

Annual Report
University of California
Technology Transfer Program

Fiscal Year 1998

Office of the President
Senior Vice President -- Business and Finance
Office of Technology Transfer
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Oakland, CA 94607-5200

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INTRODUCTION

This Annual Report is divided into two parts. Part 1 begins with an overview of technology transfer as it is carried out throughout the University of California (UC) system. It discusses the evolution and organization of the systemwide technology transfer program and highlights recent developments of significance. It then provides technology transfer activity and financial data for the overall system and offers selected data pertaining to each of the nine UC campuses. The measures provided reflect the activity of the Office of Technology Transfer (OTT) in the Office of the President, and five campus-based licensing offices at Berkeley, Irvine, Los Angeles, San Diego and San Francisco that managed portions of the University's portfolio of patentable inventions for the fiscal year ending June 30, 1998.

Part 2 of this Annual Report provides activity and financial information from the technology transfer offices of the three DOE Laboratories managed by the University. Information on DOE Laboratories is reported separately because certain aspects of technology transfer activities at the Laboratories differ as compared with the rest of the University. Among these differences is the reporting period which covers a fiscal year ending September 30, 1998.

Part 1

Technology Transfer at UC

PROGRAM OVERVIEW

Program Scope

Since 1943, UC has had a patent policy in place that serves as the foundation for all technology transfer activities. The current Patent Policy encourages the practical application of UC research for the broad public benefit and outlines the responsibilities of the faculty, staff, and others in using the patent system and pursuing the licensing of University technology. Today the UC technology transfer program encompasses a range of activities carried on throughout the system to facilitate the commercialization of promising early stage technologies that arise during the course of research. Increasingly, these activities extend beyond the traditional patenting and licensing of University inventions to the development of a variety of relationships with business, industry and government that enhance the research and education missions of the University and contribute to the economic prosperity of the State of California and its communities.

Many of the principles that currently guide the technology transfer program derive from the March 1994 final report of the Ad Hoc Technology Transfer Advisory Committee. The report maintained that technology transfer is an integral and important activity within an academic environment that has research and education as its highest priorities. A key objective of technology transfer is the movement of University technology to the private sector where it can be developed into products and processes that benefit the public. Further, University technology transfer should be carried out in such a way that it encourages and supports research relationships with the private sector and assists in providing funds to support research and education at UC.

The Ad Hoc Committee also recommended that technology transfer should be faculty-centered, inventor-centered, and campus/Laboratory-centered and proposed the establishment of a technology transfer system with distributed responsibility and authorities. Under this system, campuses and Laboratories would be offered, to the extent feasible, the opportunity to design and shape their own technology licensing programs to fit their unique needs. Certain functions, such as policy development and legal oversight, however, would remain the responsibility of the overall system.

During the summer of 1994, the Ad Hoc Committee was converted to the standing Technology Transfer Advisory Committee (TTAC) and charged with ongoing oversight of the University's technology transfer program. This 21-member group, chaired by the Senior Vice President -- Business and Finance, meets periodically to advise the President on technology transfer policy and to evaluate the effectiveness of the systemwide program.

TECHNOLOGY TRANSFER ADVISORY COMMITTEE

Richard E. Attiyeh Vice Chancellor -- Research, UCSD
Charryl L. Berger Director, Civilian Industrial Technology Program, LANL
John E. Bowers Professor, Electrical and Computer Engineering, UCSB
Gayle J. Byock Assistant Vice Chancellor -- Research and Planning, UCLA
Joseph Cerny Vice Chancellor -- Research, UCB
John Edmond Professor, Biological Chemistry, UCLA
Terence A. Feuerborn Executive Director,
Research Administration and Technology Transfer, UCOP
Cheryl A. Fragiadakis Department Head, Technology Transfer, LBNL
Warren M. Gold Professor, Medicine, UCSF
Harry W. Green, II Vice Chancellor -- Research, UCR
Nora A. Hackett Technology Liaison Officer, UCD
Zach W. Hall Vice Chancellor -- Research, UCSF
V. Wayne Kennedy Senior Vice President -- Business and Finance, UCOP
C. Judson King Provost and Senior Vice President -- Academic Affairs, UCOP
John F. Lundberg Deputy General Counsel, UCOP
Karena McKinley Director, Industrial Partnership and Commercialization, LLNL
David G. Schetter Director, Office of Technology Alliances, UCI
Robert N. Shelton Vice Provost, Office of Research, UCOP
Robert K. Webster Assistant Director, DANR Programs, UCD
Todd W. Wipke Professor, Chemistry, UCSC

Technology Transfer Organization

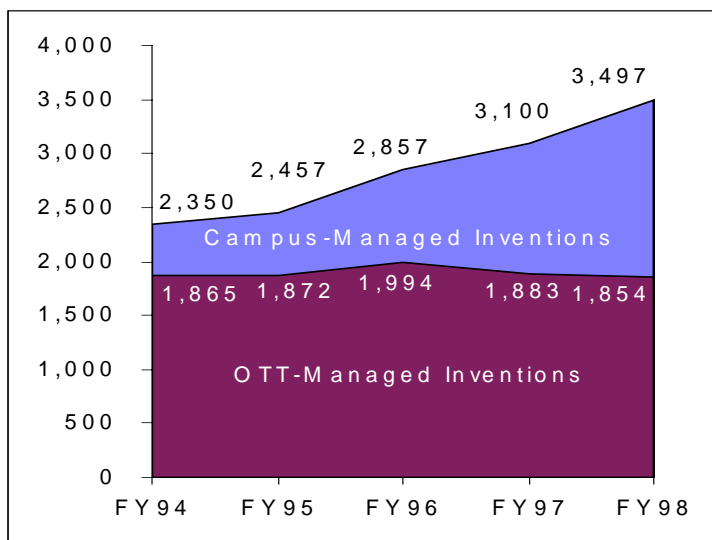
Since 1994 there has been substantial movement within the UC system consistent with the recommendations in the Ad Hoc Committee Report. This is reflected in the current organizational structure and in the programmatic developments described in the remainder of this section.

Systemwide Activity -- OTT, within the Office of the President, continues to provide policy development and guidance, legal support, systemwide information management, legislative review and a variety of other coordinating services in support of the systemwide program. OTT also offers a wide range of advisory and infrastructure services both to emerging and well-established campus and Laboratory licensing offices. Offering such services is an increasingly significant OTT function in light of the challenges many of the campus-based technology transfer offices experience as they initiate operations and mature into fully-functioning offices.

As of the end of FY98, OTT also was responsible for management of 1,854 UC inventions, or approximately 53% of the systemwide invention portfolio. This is roughly the same number of inventions that OTT was managing at the end of FY94. During that same period, the overall UC invention portfolio grew by close to 50% from 2,350 to 3,497 inventions. Thus, OTT's share of relative responsibility for portfolio management overall has been decreasing (Exhibit 1). This redistribution of responsibility is consistent with the priorities articulated in the Ad Hoc Committee report, referenced above, which envisioned a continuing role for the central office and a strengthened role for campus offices in the licensing enterprise.

Exhibit 1

MANAGEMENT OF UC INVENTIONS

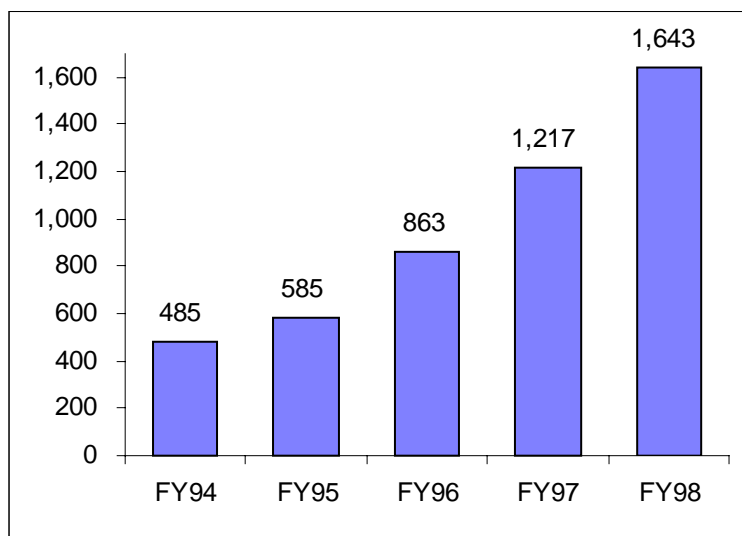


Campus Activity -- By the end of FY98, individual programs that carry out the licensing function in close proximity to the faculty and other academic researchers had been firmly established on five campuses (UCB, UCI, UCLA, UCSD and UCSF). In addition, the Davis campus had begun

to define the parameters of a campus-based licensing office that is likely to begin operations in FY99. The Riverside, Santa Barbara, and Santa Cruz campuses continue to use the licensing services of OTT, and each has been assigned an OTT licensing staff member to serve as a special technology transfer liaison. These individuals spend substantial time in direct contact with faculty, researchers and administrators on the campus in order to understand the specific needs and requirements for effective technology transfer support.

