



Technology Transfer and
Intellectual Property Services

...pipeline to innovation

TechTIPS

September 2002

Illuminating Cancer Diagnosis

Professor David R. Vera, Ph.D., joined the Radiology Department at the University of California, San Diego (UCSD) School of Medicine in 1998 after nearly 20 years at the University of California, Davis (UCD) School of Medicine. At UCD, he held various academic and clinical positions and most recently was Adjunct Professor of Radiology. Currently, Dr. Vera is Adjunct Professor of Radiology at UCSD School of Medicine and Member of the Rebecca and John Moores UCSD Cancer Center.



Dr. David Vera
Adjunct Professor of Radiology

Throughout his career, Dr. Vera's focus has been on the advancement of radiological tools to improve the diagnosis of organ function and disease. In particular, he has developed the use of reagents associated with radiopharmaceuticals to assess liver function and to identify lymphatic tissues.

His work researching alternative imaging agents for breast cancer diagnosis has led to the discovery of a new diagnostic agent. This new imaging agent is a receptor-binding radiopharmaceutical for sentinel lymph node imaging that may allow a more appropriate and less morbid treatment approach for metastatic breast cancer. The sentinel node is a good indicator of the metastasis or spread of the cancer cells since it is the first lymph node to receive lymphatic flow from the breast tumor site. Identifying this node prior to surgery permits a less invasive procedure by ruling out other targets, while also decreasing the patient's recuperation period, and lowering medical cost.

Dr. Vera's recent invention at UCSD has resulted in a new patent titled "Macromolecular Carrier for Drug and Diagnostic Agent Delivery," (US patent number 6,409,990). This patent is also the subject of an exclusive license agreement negotiated by *TechTIPS* with a biomedical technology company for diagnostic use on lymphoid tissues. The new compound is currently undergoing evaluation in clinical studies to gauge its effectiveness in identifying lymphatic tissue in breast cancer and melanoma cancer patients. The patent is also available for licensing in other organ groups.

While balancing academics, research and publishing, like many sought-after members of the UCSD faculty, Dr. Vera has served as a consultant to private sector companies on receptor-based radiopharmaceuticals and contrast agent kinetics. He is a member of the Society of Nuclear Medicine, the American Chemical Society, the American Association for the Advancement of Science, and the

(Dr. Vera continued on page 2)

TechTIPS Pipeline Series Calendar of Events:

Invention Review Meeting
Thursday, September 12, 2002

Ag/Bio Symposium & Showcase
October 17 & 18, 2002
Salk Institute for Biological Studies
Frederic de Hoffmann Auditorium

Intellectual Property Seminar
Wednesday, October 23, 2002
Center for Magnetic Recording
Research (CMRR) Auditorium

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TIP: Did you know?

Prior to giving a talk or presenting data at a public forum you should contact *TechTIPS* to ensure that your invention or copyrights are protected. Disclosure forms are available for download from our website at <http://invent.ucsd.edu/> and for more information call (858) 534-5815.



UCSD Professor Wins Electronics Industry Prize

Newly Issued U.S. Patents

6,444,192
Diagnostic Imaging of Lymph Structures
Robert Mattrey

6,420,428
Treatment and Prevention of Hepatic Disorders
Mario Chojkier

6,417,397
N-Substituted Alkylamino Acids for Use as Amino-Protecting Groups
Murray Goodman

6,410,826
Selective Control of Lignin Biosynthesis
Martin Yanofsky

6,409,990
Macromolecular Carrier for Drug and Diagnostic Agent Delivery
David Vera

6,406,541
Improved Method and Apparatus for Adhering and Centering Particles to the Tacky Areas on a Surface Containing an Array of Tacky and Non-Tacky Areas
Allan Cairncross

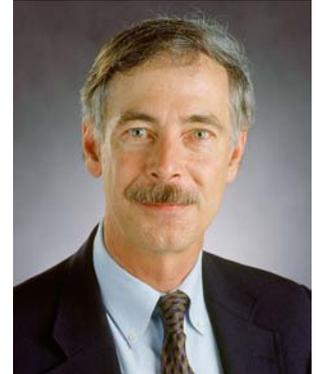
6,403,374
Long Wavelength Engineered Florescent Proteins
Roger Tsien

6,396,618
Opposing Electrode Light Modulator Array and Method for Manufacturing Same
Sadik Esener

Continued on Page 3

The University of California at San Diego's **Peter Asbeck, Ph.D.**, has received the 2003 IEEE David Sarnoff Award, becoming only the third California researcher to win the prize since it was instituted almost 50 years ago. Professor Asbeck was recognized for the "development and applications of Gallium Arsenide (GaAs)-based heterojunction bipolar transistors (HBTs)," a key part of high-speed electronics. Dr. Asbeck, who once worked at the New Jersey re-

search center named for communications pioneer and RCA head David Sarnoff, is currently Professor of Electrical and Computer Engineering at UCSD's Jacobs School of Engineering as well as a researcher in the Center for Wireless Communications. Dr. Asbeck is a prolific inventor with numerous invention disclosures in the areas of compound semiconductors and wireless communications on file with *TechTIPS*.



