stages of development

OFFICE OF TECHNOLOGY LICENSING ANNUAL REPORT 2000 - 2001

YOUNG STARS:

Sophie Havranek, 21 months • William Watanabe, almost 2 yrs

Sofia Dueñas, 6 yrs • Samantha Dueñas, 4 yrs

Chris Gladfelter, 9 yrs • Nate Taylor, 11 yrs

Lindsay Ruggeri, 13 yrs • Madelyn Taylor, 13 yrs

Anthony Saiz, 14 yrs • Justin Gladfelter, 14 yrs

David Taylor, 15 yrs

PHOTOGRAPHY:

Steve Gladfelter

Inventions are like people: they pass through many critical stages of development. Most of the inventions disclosed to the Office of Technology Licensing are at a very early stage of development and, like children, can take 16 years or more to fully mature. If a company is willing to nurture an invention during the "terrible twos" and "teenage years," the invention can blossom into valuable products in the marketplace. Our job is to recognize potential and find supportive and committed homes for Stanford inventions, enabling them to enjoy a golden age.

2000-2001 may be our turn-around year. With the expiration of the Cohen-Boyer patents, we fully expected several "down" years, with revenues as low as $20-$25M, until other technologies had a chance to grow up. Exceeding our own highest expectations, we brought in $41.2M in gross royalty revenue from 371 technologies this year, up 11% from the previous year's revenue of $36.9M. Of these 371 income-producing inventions, 47 generated $100,000 or more, and of those 47, seven produced over $1M each. For the first time in over 20 years, a physical science invention – an optical fiber amplifier – generated the most income.

ALL ABOUT US

Average age
39

Average years at OTL
6.3

Cumulative experience
298 years

Number of employees
25

ACTIVE CASES IN FY 00-01

1,804

2000 - 2001 ROYALTY PAYMENTS

Inventors $9.7M

Departments $10.5M

Schools $10.6M

ROYALTY DISTRIBUTION

Stanford's royalty-sharing policy provides for the distribution of cash net royalties (gross royalties less 15% for OTL's administrative expenses, minus direct expenses) to inventors, their departments, and their schools. In FY00-01, inventors received personal income of $9.7M, departments received $10.5M, and schools received $10.6M.*

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 $811,000 to the OTL Fellowship and Research Fund, which is described below. Stanford also paid the University of California and other organizations $2.6M for jointly-owned technologies for which Stanford had licensing responsibility.

**While net royalties are divided evenly between the inventor, the inventor's department, and the inventor's school, some inventors designate a portion of their royalty income to their laboratories, hence the discrepancy in income.*

2000-01 ROYALTY PAYMENTS TO STANFORD SCHOOLS

School of Medicine	$4,954,633
School of Humanities and Sciences	$3,706,246
School of Engineering	$1,445,878
Dean of Research	$210,166
Vice Provost for Student Affairs	$139,486
DAPER (Athletics)	$92,991
SLAC	$6,133
School of Earth Sciences	$5,672

EXPENSES

We spent $2.9M on legal expenses, of which $1.6M was reimbursed by licensees. We have an inventory of $4M representing patent expenses for unlicensed inventions. Our operating budget for the year (excluding patent expenses) was $2.6M.

NEW LICENSES

In FY00-01, we concluded 137 new license agreements, totaling over $3M in upfront license fees. We also received equity as partial consideration from 13 start-up companies. The average upfront royalty was more than $16,000. Sixty-one percent of our licenses were nonexclusive, with 21 of them "ready-to-sign" agreements (set price and no negotiation).

EQUITY

As of August 31, 2001, Stanford held equity in 59 companies as a result of license agreements. It is likely in the coming year that one or more of these companies will produce cash income either by being acquired or through an initial public offering. Because these events are unpredictable but will play an increasingly important role in OTL's revenue picture, it has become more difficult to predict OTL income from year to year.

This year, we received $2.1M in liquidated equity from 5 companies: Neurobiological Technologies, RITA Medical, Rigel Pharmaceuticals, Staccato Systems, and Telik.

Shares in Staccato and Rigel provided the major source of liquidated equity this year. Staccato was formed in 1996 to commercialize the second generation of music synthesis technology – physical modeling – developed at the Stanford Center for Computer Research in Music and Acoustics ("CCRMA"). Stanford's 550,000 shares of Staccato were liquidated when Analog Devices, Inc. acquired Staccato. The $1.175M was used to repay both CCRMA and OTL for their and our investment in developing the technology and the Sondius trademark to a more licensable stage. Staccato, and now ADI, develop products for the PC music-audio market.

Rigel was organized in 1996 to commercialize technology discovered in the laboratory of Professor Garry Nolan in Molecular Pharmacology. Rigel is discovering new small molecule drugs for cancer, immunology, and infectious diseases based on a combinatorial biology technology that provides a new and rapid way to discover drug targets and validate their role in disease. Stanford's 168,417 shares were liquidated for over $900,000.