During FY98, the campus-based licensing offices assumed responsibility for managing approximately six of every ten new inventions disclosed by UC faculty and researchers and, by the end of fiscal year, were responsible for managing 1,643 inventions (Exhibit 2). This is an increase of over 215% in total inventions managed at the campuses as compared with the close of FY94 when the campus offices were managing fewer than three of every ten new inventions and a total of only 485 inventions.

Exhibit 2
INVENTIONS MANAGED BY CAMPUS OFFICES



It is of note that each of the campus offices has a distinctive focus and organization. The scope of responsibilities assigned to the offices often extend beyond patent licensing to include such activities as copyright administration, material transfer agreement negotiation, conflict of interest oversight, industry sponsored research development, faculty advisement on industry relationships, and support of economic development initiatives.

DOE Laboratory Activity -- The DOE Laboratories continue to manage their own technology transfer activities as they have done since 1988. Offices at Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL) are responsible for licensing intellectual property and for negotiating Cooperative Research and Development Agreements (CRADAs) with industry. The size portfolio of inventions managed by the labs had grown to approximately _____ inventions at the end of FY98.

Policy and Program Developments

Patent Policy Revision -- On October 1, 1997 a new University Patent Policy became effective that applies to all inventions disclosed from that date forward. In addition, the April 16, 1990 Patent Policy was rescinded and all inventions reported before October 1, 1997 became subject to the November 18, 1985 policy. Also, the Patent Agreement (now called the Patent Acknowledgment) was updated to more accurately reflect current University of California organization and practices.

The principal change to the Patent Policy involves a new formula for the distribution of royalty income. For all inventions disclosed on or after October 1, 1997, the 15% administrative assessment (used in previous formulas) has been removed from the formula so that net income is now defined as total income less non-reimbursed direct case expenses. This simplifies the calculation of royalty income to be distributed to inventors. Under the new Policy, inventors receive 35% of net income and 15% of net income is specifically designated for research-related purposes and allocated based on plans developed by each campus and DOE Laboratory. The remaining 50% of net income is allocated to the general pool at the campus or DOE Laboratory.

Equity Guidelines -- In February 1996, President Atkinson issued the University Policy on Accepting Equity which provides that the University may accept equity in a company as partial considerations for licensing-related transactions. On July 1, 1997 the University issued a Business and Finance Bulletin with interim implementing guidelines for accepting and managing equity. This bulletin explicitly addresses the circumstances and conditions under which equity may be accepted in licensing transactions, the approval process for equity acceptance, and the guidelines under which equity is managed once it is received by the University. As of the end of FY98, the University held equity in 26 companies as a result of its technology licensing efforts. Equity in ten of these companies was traded on public markets and the UC share was valued at \$1.3 million. In addition, during the fiscal year, UC received \$136,534 from the sale of equity that previously had been acquired through three technology licensing agreements.

Safeguarding University Interests -- Over the past year, UC worked in conjunction with other leading research universities and associations on a range of legislative and regulatory matters related to patent reform and ownership of intellectual property. UC also joined with others to encourage industry acceptance of sponsored research and licensing agreement provisions that respect academic principles and practices. The impetus for these latter activities has been growing pressure from industry for universities to enter into agreements that can adversely affect the academic research and technology transfer enterprise. For example, universities are increasingly being asked to agree to contract language that includes "reach through" provisions or grants "background rights" related to inventions that may arise in the course of a sponsored research project. Such provisions enable a company to receive rights in both the inventions derived from the research it funds, and in those that may derive from research projects funded by others, as well. As such, these provisions create potential conflicting commitments of intellectual property by "reaching into" the intellectual property of more than one project. Such conflicting commitments in an industry-sponsored agreement can pose a legal risk to the University and the researcher and also can severely limit a researcher's opportunity to pursue new funding opportunities from a range of funding sources. UC cooperation with other academic

institutions in addressing this area has opened up avenues of dialog with industry that will hopefully yield progress that benefits the entire field of university technology transfer.

President's Retreat Priorities -- The President's Retreat on the University's Relationships with Industry in Research and Technology Transfer was a systemwide internal working conference held in January 1997 that provided an opportunity for senior University management and faculty leaders, with input from a number of selected industry representatives, to step back and thoughtfully reflect upon current and future UC interactions with industry. Over 70 recommendations for change emerged from the retreat. These were recorded in the Retreat Proceedings published by OTT in June 1997 and have been posted on the President's Retreat Web Site (www.ucop.edu/ott/retreat/). Action has been taken on those recommendations that were clearly beneficial and relatively easy to implement. Others have required more extensive consideration within the University community in order to reach consensus on how to proceed. In February 1998, President Atkinson identified seven items derived from retreat recommendations for priority attention in 1998. Progress on certain of these priority items which pertain directly to technology transfer is summarized below.

Intellectual Property Rights for Research Partners -- Included in the 1998 priority actions from the President's Retreat (see above) was the recommendation that the University develop a new policy structure for managing intellectual property rights granted to UC research partners. The motivation for this recommendation derived, in part, from dissatisfaction with the existing policy structure. This "Schedule of Support and Patent Privileges" was adopted by the Regents in 1956, is narrow in scope and lacks flexibility. It therefore has limited application in guiding the negotiation of intellectual property rights for many of the newer, more complex research relationships with industry that are of increasing importance to the University's research, education, and public service mission. During FY98, a new policy structure was developed and proposed to various advisory groups throughout the system. It would establish principles to guide University decisions regarding the granting of rights to research results to University research partners and provide campus negotiators with greater authority and flexibility in negotiating patent rights arrangements tailored to the individual circumstances of each industry-supported project or program. Such revised authority and guidance is to be accompanied by appropriate accountability mechanisms to support campuses and Laboratories in carrying out the University mission, meeting legal and fiduciary obligations, and protecting the institution from inappropriate risk. This new structure now has been submitted to Chancellors, Laboratory Directors, and the Academic Council for their consideration as a proposed Presidential policy.

Computer-based Information Resources -- Another retreat priority area focused on the development of computer-based services to support UC faculty/industry relationships in research and technology transfer. In response, during the past year, a range of University Web-based information resources targeted to UC faculty and researchers, industry personnel and University administrators have been established that facilitate enhanced UC research and technology relationships with industry. There has been considerable progress on a "UC expertise" database comprised of profiles of University faculty scientific areas of interest. This database, which is intended to support UC faculty research collaboration with academicians and businesses nationwide, is being developed under a UC partnership established in late 1997 with the Web-based information resource company, Community of Science (COS). Nearly 8,000 UC faculty

profiles have been entered into the database. In addition, companies across the country interested in the University's research activities now have access to a comprehensive database of abstracts of federally-supported UC research in progress available on the OTT home page. Industry representatives may use this database, updated monthly, to locate appropriate UC faculty for research collaborations and sponsored project support. Searchable information on UC organized research units, centers, and institutes also is included for similar purposes on this site, along with an additional database that enables companies to search for technology licensing opportunities from campuses and Laboratories throughout the system. Finally, many of the campus and Laboratories now have posted Home pages on the WWW that provide site-specific information pertaining to technology transfer and other University/industry relationships. Locations for these sites appear on the inside front cover of this Annual Report.

Academic Recognition for Technology Transfer -- The President's Retreat advisory group on faculty incentives recommended that academic personnel criteria on promotions be expanded to allow consideration of technology transfer-related activities, such as being granted a patent, contributing to the licensing of important University-generated research results, or engaging in other related activities that yield significant social and economic impact. The University Committee on Academic Personnel (UCAP) of the Academic Senate considered this recommendation and concluded that there is sufficient flexibility within the current personnel review system to ensure that these activities may be considered in terms of their academic stature and given credit in the faculty evaluation process. It was noted that it is important for the faculty member to present the technology transfer involvement in a way which shows a clear link to the review criteria in order for such recognition to be granted. In addition, it was suggested that Academic Vice Chancellors might collaborate with department chairs to assist faculty in articulating this linkage.

Industry-University Cooperative Research Program -- President Atkinson's Industry-University Cooperative Research Program (IUCRP) creates new systemwide matching grant programs to increase research interactions and technology transfer at the level of individual University researchers and California businesses. The central goals of IUCRP are to advance research and training, to bring new discoveries into the marketplace for the public good, and to enhance the California economy. The program provides mechanisms to identify needs in industry and at the University that might productively be addressed by industry-University cooperation and partnerships in a number of fields of science and engineering. During FY98, technology transfer staff from throughout the system advised and provided input to IUCRP program staff on issues related to the technology transfer arrangements embodied within program. In addition, in June 1998, OTT was awarded a grant by the IUCRP to develop information and data resources to assess the impact of UC research and technology transfer activities. Work on this project will be carried out over the next two years.

