

Imagine the Future

discoveries that will
change our world



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HAT WILL LIFE BE LIKE WHEN OUR COVER BABY TURNS 21? WILL LIFE BE EASIER, WITH UNIMAGINED CONVENIENCES, ENVIRONMENTALLY-FRIENDLY PRODUCTS, ENOUGH FOOD AND CLEAN WATER FOR ALL?

OR WILL IT BE A TIME OF GRAVE DECISIONS ABOUT HOW AND FOR WHOM AND FOR WHAT PURPOSE OUR LIMITED RESOURCES WILL BE USED, WHEN TECHNOLOGICAL ADVANCES HAVE COMPLICATED OUR LIVES AND WHEN THE TECHNOLOGICAL GAP BETWEEN “HAVES” AND “HAVE-NOTS” IS AN UNCROSSABLE CHASM?

OUR BABY’S FUTURE IS BEING CREATED NOW, BY RESEARCH AND INNOVATIONS AT STANFORD AND ELSEWHERE. MOST OF STANFORD’S INVENTIONS ARE EMBRYONIC, EARLY-STAGE DEVELOPMENTS FOR WHICH COMMERCIAL PRODUCTS ARE LIKELY TO BE 10-15 YEARS AWAY. YET THESE INNOVATIONS HAVE THE POTENTIAL TO CHANGE OUR LIVES IN WAYS WE CAN ONLY IMAGINE NOW. TAKE A PEAK INTO THE FUTURE....



ALL ABOUT US

AVERAGE AGE **38**

AVERAGE YEARS AT OTL **7**

CUMULATIVE EXPERIENCE

246.5 YEARS

NUMBER OF EMPLOYEES

24

IMAGINE A WORLD OF VISION FOR THE BLIND, WHERE DISEASES SUCH AS MACULAR DEGENERATION CAN BE CURED.

Age-related macular degeneration is the leading cause of blindness in people over the age of 65. Currently, there is no effective treatment for most patients with AMD, a disease that often results in permanent damage to photoreceptors.

Researchers in the Ophthalmology department, chaired by Professor Mark Blumenkranz, have been working on technology that once seemed possible only in sci-fi movies. Their goal? To restore sight in blind people by connecting a video camera directly to the visual system through an artificial synapse chip.

LOOKING AHEAD>>

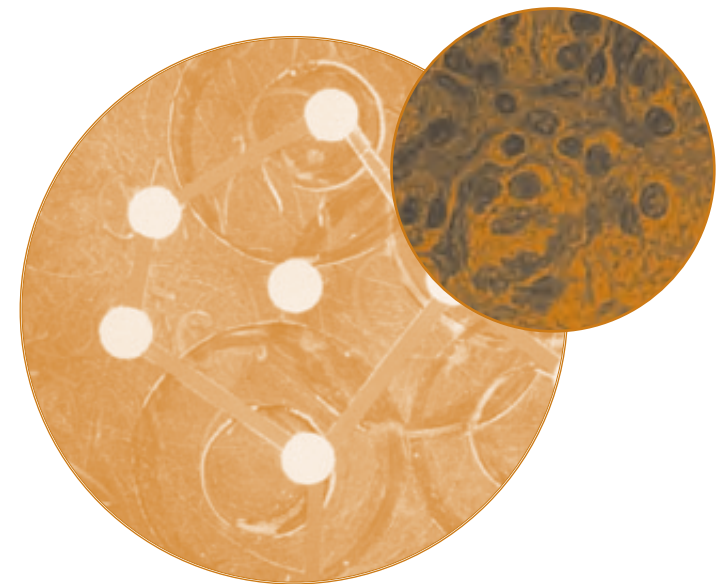
Harvey Fishman and other researchers in the Blumenkranz lab have been working on an artificial chip to stimulate the nervous system. Made possible by sponsorship from VISX, and exclusively licensed to VISX, the chip will direct the growth of neurites to be in direct contact with it. The signal from a camera worn by the patient will be able to directly stimulate those neurons sending the image information to the brain.

This chip has the potential to not only restore normal sight in visually impaired people, but to enhance the sight of anyone. And these new technologies designed to regenerate nerve cells and release drugs in very selective ways could have applications in other parts of the body as well, including the brain – which means the neurodegenerative diseases such as Parkinson's and Alzheimer's could benefit.