START-UPS

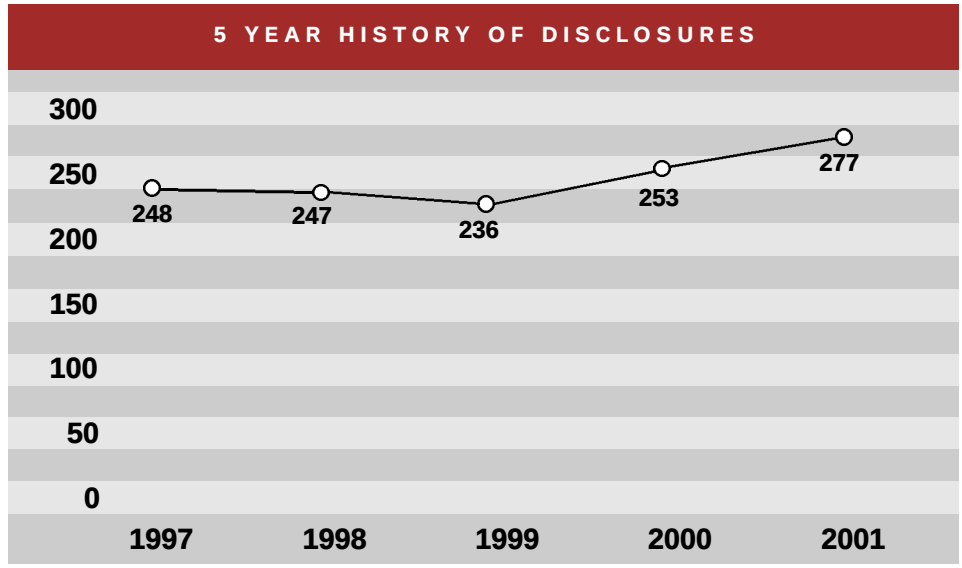
It will be interesting to see how Stanford start-up activity is affected by the economic slowdown. This year we licensed and received equity in 13 companies: Applied Genomics, AvaCore, BioAdvantex, Hypnion, LightConnect, Luxcore, OptiComp, OsteoNET.com, Proteomic Systems, RFCo, SemiZone, StanGraft, and Xeragen. We will receive equity in Microbar and Molecular Nanosystems when certain milestones are met.

EMBLEMATICWARE LICENSING

FY00-01 was the second year that Collegiate Licensing Company (CLC) handled emblematicware licensing as Stanford's agent. Gross royalty revenue from emblematicware licensing has stayed relatively constant during the past several years.

NEW DISCLOSURES

In calendar year 2001, we received 277 new technology disclosures. Approximately 52% were in the life sciences and 48% were in the physical sciences, including computer science technologies.



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. To date, the Birdseed Fund has funded 20 projects totaling approximately $323,712, five of which were subsequently licensed.

OTL RESEARCH AND FELLOWSHIP FUND

We are very proud of the fact that this year's liquidation of equity ($2.1M) helped to fund 10 Stanford Graduate Fellowships. The net proceeds of the Stanford share of equity went to the OTL Research and Fellowship Fund. These Fellowships represent one of the primary reasons for university technology transfer: to fund further education and research so that the cycle of innovation can continue.

STAGES OF DEVELOPMENT

UNLICENSED NEWBIES

Stanford is recognized for its research and education activities in photonics, especially for the integrated nature of its photonics community, from scientists exploring basic physics and materials, through devices, to systems and applications. The development of such inventions often involves government and industry resources at the research group, department, or school level. Government funding for basic research may then evolve into industry funding for additional development. For example, the basic research in the technologies described in "Ultrafast Quantum Well Optoelectronic Devices" (Stanford Docket S97-015) and "Optically Controller Lumped Element Waveguide Switch" (Stanford Docket S01-213) was funded by the U.S. government.

These inventions by Professor David A.B. Miller and his research group offer high-speed optoelectronic devices that can convert one wavelength to another without the use of conventional electronic circuitry. Potential applications for these inventions include optical telecommunications, optical switching, and optical wavelength conversion. We have not yet found an industrial champion/licensee for these technologies but we believe they have excellent commercial potential. One company is currently providing funding to Professor Miller for further development in this research area.

On a larger scale, Stanford officially launched the Stanford Photonics Research Center in September 2001 to foster on-going involvement between faculty, students, and industry. We expect many exciting photonics inventions to be developed in the coming years.