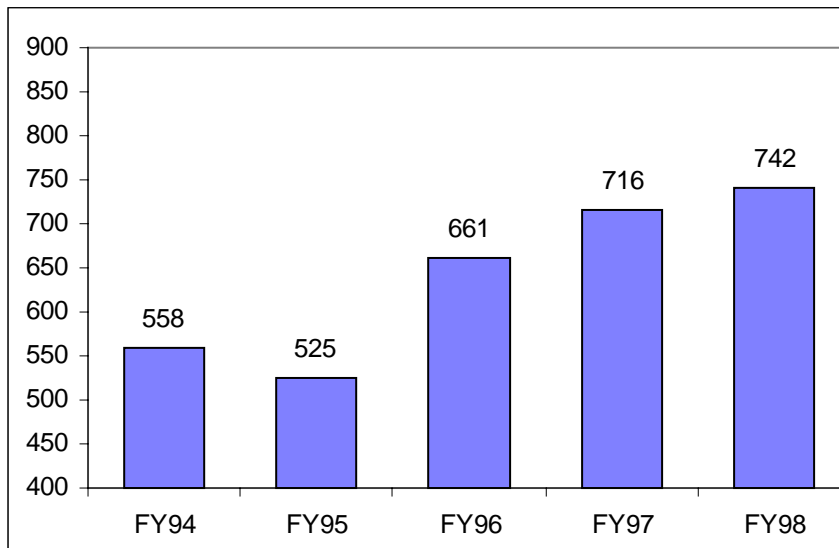
TECHNOLOGY TRANSFER ACTIVITY

Invention Reporting

During the twelve-month period ending June 30, 1998, a total of 742 inventions were disclosed by faculty and researchers at the nine UC campuses. This represents an 3.5% increase when compared with the 716 new inventions reported in FY97 (Exhibit 3).

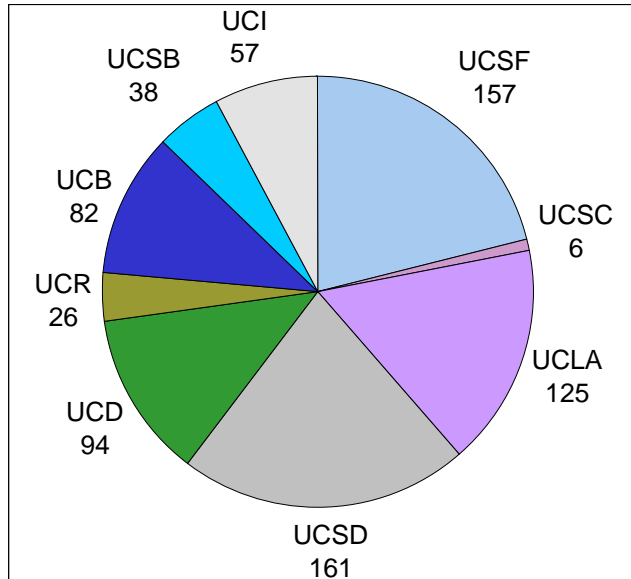
Exhibit 3

INVENTIONS REPORTED



Inventions in life science disciplines including medicine and biotechnology accounted for over 70% of the new inventions, while those from the physical sciences and engineering accounted for most of the balance. This pattern approximates the distribution of extramurally-sponsored research at the University. The distribution of newly reported inventions by campus is shown in Exhibit 4.

Exhibit 4
INVENTION DISCLOSURES BY CAMPUS*
Year Ended June 30, 1998



** Exhibit covers all inventions disclosed to OTT and campus licensing offices. Inventions having inventors from more than one campus are counted multiple times, once for each campus with an inventor, thus the total number of inventions in this chart exceeds the 742 total inventions reported in the text.*

As of June 30, 1998, the systemwide invention portfolio was comprised of close to 3,500 active inventions. Approximately one-fifth of these were covered by license and option agreements, whereas the remaining 80% were still available for licensing. The size of the total invention portfolio of each campus is indicated in the exhibit below.

Exhibit 5
CAMPUS INVENTION PORTFOLIOS
Year Ended June 30, 1998

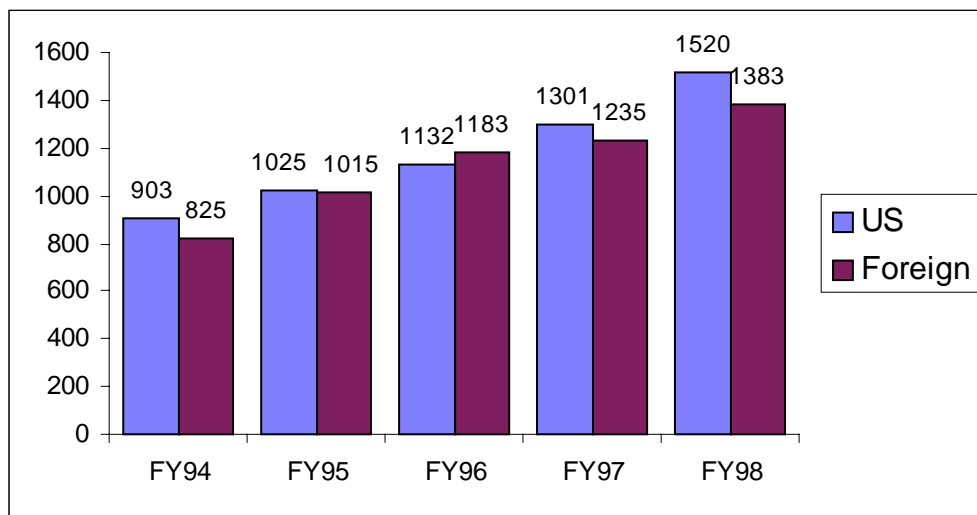
UCB	UCD	UCI	UCLA	UCR	UCSB	UCSC	UCSD	UCSF
510	504	247	616	125	176	39	646	813

Patent Activity

A patent is a form of intellectual property protection granted by the US or a foreign government that affords the patent holder the right to exclude others from making, using, or selling the patented invention for a defined period of time, generally for twenty years from the date the patent application is first filed. Both US and foreign patent rights often must be pursued for an invention in order to maximize the likelihood of successful commercialization. At the end of FY98, there were 1520 US and 1383 foreign patents in the systemwide portfolio at fiscal year end (Exhibit 6).

Exhibit 6

TOTAL UC PATENT PORTFOLIO



Systemwide patent activity for FY98 is presented in Exhibit 7. Exhibit 8 shows trends in patent filings over the past five years. As these figures suggest, there may be multiple filings associated with any one invention. Secondary filings often result from the need to have several distinct patent filings in order to assure adequate patent coverage for all aspects of a new technology. Such secondary filings frequently lead to the issuance of multiple patents related to a single initial invention.

Exhibit 7
PATENT ACTIVITY
Year Ended June 30, 1998

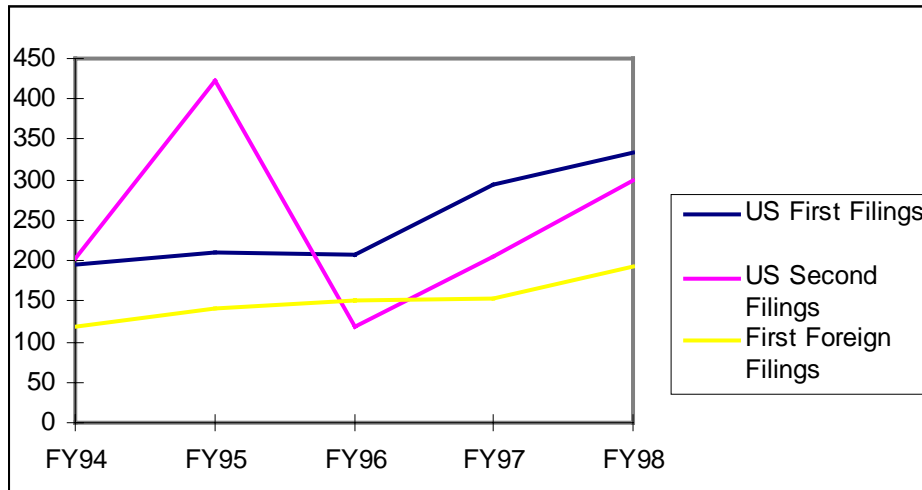
US Applications Filed	
First Filings	334
Secondary Filings	299
Total	633

First Foreign Filings* 192

US Patents Issued 242
 Foreign Patents Issued 223

** An invention is counted only one time in the first foreign filings category regardless of the total number of countries in which foreign patent protection is eventually sought.*

Exhibit 8
TRENDS IN UC PATENT FILINGS*



** The dramatic increase in secondary filings in FY95 was directly related to the ratification of the General Agreement on Tariffs and Trade (GATT). By initiating selected patent filings prior to a June 8, 1995 deadline established in the GATT agreement, the University was able to assure the longest effective patent term for certain inventions in its portfolio.*

The increases in patent filings are related to growth in the number of inventions reported (see prior section), and have given rise to a steady increase in patents issued to UC over the past several years (Exhibit 9). The number of US patents in each campus portfolio is presented in Exhibit 10.