IMAGINE IF DOCTORS COULD SEE CELLS AT THE MOLECULAR LEVEL, ENABLING THEM TO DIAGNOSE AND TREAT DISEASES

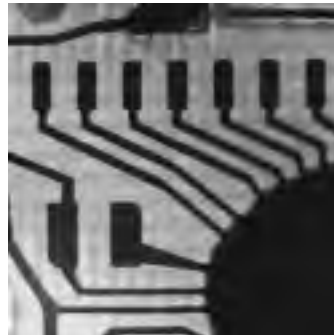
SUCH AS CANCER AND HEART DISEASE. Molecular Imaging, or MI, is a young research area, just 10 years old, that combines contrast agents and/or pharmacologically active diagnostic compounds with traditional imaging tools to capture pictures of specific molecular pathways in the body, particularly those that are key targets in disease processes. The pictures are obtained non-invasively, in vivo, and provide insight into cellular molecular events involved in normal and pathologic processes.

With these images, MI holds the potential to diagnose and stage a variety of diseases, including cancer, heart disease, and neurological diseases, and to depict the effectiveness of a particular treatment.



IMAGINE SEAMLESS COMMUNICATION BETWEEN YOUR PHONE AND YOUR COMPUTER VIA RADIO-FREQUENCY CHIPS. Analog and radio frequency technology are old technologies, but new consumer interest in wireless communications has brought about their revival. RFco, labeled by the *New York Times* as the “oldest living start-up” because of the age and experience of the management team, is developing Stanford’s microchip radio. The company plans to make low-power chips that can handle all kinds of radio frequencies for data and voice transmission. Such a chip would enable a “world phone” that could receive and send calls from anywhere. Someday soon we won’t have to juggle so many PDA’s, incompatible cell phone transmission formats, or artificial digital voices or images.

IMAGINE BEING ABLE TO SEND TRULY SECURE EMAIL EASILY, FEELING CONFIDENT THAT ONLY THE RECIPIENT OF YOUR EMAIL CAN READ IT. Identity-Based Encryption (IBE) is a new approach to sending protected information. Current popular encryption techniques require dependence on a public and private key. Sender A cannot encrypt a message for Recipient B without knowing B’s public key. Invented by Stanford Professor Dan Boneh, and UC Davis Professor Matt Franklin, IBE creates a public key based on a simple text string, like an email address. Now Sender A can encrypt his message using Recipient B’s email address, without the time-consuming and costly process of looking up a public key.



The IBE patents have been licensed to Voltage Security, a company originally founded by Stanford E-challenge winners. The company has products available for sale now (www.voltage.com) that work with most major email programs.

IMAGINE IF SUFFERERS OF CELIAC SPRUE COULD EAT CRUSTY FRENCH BREAD AND PASTA AND CHOCOLATE CAKE? Celiac sprue is an increasingly-diagnosed disorder of the small intestine, resulting from dietary exposure to gliadins and related proteins present in common food grains such as wheat, rye, and barley. Chemical Engineering and Chemistry Professor Chaitan Khosla and researchers in his lab have analyzed the pathways of the digestive breakdown of these toxic components of gluten, and identified an enzyme that can inactivate these toxic components. Early results suggest a possible enzyme therapy strategy for celiac sprue, for which the only current therapeutic option is strict exclusion of gluten-containing food, a difficult task to manage, especially for children and young adults. The technology is licensed to the Celiac Sprue Research Foundation, CSRF, a not-for-profit organization, which is already in clinical trials.

IMAGINE A NEW ANTI-CANCER DRUG WITH A UNIQUE RANGE OF BIOLOGICAL ACTIVITIES. Bryostatin synergizes the activity of other anti-cancer drugs, reverses multidrug resistance, restores apoptotic function and bolsters the immune system. Unfortunately, its supply is limited by its exceedingly low natural abundance and as is true for many natural products its performance in humans is not optimal. Professor Paul Wender and colleagues have used function-oriented synthesis to design and prepare bryostatin analogues that are readily available, can be tuned for clinical performance and in many assays exhibit activity superior to bryostatin. Stanford's bryostatin technology is licensed to GPC Biotech, which specializes in developing new anti-cancer drugs.

IMAGINE BEING ABLE TO TAKE A DIGITAL PICTURE WITHOUT HAVING TO COMPENSATE FOR LIGHTING. You can easily discern a face in the shadows of the moon or the brilliance of the noon sun. Technology invented in the lab of Professor Abbas El Gamal, under development by Pixim, Inc., will revolutionize every digital imaging market. Applications range from security to consumer digital camera markets, and span the healthcare and automobile markets as well.

The demands on stationary surveillance cameras to function in changing lighting conditions present one of the greatest challenges in this market. The ability of this technology to distinguish between high and low levels of light, and automatically

compensate to produce high-quality images usable for facial or retinal recognition, comes at a time when the ability to capture, digitize, and search these images is critical. This is the first market that Pixim, Inc. will have a product for, with the range of other markets to follow.