THE CARE AND FEEDING OF INFANT INVENTIONS

One of our newborn inventions now in development is the Micro Fuel Cell, invented jointly by team members in Professor Fritz Prinz' Rapid Prototyping Laboratory (RPL) and engineers from Honda R&D Corporation. Small Fuel Cells are attractive since they may power portable devices for extended periods of time. The invention resulted in the development of fabrication steps leading to the generation of credit card size or smaller fuel cells. The fuel cells consist of a Polymeric Proton Exchange membrane, catalytic and electrode metal layers, and a gas delivery structure. Although it is much too early to predict the royalty potential, tiny fuel cells promise to revolutionize micro power and fuel everyday products in the future.

THE GROWING YEARS

Functional Antigen technology was invented in 1984 by Professor Leonard Herzenberg and Dr. Vernon Oi of Stanford and Professor Sherie Morrison, formerly of Columbia University. It was first licensed to a major life sciences corporation and then to Centocor, which was subsequently acquired by Johnson & Johnson. Due to the perseverance of our patent attorney, the patent finally issued in 1998 with a 17-year patent life, just when important antibody products are coming into the marketplace. Therapeutic antibodies, such as Remicade for treatment of Crohn's Disease and rheumatoid arthritis, and Reopro, an anti-clotting agent, are covered by this patent, which Johnson & Johnson is sublicensing to other companies. We believe royalties will continue to increase in the future.

INVENTORS HALL OF FAME

Professor of Medicine Stanley Cohen was honored for developing genetic engineering, which enables scientists to move genes from one organism to another. It has dozens of applications in medicine, from providing insulin for diabetics to human growth hormone.

Professor of Surgery Thomas Fogarty was honored for inventing a catheter that has revolutionized the way surgeons remove clots from blood vessels. The "Fogarty Balloon Embolectomy Catheter" has transformed a complicated, invasive operation into one that can be done with a single small incision using a local anesthetic.

THE COMFORTS OF MIDDLE AGE

Our biggest income producer in 2000-01 was an invention of an optical fiber amplifier, which was disclosed in the early eighties. Last year – two decades after the original disclosure – it generated over $10M in revenues for Stanford. The optical fiber amplifier is a story of perseverance, faith, and right relationship. The fiber optic research program, directed by Professor John Shaw, originally was funded by ARCO, which soon after sold the program to Litton Guidance and Control Systems. Litton has been funding research in Professor Shaw's laboratory for over 20 years; the Stanford/Litton Research Partnership has resulted in the introduction of fiber optic gyroscopes into inertial navigation, fiber optics into acoustic sensors and arrays, and optical fiber amplifiers and components for the telecommunications and CATV industries.

Myron A. Kleinbard, Executive Director of Commercial Products and Technology Licensing at Litton, comments: "the Litton Research Program created a very special relationship between Stanford University and Litton. The joint research efforts have resulted in the development of fiber optic products that have benefited the public. Stanford's basic and fundamental pioneering research by John Shaw, Michel Digonnet, and others has provided the basic building blocks for the bandwidth explosion in optical communications. Litton is proud to be a part of Stanford's mission in education and research."

In accordance with the terms of the sponsored agreement, Litton has an exclusive license to the more than 160 inventions that have been developed under the Litton funding. Litton also has the right to sublicense the inventions. Kleinbard's licensing team at Litton, now a part of Northrop Grumman, is currently focusing on licensing major telecommunications equipment suppliers and users in the United States, Japan, Canada, Europe, Taiwan, and South Korea. Stanford's fiber optic patents are also being licensed in energy exploration and production.

Kleinbard likes to surprise OTL with a check at the end of the fiscal year. On August 29, 2001, he surprised everyone by bringing a check for $6M!

NEW INITIATIVES

DONATED PATENTS

In 1995, BP decided to sponsor research in Professor Robert Waymouth's laboratory in the area of elastomeric polypropylene based on interesting results previously funded by the National Science Foundation. Although the chemical process and products have potential commercial significance, the process is no longer compatible with BP's existing processes, so BP has now decided to donate sample materials, marketing information, and know-how along with several BP patents. This intellectual property portfolio is one of the most "developed IP" we are handling, and we expect to find a licensee shortly who can take advantage of a very unique process and product.

This donation, in addition to those received from GE and Telecordia in the past, adds to our portfolio of donated patents, whose royalties, if any, will be used for research and education at Stanford.

PRODUCTIVE PARTNERSHIPS

OTL and the Monterey Bay Aquarium Research Institute (MBARI) http://www.mbari.org formed an alliance to market and license MBARI technology for commercial use. MBARI's mission is to develop better instruments, systems, and methods for ocean science and technology. We have been interested in bringing together a critical mass of oceanographic technologies. MBARI and Stanford have many close research ties, so the alliance should prove beneficial to both parties.

