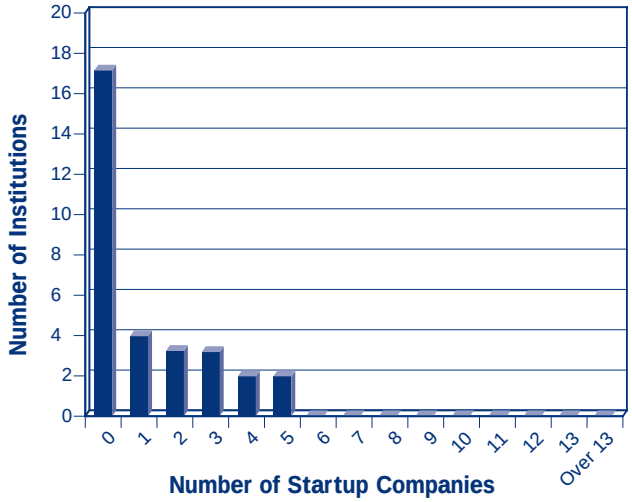


Figure US-30: Startup Companies Formed by U.S. Hospitals and Research Institutes, 2004



of expenses, for research and education. In general, institutions have a single patent policy that does not distinguish between different funding sources, so income from all sources is treated the same. The institutional share is distributed according to the individual institution's policy to academic units — laboratories, department and schools — and the institution itself.

4.4.5 Research Support Linked to Licenses

Another route by which institutions benefit from technology transfer is the sponsorship of research at the institution to further develop the technology and assist in the transfer process. One-hundred sixty-three institutions reported receiving $249.4 million of **Research Funding** commitments linked to **License/Option Agreements** in fiscal year 2004. This figure was down by $6.4 million, or 2.5 percent, compared with the fiscal year 2003 figure of $255.8 reported by 168 institutions. Recurrent responders reported a decrease of $6.6 million. The fiscal year 2004 figure represents 8.5 percent of all **Research Expenditures: Industrial Sources,** down from 9.0 percent in fiscal year 2003.

This is probably the most difficult figure for an institution to determine, because the records that need to be cross-referenced to generate this figure are kept by different offices within the institution and typically in systems that cannot be compared electronically, necessitating a laborious manual cross-referencing process. Historically, this figure has the lowest compliance in the Licensing Survey. In FY2004, only 105 of the 199, or 51% of U.S. respondents, provided a figure greater than 0. These institutions reported research expenditures from industrial sources totaling $1.566 billion, which was only 53% of total research expenditures from industrial sources. The research funding linked to licenses accounted for 15.9% of research expenditures from industrial sources at these institutions. In addition, one institution reported the same figure in this category as for its total research expenditures, accounting for 40% of the total of research funding linked to licenses, a potentially serious distortion. This appears unlikely and may distort the overall total. AUTM will follow-up on this and consider eliminating this question from future Licensing Surveys.

5.0 Company Startup Activity

5.1 Startup Information

Startup companies have been a major part of the innovation process because established firms frequently are unwilling or unable to embrace new technologies that are high-risk or have the potential to render existing investments and technologies obsolete. This phenomenon remains true in the academic licensing sector, and startup company activity continues to be a significant aspect of the technology licensing process.

The difficult conditions for raising early-stage funding that occurred in fiscal year 2002 and continued in fiscal year 2003 appear to have improved in fiscal year 2004. The result is an increase in the number of startup companies formed, from 374 in fiscal year 2003 to 462 in fiscal year 2004, an increase of 88, or 23.5 percent. Among recurrent respondents, the increase was 85 new startup companies.

One-hundred twenty-eight institutions reported at least one startup company in fiscal year 2004, up from 120 institutions reporting one or more startup companies in fiscal year 2003; eight institutions reported 10 or more startup companies formed in fiscal year 2004. Figures US-29 and US-30 show the distribution of startup companies formed by U.S. universities, and U.S. hospitals and research institutes, respectively.

Startup companies tend to be located close to the institution from which the technology originates. In fiscal year 2004, 74.5 percent of startup companies were located in the same state as the institution from which the company licensed its technology, down from 78.9 percent in fiscal year 2003.

Table US-17 shows that 4,543 U.S. startup companies have been formed since 1980. Since 1993, AUTM has asked institutions whether previously reported startup companies have become **Non-operational.** In fiscal year 2004, 92 startup companies became non-operational, down 41, or 30.8 percent, from the 133 that became non-operational in fiscal year 2003. Recurrent responders reported 42 fewer newly non-operational startup companies

In the previous two Licensing Surveys, AUTM reported that newly non-operational startup companies were up sharply over historic levels, and it is encouraging to see that this has been reversed in fiscal year 2004.

The AUTM Licensing Survey also asks institutions whether previously reported startup companies are still **Operational.** In fiscal year 2004, 179 institutions reported that 2,671 or 58.8 percent of all startup companies ever created were still operational, up from 55.8 percent in fiscal year 2003.

Table US-18: Sources of Funding for New Startups Formed by U.S. Respondents in 2004

Individuals	Number	%
Friends and Family	94	20.5%
No External Funding	57	12.4%
Individual Angel(s)	49	10.7%
Angel Network	26	5.7%
Institutional Sources		
Venture Capital	85	18.6%
State Funding	36	7.9%
SBIR/STTR	32	7.0%
Corporate Partner	25	5.5%
Institutional Funding	26	5.7%
Other	28	6.1%
Total	**458**	**100.1%***
Number of U.S. Respondents	155	

** Because of rounding, total does not equal 100%.*

Table US-17: Startups Formed by U.S. Respondents, 1980–2004

	FY 1980 to 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 1980 to 2003
Number of U.S. Institutions Responding	136	145	157	156	155	157	168	167	167	183	190	191	
Number of U.S. Institutions Reporting One or More	128	75	84	77	86	98	98	116	116	118	120	128	
Startup Companies Formed	1,013	212	192	202	275	306	294	424	426	401	374	462	4,543

This startup survival rate is quite high, approaching the rate experienced by the venture capital industry overall. Figures US-31 and US-32 show the distribution of startup companies operational at the end of fiscal year 2004 that were formed by U.S. universities, and U.S. hospitals and research institutes, respectively.

The last new question asked in fiscal year 2004 was the source of initial funding for new startup companies and provides some of the best data yet obtained on gap funding mechanisms.

"Gap" is the term given in theories of technology commercialization to the discontinuity in funding between federal funding for research — which typically drops sharply as technologies approach commercialization — and commercial funding for development and commercialization, which can be very difficult to obtain in the very earliest, highest risk stages of technology commercialization.

The data shows that, far from there being an academic venture capital complex, which pounces on the results of taxpayer funded research and reaps enormous profits from products that are ready for the marketplace, as some observers have suggested, the initial steps on the road from lab to market are fraught with difficulties. According to survey results, professors who want to bring research results to the marketplace most commonly turn to their own friends and family for initial funding. Unrelated individuals, known in technology commercialization as angels investors, are the third most common source of seed funding. No external funding — i.e., when an entrepreneur uses his or her existing funds or the company funds its operations with product and service revenues — is the fourth most common. Table US-18 shows that overall, individuals provide 49.3 percent of the funding for new university startup companies. Fewer than 20 percent of new companies had a technology that was at a stage where it could attract venture capital investment on its initial funding.

Figure US-31: Startup Companies Formed by U.S. Universities Operational at End of Fiscal Year 2004

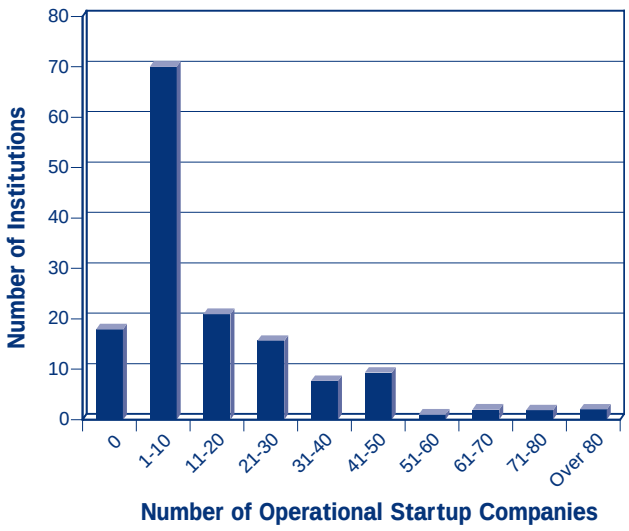


Figure US-32: Startup Companies Formed by U.S. Hospitals and Research Institutes Operational at End of Fiscal Year 2004

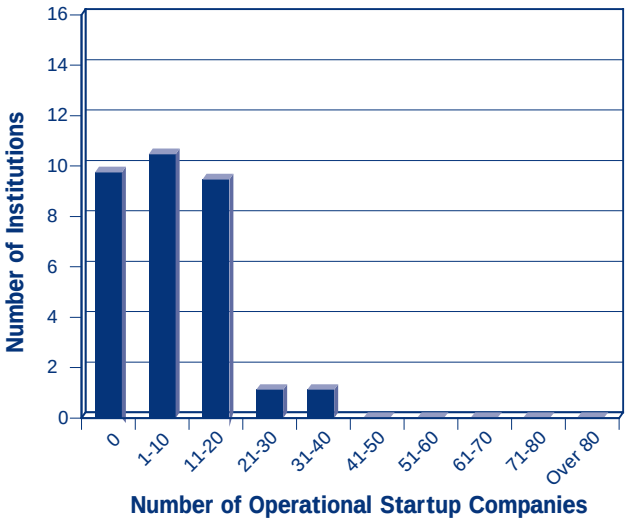


Table US-19: Licenses With Equity and Startups With Equity by U.S. Respondents, 1995–2004

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Licenses With Equity	114	142	216	229	199	320	351	411	351	342
Number of U.S. Institutions Reporting One or More	60	61	67	69	68	78	90	108	106	113
Startups With Equity	NA	NA	NA	NA	NA	215	307	285	252	240
Number of U.S. Institutions Reporting One or More	NA	NA	NA	NA	NA	71	88	99	92	97

5.2 Institutional Equity Holdings

Startups rarely have a positive cash flow during the first years of operation, and providers of early-stage financing generally are loath to see significant amounts of early-stage financing paid out in license fees. Therefore, **Equity** often is the only currency that startup companies have to offer licensor institutions as upfront consideration.