IMAGINE THE FANTASTIC THINGS COMPUTERS WILL DO AS THEY CONTINUE TO GET FASTER. Now also imagine the fan noise whistling through the computer in an effort to keep the system cool. Keeping very hot systems cool is exactly what Cooligy, Inc. aims to accomplish with technology licensed from Stanford. Professors Ken Goodson, Tom Kenny, Juan Santiago, and their students combined the efficiency of microchannels with a novel electrokinetic pump with no moving parts that uses liquid to cool. With the shrinking size of CPUs coupled with increasing speeds that produce ten times the amount of heat that CPUs did just a few years ago, this new cooling loop may be the answer. The small size, light weight, and excellent thermal performance of the Cooligy system allows tighter packing of components on the circuit board and higher reliability of the individual chips as well as the entire system.

This microfluidic system will initially target high-performance CPUs that are used in very restricted spaces in workstations, IU servers, and small form-factor PCs. Later versions are being planned for other types of ICs, including graphics processors, FPGAs, DSPs, and other dense ICs.

WHO WOULD HAVE THOUGHT?



. . . THAT ALMOST 20 YEARS LATER, A 1984 INVENTION COVERING A METHOD OF MAKING FUNCTIONAL ANTIBODIES WOULD BE THE LARGEST ROYALTY PRODUCING INVENTION THIS 2002-03 YEAR? The patent, which took 14 years to issue, covers methods of making new antibody drugs such as Remicade for the treatment of Crohn's Disease and rheumatoid arthritis, and Reopro, an anti-clotting agent, both of which significantly improve the quality of life for patients. Professor Sherie Morrison, formerly of Columbia University, and Professor Leonard Herzenberg and Dr. Vernon Oi of Stanford are joint inventors, and the two universities have licensed them exclusively to Johnson & Johnson, which is nonexclusively sublicensing the patents. As with so many broad and revolutionary technologies, the patents are involved in litigation. MedImmune, a sublicensee that pays royalties on its sales of Synagis, a drug for the treatment of respiratory syncytial virus (a major cause of respiratory illness in young children), is suing Johnson & Johnson, Columbia, and Stanford.

. . . THAT STANFORD'S ASYMMETRIC DIGITAL SUBSCRIBER LINES (ADSL) WOULD BE ONE OF THE KEY TECHNOLOGIES FOR EXPANDING BROADBAND CAPABILITIES TO THE PUBLIC? In 1992, many people were touting fiber optic cables as the answer to growing consumer demand for bandwidth. However, Professor John Cioffi and his students, Drs. Jacky Chow, Peter Chow, Minnie Ho, and Huling Lou, invented the ADSL technology, which was revolutionary because it enabled use of the common telephone line to transmit large amounts of data quickly. Texas Instruments, Stanford's exclusive licensee, has been broadly sublicensing the Stanford patents. Like other revolutionary technologies, these patents are involved in litigation – in this case with Globe-span, which believes its products are not covered by Stanford patents.

. . . THAT A SMALL FIBER OPTIC AMPLIFIER DEVELOPED BY PROFESSOR JOHN SHAW AND DR. MICHEL DIGONNET IN 1981 COULD BE SO IMPORTANT IN TODAY'S TELECOMMUNICATIONS INDUSTRY? The fiber optic amplifier enables light signals to be transmitted over long distances, allowing data and voice transmissions to be sent over fiber optic cables. Litton Industries (since acquired by Northrop Grumman) made a strategic 20-year investment in fiber optic research that has produced products such as the fiber optic gyroscope, fiber optic gratings, fiber optic multi-sensor arrays, and much more. The fiber optic industry is taking off just as our most lucrative patent is soon to expire.

<<A LOOK BACK

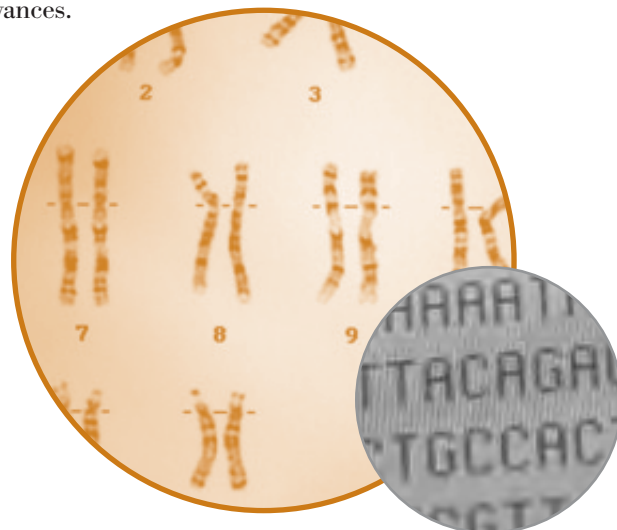
...THAT A PERSISTENT AND ENTREPRENEURIAL INVENTOR, PROFESSOR MARK YELDERMAN, COULD CONVINCE A MAJOR PHARMACEUTICAL COMPANY, BAXTER HEALTHCARE CORPORATION, THAT A 1982 CARDIAC DEVICE COULD SAVE LIVES IN THE EMERGENCY ROOM IN 2003?