We have established a relationship with Hermia and Finn-Medi of Tampere, Finland whereby two Finns will become Visiting Licensing Associates for at least 6 months. Our long-term vision is that we will establish a more apparent and productive presence in Europe, while Hermia/Finn-Medi will establish a presence in Silicon Valley, giving us both a better opportunity to market our respective inventions to a broader group of potential licensees. The Organization of Economic Co-operation and Development has cited the Nordic countries, particularly Sweden and Finland, as taking the lead in the transition to a knowledge-based economy, so we feel this collaboration will be a productive one.

We have worked closely with the Medical Device Network (MDN) http://mdn.stanford.edu since its inception in late 1997. MDN program goals are to: (1) stimulate innovation and development of early-stage medical devices; and (2) further develop Stanford as a regional resource for research and education in medical technology development. This year, we co-sponsored with MDN the third medical device invention challenge ("Innovation at the Medical/Web Interface"), in which there were over 20 participants (faculty and students from engineering and medicine). We also continued our participation in the second and very popular conference, "Patent/Start-up 101." This conference provides us with an opportunity to educate a large group of Stanford faculty and students about university policies for intellectual property disclosure, conflict-of-interest issues, and the OTL process. OTL staff also participate in an on-stage mock licensing negotiation of a Stanford technology with a senior executive from a major medical technology manufacturer. Perhaps the most significant aspect of our collaboration with MDN is to leverage the expertise and industry connections of Stanford faculty to maximize our marketing and technology assessment efforts in this sector. As the university embarks on a pathway to build a Bioengineering Department, continued collaboration with groups such as MDN will allow us to maintain our strong position in successfully transferring medical technologies to the public.

1970 - 2001

Cumulative number of disclosures received
4,649

Cumulative US patents issued
1,159

Cumulative income
$495,963,000

Cumulative amount given to the OTL Research Incentive Fund
$29,384,785

Kudos

Along with her colleague Lita Nelsen from MIT, Katharine Ku received the AUTM Bayh-Dole Award in recognition of "untiring efforts to foster and promote intellectual property activities on behalf of the university and nonprofit community."

One of our inventors, Professor K. Barry Sharpless, received the Nobel Prize in Chemistry for his work on chirality in synthesis. Stanford received and licensed two issued patents (Patent Nos. 4,594,439 and 4,471,130) on Sharpless' work, both entitled "Method for Asymmetric Epoxidation."

AN ENTREPRENEURIAL APPROACH

OTL is a charter member of the now two-year-old Entrepreneurship Task Force ("ETF"). This year, we helped organize the ETF's first salon/panel on incubation services in the Bay Area available to Stanford entrepreneurs. Other ETF event topics have included presentations on our own Stanford entrepreneurs (both faculty and students describing their experiences in starting new ventures) and on angel investor groups in the Silicon Valley. This participation keeps us up-to-date on the activities of other groups at Stanford supporting entrepreneurship and has created a growing network of contacts both within and external to the university useful in our support of our inventor entrepreneurs.

OTL also has been Stanford's primary liaison to Concept2Company (C2C) as C2C searches out Stanford inventions that have an immediate market and where the Stanford-associated people do not wish to leave the university. C2C has the resources to create all the elements of a new venture, such as developing the business plan, incorporating the firm, providing initial seed funding, recruiting the management team, and finding first-round venture capital. Under a non-exclusive agreement between Stanford and C2C, Stanford receives a portion of the founding equity in C2C-created companies. The first company formed by C2C, ChemTracker, is based on a novel system to monitor and track hazardous materials created within Stanford's Environmental Health and Safety group. ChemTracker has contracts with a number of firms in the Silicon Valley and is making hazardous materials less hazardous to those of us who work and/or live in this area.

Finally, OTL is acting as a resource for Stanford's academic programs in the Graduate School of Business (GSB) and in the School of Engineering. Both schools offer courses in which students come up with a viable business idea and complete a business plan. The inventions we handle are an excellent potential source of project ideas for the students, while we and the inventors can benefit from the students' exploring ways to commercialize the inventions. This past year's GSB class included two teams who used inventions from our list of entrepreneurial opportunities. One team was a finalist in the BASES (Business Association of Stanford Engineering Students) E-Challenge – an annual business plan contest. The other team's activities catalyzed inventor interest in further development activities.

SIGNIFICANT STEPS FORWARD: FROM MARKETING TO ACCOUNTING

In an effort to reach a broader market, we are implementing an IBM translation program enabling our web site to be translated into Japanese. Japanese companies will be able to search our available technologies, both in English and in Japanese, as the searcher desires. Our Japanese licensees have expressed an interest in having our web site more accessible and understandable, and we are trying to meet that need.