Exhibit 9
US PATENTS ISSUED TO UC

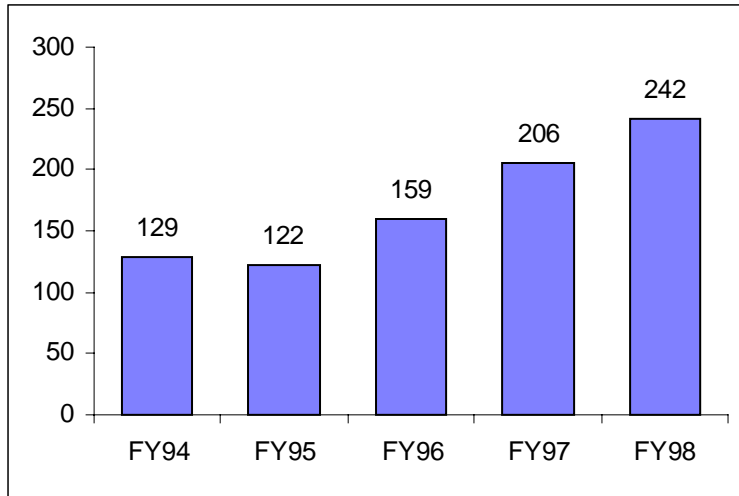


Exhibit 10
CAMPUS US PATENT PORTFOLIOS*
Year Ended June 30, 1998

UCB	UCD	UCI	UCLA	UCR	UCSB	UCSC	UCSD	UCSF
260	215	71	213	44	88	11	226	367

** Some patents are associated with inventors from more than one campus and are counted multiple times. Thus the total number of patents on this table exceeds the 1,382 US patents in the total UC patent portfolio.*

Licensing and Related Activity

A license agreement grants a licensee the right to practice a University invention in exchange for the licensee's commitment to provide the resources required to further develop and commercialize the invention. Utility licenses generally cover useful processes, machines, manufactured items, or compositions of matter protected by utility patents. Most utility patents are licensed exclusively to a single company for a defined use, although non-exclusive licensing of utility patents sometimes occurs. In contrast, plant licenses cover asexually reproduced plant varieties and are licensed non-exclusively to multiple growers and distributors worldwide.

The provisions of the license define the rights and responsibilities of the two parties. In the typical license agreement, the licensee is granted the right to "practice" an early stage invention that is protected by a University patent. In exchange, the licensee makes a commitment to commercialize the invention and pay the University agreed-upon fees, reimbursement of expenses and royalty payments. The specific terms of the agreement are determined through a complex negotiation process. During the negotiation period, a shorter-term letter or option agreement is sometimes used to confirm a company's intent to negotiate a license, to outline each party's rights and responsibilities, and/or to establish a company's commitment to pay certain fees or patent costs incurred while the negotiation is underway.

In FY98, UC entered into 270 licenses and related revenue-generating agreements. As indicated in Exhibit 11, these included 99 utility license agreements, 39 plant license agreements, 39 option agreements, and 93 letter agreements. In addition, 1,005 secrecy agreements were executed that enabled companies to receive confidential information necessary to evaluate campus inventions for commercial potential.

Exhibit 11

LICENSING ACTIVITY

Year Ended June 30, 1998

Agreements Executed	
Secrecy (Marketing)	1,005
Letters	93
Options	39
Utility Licenses	99
Plant Licenses	39
 Total Active Licenses	
Utility Licenses	527
Plant Licenses	389

At the close of the fiscal year, the systemwide portfolio included 527 utility and 389 plant licenses. In managing these agreements, the University must collect monies when due and monitor progress to ensure that the licensees exercise due diligence in developing inventions toward commercial application.

Exhibit 12
TOTAL UTILITY LICENSES

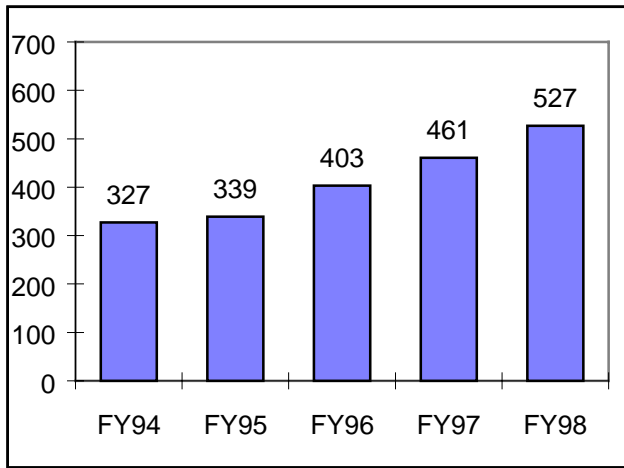
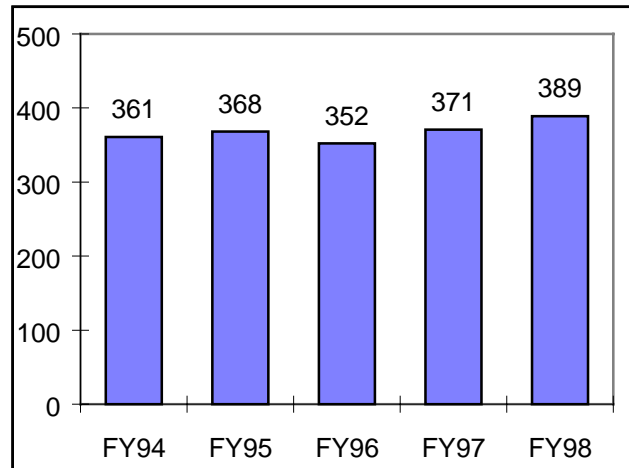


Exhibit 13
TOTAL PLANT LICENSES



Exhibits 12 and 13 show the five year trend in the size of the portfolio of UC utility and plant licenses. Each year some agreements expire or are terminated based on licensees' failure to fulfill agreement obligations. In general, the total number of active utility agreements has continued to rise due to increasing licensing activity throughout the system. The number of plant licenses has fluctuated somewhat over several years due to the expiration of plant patents. Over the past two fiscal years, the introduction of new strawberry, avocado, and alfalfa varieties have contributed to an increase in plant licensing activity.

Exhibit 14
TOTAL UTILITY LICENSES BY CAMPUS
Year Ended June 30, 1998

	UCB	UCD	UCI	UCLA	UCR	UCSB	UCSC	UCSD	UCSF
Utility	90	48	24	80	9	10	2	112	157

Exhibit 14 shows the number of license agreements associated with each campus. In addition, the Berkeley campus has six plant licenses in its portfolio, Davis has 266, and Riverside has 118.

TECHNOLOGY TRANSFER REVENUES

Total Licensing Revenue

Total licensing revenue includes income from royalties, agreement issue and other fees, as well as licensee reimbursements of patent expenses. In FY98, total licensing revenue rose 18% to \$88.5 million, continuing the steady upward trend reported over the past several years (Exhibit 15). Exhibit 16 shows the amount each campus contributed to total licensing revenue.

Exhibit 15

TOTAL LICENSING REVENUE

(Millions)

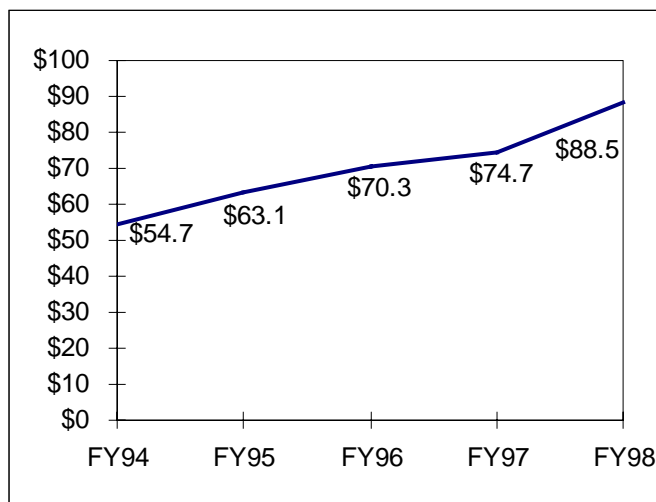


Exhibit 16

TOTAL LICENSING REVENUES BY CAMPUS

Year Ended June 30, 1998

(Thousands)

UCB	UCD	UCI	UCLA	UCR	UCSB	UCSC	UCSD	UCSF	Other*
\$3,411	\$6,582	\$1,113	\$5,329	\$791	\$827	\$24	\$8,318	\$61,026	\$1,054

* Revenues primarily from a portfolio of 66 OTT-managed DOE Laboratory inventions, most disclosed prior to the establishment of the independent DOE licensing offices.

Royalty and Fee Income

The portion of total licensing revenue from royalty and fee income rose 18% in FY98 to \$79.8 million (Exhibit 17).

Exhibit 17

ROYALTY AND FEE INCOME

Year Ended June 30, 1998

Income from Royalties and Fees	\$79,838
Less Payments to Joint Holders	(6,736)
Adjusted Gross Income*	\$73,102

* Adjusted gross income, a figure used in computing State share and certain other assessments, is determined by deducting payments to joint holders (see p. xx) from royalty and fee income.

Income from the top five royalty-generating inventions contributed \$58.6 million in FY98 (Exhibit 18), accounting for 73% of royalty and fee income. The top twenty-five royalty-generating technologies collectively accounted for \$69.5 million or 87% of this total. Two utility inventions, Cochlear Implants and Aids for Learning Disabled, and one plant invention, Chandler Walnut, appeared on the list for the first time in FY98. UC is distinguished among universities in having a portfolio with a large number of inventions from a range of disciplines that generate substantial royalty income. It also is unusual for a university to continually have new inventions that move into the top royalty-earning group each year, as is the case with UC.