The “cardiac output monitor” invention was first licensed to Interflow, a venture-based start-up in Texas. Baxter acquired the license in 1988 and introduced its product in 1991. Since then, the device has been used to monitor cardiac blood flow and is an integral part of emergency care.

...THAT A MATHEMATICS PROGRAM WOULD HAVE SUCH AN IMPACT ON BIOTECHNOLOGY? Gensean, a popular software program for gene sequence prediction developed by Professor Chris Burge (now at MIT) has been nonexclusively licensed to over 100 companies. Bioinformatics is one of the most promising areas for interdisciplinary research and technological advances.

....THAT A DATABASE FOR INFORMING PATIENTS, PHARMACISTS, AND DOCTORS ABOUT DRUG INTERACTIONS WOULD BECOME A WIDELY-USED TOOL? Mediphor, developed in 1973 by Professor Stanley Cohen, is routinely provided by many pharmacists to customers. The database describes the characteristics of prescription drugs and their interactions with other prescription drugs to help patients avoid toxic events.

...THAT GOOGLE WOULD BE STANFORD’S BEST-KNOWN LICENSEE AND THAT “GOOGLING” WOULD BECOME A VERB? When students Larry Page and Sergey Brin disclosed their invention to OTL, there were already existing search engines that seemed to work fine (at least in the minds of existing search companies). Little did the world know that searching could be so much faster, easier, and effective.



SETTLING PAST DIFFERENCES

The future looks brighter when formerly contentious relationships are resolved. We settled our 5-year differences with Affymetrix over microarray technology invented by Professor Pat Brown and then graduate student Dari Shalon and licensed to Incyte. In a press release, Affymetrix, Stanford, and Incyte announced that they had resolved patent oppositions and interferences, thus making way for unfettered commercialization by both companies.

Another important legal resolution involved a settlement with Bayer Diagnostics over HIV diagnostic technology invented by Professor Thomas Merigan. The original lawsuit was filed against Visible Genetics, a Canadian company, for selling an FDA-approved HIV mutation diagnostic kit. With several licensees paying royalties under an issued patent, we also wanted Visible Genetics to become a licensee. To add a twist, Visible Genetics was acquired by Bayer Healthcare LLC during the course of the litigation. We are pleased that Bayer has joined as a licensee, in addition to new licensees Celera and Lab Corp, and existing licensees Affymetrix, Quest, and Specialty Labs.

NEW INITIATIVES

Stanford is often asked to assist other non-profit organizations in their technology transfer efforts, particularly small organizations that do not have the resources or expertise to establish their own formal technology transfer office. In keeping with its interest in helping sister organizations, Stanford established a separate wholly-owned Limited Liability Corporation (Stanford

OTL-LLC) to allow OTL to act as a licensing agent for these organizations. To date, we have a formal relationship with the Oceanic Institute, an organization dedicated to aquaculture research in Hawaii, and an informal relationship with Children's Hospital of Oakland Research Institute (CHORI). Net proceeds from the LLC are returned to Stanford's General Fund.

The best way to interest companies in our early stage inventions is to "Capture the enthusiasm of the inventors." Inventors are our best salespeople – their scientific reputations, their research interactions with colleagues from industry, and their vision for their inventions all work to convince risk-taking companies to invest in revolutionary technologies. Visit <http://otl.Stanford.edu/tech/spotlight.html> to watch inventors describe their latest developments.

We have instituted a formal quality assurance program at OTL, in which several invention files are checked each month for compliance with standard operating procedures. Standard operating procedures were updated this year, and license agreement templates were revised to be as "plain English" as possible. We are committed to high quality professional standards and work at constant self-improvement.

In the year to come, we will launch a Web site for inventors, who will be able to get status reports on the licensing and/or patenting activity of their inventions. This will enable us to respond to inventor desires for up-to-date, on-demand information.

PRESENT TENSE:
THE YEAR
IN REVIEW

FACTS AND FIGURES

In spite of the economic turndown, gross royalties of \$45.4M..... More significantly, Stanford retained \$43.2M of gross royalties..... \$2.2M to other organizations for their share of royalties. Of the 442 technologies that generated income, 44 generated more than \$100,000 or more, and of those 44, seven produced over \$1M each.

ROYALTY DISTRIBUTION

Stanford's royalty-sharing policy provides for the distribution of cash net royalties (gross royalties less 15% for OTLs administrative expenses, minus direct expenses) to inventors, their departments, and their schools. In FY02-03, inventors received personal income of \$8.1M, departments received \$9.1M, and schools received \$8.8M*.