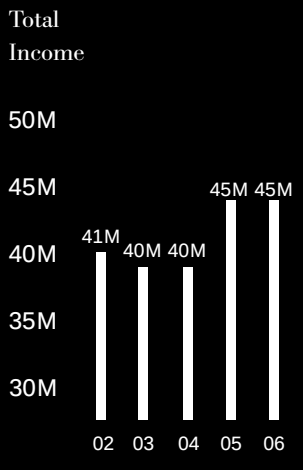
To better reach the entrepreneurial community, we have identified some of our technologies as "Entrepreneurial Opportunity" on our web site. While an "entrepreneurial opportunity" is often in the mind of the beholder, each technology with such an indication means that the technology could use a champion or entrepreneur to help commercialize the invention. Although many people are looking for the big winner, some technologies represent a small but solid commercial opportunity that could be of interest to a certain kind of entrepreneur.

On the administrative front, we have made great progress in simplifying accounting transactions. Since each invention docket is charged separately for its expenses and credited with its income, accurate and timely accounting transactions are thus essential. This year, we began implementation of a more efficient way of processing attorney bills, whereby attorney firms transmit bills to us electronically. The bills are fed into our database, matched with the proper invention, and approved electronically by licensing staff. The new system is a tremendously more efficient way of handling the approximately $3M in attorney bills we process each year, and we are encouraging all of our attorney firms to move to e-billing.

Another administrative advance has been a reduction in paper files. By enabling patent attorneys to send us patent applications by encrypted email, we reduce the amount of paper to be filed and maintained. The patent applications can be forwarded to others, and printed out or stored electronically while pending – all of which increases our productivity.

On the policy front, the disposition of equity in distance learning agreements was clarified and incorporated into a revised policy entitled "Equity Acquisition in Technology Licensing and Distance Learning Agreements" (www.stanford.edu/dept/DoR/rph/4-6.html). This policy allows Stanford to accept equity as one form of compensation for distance learning, subject to an individual and/or institutional conflict-of-interest review. The Provost, or a designee, will determine the allocations of equity under the policy.

LOOKING AHEAD



Note: revenues are likely to decrease in 2003 and 2004 as significant patents expire.

THE SOUNDS OF SUCCESS: SONDIUS-XG

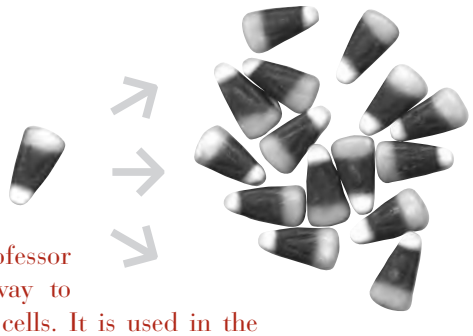
The Sondius-XG technologies are used to create realistic synthesized sounds based on physical parameters. The Sondius-XG program was an experiment with two goals: 1) to financially support the further development of certain music synthesis technologies so that they would be more licensable and 2) to develop a trademark that would have value to the consumer. The program evolved dramatically when Yamaha Corporation contributed its patent portfolio and "XG" trademark to the program. We consider the experiment, nearly completed, to have been a modest success. We returned the Stanford investment and anticipate a continuing revenue stream exceeding $100,000 per year for several years. Our licensees continue to use the trademark. We also acquired experience in handling a complex situation – conflict of interest issues, intellectual property portfolio management, and licensing issues – that will ultimately improve technology transfer from Stanford.

Today, Yamaha continues to develop products based on the Sondius-XG technology, including electronic keyboards and chip sets. Our other significant licensee, Staccato Systems, was acquired by Analog Devices (ADI) and our equity in Staccato was liquidated (see "Equity" section"). ADI is a leader in high-performance analog, digital, and mixed-signal processing technologies, and will continue to develop and use the technology. We are interested to see how it will be incorporated into the company's product line. A recent San Jose Mercury review of Electronic Arts' NASCAR game glowingly mentioned "realistic sounds," which were produced by Staccato using Sondius-XG technology.

IN THE FAST LANE: DIGITAL SUBSCRIBER LINE (DSL)

The DSL market continues to grow with the exclusive licensee's (Texas Instruments) and sublicensees' products in volume production. For the period between 1998 and 2001, the cumulative royalties received by Stanford totaled over $4.7M. The DSL market is transitioning through a slow-down period characterized by the collapse of key Competitive Local Exchange Carriers, but is well-positioned for considerable growth in the next five years. The high-tech market research firm, Cahners In-Stat Group, predicts that the number of U.S. DSL residential subscribers will exceed 13.5 million.

THE MULTIPLICATION GAME: AMPLIFICATION OF EUCARYOTIC GENES



Invented in 1982 by then-Stanford Professor Gordon Ringold, this patent describes a way to increase protein production in mammalian cells. It is used in the production of biotechnology therapeutic products such as Campath (for lymphoma and leukemia), erythropoetin (which increases red blood cell production), and Herceptin (breast cancer treatment). This method continues to attract new licensees, with three new non-exclusive licenses signed last year, bringing the total active licensees to 16. More products using the method in their production were released last year, and at least one new product is expected to be approved in 2002. The licensing income ($13M to date) is steadily rising, with the expectation that it will peak in 2003-2004 since the patent expires on April 7, 2004.