Exhibit 18

UC TOP EARNING COMMERCIALIZED INVENTIONS

(Thousands)

Year Ended June 30, 1998

(Invention, Campus, Year Disclosed)	
Hepatitis-B Vaccine (SF, 1979 and 1981)	\$30,100
Process for Gene Splicing (SF, 1974)	16,534
Human Growth Hormone (SF, 1977)	5,152
Interstitial Cystitis Therapy (SD, 1980)	3,663
Intracranial Aneurysms Treatment (LA, 1989)	3,120
Subtotal (Top Five Inventions)	\$58,569
Camarosa Strawberry (DA, 1992)	1,360
Fluorescent Conjugate Probes (BK, 1981)	946
Liposome Sizing Method (SF, 1977)	906
Yeast Expression Vector (SF, 1982)	892
Liposome Storage Method (DA, 1984)	709
Radiographic Media (SD, 1979)	666
Feline Leukemia Virus Diagnostic (DA, 1980)	637
Cochlear Implants (SF, 1979)	504
Magnetic Resonance Imaging (SF, 1976)	485
Atomic Force Microscope (SB, 1989)	481
Feline AIDS Virus Diagnostic (DA, 1986)	468
Aids for Learning Disabled (SF, 1994)	451
Oso Grande Strawberry (DA, 1987)	446
Pajaro Strawberry (DA, 1978)	413
Nicotine Patch (LA, 1984)	366
Energy Transfer Primers (BK, 1994)	290
Phosphorus Plant Fertilizer (RV, 1990)	230
Chandler Strawberry (DA, 1982)	225
Chandler Walnut (DA, 1977)	219
Synthetic Lung Surfactant (SF, 1980)	212
Total Income (Top 25 Inventions)	\$69,475
Total Income (All Inventions)	\$79,838
% of Total from Top 5 Inventions	73%
% of Total from Top 25 Inventions	87%

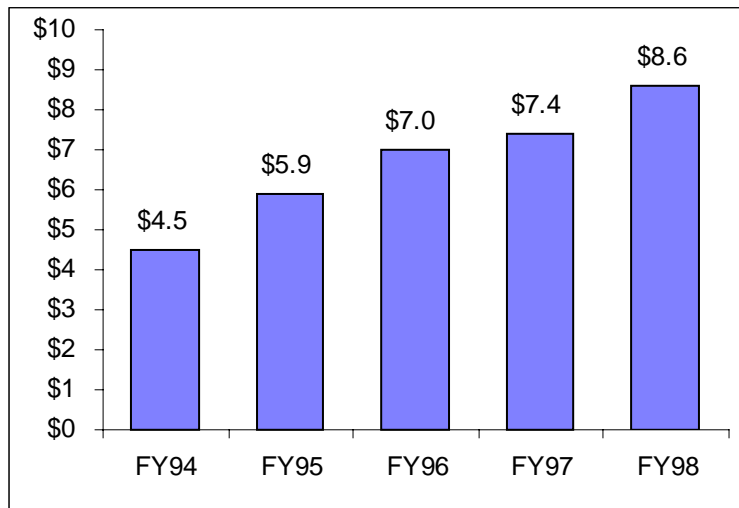
Income from Expense Reimbursements

Expense reimbursements typically cover legal costs associated with patenting and protecting the patent rights associated with an invention. Reimbursements are a high priority objective during the license negotiation, and are considered to be part of total licensing revenues. They are, however, treated as an offset to legal and other direct expenses for financial reporting purposes (see section on Legal Expenses.) In FY98, the University received \$8.6 million in expense reimbursements from its licensees. This represents a 16% increase over reimbursements collected the prior year (Exhibit 19).

Exhibit 19

INCOME FROM PATENT EXPENSE REIMBURSEMENTS

(Millions)



TECHNOLOGY TRANSFER EXPENSES

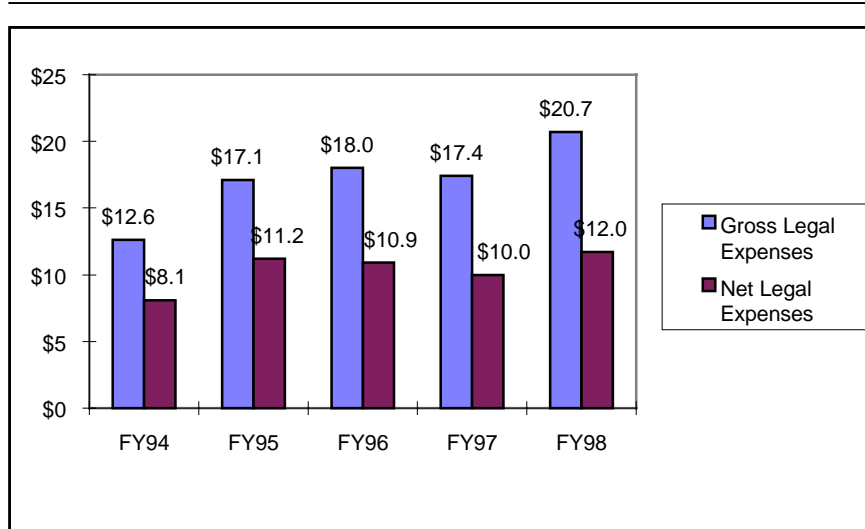
Legal and Other Direct Expenses

Legal and other direct expenses totaled \$20.6 million in FY98. After reimbursements from licensees were deducted, net expenses in this category were reduced to \$12.0 million. This represents a 20% increase in net legal expenses as compared with FY97 (Exhibit 20).

Exhibit 20

LEGAL EXPENSES

(Millions)



As indicated in Exhibit 21, approximately 43% of net legal expenses involved payments to outside counsel for drafting patents and for other work associated with patent prosecution and maintenance. Thirty-five percent (35%) was attributable to legal defense fees. A substantial portion of these expenditures were associated with settlement of a suit involving distribution of invention-related research income that was brought against the University by former UC faculty members who had contributed to inventions in a large UC patent portfolio. The University also incurred legal defense fees in a case where a faculty member contested the amount of compensation received in a licensing agreement and in a dispute with an invention licensee. Nineteen percent (19%) of net legal expenses derived primarily from three patent infringement cases, one involving Human Insulin, another involving Chromosome Painting, and the third involving Human Growth Hormone. Although several other infringement suits involved UC patents in FY98, licensees bore responsibility for most of the legal expenses, thus none of those actions generated substantial net legal expenses for the University. The remaining 3% of net legal expenses were incurred in connection with a number of smaller legal actions and disputes.

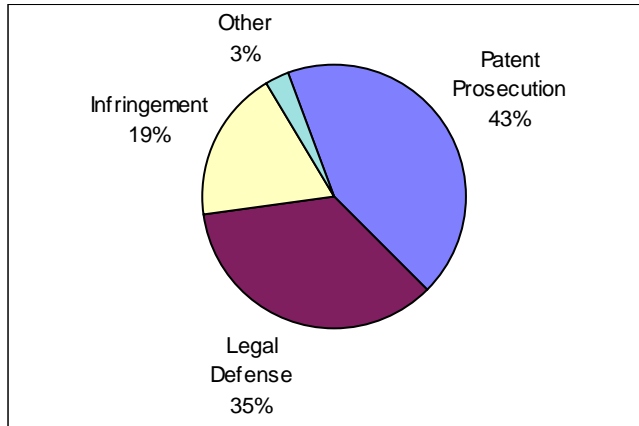
Although University licensing personnel continue to experience a high degree of success in negotiating reimbursement of patent costs, it is expected that there will continue to be significant legal expenses associated with litigation as the technology transfer program grows, patent

activities continue to accelerate, and relationships with inventors, sponsors and licensees become increasingly complex.

Exhibit 21

NET LEGAL EXPENSE

Year Ended June 30, 1998



Operating Expenses

Operating expenses include funds spent for the administration of the technology transfer program at OTT and the five campus-based licensing offices. Because operations are not comparable across the system and each of these offices has different responsibilities, there is substantial variation in technology transfer operating expenses from location to location. In general, however, operating expenses consist primarily of employee salaries, benefits, and expenses for equipment and supplies. Operating expenses rose 14% to \$7.9 million in FY98 (Exhibit 22). This increase is due to expenses associated with the growth of technology transfer activities throughout the system and to the support of a more decentralized approach to technology transfer administration. As indicated in Exhibit 23, operating expenses as a percentage of total licensing revenue was 9% for the third year in a row.