We contributed \$2M to the OTL Research Incentive Fund, which is administered by the Dean of Research for the support of early-stage, innovative research ideas. In addition, we contributed \$19,000 to the OTL Fellowship and Research Fund. Stanford also paid the University of California and other organizations \$2.2M for jointly-owned technologies for which Stanford has licensing responsibility.

EXPENSES

We spent \$5.2M on legal expenses, of which \$1.6M was reimbursed by licensees. We have an inventory of \$5.9M, which represents patent expenses for unlicensed inventions. Our operating budget for the year (excluding patent expenses) was \$2.9M.

NEW LICENSES

The economy clearly is affecting our ability to license technology. In FY02-03, we concluded 127 new license agreements (up from 112 new licenses last year), totaling \$2.6M in up-front license fees (up from \$1.4M last year). We received equity from 17 start-up companies. The average upfront royalty was more than \$20,000. Sixty three percent of our 127 licenses were nonexclusive; seven of these nonexclusive licenses were "ready-to-sign" agreements (i.e., downloadable from the OTL website, set price and no negotiation).

FY02-03 ROYALTY PAYMENTS TO STANFORD SCHOOLS

School of Medicine	\$6,514,628
School of Humanities and Sciences	\$1,311,089
School of Engineering	\$564,564
Vice Provost for Student Affairs	\$190,838
Dean of Research	\$110,842
DAPER (Athletics)	\$127,225
School of Earth Sciences	\$5,541

EQUITY

As of August 31, 2003, Stanford held equity in 80 companies as a result of license agreements. The market for initial public offerings was dismal this year and share prices were down. For institutional conflict-of-interest reasons and insider trading concerns, the Stanford Management Company sells our public equities as soon as Stanford is allowed to liquidate rather than holding equity to maximize return. This year, we received \$24,000 in liquidated equity from two companies: Protogene and CellGate.

START-UPS

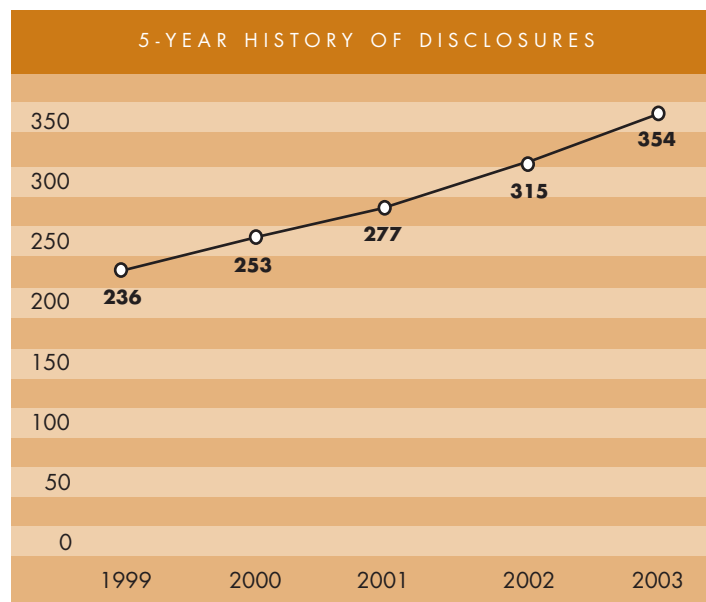
While Stanford entrepreneurs are still starting companies, the economy clearly has negatively affected the Silicon Valley entrepreneurial ecosystem. Venture capital investments dropped dramatically and investors are becoming more stringent. Yet we still licensed and received equity in 17 companies this year: Acumen Medical, Anchora, Avocel, Brion, Cellarant Therapeutics, Coverity, Identcrypt, Junius, Kaltix, Lightbit, Molecular Nanosystems, Poetic Genetics, Renegade, Stratagent, Tableau, VasoCure, Venomatrix.

EMBLEMATICWARE LICENSING

FY02-03 was the fourth year that Collegiate Licensing Company (CLC) handled emblematicware licensing as Stanford's agent. Gross royalty revenue from emblematicware licensing has stayed relatively constant at about \$380,394 during the past several years. Stanford ranks in the top 50 of the 180 institutions that CLC represents.

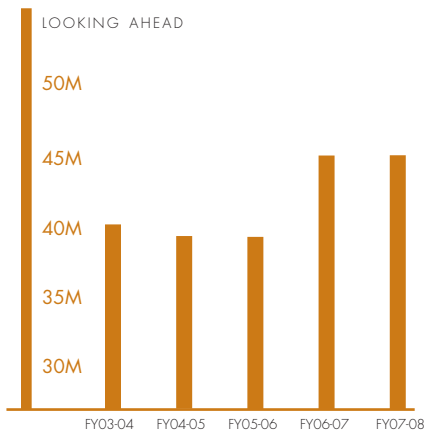
NEW DISCLOSURES

In calendar year 2003, we received a record high of 354 new technology disclosures, up 12% from last year. Approximately 48% were in the life sciences and 52% were in the physical sciences, including computer science technologies. Our work with the Stanford Biodesign Network's Biomedical Technology Innovation Program class generated 23 disclosures from students as part of their coursework.