BRIGHT LIGHTS: PHYCOBILIPROTEIN CONJUGATES

Manufactured naturally by marine algae for use in photosynthesis, phycobiliprotein conjugates can act like tiny fluorescent beacons, enabling researchers and doctors to detect cancerous tumors; screen donated blood; and monitor blood levels of drugs, such as digoxin, in patients. Invented in 1981 by Professor Lubert Styer and U.C. Berkeley microbiologist Alexander Glazer, over 40 companies have licensed the technology for these brightly-colored pigments. In 2000-2001 alone, this technology generated $3.8M in royalties, bringing its cumulative royalty to $34.6M. A mature technology, the phycobiliprotein patents will expire in April, 2002.

Question:

Which Nobel Prize winner has disclosed the most inventions to OTL?

Answer:

Steve Chu,
Professor of Physics

INDUSTRIAL CONTRACTS OFFICE

OTL's Industrial Contracts Office (ICO) negotiates a variety of research contracts with industry, ranging from the transfer of biological research materials to multi-party, multi-million dollar projects. Because we deal with intellectual property issues when negotiating these contracts, ICO staff also advises other departments at Stanford, including the Office of Sponsored Research, Procurement, and faculty, on agreements involving intellectual property.

2001 was a busy and productive year for ICO, which negotiated roughly 400 contracts and related agreements. Representative agreements include a series of contracts for Stanford's Reynolds Center on the genetics of cardiovascular disease, cardiothoracic research on the effects of certain drugs on kidney transplants, and chemistry research with a Japanese company on highly sensitive spectroscopy equipment used to detect trace quantities of molecules.

Both Stanford and industry benefit from sharing research. ICO's goals are to foster and maintain mutually beneficial relationships with industrial sponsors and provide high quality and timely service to our constituents – Stanford faculty and staff – while maintaining a balance between Stanford and industry interests.