In fiscal year 2004, 178 institutions reported 240 **Licenses Executed With Equity** to startup companies, down 12, or 4.8 percent, compared with the 252 reported in fiscal year 2003 by 185 institutions. Recurrent responders reported granting 14 fewer licenses executed with equity. Therefore, institutions received equity in 51.9 percent of startup companies formed, down sharply from 67.4 percent in fiscal year 2003.

This statistic may be another indicator of the changed financial conditions for startup companies. Financial institutions that were willing to invest in startup companies had the market clout to force the licensing institutions to accept terms that did not include an equity position. Table US-19 shows historic trends in startup companies and licenses executed with equity.

The total number of licenses executed with equity was also down slightly. One-hundred ninety-one institutions reported 342 licenses executed with equity, down 9, or 2.6 percent, from 351 licenses executed with equity granted in fiscal year 2003. Recurrent responders reported a decrease of eight licenses executed with equity. In fiscal year 2004, 70.1 percent of licenses executed with equity were licenses to startup companies, whereas in fiscal year 2003, the percentage was 71.8.

Section 6. Participants in the U.S. Licensing Survey: FY 2004

Allegheny-Singer Research Institute
Arizona State University
Auburn University
Ball State University
Baylor College of Medicine
Beth Israel Deaconess Medical Center
Boston University/Boston Medical Center
Bowling Green State University
Brandeis University
Brigham & Women's Hospital Inc.
Brigham Young University
Brown University Research Foundation
Burnham Institute
California Institute of Technology
California Pacific Medical Center Research Institute
Carnegie Mellon University
Case Western Reserve University
CBR Institute for Biomedical Research
Children's Hospital Boston
Children's Hospital Oakland Research Institute
Children's Hospital, Cincinnati
City of Hope National Medical Center & Beckman Research Institute
Clemson University
Cleveland Clinic Foundation
College of William & Mary
Colorado State University
Columbia University
Cornell Research Foundation Inc.
Creighton University
Dana-Farber Cancer Institute
Dartmouth College
Duke University
Duquesne University
East Carolina University
Eastern Virginia Medical School
Emory University
Florida Atlantic University
Florida State University
Fox Chase Cancer Center
Fred Hutchinson Cancer Research Center
George Mason University
Georgetown University
Georgia Institute of Technology
Harvard University
Health Research Inc.–NY Health Dept.–Roswell Park Cancer Institute
Hospital for Special Surgery
Idaho Research Foundation Inc.
Indiana University (ARTI)
Iowa State University
Johns Hopkins University
Kansas State University Research Foundation
Kent State University
Legacy Health System
Louisiana State University Agricultural Center
Louisiana State University Health Sciences Center–New Orleans
Loyola University Medical Center
M.D. Anderson Cancer Center
Marquette University
Massachusetts Institute of Technology
Mayo Foundation for Medical Education and Research
Medical College of Georgia Research Institute
Medical College of Ohio
Medical College of Wisconsin Research Foundation
Medical University of South Carolina
Miami University
Michigan State University
Michigan Technological University
Mississippi State University
Montana State University
Monterey Bay Aquarium Research Institute
Mount Sinai School of Medicine of NYU
National Jewish Medical and Research Center
New England Medical Center
New Jersey Institute of Technology
New Mexico State University
New York Blood Center
New York University
North Carolina A&T State University
North Carolina State University
North Dakota State University
Northeastern University
Northwestern University
Ohio State University
Ohio University
Oklahoma Medical Research Foundation
Oklahoma State University
Old Dominion University
Oregon Health & Science University
Oregon State University
Pennsylvania State University
Portland State University
Purdue Research Foundation
Rensselaer Polytechnic Institute
Research Corporation Technologies Inc.
Rice University
Rockefeller University
Rutgers, The State University of New Jersey
Sloan Kettering Institute for Cancer Research
Southern Illinois University
Southern Methodist University
St. Elizabeth's Medical Center of Boston
St. Jude Children's Research Hospital
St. Louis University
Stanford University
SUNY Research Foundation
Temple University
Texas A&M University System
Texas Tech University
The Catholic University of America
The Curators of the University of Missouri

The General Hospital dba Massachusetts General Hospital
The Salk Institute for Biological Studies
The Scripps Research Institute
The UAB Research Foundation
Torrey Pines Institute for Molecular Studies
Tufts University
Tulane University
University of Akron
University of Alabama in Huntsville
University of Arizona
University of Arkansas for Medical Sciences
University of Arkansas, Fayetteville
University of California System
University of Central Florida
University of Chicago/UCTech
University of Cincinnati
University of Colorado
University of Connecticut
University of Dayton Research Institute
University of Delaware
University of Denver
University of Florida
University of Georgia
University of Hawaii
University of Houston
University of Illinois, Chicago, Urbana
University of Iowa Research Foundation
University of Kansas
University of Kansas Medical Center
University of Kentucky Research Foundation
University of Louisville
University of Maryland, Baltimore
University of Maryland, Baltimore County
University of Maryland, College Park
University of Massachusetts
University of Miami
University of Michigan
University of Minnesota
University of Mississippi
University of Montana
University of Nebraska
University of Nevada at Las Vegas
University of Nevada at Reno
University of New Hampshire
University of New Mexico/Science & Technology Corp.
University of North Carolina at Greensboro
University of North Carolina, Chapel Hill
University of North Carolina, Charlotte
University of North Texas Health Science Center
University of Northern Iowa
University of Notre Dame
University of Oklahoma, All Campuses
University of Oregon
University of Pennsylvania
University of Pittsburgh
University of Rhode Island
University of Rochester
University of South Alabama
University of South Carolina
University of South Florida
University of Southern California
University of Tennessee
University of Texas at Austin
University of Texas Health Science Center, Houston
University of Texas Health Science Center, San Antonio
University of Texas Medical Branch
University of Texas Southwestern Medical Center
University of Toledo
University of Utah
University of Vermont
University of Virginia Patent Foundation
University of Washington/Washington Research Foundation
University of Wisconsin at Madison
University of Wyoming
Utah State University
Vanderbilt University
Virginia Commonwealth University
Virginia Tech Intellectual Properties Inc.
Wake Forest University
Washington State University Research Foundation
Washington University St. Louis
Wayne State University
Western Kentucky University
Wistar Institute
Woods Hole Oceanographic Institute
Worcester Polytechnic Institute
Wright State University
Yale University

AUTM Licensing Survey: Background and Description

The annual AUTM Licensing Survey collects information about association members' programs to assist in meeting one of AUTM's primary objectives: sharing information with members, colleagues and other interested persons and organizations. The first AUTM Licensing Survey was conducted in 1993, collecting data for fiscal years 1991 and 1992, and has continued on an annual basis since that time.

Each question in the Licensing Survey instrument is intended to ensure that consistent data are collected from institution to institution.[x] In addition, project managers make every effort to collect comparable information each year to enable a meaningful analysis of trends in the data-collection interval. A few Licensing Survey questions and definitions have been clarified over time.[xi] [xii] [xiii] Periodically, one or two new questions have been added, and some have been dropped.[xiv]

Historical Data: Fiscal Years 1991–2004

Data collected by the AUTM Licensing Survey for fiscal years 1991–2004 have been summarized in previously published reports. Information for fiscal years 1991–1995 is available in a single volume in the report titled *AUTM Licensing Survey: FY 1991–1995 Five-Year Survey Summary* and the *AUTM Licensing Survey: FY 1991–FY 1995 Full Report.* Information thereafter, i.e., for fiscal years 1996 though 2004, is available in annual reports for each respective year. These reports present aggregate and individual institutional data for all respondents to the Licensing Survey in these previous years. At times, the *AUTM Licensing Survey: FY 2004* reports refer to these data.