STANFORD TRADEMARK ENFORCEMENT FUND

The Chief Financial Officer and General Counsel of Stanford recommended that Stanford provide a permanent source of funding for extraordinary cases associated with the protection of the Stanford name and associated logos and trademarks. Based on their recommendation, the President and Provost approved the creation of a Stanford Trademark Enforcement Fund (STEF). Initial funding for the STEF comes from 1% of the department and school shares of net revenue OTL receives. For FY02-03, we transferred \$181,590 to STEF.



PROJECTED TOTAL INCOME

BIRDSEED FUND

The OTL Birdseed Fund, administered by the Dean of Research, has provided small amounts of money (typically up to \$25,000) to fund prototype development or modest reduction to practice experiments for unlicensed technologies. This year, the Birdseed Fund funded seven new projects, for a total of 30 projects funded to date. The rate of licensing of Birdseed funded inventions is about the same as unfunded inventions (20-30%) but without this funding, many of these inventions would likely have remained wallflowers.

GAP FUND

In January 2000, we established an experimental Gap Fund to see if supporting technology development efforts up to \$250,000 would help OTL license very early technologies with commercial potential. The goal of the Gap Fund is to advance a funded technology to a point where it would be more attractive to potential licensees. A non-Stanford “friends of Stanford” external Gap Fund Board was created consisting of Shinya Akamine, Nancy Kamei, Yoshio Nishi, Niels Reimers, Bertram Rowland, Bernard Shoor, Sandra Shotwell, Craig Taylor, Aldo Test, and Trevor Loy. The Board approved the funding of two projects that were completed this year.

Professor Prinz and his interdisciplinary medical and engineering research team showed that a cell-based bioreactor could be built by patterning primary liver cells. The bioreactor is an early stage prototype for a future “liver assistance device” that

could be used to bridge liver patients waiting for a transplant or recovering from acute liver failure. The second project, led by Professor Brian Kobilka, focused on the development of a generalized “G Protein coupled receptor assay” that could be used as an efficient means of drug discovery.

The Gap Fund Board agreed that the Gap Fund experiment was worthwhile because both projects provided useful data and results. The consensus, however, was that technology development efforts at the level of the Gap Fund projects were probably not the most effective use of University resources. The Board is recommending that OTL and the University focus on building a patent fund and continue to support the Birdseed Fund to provide smaller amounts of funding for critical commercial experiments.

RESEARCH INCENTIVE FUND

In the past six years, the Dean of Research has used OTL funds to fund over 140 seed research projects in all parts of the University. Primarily for assistant professors, research grants of \$20,000 to \$30,000 were used to fund projects in education, history and classics such as Professor Deanne R. Perez-Granado’s *Interactive and Non-Interactive Books: Children’s Emergent Literacy in Family Contexts*, Professor David Como’s *Puritanism and the Origins of Democratic Thought*, and Professor William Burkholder’s *Altering the Specificity of an Inhibitor of Bacterial Development to Generate a Prototype Antibiotic*.

UNIVERSITY GENERAL FUND

Since 2002, we have paid back the University General Fund \$5,590,000. This amount represents reimbursements for patent expenses incurred by OTL on behalf of the University.

INDUSTRIAL CONTRACTS OFFICE

In its sixth year of operation, OTL's Industrial Contracts Office (ICO) negotiated some 550 sponsored research and other research-related agreements. Material transfer agreements, both with industry and nonprofits, are rapidly growing in complexity and number; they accounted for 360 of these agreements. ICO worked with more than 150 different companies, a growing number of them overseas. The industries they represent range from medical imaging to automotive systems to drug discovery and genomics, for studies involving researchers from the Schools of Medicine, Engineering, Humanities and Science, Education, and Earth Sciences. The agreements describe the research, and set forth the conditions for funding, publication, and other terms, plus the parties' respective rights to developments and intellectual property that may arise out of the research.

Highlights

Under one sponsored research project on orthopedic implants, researchers in Stanford's Department of Orthopedic Surgery are working with DNAX Research Institute to analyze tissue and blood obtained during elective knee and hip joint replacement surgery to identify and reduce the effects of pro-inflammatory targets that cause pain, swelling, redness and poor function.

In a project funded by Nissan Motor Co., Ltd., researchers in the Department of Mechanical Engineering are designing a diagnostic system for by-wire vehicles to advance knowledge on current driver assistant systems technology. Researchers will first use the diagnostic system to detect faults in the motor, sensors, and power supply of an individual steering subsystem, and then build prototype vehicles to demonstrate this system.