Exhibit 22

OPERATING EXPENSES

(Millions)

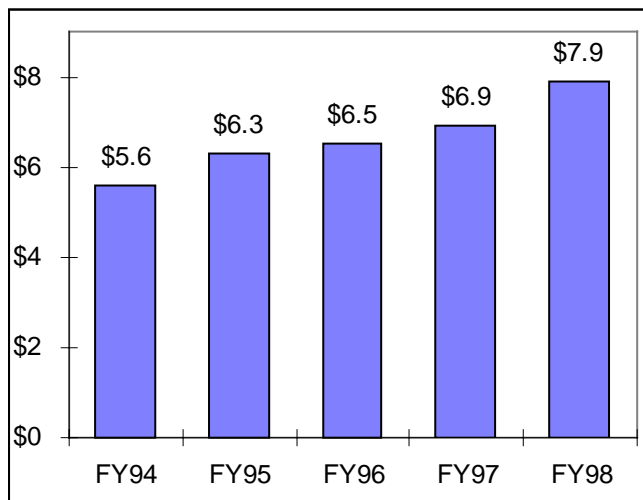
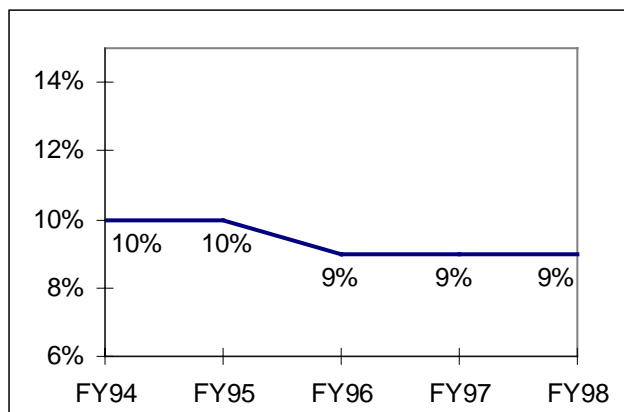


Exhibit 23

OPERATING EXPENSES AS A PERCENTAGE OF TOTAL LICENSING REVENUES



MANDATORY INCOME DISTRIBUTIONS

Payments to Joint Holders

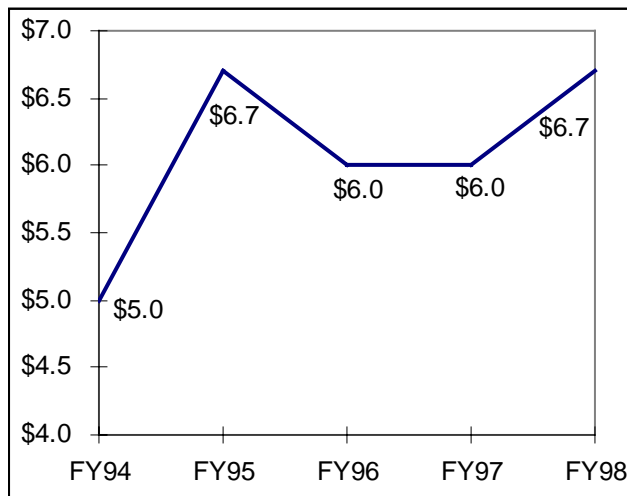
When an invention results from a collaboration between UC and non-UC researchers, multiple entities may become joint holders of the patent. In these instances, interinstitutional agreements are negotiated to establish which entity will be responsible for the management of patent prosecution and licensing of the invention, including the collection and distribution of invention income; such collaborations are relatively common. In FY98, 108 of 742 new disclosures (14.5%) included non-UC inventors and 31 new interinstitutional agreements were issued.

In FY98, \$6.7 million in income was redistributed to other entities for over 40 inventions covered by interinstitutional agreements. These payments were deducted from royalties and fees to arrive at adjusted gross income. The largest payment to a joint holder was \$6.4 million to the University of Washington for the Hepatitis-B Vaccine. Over the past five years this invention has accounted for most of the UC payments to joint holders reflected in Exhibit 24.

Exhibit 24

PAYMENTS TO JOINT HOLDERS

(Millions)



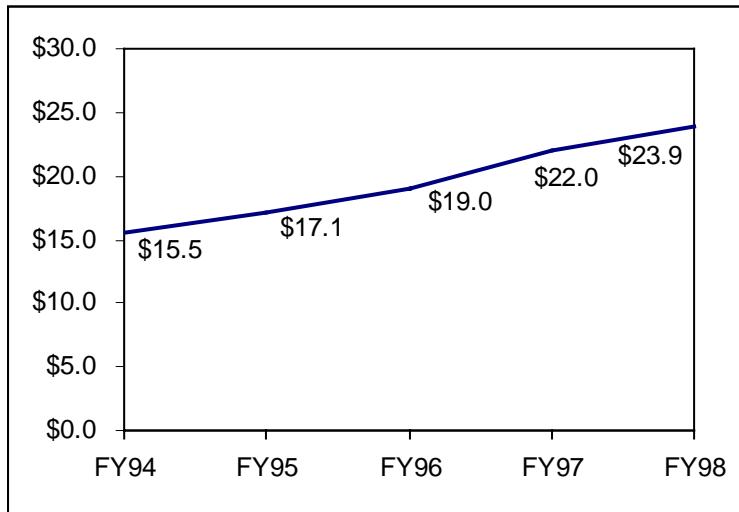
Inventor Shares

The University Patent Policy grants inventors the right to receive a portion of net income accruing to individual inventions. In FY98, 570 inventors received a total of \$23.9 million in inventor share distributions based on the financial activity of their inventions through June 1997. This represents a 9% increase in monies distributed to inventors over the prior year and continues the five-year upward trend evidenced in Exhibit 24.

Exhibit 24

INVENTOR SHARES

(Millions)



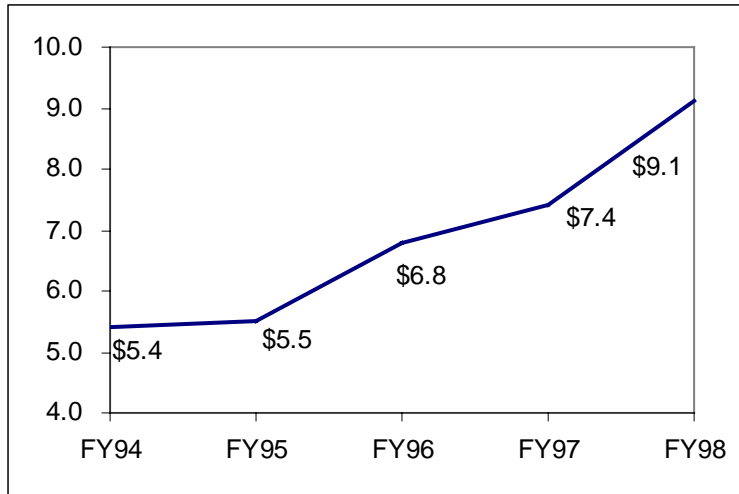
State Share

The State of California portion of University technology transfer income totaled \$9.1 million in FY98 (Exhibit 25). The State share is equal to 25% of the amount remaining after deducting net direct expenses for all cases and total inventor share payments from adjusted gross income.

Exhibit 25

STATE SHARE

(Millions)



NET INCOME

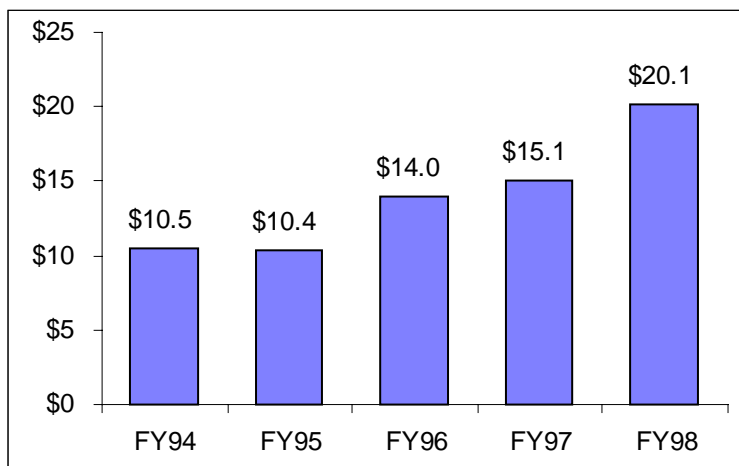
The portion of technology transfer program income that is available to be redistributed to campuses to support ongoing research and education programs is net income. It is computed as income from royalty and fees less the sum of net legal expenses, program operating expenses, and mandatory distributions. Net income for OTT and campus offices totaled \$20.1 million in FY98. Exhibit 26 presents the fluctuations in net income over the past five years.