The Fiscal Year 2004 Licensing Survey Reports

The results of the *AUTM Licensing Survey: FY 2004* are reported in three documents. The first is this summary report titled *AUTM Licensing Survey FY 2004: A Survey Summary of Technology Licensing (and Related) Performance for U.S Academic and Nonprofit Institutions, and Technology Investment Firms,* which is referred to as the *U.S. Licensing Survey Summary: FY 2004.*

The second is the summary report titled *AUTM Licensing Survey FY 2004: A Survey Summary of Technology Licensing (and Related) Performance for Canadian Academic and Nonprofit Institutions, and Technology Investment Firms,* which is referred to as the *Canadian Licensing Survey Summary: FY 2004.*

The third document is titled *AUTM Licensing Survey: FY 2004* and is referred to as the *Full Report.* The *Full Report* includes the *U.S. Licensing Survey Summary: FY 2004,* the *Canadian Licensing Survey Summary: FY 2004* and fiscal year 2004 data on an institution-by-institution basis for each data element surveyed. [xv] [xvi]

Tables in the *Full Report* are reported by institution within respective groupings of U.S. universities, U.S. hospitals and research institutes, Canadian institutions, technology investment firms, and in aggregate as well. The table of contents for the *Full Report* and a listing of the tables contained in each section are in Attachments A and B of this summary report.

Availability of Reports

To purchase additional copies of the *Licensing Survey Summary* or to purchase the current year or back issues of the *Full Report*(s), contact AUTM Headquarters at 847/559-0846 or click on "Publications and Surveys" at www.autm.net. The data also is available on CD-ROM; purchase of the *Full Report* is a prerequisite for purchasing the CD.

Notes:

i Fiscal year 2004 refers to the institutions' reporting period for fiscal 2004. Most U.S. institutions report on a July 1, 2003, to June 30, 2004, basis; some report for the period Oct. 1, 2003, to Sept. 30, 2004; and a few report on a calendar year basis, Jan. 1, 2004, to Dec. 31, 2004.

ii Institutions surveyed represent the employers of AUTM members and include universities and colleges, teaching hospitals, not-for-profit research institutes and third-party technology investment firms that manage intellectual property for these institutions.

iii The top 100 institutions in the NSF report correspond to 96 AUTM survey recipients and the top 50 institutions in the NSF report correspond to 46 AUTM survey recipients because all University of California campuses are combined in the AUTM survey population, while the NSF report counts five separate UC campuses. Follow-up efforts were heavily concentrated toward the top 50 universities for fiscal years 1991 and 1992. Beginning with fiscal year 1993, these efforts were expanded to include the top 100 universities.

iv Total U.S. Patent Applications Filed includes any filing during the year, including provisional applications, provisional applications that are converted to regular applications, new filings, continuations-in-part, continuations, divisionals, reissues and plant patents. Applications for certificates of plant variety protection also may be included. New U.S. Patent Applications Filed is a subset of Total U.S. Patent Applications Filed and may include new filings and provisional applications. New U.S. Patent Applications Filed typically does not include CIPs, and does not include the other type filings counted in Total U.S. Patent Applications Filed.

v One possible explanation for the spike in Total U.S. Patent Applications Filed shown in fiscal year 1995 is because filings of continuation, continuation-in-part, and divisional applications had to be made by June 8, 1995, to receive the patent term of 17 years from issuance. In addition, an increase in the filing of provisional applications, reflecting a new filing format resulting from GATT, affected the data in fiscal year 1995 and will continue to show a presence in these data through a higher number of total and new U.S. patent applications filed. The increased filing of continuation, continuation-in-part, divisional and provisional applications resulted in a disproportionate number of total U.S. patent applications filed to new U.S. patent applications filed in fiscal year 1995, and an overall increase in patent application activity in fiscal year 1995. The apparent decline in the number of continuation, continuation-in-part, and divisional applications filed in fiscal year 1996 resulted in a decrease in total U.S. patent applications filed in fiscal years 1995 and 1996. There is not, however, a related decrease in new U.S. patent applications filed because these types of applications are not included in the numbers reported for new applications filed. To the contrary, new U.S. patent applications filed shows a steady increase through all years. In addition to the overall increase in patent filing activity, the increase in total U.S. patent applications filed in fiscal year 1997 may be attributable to the continued practice of filing new provisional applications, some of which were provisionals which were not "fully drafted." In addition, the increase experienced in fiscal year 1997 also may be due to the conversion of provisional patent applications that reached their 12-month statutory term in that year and were converted to regular patent applications. These same factors also contribute to the data reported in subsequent years.

vi U.S. Patents Issued was added to the AUTM Licensing Survey after the survey's implementation. This data has been accrued since fiscal year 1993.

vii Legal Fees Expended and Reimbursed include the amount spent by the institutions in external legal fees for patents and copyrights and the amount reimbursed by licensees for these fees, respectively. Direct payment of patenting costs by licensees is not included in the legal fees expended and legal fees reimbursed data. In fiscal year 1999, the definition for Legal Fees Expenditures was modified to explicitly omit major litigation expenses so that the survey can more easily benchmark costs related to processing and obtaining patents and copyrights.

viii Table 8 in the *Full Report* lists the Total License Income Received and net license income received on an institution-by-institution basis for each sample population. This table also identifies the amount of License Income Paid to Other Institutions, which is used to derive net license income received. License income paid to other institutions is the amount paid under inter-institutional agreements. Subtracting license income paid to other institutions from gross license income received removes a possible double count in the license income data that may occur from the reporting of this income by more than one institution participating in the survey. Note that third-party technology investment firms return a significant percentage of license income received back to the institution from which the licensed invention originated. The return of these funds is reflected in the survey as part of license income paid to other institutions and as such is deducted from total license income received when computing net license income received.

ix License Income Received includes: license issue fees, payments under options, annual minimums, running royalties, termination payments, the amount of equity received when cashed-in, and software and biological material end-user license fees equal to $1,000 or more, but not research funding,

patent expense reimbursement, a valuation of equity not cashed-in, software and biological material end-user license fees less than $1,000, or trademark licensing royalties from university insignia. License income also does not include income received in support of the cost to make and transfer materials under material transfer agreements. If a settlement or award is made to an institution that the institution considers to be license income as defined herein, then such amount may be reported in the AUTM Licensing Survey.

x See Attachment C in the *Survey Summary* for definitions. See the *Full Report* to review the AUTM Licensing Survey instrument.

xi The definitions for Total Sponsored Research Expenditures, Research Expenditures: Federal Government Sources, and Research Expenditures: Industrial Sources were modified beginning with fiscal year 1993 to request annual expenditure amounts as opposed to annual sponsored funding levels. In addition, industrial support provided for clinical trial studies could not be excluded from industrial support expenditures due to the institutions' tracking systems. Therefore, in fiscal year 1993 and thereafter, this exclusion was dropped from the survey. To help managers identify if clinical trial studies might be included in the reported figure for research expenditures from industrial sources, a new question was added to the survey in fiscal year 1993 to determine if the participating institution includes a medical school.

xii The survey question designed to obtain data on staffing levels in the technology transfer office was changed in fiscal year 1996 and revised again in fiscal year 1997. Specifically, in fiscal years 1991 through 1995, FTEs were requested by professional staff for Technology Transfer Activities with a portion of that FTE attributed to Licensing Activities as well as by support staff for technology transfer activities with a portion attributed to licensing activities. In fiscal year 1996, FTEs were requested by professional and support staff with no portion of the FTE required to be apportioned to licensing activities. In fiscal year 1997, FTEs were requested by FTEs for licensing activities and all additional FTEs were to be included in Other FTEs. Definitions relevant to the particular terms used for FTEs accompanied the survey each year. Because of the change in question and definition across these years, the only data element comparable across years for FTEs is the total number of FTEs reported for both professional and support staff. However, the Licensing FTEs provided in fiscal year 1997 and thereafter is believed to be the most accurate reflection of staff involved in licensing activities for use in analysis. It was the desire to get at a reliable data point for Licensing FTEs that drove the need for continued modification to this question over the years.

xiii The total numbers of Licensing FTEs and Other FTEs for technology transfer do not include efforts of paid consultants.

xiv License Income Paid to Other Institutions and the number of U.S. Patents Issued are examples of questions that were added to the AUTM Licensing Survey after the survey's implementation. These data have been accrued since fiscal year 1993. Research funding related to a license was requested for the first time in fiscal year 1994, and annually thereafter. Questions to provide detail of the survey data were added in fiscal year 1996. Also in fiscal year 1996, Program Year was asked for the first time. Program year refers to the year in which the respondent reported that the institution had devoted 0.5 Professional FTE to technology transfer activities. Questions in regard to licensed technologies made available in the surveyed fiscal year were added in later years. The number of operational startups is asked periodically over time. Fiscal year 1999 was the first year that the number of licenses generating Running Royalties was requested. Fiscal year 2002 was the first year that the number of licenses generating more than a $1 million in license income in the Survey year was requested.

xv Respondents to the AUTM Licensing Survey who are responsible for the management of a federal laboratory and manage the licensing activity of that lab, report research and licensing data for the lab in this survey at the election of the manager of the technology transfer office.

xvi A few tables in the *Full Report* contain detailed information about major data elements. Respondents were asked to provide a response to these questions, if possible. The data in these tables reflect the major data element in the left column, with the detailed data listed to the right. If an institution was not able to provide this information, the detailed column is noted with "N.A." for that institution. On the last page of each of these tables, where the report totals are shown, the detailed information may not add up to the total amount of the major data element because of N.A. responses.

AUTM Licensing Survey™: FY 2004

Survey Summary

Attachments A–F

Attachment A

Table of Contents (*Full Report*)*

Attachment B

List of Tables (*Full Report*)*

Attachment C

FY 2004 AUTM Licensing Survey Methodology

Below are the Licensing Survey instructions and definitions and the questionaire that respondents were asked to follow.