Increasingly, ICO finds that these research agreements require maintenance and care as they mature and evolve. A multi-year agreement begun almost three years ago with Rhone Poulenc Rorer Pharmaceuticals, Inc., now involves a spin off company, Gencell SAS, and the transfer of research materials and information between laboratories in Paris and Stanford. This research brings together researchers from several Medical School departments who are studying angiogenesis, the growth of new blood vessels, with the promise of helping the body heal damaged tissues or block tumor growth.

For information on Stanford's policies on intellectual property and research with industry, please visit our Web site at www.stanford.edu/group/ICO

EPILOGUE

The pace of technology is moving so quickly that the life of a baby born today will likely differ dramatically from the life of a baby born even a few decades ago. At OTL we have our eyes trained on the horizon, and we are looking for new inventors and new corporate partners who share our vision of a better tomorrow.

JUST SOME OF THE NEW INVENTIONS FOR 2003

- Versatile Microarray Platform
 Long-Wavelength Fluorescent Proteins
 Marine Copepods for Aquaculture
 Trans-septal Suction Stabilized Puncturing Device
 Genes Specific to Human and Great Ape Lineages
 Internet-Linked System for Directory Protocol-Based Data Storage
 Mifepristone for Circadian Shifting (Jet Lag, Shift Work)
 Mifepristone for Insomnia
 Probabilistic Assessment of New Medical Technologies
 Target for Carcinoma Therapy
 A Method for Computing Uncertainty Models
 Overexpression of Beta-catenin
 Handheld Portable Workstation
 Virtual Machines for Administering Computers
 Quantitative Test for Bacterial Pathogens
 Closed-Loop Control of Homogeneous Charge Compression Ignition (HCCI) Engines
 Nano-scale All-Optical Transistor and Switches
 Ultra-Slow Down and Storage of Coherent Light Pulses
 Construction of a Live Cell Fluorescent Mitosis Biosensor
 High-speed Long-reach Optical Transceiver
 Infomap Latent Semantic Analysis (LSA) Software
 An Aerodynamic Design Method for Natural Laminar Flow Supersonic Aircraft
 MR-Compatible Devices
 Hereditary Nonpolyposis Colorectal Cancer Assay
 Conversion of d-siRNAs into siRNA Expression Constructs
 An Economical Cell-free Protein Synthesis Method
 Torsional Cantilever for Scanning Force Microscopy
 Underlying Mechanisms for Higher Resistance to Selentite-induced Apoptosis of Normal Prostate Cells Compared to Corresponding Prostate Cancer Derived Cells
 Robotic Apparatus for Transcranial Stimulation
 A Cluster of Genes Associated with Lung Cancer Progression Defines a Novel Cellular Structure
 Radiosensitizer for the Treatment of Prostate Cancer
 Efficient Encodings for Document Ranking Vectors
 Waveguide-stabilized Diode Laser
 All-glass Vacuum Cell with Internal ar-coatings
 Guided Resonance Sensors for Detecting Biomolecular Associations
 Chinese TA (Software)
 Identification and Biological Actions of Novel Conserved Peptide Hormones
 Caching Queues in Memory Buffers
- DMSO Patch for Analgesia and Improved Somatosensation
 Low Temperature Growth of Single Wall Carbon Nanotube with PECVD
 Semidefinite Programming for Ad Hoc Wireless Sensor Network Localization
 Gene Therapy for Foot-and-Mouth Disease in Swine
 Stimulation of Electrically Active Tissues
 Implantable Sensors
 Application of Nanocarbon-based Products for Neurovascular Treatment
 An Activatable Molecular Transporter
 Hereditary Hearing Loss (HHL)
 A Combined Face Mask/Pacifier for use in Newborns and Infants
 Single Leaflet Replacement of Aortic Valve
 Genes Differentially Expressed in Schizophrenia
 Use of Del1 in Hair Regeneration
 Fibroblast Serum Response Predicts Human Cancer Progression
 A Resting-State Functional MRI Protocol Early Detection of Alzheimer's
 Monoclonal Antibodies against Prostate Specific Antigen
 Method and Device for Patterned Laser Treatment of the Retina
 Application of Nano Carbons and Tubes to Create Intravascular Devices
 Cancer-specific Therapy: A Method for Treating Cancers
 Ultra-short T2 Imaging Pulse Sequence
 Dialysis Membrane as a Support Structure in Retinal Cell Transplantation
 Whole Blood Total Bilirubin Monitor
 Immobilized-enzyme Microreactor Devices
 Method and Device for Tuning a Hearing Aid