JUST SOME OF THE NEW INVENTIONS FOR 2001

VLSI Electrothermal Simulation Tool
A novel transgenic mouse to identify subsets of activated cells for assay of physiological properties
Electron Beam Energy Multiplier
MEMS Ejector for Chemical Stimulation of Cells and Tissues
Computer Aided Detection/Identification of Colonic Polyps
Registration of Centerline Paths in Medical Imaging Data
Preventing Excitotoxicity in Neurotrauma
Sirolimus Bound Hyaluronan Derivative Gel
In vitro Transcription and Other Polynucleotide Synthetic Reactions
High Permittivity Dielectrics for Ge-based MOS Applications
Delivery System for Nucleic Acids
Drug-Coated Stents to Relieve Urinary Obstruction in Benign Prostatic Hyperplasia
A Novel Angiogenic Pathway Mediated by Non-Neuronal Monoclonal Antibodies against Yeast Proteins
Wafer Scale Fabrication of Carbon Nanotube AFM Tips
Ultrasound Imaging Method and System for Image Guided Surgery
Coherent Array Image Formation and Restoration
Algebraic curves with high security and high efficiency for use in digital security
Customized pacifiers and bottle nipples
Novel Assay for Homocysteine
Genetic Strategies to Increase Neuronal Survival
Thiol Exchange Footprinting
Short Signatures from the Weil Pairing
Near-Field Optical Scattering Detector for Air-Borne Pathogens
Electrical Through-Wafer Interconnects
Identification of a new substrate for Akt
Labeling and Surface Immobilization of Proteins
Aerial Image Sensing
Novel predictive assays for HCV outcomes
Interference Canceller for CDMA
Avoiding Illegal States in Digital Circuits
NanoGap
New Fluorescent Deoxyribosides and their Incorporation into Combinatorial Fluorophore Arrays
Prediction Analysis for Microarrays (PAM)
UV exciteable infrared shifted tandem dyes
In vivo Use of Adult Bone Marrow Cells
PCR-based mRNA Library Amplification Protocol
Dynamic or Oscillatory Fluid Flow as a Novel Physical Signal Regulating Cell Metabolism
Oscillatory Fluid Flow to Regulate Differentiation of Stem Cells
Heterovalent Molecules for Molecular and Cellular Targeting
Detection of Multi-Component Mascromolecular Adsorption
Tunable Polarization Mode Dispersion Compensation
One-piece Rotor Shaft for Gas Turbine
Sharp Asymmetric Lineshapes in Microcavity Structures
Surgical Drape for Eye Surgery
Optically Controller Lumped Element Waveguide Switch
Raman Technique for Spectral Comb Generation
Training System to Improve Gait
Pattern Growth of Nanotubes
Electric Field Directed Growth of Aligned Nanotubes
Massive Arrays of Integrated Nanotubes for Electronic Noses and Biochips
Focused Micromolar Anesthetic Delivery for Management of Chronic Pelvic Pain Syndromes
Focused Electrical Neuromodulation for Management of Chronic Pelvic Pain Syndromes
Endoscopic Targeting Method and System
Collection Mode Lens System
Quenched DNA probes the "light up" on sensing genetic sequences
Cloning of DNA using in vitro transposition of transposons containing origin of replication initiations.
ATHENA DDS
Tx Link Adaptation based on Channel Knowledge
Poly3D
Spinning Microsphere
Phased Subarray Acoustic Imaging Using Linear Arrays
Phased Subarray Volumetric Acoustic Imaging Using 2D Rectangular Arrays
Method and apparatus to prevent and to treat cardiac arrhythmias
High Sensitivity Microwave Imaging Probe
Sintered Particle Pump
Apparatus and Method for Processing Optical Signals
RIF3: A new member of the relaxin/insulin gene family
MRI-compatible Penile Tumescence Monitor
Maintaining the alignment of electric and magnetic fields in an x-ray tube operated in a magnetic field
X-ray Tube with Increased Output
Protein synthesis on a surface: basis for protein expression chips
LabDragon-Electronic Scientific Notebook and Laboratory Organizer
Use of Flavopiridol for Inhibiting Inflammation
Method for the Purification of Wnt Proteins
SIMBRYO
Genes involved in Prostate Cancer Progression
Cancer prediction and treatment by transcriptional profiling
Self-expanding bifurcated stent
Microfabricated, encoded particles for high throughput solid phase synthesis and screening
Software for accurate calculation of molecular free energy using distributed computing
Accessing Optical Bandwidth without Service Interruption
Genes Involved in the Overproduction of Polyketide Natural Products
Closed-Loop Electro-osmotic Microchannel Cooling System
Drug Targets in Rheumatic Diseases
Reduction of Cross-Talk Between Array Elements
CMUTS with Higher Mechanical Sensitivity
Reduction of Bulkwave Generation in CMUTS
Film Growth at Low Pressure
Quantitative Air Trapping Algorithm
Self-Aligned Vertical Combdrive Actuators
System and Method for Predicting Chromosomal Regions
Chemical agents for improving lung function in cystic fibrosis patients
Light Inducible bacterial protein expression via the Tet gene promoter
Modular Networked Medication Dispenser
A hybridization of the proxy approach with stochastic search for robust optimization
Genome Scan
Mayer Sample Transfer Device
Cerebral Temperature Control
Relaxin activates LGR7 and LGR8
Procedure and Methods for Percutaneous Local Treatment and Diagnosis of Renal Disease Through the Renal Veins
Calcineurin Inhibitors for Addiction
Clustering Data
Method and Apparatus for Tracking a Medical Instrument Based on Image Registration
Scenerio based Failure Modes and Effects Analysis (FMEA)
Managing Project Risk
Storage Medium for Storing Product Value Chain Information
High Performance Prosthetic Foot
LOCKSS
Temperature-Modulated Array High-Performance Liquid Chromatography
Temperature Measurement in Micro-Fluidic Channels by Using Integrated Ultrasonic Transducers
Ligand-dependent interaction of estrogen receptor-alpha and FKHR
Endoprobes preventing formation of the water jet during pulsed laser- and electro-surgery in liquid media
Digital Audio Manipulation with Haptic Input Devices
FACS based phosphoinositidyl 3 kinase assay