INSTRUCTIONS AND DEFINITIONS

AUTM® Licensing Survey
(FY 2004)

ONLINE SURVEY

There are four new questions in the FY 2004 Survey, seeking additional information on disclosures, patent filings and startup company funding, which are discussed below in more detail, in Questions 13 and 14.

The Survey will be open for data collection for a specific period of time, announced on the Survey Web site at http://survey.autm.net. Respondents may respond to the Survey, updating or changing their information, as many times as needed during the response period. However, after the closing date of the Survey, changes may only be made under special arrangements with the Survey coordinator (rcolman @cox.net).

Special functions have been included to improve the accuracy and reliability of Survey responses, including the following measures:

- If your institution responded in FY 2003, then those responses will be shown for reference purposes. If you did not respond in 2003 or left a question blank, then it may be shown as a zero (0) instead of blank.
- Canadian respondents will see all monetary values in Canadian dollars (CAD) and should respond in same.
- You may not leave a question with a blank answer; input an N when you do not wish to answer a question.
- Survey responses are automatically checked (or validated) on submission of the form. If there is a problem, then the response will be changed to N and you will be asked to update the Survey form again. Additional instructions will be provided.

GENERAL INSTRUCTIONS:

Please answer each question carefully. Select the SUBMIT button at the bottom of the Survey form after all questions have been answered.

Note: If you leave the Survey unattended for more than 20 minutes, then all data will be discarded, and you will see a "timeout error" message stating: *"An error occurred while evaluating the expression: #session.id# …"* If you see this message, start over again by logging in at http://survey.autm.net.

When you SUBMIT the form, there will be an immediate check for unanswered questions or incorrect responses. For example, if you put a comma into a number, you will see a warning like: *"Q8A. A numeric answer is required, no commas, or enter N if you do not wish to provide data."* All these types of errors must be resolved before your responses will be inserted into the database.

After checking that you entered a valid number, additional checks are made on: (i) the size of the number, and (ii) whether the component parts to a question add up to the total or aggregate answer.

If the number is too large or too small compared with last year, an "Out of Range" error will be displayed in the respondent results summary. The system assumes that a mistake has been made. Your answer will be replaced with an 'N' in the database. The respondent can verify an "out of range" numerical answer by entering it twice. When the system detects a second, identical response for the question, regardless of whether it is "out or range" or not, then it is assumed to be correct and is saved in the database.

Similarly, if the component parts of a question do not sum correctly to the total, then the PARTS will be set to N. For example, total licenses must be equal to non-exclusive licenses plus exclusive licenses. If the parts do not add correctly to the total, then the total will be retained but the parts will be set to N.

Every question has been worded to attempt to reduce ambiguities. If you are not able to provide an exact response to a question, we would like you to provide your *best estimate* to the question, as opposed to providing no answer at all. Recognizing that misinterpretations may still occur, you are encouraged to contact AUTM Headquarters at info@autm.net or rcolman@cox.net if clarification is required. The Survey requests data for a complete year regardless of your

reporting year. Fiscal year 2004 may be any 12-month period ending in calendar year 2004, e.g., 7/03-6/04, 4/03-3/04, 5/03-4/04, 10/03-9/04 or 1/04-12/04.

SUPPLEMENTAL INSTRUCTIONS FOR CANADIAN PARTICIPANTS:

Currency amounts should be submitted in Canadian dollars (CAD). Conversion to U.S. dollars will be computed automatically during Survey processing, using an exchange rate provided by the Bank of Canada. Research Expenditures: Federal Govt. Sources refers to research expenditures that were supported by Canadian (and U.S., if any) federal government sources; this amount does *not* include expenditures funded by provincial government sources. Total Patent Applications Filed refers to applications filed in the U.S. The U.S. Patents Issued refers to U.S. patents. This year for the first time, the opportunity exists to identify New Patent Applications Filed which are not filed in the U.S.

DISCUSSION OF THE QUESTIONS:

A discussion of the questions follows to aid in an accurate interpretation of the data requested.

Question 6 (Program start date) : If you have not already done so in an earlier Survey response, enter the year in which your institution assigned at least 0.5 PROFESSIONAL FTE in support of TECHNOLOGY TRANSFER ACTIVITIES. This year will be used as the start of TECHNOLOGY TRANSFER ACTIVITY at your institution. The individual assigned to TECHNOLOGY TRANSFER ACTIVITIES may or may not have had a formal tech transfer job title and may or may not have been in an organizational unit with “technology transfer” in its title, i.e., technology transfer/licensing office.

Question 7 (Licensing and other FTEs): See definitions for LICENSING FTE and OTHER FTE when responding to this question. Please report the FTEs in your Technology Transfer Office by full or fractional FTEs for licensing (as defined in LICENSING FTE) and other (as defined in OTHER FTE).

Question 8 (Research Expenditures): This question asks for research expenditures in fiscal year 2004. Refer to the relevant definitions when responding to this question. Note that we request Expenditures, not Awards in Question 8, but Awards in Question 10 (Funding Linked to Licenses). Also note that we do not request state government and foundation funding, so Question 8A should be bigger than the sum of Questions 8B and 8C.

Question 9: This question has several parts, which must sum correctly or the Web site will not accept them.

9A asks for total number of licenses and options.

Question 9A1 (exclusive licenses) plus question 9A2 (non-exclusive licenses). must sum to (9A). If they do not, then only the aggregate total (9A) will be reported. Responses will be automatically validated when the Survey is submitted to ensure that answers sum correctly.

Question 9B is a new question and asks how many individual INVENTION DISCLOSURES are included in the total LICENSES/OPTIONS EXECUTED reported in (9A). You would enter 3 for a single license that included 3 different INVENTION DISCLOSURES, but if several different non-exclusive licenses (or exclusive licenses to different fields of use of the same INVENTION DISCLOSURE) were executed, only the first would be counted. The answer to (9B) may therefore be higher, lower or the same as (9A).

In responding to Question 9, note that the counts of licenses to STARTUP COMPANIES and SMALL COMPANIES are mutually exclusive in the Survey, even though a STARTUP COMPANY will certainly have fewer than 500 employees and will therefore also be a SMALL COMPANY. Do not report licenses to STARTUP COMPANIES in SMALL COMPANIES as well.

Question 10: This question was revised in fiscal year 1999 to report research funding committed to the institution in the surveyed year that is related to LICENSE/OPTION AGREEMENTS signed either in the surveyed year or in an earlier year. To answer this question, review the LICENSE/OPTION AGREEMENTS reported as executed in Question 9A1 of the Survey and report the amount of RESEARCH FUNDING (even if multi-year) committed to the institution that was related to these LICENSES/OPTIONS. In addition, review research agreements that were renewed in fiscal year 2004. If the research agreement renewed was related to a LICENSE/OPTION AGREEMENT signed in a prior year and if the funds committed in fiscal year 2004 were not previously reported in the Survey, include the amount of funding committed through the renewal of the research agreement in this response.

Question 11: Question 11B requests additional detailed data.

- In 11B, the sum of LICENSE INCOME RECEIVED apportioned to RUNNING ROYALTIES in 11B1, CASHED-IN EQUITY in 11B2, and all other types in 11B3 must equal LICENSE INCOME RECEIVED for fiscal year 2004.
- In 11A1, enter the number of licenses/options that yielded the amount of RUNNING ROYALTIES reported.
- In 11A2, enter how many LICENSES/OPTIONS YIELDING INCOME in fiscal year 2004 generated more than $1 million in that year.
- In 11C, report income paid to other institutions that you anticipate will be reporting to the survey. This change has been made since the objective of the question is to eliminate double counting of royalty income. For instance do not include income paid to institutions outside North America.

Question 12: Please provide the amount of costs/reimbursements for external legal fees and reimbursements (see definitions below for LEGAL FEES EXPENDITURES and LEGAL FEES REIMBURSEMENTS). To answer this question, you should consider and omit your significant litigation expenses. Legal fees are defined to include patent and copyright prosecution, maintenance, and interference costs, as well as minor litigation expenses that are included in everyday office expenditures (an example of a minor litigation expense might be the cost of an initial letter to a potential infringer written by counsel), and to exclude significant litigation expense, e.g., any individual litigation expense that exceeds 5% of total LEGAL FEES EXPENDITURES. In earlier years, legal fees were defined to include all components—prosecution, maintenance, interference, and litigation costs—with no threshold in reporting of litigation expense. The refinement to litigation expense occurred in fiscal year 1999 and is intended to eliminate skews in the data as a result of significant litigation. It is also expected to yield more meaningful results in copyright and patent maintenance and prosecution costs as well as more useful comparisons of these data across institutions.

Question13: Question 13 asks for the annual data for INVENTION DISCLOSURES, U.S. PATENTS ISSUED, TOTAL U.S. PATENT APPLICATIONS FILED and NEW PATENT APPLICATIONS FILED. See related definitions for TOTAL U.S. PATENT APPLICATIONS FILED and NEW PATENT APPLICATIONS FILED to respond to this portion of the question. Questions 13A1, 13A2, 13A3 and 13A4 are new and seek information about the types of intellectual property being disclosed. The definitions of the various different types of INTELLECTUAL PROPERTY are all found under the INTELLECTUAL PROPERTY heading in the Definitions Section.