 Pre-Embedded Multi-Layer Interconnection Wafers
 Mucosal Repair of Intestinal Epithelium
 Single Ultrasound Transducer Array for Intravascular Ablation and Imaging
 Diagnostic or Prognostic Marker for Prostate Cancer
 Spontaneous Fusion of Bone Marrow-Derived Cells
 Sustained Marrow-derived Stem Activity
 Network-adaptive Packet Dependency Control for Video Communication
 Temporally Layered Video Coding
 A General Method to Generate and Mark Chromosome Recombination in Mammalian Somatic Cells
 Catalytic Depolymerization of Polymers
- SNP Tests to Predict Response to Rituximab Therapy in Patients with Lymphoma
 Bench Press Buddy
 Method of Generating siRNA Vectors
 Air-core Photonic-Bandgap Fibers
 Compositions and Methods for Diagnosing and Treating Mood Disorders
 Two-dimensional Photonic Crystal Resonator Arrays
 Surface Plasmon Sensor
 Methods and Systems for Altering Intravascular Blood Flow Patterns
 Angiogenic/atherosclerotic Susceptibility Assessing Blot
 3-D Multi-Layer Microstructure Fabrication of Materials
 Ultra-Slow Down and Storage of Light Pulses
 Inhibitors of Tissue Transglutaminase-II
 Method to Enhance Modularity of Modular Polyketide Syntheses
 Use of EGF-like Growth Factors for Infertility and Contraception
 Endovascular Anchoring Device
 Tracking System for Retinal Stimulating Array
 Funnel Sculpting of Free Energy Surfaces for Biological Molecules
 Web-based Healthier Living
 Treatment of Neurodegenerative Diseases
 A Method, Apparatus and Delivery Mechanism for Material Fixation within a Body
 Blood-based Genetic Markers Predictive of Immune Tolerance Beyond Research
 Cloning Ban: A New Method to Continue Embryonic Stem Cell Research
 A Mouse Model and New Therapeutic Target for Psoriasis
 Apparatus for Monitoring and Recording a Person's Heartbeat and Respiration
 Advanced Water Pumping Technologies for Miniature Hydrogen Fuel Cells
 Metadata Sharing for Digital Photographs with Geographic Coordinates
 Elastomer Spatial Light Modulators for EUV Lithography
 Inducible Protein Stabilization Using Small Molecules
 Method of Forming Metal Nanowires and Arrays
 Screening and Eliminating White Blood Cells
 Method of Generating Spin-Polarized Electric Current and Spintronic Devices
 Cell Printer and Neuronal Circuit Generator
 Treatment of Flow Equations
 Vaginal Probe
 Infusing Biologics into a Specific Tissue Bed
 Promotin Revascularization of the Heart
 Methods to Detect and Treat Insulin Resistance
- LL37/hCAP18 Induces Angiogenesis and Arteriogenesis
 Ureteral Stent
 Device to Facilitate Surgical Wound Care
 Urinary Catheter
 Device and Method for Reducing Radiocontrast Induced Nephropathy during Coronary Angiography
 New Tagging Scheme for Decoding of Complex Mixture
 Stent for Sustained and Regional Delivery
 A Transcutaneous Electrical Nerve Stimulator
 Dexterous Surgical Apparatus with Variable Flexibility
 Means for Detection and Monitoring Cardiac Dysfunction
 CathPortal Vascular Closure Device
 Ultra-Portable Headphone with Improved Stereoperception, Ambiance, and Base
 Minimal Power Propulsion System for Deep Space Exploration
 Catheter-Based Three-Dimensional Ultrasonic Imaging
 Chronically Implantable Optical Imaging System
 Molecular Inversion Probes
 Direct Projection System for Control of the Retinal Prosthetic Chip
 Genes Involved in Atherosclerosis
 Methods to Form Liquid Crystal Nanoparticle-DNA Complexes for Targeted Gene Delivery
 Electro-adhesive Forceps
 Bike Helmet with Built-in LED Road Illumination
 DNA Fingerprinting Method with Microarrays
 Mechanically-Switchable Photonic Crystal Filter
 Diagnostic Markers and Targets in Human Heart Failure
 Obviating Laparoscope Lens Cleaning
 Device for Access to Body and Trocar Placement in Laparoscopic Surgery
 Array-based Nano-sensor for Measuring Catalytic Activity
 Methods to Identify Residual Prostate Tissue in Vivo
 Mouse Model for Hair Growth
 Reaction Chamber for Small-Scale Oligonucleotide Synthesis
 Xenon Ionizing Radiation Detectors
 Genes Regulated in Common by Antidepressants of Different Classes
 Audio and Optical Respiratory Gating
 Monitoring of Cardiac Dysfunction
 Generalized Reconstruction of Magnetic Resonance Velocity Measurements
 LUCY, a 3D Anatomic Model of the Human Female Pelvis



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