GABRIEL: a machine-learning system that incorporates expert knowledge into rules that analyze genetic data
Contrastive and More/Less general functions for Information Retrieval
Tim-1, Tim-2, Tim-3, Members of a Novel Gene Family Regulating Asthma, Allergy, and Autoimmunity
Methods for selecting effectors for inhibiting viral infection
DNA probe spin filters for isolating and concentrating DNA fragments of interest
Real-time assay for intracellular protein aggregation
An in vivo repoter of proteasome function
Method and Apparatus for Use with Active Electrode and Drug Delivery Catheter
Dendritic Cell-Based Gene Therapy for Treatment of Autoimmune Disease
Integrated Color Pixel (ICP)
Insect Virus to Regulate Gene Expression
Gene Therapy for the Treatment of Insulin-Dependent Diabetes Mellitus
Method for Promoting Cooperation On-line
Music Database Retrieval and Indexing Methods Based on Spectral Similarity
ICAM-2 as a costimulatory molecule for T cell activation
FACS based nuclear translocation assay- monitoring localization of transctiption factors by flow cytomtetry
Spinal Fiducial Implant and Method
Japanese Hospital Integrated Database
Ultrasound mediated regulation of vascularization
rpo-gene based community microarray for microbial community analysis and species tracking
Protein Microarray for Cell Phenotyping and Manipulation
Fully Adjustable Laser System for Laser-Interferometry Applications
A simple method and device for checking positional accuracy of the leaves of multileaf collimator (MLC)
Use of Statins for Prevention and Treatment of Pulmonary Hypertension
Reciprocal Hemizygous Scanning (RHS)
Surfaces for Combined Use in Director Biomolecule Capture for Proteomic Analysis
Treatment of Anemia through Elevation of Hematocrit
Diagnostic System for De-Bond Detection in Reinforced Concrete
Endogenous Delivery of Hammerhead Ribozyme to Mammalian Cell Lines using Modified Ecdysone-Inducible Expression System
Thrombomodulin Expression to Limit Arterial Cardiovascular Disease
Thrombomodulin Expression to Limit Cardiovascular Disease and Complications of Bypass Grafting and Angioplasty
Kinase Inhibitors as Probes of Cellular Processes
Chiral Separation by Ultrafiltration
VisAble: An algorithm for improving the visibility of color images
Tunable External Cavity Laser
In Vivo Self-Sensing Diagnostic System for Atherosclerotic Plaque Characterization
Palm Stick
Human Uterine Sarcoma Cell Line, MES-SA
Multidrug (Pleiotropic) Resistant Cell Line, MES-SA/Dx5
Incandescent Flat Panel Displays using "Flip Chip" technology
Thermoelectric Freeze-Dryer
Animal Models for HCV
Dedicated Shim Coils for the Correction of Local MR Field Inhomogeneity
Emi1, a new inhibitor of the Anaphase Promoting Complex and cell proliferation
Septal-Lateral Annular Cinching (SLAC) Mitral Valve Repair
KNNimpute algorithm for estimation of missing values for microarray data
A method to induce synapse formation in neural stem cells
Graphical User Interface for Creating Specification for Table-Based Visualizations
Architecture for Creating Table-Based Visualizations from Relational Databases
Enhanced Wavelength-Tuning of Semiconductor Lasers
Source of neural stem cells
Multiwall Carbon Nanotube Field-Effect Device
Adaptive Playout Scheduling for VoIP
Method for Computer Aided Detection of Colonic Polyps
The NEXT Canceling Algorithm for DSL
A potential therapeutic target for treating multiple sclerosis, and a molecule predicting the evolution of MS
Gene Expression Study by Analyzing DNA Optical Extension Signature
Volumetric CT
Built-in Actuator/Sensor Network
HMG-CoA Reductase Inhibition
Photo-induced phenomena in carbon nanotubes: photo-desorption
Electron Bombardment Source
Multiple Sheet Beam Klystron
Alignment of Latent Image to Semiconductor Substrate
Structure of RNA Polymerase with inhibitor Alpha Amanitin
Method for False Positive Reduction in the Automated Detection of Lung Nodules from Chest CT Images
Method and Apparatus for Transforming View Orientations in Image Guided Surgery
Methods for guiding vascular interventions using ultrasound
Anti-HCV Targets and Assays
Phospho-protein chips/beads and their use to measure enzyme activity
Immobilization and Orientation of Proteins on Surfaces via Histidine Residues
Development of alexa-fluor conjugated phospho-specific antibodies for single cell intracellular kinase activities by flow cytometry
Ping (music and art installation piece)
Double sided printing of photoresist using molecular transfer lithography
Inducible Gene Delivery System
Feeders for Primary Human Epithelial Cells
PharmGen Trademark
Methods for fabricating microfluidic valve and pump manifolds
Optical exposure tool for molecular transfer lithography
Methods and Apparatuses for Maintaining a Trajectory in Sterotaxi for Tracking a Target Inside a Body
CMOS Power Amplifier with Reduced Harmonics and Improved Efficiency
3D Search
Variable-Density One-Shot Fourier Velocity Encoding MR Imaging
DNA immunization against aggregating proteins and other targets of neurodegenerative diseases
3-Dimensional Image Processing for Semiconductor Overlay
Active Control of Substrate Topography
Micro-Transfer Lithography
Molecular-Transfer Lithography
Functionalization of carbon nanotubes for molecule immobilization
Rapid Magnetic Resonance Imaging of Wood for Detection of Defects, Studying Physiology, and Improved Sawing
Nonlinear Crosstalk Suppressio
Formalization of factors and mechanisms to define and generate construction zones for detailed construction planning and visualization
Targeted Immune Modulation for DNA Vaccination
Selenomethionine Incorporation in Saccharomyces cerevisiae
EE-class software - A Web-based Interactive Course Management Tool
A new “NOT” function for information retrieval
Method to produce recombinant proteins using viruses
Dynamic Spectrum Management for Digital Subscriber Line (DSL) Systems

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