Questions 13C1, 13C2 and 13C3 are new and seek information on the type of patent application that is used for NEW PATENT APPLICATIONS FILED. Question 13C3 asks for NON-U.S.PATENT APPLICATIONS FILED. You should respond under Question 13C ONLY if the INITIAL filing of a patent application is with a patent office other than the USPTO. It does NOT ask for information about all foreign patent applications filed by institutions. It is anticipated that Canadian respondents will be the primary respondents to this question, although some U.S. institutions may file initial applications outside the U.S. in the course of collaborations with non-U.S. companies or academic institutions.

Question 14: This question asks for information for STARTUP COMPANIES in fiscal year 2004. The first portion of this question, 14A, is the same question asked in previous Surveys and is self-explanatory. Question 14B is a new question and asks for the funding source(s) of the STARTUP COMPANIES formed in fiscal year 2004. The Definitions of the 9 different funding sources are all found under FUNDING SOURCE in the Definitions Section. You should only respond to Question 14B if your response to Question 14A was greater than 0. If it was, please enter in the boxes the number of STARTUP COMPANIES that received funding from that FUNDING SOURCE in fiscal year 2004. The total of all the boxes may not be less than the answer to Question 14A but may be greater than the answer to Question 14A if one or more STARTUP COMPANIES received funding from more than one FUNDING SOURCE in fiscal year 2004. Question 14C asks for the number of STARTUP COMPANIES initiated in fiscal year 2004 that have their primary place of business operating in your home state. Question 14D asks how many STARTUP COMPANIES became NON-OPERATIONAL in fiscal year 2004. Question 14E asks how many STARTUP COMPANIES, including those reported in fiscal year 2004 were OPERATIONAL as of the last day of the surveyed fiscal year. When responding to 14D and 14E, it

may be useful to ask yourself if the LICENSE/OPTION with the STARTUP is still in force. (See also definition, OPERATIONAL.) Finally, question 14F asks in how many of your STARTUP companies formed in fiscal year 2004 do you hold EQUITY.

Question 15: asks for LICENSED TECHNOLOGIES made AVAILABLE in fiscal year 2004 and will be used to identify public benefits derived in the Survey year. To answer this question, review your LICENSES/OPTIONS that are ACTIVE through fiscal year 2004 and determine the LICENSED TECHNOLOGIES that became AVAILABLE in fiscal year 2004. (See related definitions for LICENSED TECHNOLOGIES and AVAILABLE). You will likely have started to receive RUNNING ROYALTIES for many of the LICENSED TECHNOLOGIES made AVAILABLE in fiscal year 2004.

Product Vignettes: This question asks for product commercialization-related success stories that you are proposing for highlighting in the *Survey Summary* and on the AUTM Web site. In preparing your response, it might be useful to review the product stories published in the fiscal year 2003 *Licensing Survey Summary.* Instructions are shared for the writing of a "Complete Vignette" and a "Vignette Format" is provided to assist in identifying the relevant information.

DEFINITIONS: (listed in alphabetical order)

0.5 PROFESSIONAL FTE: 0.5 PROFESSIONAL FTE means a professional position whose duties included support of TECHNOLOGY TRANSFER ACTIVITIES at least 50% of the time. This person may or may not have been located in a formally established TECHNOLOGY TRANSFER OFFICE at that time. (See Question 6.)

ACTIVE LICENSES/OPTIONS: The cumulative number of LICENSES/OPTIONS over all years that had not terminated by the end of the Survey's fiscal year requested. (See Question 9C)

AVAILABLE: LICENSED TECHNOLOGIES that are sold as a product to the public or are placed into commercial use by a company, for example, as part of a manufacturing process. (See Question 12.) A LICENSED TECHNOLOGY is considered AVAILABLE in fiscal year 2004 if the technology was placed into use during that year, i.e., evidenced by royalties generated for the first time or licensee diligence reporting. (See Question 15)

BIOLOGICAL MATERIALS: BIOLOGICAL MATERIALS: refers to an INVENTION DISCLOSURE that discloses potentially licensable materials such as antibodies, cell lines, cDNA, vectors, plant varities, etc. that the technology transfer office is not considering patenting.

CASHED-IN EQUITY: This includes the amount received from cashing in equity holdings, resulting in a cash transfer to the institution. *The amount reported should be reduced by the cost basis, if any, at which the equity was acquired.* Excluded from this amount is any type of analysis or process whereby a value for the equity holdings is determined but a cash transaction does not take place through the sale of these holdings. An internal sale (e.g., to the endowment) will constitute cashing-in if the transaction results in cash being made available for internal distribution. (See Question 11B2.)

EQUITY: EQUITY, for the purposes of this Survey, is defined as an institution acquiring an ownership interest in a company (e.g., stock or the right to receive stock. See Questions 9B, 11B2, and 14E).

EXCLUSIVE LICENSE: The reporting of a license as exclusive or non-exclusive should follow the terms of the license agreement. If a license is designated as exclusive in the license agreement, it should be reported as an exclusive licenses to this Survey. Exclusive licenses include licenses that are designated as exclusive by field of use, territory, or otherwise but excludes co-exclusive licenses, which are reported as NON-EXCLUSIVE LICENSES. (See Questions 9A1, 9D1, 9E1 and 9F1)

FTE (Full-Time Equivalent): See LICENSING FTEs and OTHER FTEs.

FUNDING SOURCES

NO EXTERNAL FUNDING means that the STARTUP COMPANY has not received cash from grants, loans or sale of equity. The company may still be actively progressing its business plan through sale of products or in-kind provision of goods and services from individuals, partnerships, incubators, venture development companies, etc.

YOUR INSTITUTION means that the licensing institution (including its research foundation) has supplied initial funding directly to the STARTUP COMPANY (not research funding to the faculty member's laboratory) either as a grant, a loan or by purchase of equity.

SBIR/STTR means the company received funds from one of more SBIR or STTR grants from a federal agency SBIR grants have to be awarded to a company. An STTR grant may have been awarded directly to the STARTUP COMPANY or the STARTUP COMPANY may have received a subcontract from your institution under an STTR grant awarded to your institution.

FRIENDS AND FAMILY means the STARTUP COMPANY received debt or equity funding from family members or from personal or professional friends known to the founders prior to the establishment of the STARTUP COMPANY.

INDIVIDUAL ANGEL(S) means the STARTUP COMPANY received debt or equity funding from one (or more) high net worth individuals who were not known to the founders prior to the establishment of the STARTUP COMPANY.

ANGEL NETWORK means the STARTUP COMPANY received debt or equity funding from one or more high net worth individuals who were not known to the founders prior to the establishment of the STARTUP COMPANY who the STARTUP COMPANY met through an organized regional association of high net worth individuals.

STATE FUNDING means the STARTUP COMPANY received funds from either a grant, a loan or purchase of equity by an economic development agency of state government (e.g., Ohio's Thomas Edison Program, Pennsylvania's Ben Franklin Technology Partners, etc.)

VENTURE CAPITAL means the STARTUP COMPANY received funds from a loan or purchase of equity by a corporation or partnership organized for the specific purpose of making long term, high risk in early stage ventures in the expectation of substantial long term capital gains.

CORPORATE PARTNER means the STARTUP COMPANY received funds such as research funding, licensing fees and equity investments from an operating company which received product rights as part of the transaction. Transactions in which the STARTUP COMPANY received only an equity investment from a wholly owned venture capital subsidiary of an operating company and the company did not receive product rights should be reported as a venture capital transaction.

OTHER includes any other source of funding not specifically identified above, such as charitable Foundations, local (city or county) government, non-SBIR/STTR federal grants, etc.

INVENTION DISCLOSURES: INVENTION DISCLOSURES include the number of disclosures, no matter how comprehensive or how incomplete, that are made in the year requested and are counted by the institution. (See Question 13A.)

LARGE COMPANIES: Companies that had more than 500 employees at the time the license/option was signed. (See Question 9F1 and 9F2)

LEGAL FEES EXPENDITURES: LEGAL FEES EXPENDITURES include the amount spent by an institution in external legal fees for patents and/or copyrights. These costs include patent and copyright prosecution, maintenance, and interference costs, as well as minor litigation expenses that are included in everyday office expenditures (an example of a minor litigation expense might be the cost of an initial letter to a potential infringer written by counsel). Excluded from these fees is significant litigation expense, e.g., any individual litigation expense that exceeds 5% of total LEGAL FEES EXPENDITURES. They also do not include direct payment of any of these costs by licensees. (See Question 12.)

LEGAL FEES REIMBURSEMENTS: LEGAL FEES REIMBURSEMENTS include the amount reimbursed by licensees to the institution for LEGAL FEES EXPENDITURES. See definition for LEGAL FEES EXPENDITURES and Question 12 LEGAL FEES REIMBURSEMENTS paid via lump sum payments of costs incurred in prior years when a new license is signed AND regular reimbursements of new costs incurred after the license is signed. Do not include amounts deducted from LICENSE INCOME prior to internal distribution because LEGAL FEES EXPENDITURES have not been previously been reimbursed (e.g., technologies licensed non-exclusively).