Exhibit 26

NET INCOME

Year Ended June 30, 1998

(Millions)



SYSTEMWIDE TECHNOLOGY TRANSFER ACTIVITY FY94 – FY98¹

Fiscal Year Comparisons

	FY94	FY95	FY96	FY97	FY98	% CHANGE (FY97 - FY98)
Invention Disclosure						
Inventions Reported	558	525	661	716	742	3.6%
Total Invention Portfolio	2,350	2,457	2,857	3,100	3,497	12.8%
Patent Prosecution						
US Applications Filed						
First Filings	196	211	207	294	334	13.6%
Secondary Filings	<u>203</u>	<u>423</u>	<u>118</u>	<u>206</u>	<u>299</u>	45.1%
Total	399	634	325	500	633	26.6%
US Patents Issued						
Total Active US Patents	903	1,025	1,132	1,301	1,520	16.8%
First Foreign Filings						
Total Active Foreign Patents	118	142	150	153	192	25.5%
Licensing						
Agreements Issued						
Options	22	32	38	36	39	8.3%
Utility Licenses	70	59	98	95	99	4.2%
Plant Licenses	24	26	10	35	39	11.4%
Total Active Agreements						
Options	50	61	70	75	93	24.0%
Utility Licenses	327	339	403	461	527	14.3%
Plant Licenses	361	368	352	371	389	4.9%

¹ Activity related to the UC invention portfolio which is managed at OTT and five campus-based licensing offices for the nine UC campuses. Also includes activity related to a small subset of DOE inventions managed at OTT. See page ___ for activity pertaining to the operation of the DOE Laboratory-based Technology Transfer offices.

SYSTEMWIDE FINANCIAL ACTIVITY FY94-FY98¹

(Thousands)

Fiscal Year Comparisons	FY94	FY95	FY96	FY97	FY98	% CHANGE (FY97 - FY98)
Income from Royalties and Fees	\$50,209	\$57,272	\$63,205	\$67,279	\$79,838	18.7%
Less: Payments to Joint Holders	(5,054)	(6,747)	(6,029)	(5,999)	(6,737)	12.3%
Adjusted Gross Income (A)	45,155	50,525	57,176	61,280	73,101	19.3%
Legal and Other Direct Expenses	12,552	17,073	17,968	17,351	20,684	19.2%
Less: Reimbursements	(4,452)	(5,852)	(7,090)	(7,393)	(8,646)	16.9%
Net Legal Expenses (B)	8,100	11,221	10,878	9,958	12,038	20.9%
Mandatory Distributions						
Inventor Shares	15,539	17,123	18,991	21,953	23,948	9.1%
State share	5,379	5,545	6,775	7,425	9,131	23.0%
Total Distributions (C)	20,918	22,668	25,766	29,378	33,079	12.6%
Portfolio Net Income (A - B - C) ²	16,137	16,636	20,532	21,944	27,984	27.5%
Operating Expenses (D) ³	5,648	6,285	6,524	6,851	7,913	15.5%
Net Income/Loss (A - B - C - D) ⁴	\$10,489	\$10,351	\$14,008	\$15,093	\$20,071	33.0%

¹ Financial activity related to the UC invention portfolio which is managed at OTT and five campus-based licensing offices for the nine UC campuses includes financial activity related to a small sub-set of DOE Laboratory inventions managed at OTT. See page ____ for financial data pertaining to the operation of the DOE Laboratory-based Technology Transfer offices.

² Portfolio net income indicates the extent to which income generated by the overall invention portfolio offsets direct costs associated with that portfolio.

³ Includes operating costs for OTT and five campus licensing offices as well as a \$696,032 UCOP budgetary assessment.

⁴ Starting in FY97, a portion of Short-Term Investment Pool (STIP) interest earnings on patent income has been distributed to the campuses and DOE Laboratories whose portfolios yield a net income for the fiscal year. The STIP allocation for FY98 was \$867,278.

CAMPUS TECHNOLOGY TRANSFER ACTIVITY

Year Ended June 30, 1998

	UCB ¹	UCD	UCI ¹	UCLA ¹	UCR	UCSB	UCSC	UCSD ¹	UCSF ¹	Other ²	Systemwide Total ³
Invention Disclosure											
Inventions Reported	82	94	57	125	26	38	6	161	157	4	742
Total Invention Portfolio	510	504	247	616	125	176	39	646	813	66	3,742
Patent Prosecution											
US Applications Filed											
First Filings	43	34	23	67	8	21	3	53	82	2	334
Secondary Filings	<u>52</u>	<u>28</u>	<u>22</u>	<u>44</u>	<u>7</u>	<u>14</u>	<u>6</u>	<u>43</u>	<u>83</u>	<u>1</u>	299
Total	95	62	45	111	15	35	9	96	165	3	633
US Patents Issued											
Total Active US Patents	260	215	71	213	44	88	11	226	367	48	1,520
Foreign Patents Issued											
First Foreign Filings	37	19	12	36	2	7	2	40	44	3	192
Foreign Patents Issued	31	34	24	23	2	15	0	41	73	0	223
Total Active Foreign Patents	219	211	73	120	14	64	0	226	432	17	1,352
Licensing											
Agreements Issued											
Options	9	5	2	5	2	2	0	7	8	0	39
Utility Licenses	14	6	10	10	2	1	1	25	32	2	99
Plant Licenses	1	18	0	0	20	0	0	0	0	0	39
Total Active Agreements											
Options	25	12	5	5	2	9	0	15	21	4	93
Utility Licenses	90	48	24	80	9	10	2	112	157	15	527
Plant Licenses	6	266	0	0	118	0	0	0	0	3	389

¹ Combines portfolio activity carried out both at OTT and at the campus-based licensing office

² Includes small portfolio of DOE Laboratory inventions managed by OTT

³ A number of inventions involve faculty from multiple UC campuses. Activity statistics for these inventions are reported multiple times, once for each campus involved. Thus, for any given measure of activity, the sum of individual campus numbers may be greater than the systemwide totals reported.

CAMPUS FINANCIAL ACTIVITY

Year Ended June 30, 1998

(Thousands)

	UCB ¹	UCD	UCI ¹	UCLA ¹	UCR	UCSB	UCSC	UCSD ¹	UCSF ¹	Other ²	Systemwide Total
Income from Royalties and Fees	\$2,506	\$6,016	\$539	\$4,560	\$713	\$647	\$18	\$6,058	\$57,881	\$900	\$79,838
Less: Payments to Joint Holders	(39)	-	-	(4)	-	-	-	(39)	(6,655)	-	(6,737)
Adjusted Gross Income (A)	2,468	6,016	539	4,556	713	647	18	6,019	51,226	900	73,102
Legal and Other Direct Expenses	1,896	1,317	819	1,684	288	439	72	2,792	11,051	326	20,684
Less: Reimbursements	(905)	(566)	(574)	(769)	(78)	(180)	(6)	(2,260)	(3,145)	(164)	(8,647)
Net Legal Expenses (B)	991	751	245	915	209	259	66	532	7,906	162	12,036
Mandatory Distributions											
Inventor Shares	830	2,310	113	1,415	215	260	5	1,162	17,491	148	23,949
State Share ³	161	739	45	556	72	32	(13)	1,081	6,457	-	9,130
Total Mandatory Distributions (C)	991	3,049	158	1,971	287	292	(8)	2,243	23,948	148	33,079
Portfolio Net Income (A-B-C) ⁴	486	2,216	136	1,670	217	96	(40)	3,245	19,372	590	27,987
Operating Expenses											
OTT ⁵	151	955	163	275	193	181	61	651	2,214	174	5,018
Campus Licensing Office	627	-	399	775	-	-	-	689	405	-	2,895
Operating Expenses (D)	778	955	562	1,050	193	181	61	1,340	2,619	174	7,913
Net Income/Loss (A-B-C-D) ⁶	\$(292)	\$1,261	\$(426)	\$620	\$24	\$(85)	\$(101)	\$1,904	\$16,753	\$416	\$20,074

¹ Combines financial activity at OTT and campus-based licensing office

² Includes small portfolio of DOE Laboratory inventions managed by OTT

³ When direct expenses and inventor shares exceed adjusted gross income, the State share is represented as a credit (negative amount)

⁴ Portfolio net income indicates the extent to which income generated by the campus invention portfolio offsets direct costs associated with that portfolio

⁵ Includes a \$696,032 UCOP budgetary assessment

⁶ In addition to this net income, campuses that had positive net income for OTT-managed cases also received Short Term Investment Pool (STIP) income distributions in the following amounts: UCB -- \$10,529; UCD -- \$47,633; UCLA -- \$62,346; UCR -- \$895; UCSD -- \$102,673; UCSF -- \$625,394; other (DOE Laboratories) -- \$17,796.

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Part 2: DOE Laboratory Focus

Technology transfer for the DOE Laboratories has been under the purview of independent offices at Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL) since 1988. Although these offices manage most Laboratory inventions, OTT oversees a small portfolio of inventions disclosed prior to 1988 and some more recent cases such as those having co-inventors from the UC campuses.

Information in the DOE Laboratory Portfolios section (pp xx-xx) pertains to the activities of the technology transfer offices of the Laboratories, whereas the information in the OTT-Managed DOE Portfolios section (pp xx-xx) applies to the Laboratory cases managed at OTT.

DOE LABORATORY PORTFOLIOS

Portfolio Management

Technology transfer activities are carried out somewhat differently at the DOE offices as compared with OTT and the campuses. For example, after an invention is disclosed and a determination is made to pursue licensing on behalf of the University, a waiver request must be submitted to DOE to enable The Regents to be assigned title to the invention. In addition, whereas OTT and campus offices contract with attorneys at outside law firms for all of their patent prosecution activity, the Laboratories manage most US patent filings internally through their own legal departments and contract out only for selected matters, particularly foreign prosecution. Further, the licensing function is managed within the context of larger departments responsible for fostering a variety of partnerships with industry: LBNL's Technology Transfer Department, LLNL's Industrial Partnerships and Commercialization Department, and LANL's Civilian and Industrial Technology Program Office. In addition to patent licensing, these offices direct substantial resources toward the licensing of software and the negotiation of Cooperative Research and Development Agreements (CRADAs) with industry.