LICENSE INCOME PAID TO OTHER INSTITUTIONS: LICENSE INCOME PAID TO OTHER INSTITUTIONS is the amount paid to other institutions under inter-institutional agreements. (See Question 11C). The Survey subtracts it from the TOTAL LICENSE INCOME of your institution to avoid double-counting LICENSE INCOME when the receiving institution reports it to the Survey.

LICENSE INCOME RECEIVED: LICENSE INCOME RECEIVED includes: license issue fees, payments under options, annual minimums, running royalties, termination payments, the amount of equity received when cashed-in, and software and biological material end-user license fees equal to $1,000 or more, but not research funding, patent expense reimbursement, a valuation of equity not cashed-in, software and biological material end-user license fees less than $1,000, or trademark licensing royalties from university insignia. License Income also does not include income received in support of the cost to make and transfer materials under Material Transfer Agreements. (See Questions 11B.)

LICENSED TECHNOLOGIES: Refers to licensed technologies that became a product that was sold either to the public or to industry. It also refers to a licensed technology that is a process that was put into commercial use as opposed to developmental use by a company. A licensed technology may be considered AVAILABLE if it is bundled with other technologies when made available to the end-user. (See Question 15)

LICENSES/OPTIONS: Count the number of LICENSE or OPTION AGREEMENTS that were executed in the year indicated for all technologies. Each agreement, exclusive or non-exclusive, should be counted sep-

arately. Licenses to software or biological material end-users of $1,000 or more may be counted per license, or as 1 license, or 1/each for each major software or biological material product (at manager's discretion) if the total number of end-user licenses would unreasonably skew the institution's data. Licenses for technology protected under U.S. plant patents (US PP) or plant variety protection certificates (U.S. PVPC) may be counted in a similar manner to software or biological material products as described above, at manager's discretion. Material Transfer Agreements are not to be counted as Licenses/ Options in this Survey. (See Questions 9 and 11)

LICENSE/OPTION AGREEMENTS: A LICENSE AGREEMENT formalizes the transfer of technology between two parties, where the owner of the technology (licensor) permits the other party (licensee) to share the rights to use the technology. An OPTION AGREEMENT grants the potential licensee a time period during which it may evaluate the technology and negotiate the terms of a LICENSE AGREEMENT. An OPTION AGREEMENT is not constituted by an Option clause in a research agreement that grants rights to future inventions, until an actual invention has occurred that is subject to that Option. (See Questions 9 and 11)

LICENSES/OPTIONS EXECUTED WITH EQUITY: The number of LICENSES/OPTIONS that were executed in the year surveyed that included EQUITY, where EQUITY is defined as an institution acquiring an ownership interest in a company. (See Questions 9B and 11B2)

LICENSES/OPTIONS YIELDING LICENSE INCOME: The number of LICENSES/OPTIONS that generated LICENSE INCOME RECEIVED in the year requested. (See Question 11A)

LICENSES/OPTIONS YIELDING RUNNING ROYALTIES: The number of LICENSES/OPTIONS that generated RUNNING ROYALTIES in the year requested. (See Question 11B1)

LICENSING FTE: Person(s) employed in the TECHNOLOGY TRANSFER OFFICE whose duties are specifically involved with the licensing and patenting processes as either full or fractional FTE allocations. Licensing examples include licensee solicitation, technology valuation, marketing of technology, license agreement drafting and negotiation, and startup activity efforts. (See Question 7A)

NEW PATENT APPLICATIONS FILED: NEW PATENT APPLICATIONS FILED are the first filing of the patentable subject matter. NEW PATENT APPLICATIONS FILED do not include continuations, divisionals, or reissues, and typically do not include CIPs. A U.S. PROVISIONAL APPLICATION filed in fiscal year 2004 will be counted as new unless it is a refilling of an expiring U.S. PROVISIONAL APPLICATION. If a U.S. PROVISIONAL APPLICATION is converted in fiscal year 2004 to a U.S. UTILITY APPLICATION, then that corresponding U.S. UTILITY APPLICATION filed in fiscal year 2004 should not be counted as new. (See Question 13B)

NONEXCLUSIVE LICENSE: The reporting of a license as exclusive or nonexclusive should adhere to the terms of the license agreement. If a license is designated as nonexclusive or co-exclusive in the license agreement, it should be reported under nonexclusive licenses to this Survey. (See Questions 9A2, 9D2, 9E2 and 9F2)

NON-OPERATIONAL: A company that no longer possesses sufficient financial resources and expends these resources to make progress toward stated business goals. The license to a company that is NON-OPERATIONAL will most likely have been terminated. A company may have terminated its license and still be OPERATIONAL because it has changed its business focus; however, it may be difficult to determine if such a company is still OPERATIONAL. (See Questions 14C). A company that has been acquired and no longer operates independently should be counted as NON-OPERATIONAL if the license has been terminated.

NEW NON-U.S. PATENT APPLICATIONS: NEW NON-U.S. PATENT APPLICATIONS include any initial patent filing of an INVENTION DISCLOSURE made outside of the U.S. during FISCAL YEAR 2004, including PCT applications, utility applications filed in patent offices other than the USPTO and provisional applications filed outside of the U.S. such as UK or New Zealand provisional applications and incomplete applications in Canada.

OPERATIONAL: A company that possesses sufficient financial resources and expends these resources to make progress toward stated business goals. The company must also be diligent in its efforts to achieve these goals. (See Questions 14D) A company that has been acquired and no longer operates independently

should still be counted as OPERATIONAL if the license is still active and in compliance.

OTHER FTE: Person(s) employed in the TECHNOLOGY TRANSFER OFFICE as either full or fractional FTE allocations whose duties and responsibilities are to provide professional, administrative, or staff support of TECHNOLOGY TRANSFER ACTIVITIES that are not otherwise included in LICENSING FTE. Such duties might include management, compliance reporting, license maintenance, negotiation of research agreements, contract management, accounting, MTA activity, and general office activity. General secretarial/administrative assistance to the TECHNOLOGY TRANSFER OFFICE may also be included in this category. (See Question 7B)

OTHER TYPES OF INTELLECTUAL PROPERTY: OTHER TYPES OF INTELLECTUAL PROPERTY: refers to an INVENTION DISCLOSURE that discloses know-how, trade secrets, trademarks (but not including institutional insignia), business concepts, artistic materials, etc. that the technology transfer office is not considering patenting and which is not included in POTENTIALLY PATENTABLE MATTER, BIOLOGICAL MATERIALS or POTENTIALLY COPYRIGHTABLE MATTER

POTENTIALLY PATENTABLE MATTER: POTENTIALLY PATENTABLE MATTER refers to an INVENTION DISCLOSURE that the technology transfer office considers potentially new, useful and non-obvious; i.e., an INVENTION DISCLOSURE on which the office at least considers filing a NEW PATENT APPLICATION.

POTENTIALLY COPYRIGHTABLE MATTER: POTENTIALLY COPYRIGHTABLE MATTER refers to an INVENTION DISCLOSURE that the technology transfer office considers to be protectable by copyright and that the technology transfer office is not considering patenting. Examples might include multi-media products, software, Web sites, courseware, databases, educational materials, books, etc.

PROGRAM START DATE: PROGRAM START DATE refers to the year in which 0.5 PROFESSIONAL FTE was devoted toward TECHNOLOGY TRANSFER ACTIVITIES. (See Question 6)

RESEARCH EXPENDITURES: FEDERAL GOVT. SOURCES: RESEARCH EXPENDITURES: FEDERAL GOVT. SOURCES include expenditures made in fiscal year 2004 by the institution in support of its research activities that are funded by the federal government. Expenditures by state, provincial and local governments should be excluded (See Question 8A)

RESEARCH EXPENDITURES: INDUSTRIAL SOURCES: RESEARCH EXPENDITURES: INDUSTRIAL SOURCES include expenditures made in fiscal year 2004 by the institution in support of its research activities that are funded by for-profit corporations, but not expenditures supported by other sources such as foundations and other nonprofit organizations. (See Question 8C)

RESEARCH FUNDING: RESEARCH FUNDING includes the total amount of research support committed (i.e., awarded) to your institution in fiscal year 2004 (even if the funds are to be spent over several years) that was related to LICENSE/OPTION AGREEMENTS executed in the Survey period. RESEARCH FUNDING also includes the total amount of research support committed to your institution in the surveyed year (even if the funds are to be spent over several years) that was related to LICENSE/OPTION AGREEMENTS signed in a prior year for which the related RESEARCH FUNDING was not previously reported, e.g., RESEARCH FUNDING committed as a result of a renewal of a research agreement that is related to a LICENSE/OPTION AGREEMENT signed in a prior year. (See Question 10)

RUNNING ROYALTIES: For the purposes of this Survey, RUNNING ROYALTIES are defined as royalties earned on and tied to the sale of products. Excluded from this number are license issue fees, payments under options, termination payments, and the amount of annual minimums not supported by sales. Also excluded from this amount is CASHED-IN EQUITY, which should be reported separately. (See Question 11B1)

SMALL COMPANIES: Companies that had 500 or fewer employees at the time the license/option was signed, but, for the purposes of this Survey, not including STARTUP COMPANIES initiated by your institution. (See Questions (9E1 and 9E2)

STARTUP COMPANIES: As used in this Survey, STARTUP COMPANIES are new companies that were dependent on licensing your institution's technology for their formation. If a technology was licensed to an existing startup company, this company should be counted as a SMALL COMPANY when responding to Question 6.c, not a STARTUP COMPANY. STARTUP COMPANIES, as used in this Survey, refer only to

those companies that were dependent upon your institution's technology for their formation. (See Questions 9D1, 9D2 and 14A–14E)

TECHNOLOGY TRANSFER ACTIVITIES: TECHNOLOGY TRANSFER ACTIVITIES include those activities associated with the identification, documentation, evaluation, protection, marketing, and licensing of technology (including trademarks but not university's insignia) and intellectual property management, in general. It encompasses all other activities also associated with the day-to-day operations of a TECHNOLOGY TRANSFER OFFICE, including assisting with the negotiation of research agreements, MTAs, reporting of inventions to sponsors, and all other duties performed by the office. (See Question 6.)

TECHNOLOGY TRANSFER OFFICE: The office(s) that manages and performs the TECHNOLOGY TRANSFER ACTIVITIES. Also referred to as a technology licensing office. (See Question 7)

TOTAL RESEARCH EXPENDITURES: TOTAL RESEARCH EXPENDITURES include expenditures (not new awards) made by the institution in fiscal year 2004 in support of its research activities that are funded by all sources including the federal government, local government, industry, foundations, voluntary health organizations (i.e., AHA, ACS, etc.), and other nonprofit organizations. (See Question 5.) Indirect costs should be included. The answer to Question 8A will exceed the sum of 8B + 8C).

TOTAL U.S. PATENT APPLICATIONS FILED: TOTAL U.S. PATENT APPLICATIONS FILED includes any filing made in the U.S. during the Survey year, including provisional applications, provisional applications that are converted to regular applications, new filings, CIPs, continuations, divisionals, reissues, and plant patents. Applications for certificates of plant variety protection should also be included. TOTAL U.S. PATENT APPLICATIONS FILED should also include PCT applications where the PCT application is the first non-provisional filing where the U.S. is designated. If a U.S. utility application is filed by entering the national phase of a PCT Application in the U.S., that should also be included in TOTAL U.S. PATENT APPLICATIONS FILED. However, a PCT application that does not designate the U.S. (e.g., because it follows a previous U.S. utility application or is filed at the same time as a U.S. utility application) would not be included. (See Question 13B)

AUTM U.S. Licensing Survey

U.S. PATENTS ISSUED: U.S. PATENTS ISSUED includes the number of U.S. patents issued or reissued to your institution in the year requested. Certificates of plant variety protection issued by the U.S.D.A. should

- Before starting the survey, please review the Instructions and Definitions document.
- FY2003 participants will have last year's responses displayed in the "2003" column. A zero can really mean numerical zero, or it may mean "no data" if you were not a 2003 respondent or did not answer a particular question last year.
- There are new questions this year. No 2003 survey responses are shown for these new questions.
- Answer each question if possible. Please answer with N if data is unavailable or not disclosed. If you mean to answer a question with zero, do not leave it blank, type in a 0. When entering currency amounts, **round all answers to the nearest dollar** and do not include cents or dollar signs.
- Upon submitting the survey, your responses will be checked against 2002 numbers. If they are too big or too small, a mistake ("*out of range*") will be assumed and the response will automatically be set to N. Follow on-screen directions to verify your response.
- Upon submitting the survey, component values of some questions will be checked to see if they sum correctly. If not, the parts will automatically be set to N but the aggregate total will remain the same. If all three parts are set to N, a problem will be noted -- *ignore this problem if you intended to leave this question unanswered by entering N to all parts.*.
- You may take the survey **multiple times** to update information. Your last response will be shown in the edit box.

1 **Do you wish to keep your institution's name confidential?**	○ Yes ◉ No
2 **Institution** Wrong Name or Type	
3 **Does your institution include a medical school?**	
4 **Your name**	
5 **Office Address and Contact Information**	Address 1: Address 2: City: State/Province: ZIP/Postal Code: Country: Telephone: Fax:

E-mail:

6 Program Start Date

	2004	2003
In what year did your institution dedicate at least 0.5 PROFESSIONAL FTE toward TECHNOLOGY TRANSFER ACTIVITIES (progyear)?		

7 Licensing and other FTEs

	2004	2003
(7A) How many LICENSING FTEs were employed in your TECHNOLOGY TRANSFER OFFICE in fiscal year 2004? (licfte)		
(7B) How many OTHER FTEs were employed in your TECHNOLOGY TRANSFER OFFICE in fiscal year 2004? (othfte)		

8 Research Expenditures

Annual amount of research expenditures (include direct and indirect costs) for your institution.

	2004	2003
(8A) Total Research Expenditures (totexp)	$	$0
(8B) Research Expenditures from Federal Govt. Sources (fedexp)	$	$0
(8C) Research Expenditures: Industrial Sources (indexp)	$	$0

9 License/Option Agreements

(no. of licenses should exclude software and biological material end-user licenses under $1,000. See definition, LICENSES/OPTIONS.)

	2004	2003
(9A) How many LICENSES/OPTIONS (**TOTAL**) did your institution execute in 2004? (lcexec)		0

		2004	2003
(9A1)	How many of these LICENSES/OPTIONS executed in fiscal year 2004 reported above were **EXCLUSIVE**. (lcexcl)		0
(9A2)	How many of these LICENSES/OPTIONS executed in fiscal year 2004 reported above were **NON-EXCLUSIVE**. (lcnex)		0
	NOTE: (9A1) + (9A2) MUST = (9A) otherwise set 9A1 and 9A2 to N		
(9A3)	How many different INVENTION DISCLOSURES are included in the LICENSES/OPTIONS EXECUTED reported in (9A) (LCINVDIS)		

	2004	2003
(9B) How many LICENSES/OPTIONS executed in 2004 included **EQUITY**? (lcexeq)		0
(9C) How many LICENSES/OPTIONS were **ACTIVE** as of the last day in fiscal year 2004, *cumulative through 2004*? (actlic)		0
(9D) How many of the LICENSES/OPTIONS executed in fiscal year 2004 were licensed to **START-UP companies**. (lcexsu)		0

		2004	2003
(9D1)	Of these LICENSES/OPTIONS licensed to **START-UP companies**, how many were **EXCLUSIVE**. (suexcl)		0
(9D2)	Of these LICENSES/OPTIONS licensed to **START-UP companies**, how many were **NON-EXCLUSIVE**. (sunex)		0

NOTE: (9D1) + (9D2) must = (9D) otherwise set 9D1 and 9D2 to N

	2004	2003
(9E) How many of the LICENSES/OPTIONS executed in fiscal year 2004 were licensed to **SMALL companies**. (lcexsm)		0

		2004	2003
(9E1)	Of these LICENSES/OPTIONS licensed to **SMALL companies**, how many were **EXCLUSIVE**. (SMEXCL)		0
(9E2)	Of these LICENSES/OPTIONS licensed to **SMALL companies**, how many were **NON-EXCLUSIVE**. (SMNEX)		0

NOTE: (9E1) + (9E2) must = (9E) otherwise set 9E1 and 9E2 to N

	2004	2003
(9F) How many of the LICENSES/OPTIONS executed in fiscal year 2004 were licensed to **LARGE companies.** (LCEXLG)		0

		2004	2003
(9F1)	Of these LICENSES/OPTIONS licensed to **LARGE companies**, how many were **EXCLUSIVE**. (lgexcl)		0
(9F2)	Of these LICENSES/OPTIONS licensed to **LARGE companies**, how many were **NON-EXCLUSIVE**. (lgnex)		0

NOTE: (9F1) + (9F2) must = (9F) otherwise set 9F1 and 9F2 to N

10 Research Funding Related to Licenses/Options

	2004	2003
How much RESEARCH FUNDING was committed to your institution in fiscal year 2004 (includes multi-year commitments) that was related to LICENSE or OPTION AGREEMENTS executed in fiscal year 2004 or that was related to LICENSE or OPTION AGREEMENTS executed in a prior year for which the RESEARCH FUNDING committed was not previously reported, e.g., as a result of a research agreement renewal? (resfnd)	$	$0

11 License Income

(Exclude software and biological material end-user licenses under $1,000. See definition, LICENSES/OPTIONS.)

	2004	2003
(11A) What is the total number of LICENSES/OPTIONS yielding LICENSE INCOME in fiscal year 2004? (lcgnli)		0

	2004	2003
(11A1) How many licenses/options yield running royalties. (lcgnrr)		0

	2004	2003
(11A2) How many licenses/options yielded more than $1 million in LICENSE INCOME RECEIVED in fiscal year 2004? (lclm)		0

	2004	2003
(11B) What was the TOTAL amount of LICENSE INCOME RECEIVED at your institution? (lirecd)	$	$0

		2004	2003

(11B1)	How much of the LICENSE INCOME RECEIVED can be attributed to RUNNING ROYALTIES? (lirunr)	$	$0
(11B2)	How much of the LICENSE INCOME RECEIVED can be attributed to CASHED-IN EQUITY? (caineq)	$	$0
(11B3)	How much of the LICENSE INCOME RECEIVED can be attributed to LICENSE INCOME of all other types? (liothr)	$	$0

NOTE: (11B1) + (11B2) + (11B3) must = (11B) otherwise set 11B1, 11B2 and 11B3 to N

		2004	2003
(11C)	How much of the LICENSE INCOME was PAID TO OTHER INSTITUTIONS? (lipdin)	$	$

12 Legal Fees Expenditures And Reimbursements

		2004	2003
(12A)	Amount spent on external legal fees for patents and/or copyrights? (explgf)	$	$0
(12B)	Amount received in reimbursements for these fees from licensees? (reimlg)	$	$0

13 Patent-Related Activity

[Definitions amended in FY 2000 to address a PCT application where the PCT application is a first filing where the U.S. is designated.]