Invention Reporting

In FY98, 163 inventions were disclosed by DOE Laboratory researchers. Below are descriptions of three inventions currently managed by the Labs which highlight the breadth of research and technology transfer activity underway at the Labs:

Prolonged Storage Of Red Blood Cells (LANL): Los Alamos National Laboratory has developed a portfolio of patents covering methods for the prolonged storage of red blood cells ("Prolonged Blood Storage"). This Los Alamos technology provides the ability to store red blood cells for up to twice as long as the storage time provided by conventional methods. The Prolonged Blood Storage technology is vital to maintaining a constant supply of blood available for administering blood transfusions. Additionally, the Prolonged Blood Storage technology helps reduce the cost associated with collecting, testing, storing, distributing, and administering blood. Since the market for the technology is international, Los Alamos secured patent protection in the United States and in many other countries. Los Alamos has exclusively licensed the U.S. and foreign patents covering the Prolonged Blood Storage technology.

Data Management Toolkit (LBNL): Object-Protocol Model (OPM) data management tools provide the ability to construct, maintain, and efficiently explore complex scientific databases and have application in the management and integration of genomic and biological data from disparate sources. They enable the rapid development of relational databases, the integration of relational and flat file databases, and the building of cross-database query systems. The first OPM products have been introduced by LBNL's licensee to accelerate drug discovery in the pharmaceutical industry where large libraries of DNA sequence data are compiled and searched for correlations between genes and specific diseases. The licensee, a Berkeley company, has established an autonomous division to develop OPM products which employed 20 people at the end of its first year.

Aerogels (LLNL): Aerogels are lightweight solid foams of a three-dimensional crosslinked structure. They have outstanding thermal insulating, acoustical, and dielectric properties, and have applications both as chemical catalysts and as insulating material in electronics. Aerogels may be made from inorganic precursors, such as sand, as well as from organic components. Organic aerogels may be pyrolyzed to essentially pure carbon, which is a very good electrical conductor.

Two Bay Area companies have licensed aerogel from LLNL. One uses the technology for advanced energy storage products. The other is oriented toward developing new aerogel products and concentrates on optimizing the manufacturing processes for preparation of various aerogel materials. A third company, in Arizona, has licensed capacitive deionization technology, an electrochemical process for purifying water that uses carbon aerogel electrode material.

Technology Transfer Activity

The Laboratories submitted 229 UC Elections and Waiver Reports. A total of 314 patent applications were filed and 141 US patents issued on DOE inventions.

The Laboratories completed a total of 39 new options and licenses for patentable inventions and tangible research products (TRPs) in FY98. Licensing of other types of intellectual property (e.g., copyrighted software) represent a significant additional element of current licensing activity.

Financial Results

The DOE Laboratories generated a total of \$3.2 million in income during FY98, up from \$2.9 million in FY97. Both LANL and LBNL contributed to this increase, which resulted from a combination of fees from newly issued licenses and the receipt of royalties on sales of technology first licensed several years ago. The Laboratories' emphasis on software licensing also was reflected in revenue growth.

Information on DOE patenting and licensing expenses is not provided in this report. Patent expenses are budgeted separately as allowable costs under the University's current contract with DOE and are not readily separable from other expenses of the legal departments. Similarly, operating expenses of the licensing function are not readily separable from other expenses of the technology transfer departments. Finally, income generated by the DOE Laboratories is not subject to a State share assessment.

Inventor share payments of \$1,191,873 included \$238,892 paid to authors of software. These payments were based on financial activity through September 30, 1997.

FINANCIAL ACTIVITY: DOE LABORATORY OFFICES

Year Ended September 30, 1998

(Thousands)

	LANL	LBNL	LLNL	Total
Income from Royalties and Fees				
Patents and TRPs	\$493	\$259	\$1,873	\$2,625
Copyrights/Software	<u>185</u>	<u>302</u>	<u>102</u>	<u>589</u>
Total	\$678	\$561	\$1,975	\$3,214
Inventor Shares Paid	\$275	\$177	\$740	\$1,192

Fiscal Year Comparisons

	FY97	FY98	% Change
Patents and TRPs	\$2,598	\$2,625	1%
Copyrights/Software	342	589	72%
Total	\$2,940	\$3,214	9%
Inventor Shares Paid	\$1,142	\$1,192	4%

**PATENTING AND LICENSING ACTIVITY:
DOE LABORATORY OFFICES**

Year Ended September 30, 1998

	LANL	LBNL	LLNL	Total
Disclosure and Prosecution*				
Inventions Reported	105	86	163	354
US Applications Filed				
First Filings	69	23	90	182
Secondary Filings	<u>9</u>	<u>18</u>	<u>19</u>	<u>46</u>
Total	78	41	109	228
US Patents Issued	50	13	78	141
First Foreign Filings	18	8	20	46
Marketing and Licensing				
UC Elections and Waiver Requests	60	45	124	229
New Agreements Issued				
Secrecy	307	137	267	711
Option	1	7	2	10
License	16	2	11	29
Total Active Agreements				
Option	2	13	2	17
License	47	24	90	161

*Fiscal Year Comparisons
(Thousands)*

	FY97	FY98	%Change
Disclosure and Prosecution*			
Inventions Reported	351	354	1%
US Applications Filed			
First Filings	206	182	-12%
Secondary Filings	50	46	-8%
Total	256	228	-11%
US Patents Issued	125	141	13%
First Foreign Filings	63	46	-27%
Marketing and Licensing			
UC Elections and Waiver Requests**	277	229	-17%
New Agreements Issued			
Secrecy	916	711	-22%
Option	5	10	100%
License	35	29	-17%
Total Active Agreements			
Option	16	17	6%
License	157	161	3%

* *Data reflects patent prosecution initiated on behalf of either DOE or the University.*

** *Although patent prosecution may be initiated on behalf of DOE or the University, the University seeks to obtain title, by election or waiver request, to only those Laboratory inventions that are identified as having licensing potential.*

OTT-MANAGED DOE PORTFOLIOS

OTT continues to manage a portfolio of 62 inventions for the DOE Laboratories, most disclosed prior to the establishment of the DOE independent licensing offices. However, OTT occasionally receives a new Laboratory disclosure when UC campuses are also involved or the technology is closely related to one already administered by OTT.

Total income increased 112% to \$896 thousand in FY98 due, in part, to \$619,000 generated by LLNL's Chromosome Painting technologies. Of this total, \$300,000 was settlement monies related to an infringement action which was resolved in the University's favor.

The substantial decrease in net legal expenses are largely attributable to the resolution of the infringement action mentioned above.

Operating expenses rose somewhat in FY98 due to increased support for the LANL and LBNL portfolios and an increase in the UCOP assessment, which is based on licensing income. DOE Liaison costs, included within in operating expenses, are allocated between the three Labs based on the same algorithm applied to allocate other fees and cost reimbursements owed the University for Lab oversight.

These factors, taken together, resulted in a 184% increase in portfolio net income in FY98 to \$417,000.

INVENTION ACTIVITY (OTT/DOE)

Year ended June 30, 1998

	LANL	LBNL	LLNL	Total
INVENTION				
Inventions Reported	0	1	0	1
Total Active Cases	3	18	41	62
PATENT ACTIVITY				
US Patent Applications Filed				
First Filings	0	2	0	2
Secondary Filings	0	1	0	1
Total	0	3	0	3
US Patents Issued	0	1	2	3
Total Active US Patents at FYE	4	8	35	47
LICENSING				
Secrecy Agreements Issued	0	0	0	0
Letter/Option Agreements Issued	0	0	0	0
License Agreements Issued	0	1	1	2
Total Active Licenses at FYE	1	5	9	15

FINANCIAL ACTIVITY (OTT/DOE)*Year ended June 30, 1998**(Thousands)*

	LANL	LBNL	LLNL	Total
Royalty and Fee Income	\$0	\$231	\$665	\$896
Less: Expenses/Distributions				
Net Legal Expenses	1	12	149	162
Inventor Shares	0	123	20	143
Operating Expenses	<u>53</u>	<u>37</u>	<u>84</u>	<u>174</u>
Net Income	(\$54)	\$59	\$412	\$417
Inventions Earning Income	0	4	12	16
# of Inventors Paid Shares	0	16	15	31

FISCAL YEAR COMPARISONS*Year ended June 30, 1998**(Thousands)*

	FY97	FY98	%Change
Royalty and Fee Income	\$422	\$896	112%
Less: Expenses/Distributions			
Net Legal Expenses	670	162	-76%
Inventor Shares	82	143	74%
Operating Expenses	<u>166</u>	<u>174</u>	-1%
Net Income	(\$496)	\$417	184%
Inventions Earning Income	20	16	-20%
# of Inventors Paid Shares	15	31	107%