		2004	2003
(13A)	How many INVENTION DISCLOSURES were received? (invdis)		0

(13A1)	Of the INVENTION DISCLOSURES, how many were disclosures of POTENTIALLY PATENTABLE MATTER or of POTENTIALLY PATENTABLE MATTER plus other forms of intellectual or tangible property (INVDISPAT)	
(13A2)	Of the INVENTION DISCLOSURES, how many were disclosures of POTENTIALLY COPYRIGHTABLE MATTER that were not included in 13A1. (INVDISCP)	
(13A3)	Of the INVENTION DISCLOSURES, how many were disclosures OF BIOLOGICAL MATERIALS that were not included in 13A1 (INVDISBIO)	
(13A4)	Of the INVENTION DISCLOSURES, how many were disclosures of OTHER TYPES OF INTELLECTUAL PROPERTY (e.g., creative works) that were not included in 13A1, 13A2, or 13A3 (INVDISOTH)	

NOTE: (13A1) + (13A22) + (13A3) + (13A4) must = (13A) otherwise set 13A1, 13A2, 13A3 and 13A4 to N

(13B)	How many TOTAL U.S. PATENT APPLICATIONS were filed? (tptapp)		0
(13C)	Report the number of NEW PATENT APPLICATIONS FILED? (nptapp)		0

(13C1)	Of NEW PATENT APPLICATIONS FILED, how many were filed as US PROVISIONAL PATENT APPLICATIONS (NPTAPPPR)	
(13C2)	Of NEW PATENT APPLICATIONS FILED, how many were filed as US UTILITY PATENT APPLICATIONS (NPTAPPUT)	

	(13C3)	Of NEW PATENT APPLICATIONS FILED, how many were filed as NON-US PATENT APPLICATIONS (NPTAPPNUS)	

NOTE: (13C1) + (13C2) + (13C3) must = (13C) otherwise set 13C1, 13C2 and 13C3 to N

(13D)	How many U.S. PATENTS ISSUED? (usptis)		0

14 Start-Up Companies

		2004	2003
(14A)	How many START-UP COMPANIES were formed during fiscal year 2004 that were dependent upon the licensing of your institution's technology for initiation? (strtup)		0

If the answer to Question 14A was greater than 0, please enter in the boxes below the number of START-UP COMPANIES that received funding from that FUNDING SOURCE in FY2004. The total of all the boxes may not be less than the answer to Question 14A but may be greater than the answer to Question 14A if one or more START-UP COMPANIES received funding from more than one FUNDING SOURCE in FY2004.

(14A1)	No external funding	
(14A2)	Your institution	
(14A3)	SBIR/STTR	
(14A4)	Friends and Family	
(14A5)	Individual Angel(s)	
(14A6)	Angel Network	
(14A7)	State Funding	
(14A8)	Venture Capital	
(14A9)	Corporate Partner	
(14A10)	Other	

(14B)	How many of these START-UP COMPANIES have their primary place of business operating in your home state? (strths)		0
(14C)	How many START-UP COMPANIES that were dependent upon the licensing of your institution's technology for initiation and were reported in the Survey in this year or in earlier fiscal years became non-OPERATIONAL in fiscal year 2004? (strnop)		0
(14D)	How many START-UP COMPANIES that were dependent upon the licensing of your institution's technology for initiation and were reported in the Survey in this year or in earlier fiscal years were OPERATIONAL as of the last day in fiscal year 2004? (stopcm)		0
(14E)	Of the START-UP COMPANIES formed in fiscal year 2004 (reported in 14A above), in how many does your institution hold EQUITY? (stupeq)		0

		2004	2003
15 Licensed Technologies, Post-Licensing Activity	(15A) Did one or more of your institution's LICENSED TECHNOLOGIES become AVAILABLE for consumer (public) or commercial use in fiscal year 2004? (ltavmk)	○ Yes ○ No	N
	(15B) If YES above, how many? (ltav)		0

Product Vignette
Please give a short summary of the product success story you would like highlighted below and the person with whom the Statistics, Survey and Metrics Committee should contact to get additional information

Vignette Contact First Name:

Vignette Contact Last Name:

Vignette Contact E-mail Address:

AUTM Licensing Survey: SUMMARY OF FISCAL YEAR 2004 TOTALS

Attachment D

ALL RESPONDENTS:

	U.S. Universities	U.S. Hospitals & Research Institutes	Canadian Institutions (U.S. $)	Technology Investment Firms	Total
Licensing FTEs in Technology Transfer Office	691.69	130.25	149.72	11.00	982.66
Other FTEs in Technology Transfer Office	727.14	67.85	132.15	22.00	949.14
Research Expenditures: Industrial Sources	$2,554,419,927	$383,895,937	$351,905,455	$0	$3,290,221,319
Research Expenditures: Federal Govt. Sources	$25,159,914,841	$2,561,123,475	$1,502,728,765	$0	$29,223,767,081
Total Sponsored Research Expenditures	$37,162,153,394	$4,082,415,081	$3,126,792,045	$0	$44,371,360,520
Licenses/Options Executed	4,087	671	544	25	5,327
Startup Companies Formed	425	37	45	0	507
Gross License Income Received	$1,088,469,003	$345,798,231	$43,345,840	$39,689,642	$1,517,302,716
License Income Paid to Other Institutions	$54,413,897	$11,641,539	$1,661,559	$23,267,842	$90,984,837
Legal Fees Expended	$189,190,568	$31,017,440	$9,256,448	$1,248,294	$230,712,750
Legal Fees Reimbursed	$79,977,790	$11,312,409	$3,960,365	$161,712	$95,412,276
Licenses/Options Yielding License Income	9,543	1,638	997	233	12,411
Invention Disclosures Received	15,002	1,790	1,307	79	18,178
Total U.S. Patent Applications Filed	12,347	1,445	745	11	14,548
New U.S. Patent Applications Filed	9,462	1,036	572	19	11,089
U.S. Patents Issued	3,268	399	150	13	3,830

Licensing Survey Order Form

The *AUTM Licensing Survey* is a survey of U.S. and Canadian universities, hospitals, research institutions, and patent management firms. The *Survey* provides objective information related to the field of academic technology transfer. The *Survey* results are reported in a summary report and comprehensive report. The comprehensive report, referred to as the *Full Report*, contains the *Survey Summary* and includes tables that present data obtained from individual respondents on an institution-by-institution basis. The data are also available on disk by published fiscal year(s), respectively.

Participating Institutions: If your institution participated in the *AUTM Licensing Survey*, one copy of the *Survey Summary* has been provided to your *AUTM Licensing Survey* representative. To obtain additional copies, please submit this order form with payment information as requested below.

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Full Report

Survey Year:
❑ 1991–95 ❑ 1996 ❑ 1997 ❑ 1998 ❑ 1999 ❑ 2000

Cost per Survey Year:
❑ $45 Survey Participant
❑ $90 AUTM Members
❑ $180 Nonmembers

❑ 2001 ❑ 2002
❑ 2003 ❑ 2004

_____ x _____ = $_____
Total number of full reports x Cost per survey year = Subtotal

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To purchase the CD(s), you must:

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Survey Year:
❑ 1991–95 ❑ 1996 ❑ 1997 ❑ 1998 ❑ 1999 ❑ 2000

Cost per Survey Year:
❑ $40 Survey Participant
❑ $80 AUTM Members
❑ $160 Nonmembers

❑ 2001 ❑ 2002
❑ 2003 ❑ 2004

_____ x _____ = $_____
Total number of data diskettes x Cost per survey year = Subtotal

Summary Report

Survey Year:
❑ 1991–95 ❑ 1996 ❑ 1997 ❑ 1998 ❑ 1999 ❑ 2000

Cost per Survey Year:
❑ $15 Survey Participant
❑ $30 AUTM Members
❑ $60 Nonmembers

❑ 2001 ❑ 2002
❑ 2003 ❑ 2004

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Total number of summaries x Cost per survey year = Subtotal

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Association of University Technology Managers®, report titled, AUTM *U.S. Licensing Survey*, *FY 2004: A Survey Summary of Technology Licensing (and Related) Performance for U.S. Academic and Nonprofit Institutions, and Technology Investment firms,* editors Ashley J. Stevens, Frances Toneguzzo and Dana Bostrom. The report may also be referenced by its abbreviated title, *AUTM U.S. Licensing Survey, FY 2004 Survey Summary,* editors Ashley J. Stevens, Frances Toneguzzo and Dana Bostrom.

Publication Availability

For information about the price and availability of the fiscal year 2004 *Survey Summary* report or *Full Report,* contact AUTM Headquarters, 60 Revere Drive, Suite 500, Northbrook, IL 60062, Phone: 847/559-0846, Fax: 847/480-9282, info@autm.net or see the AUTM Web site, www.autm.net.


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