*Dr. Peter Asbeck
Professor of Electrical and
Computer Engineering*

Licensed Technologies

Stem Cells by the Truckload

UCSD and **Phylogix Inc.** of Scarborough, Maine entered into an exclusive license agreement to commercialize two inventions made by **Professor Maarten Chrispeels** and the company founder, a former Imclone scientist. UCSD and Imclone both licensed patent rights to Phylogix to make the start-up possible. The technology consists of a bean protein that binds specifically to mannose groups on stem cell surface membranes, thereby "freezing" them in the undifferentiated state. This allows large scale culture production of stem cells that are being developed into a new class of plant-based therapies.

Dr. Vera - continued from page 1

Institute of Electrical and Electronics Engineers' Biomedical Engineering Society. In addition, he has been a recipient of the Herbert M. Stauffer Award from the Association of University Radiologists, the Berson-Yallow Award from the Society of Nuclear Medicine, and the New Investigator Research Award from the National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases. Dr. Vera received his B.S. degree from the University of San Francisco, and his Ph.D. degree in biophysics at the University of California, Davis.

Accelerating Puberty in Baby Trees

Genetic improvement of tree species is problematic due to the very long period (up to 25-30 years or more) before they reach maturity and are able to produce fertile seed. UCSD and **NuPlant Research Ltd.** have entered into a license agreement for technology from **Professor Martin Yanofsky's** lab allowing tree seedlings to flower and produce seed in only weeks to months, much like typical field crop plants. Through genetic manipulation, the final seedlings produced will not contain any transplanted early flowering genes. Since these genes are absent, the seedlings will not be considered genetically modified organisms

(GMOs), currently a hot political issue. Nuplant Research will accelerate conventional breeding improvement of species used for lumber, pulpwood, nuts and fruit.

Hot Plaque is NOT Cool

UCSD and **Atherotope Corporation** have entered into an exclusive license agreement for technology produced from the laboratory of **Professor Joseph Witztum**. It is the fruit of years of effort to understand the features of unstable or *hot* regions of plaques in atherosclerosis that are likely to split off the vessel wall and cause a stroke or heart attack. This invention allows the development of an imaging diagnostic for identifying and treating unstable vessel wall plaques.

TechTIPS, in its work for the UCSD community, is involved with many activities in the management of inventions, discoveries, technologies, patents, copyrights and trademarks that are generated by UCSD inventors. These ongoing activities include researching the applications and market potential of inventions, protecting the rights of these inventions, marketing/selling inventions to potential licensees, agreement compliance and enforcement, and assisting in new business development. Equally important in this mission is representing the university and its inventors. On a regular basis, *TechTIPS* meets with faculty inventors, entrepreneurs, intellectual property specialists, and venture capitalists all in a concerted effort to maximize the commercial potential of UCSD inventions.

In addition to these internal activities, members of the *TechTIPS* staff attend a variety of external meetings and conferences that relate to various issues of technology transfer in many industries throughout the year. At the BIO2002 meeting, which was

held in Toronto, Canada in early June, *TechTIPS* was represented by Dr. Alan Paau, Assistant Vice Chancellor; Dr. Melissa Fitzgerald, Senior Licensing Officer; and Dr. Denise Lew, Senior Licensing Officer. BIO2002 was the annual meeting for the biotechnology industry which provided a good opportunity for members of the *TechTIPS* life science licensing group to market UCSD and its innovations. *A meeting summary by Dr. Fitzgerald can be found on page 4 of this newsletter.*

Intellectual property and technology transfer continues to generate worldwide interest especially as technology markets contribute to more of a global economy with development and manufacturing being conducted at many international locations. A growing number of international institutions have realized the intrinsic value of technology transfer and look to successful programs to model. Dr. Paau has been invited to speak at many international symposia on technology transfer. Recently, he presented the *TechTIPS* model to an International Seminar on University

Intellectual Property which was held in Porto Alegre, Brazil in early July. In his presentation, Dr. Paau gave an overview of the technology transfer model used at UCSD, its culture, and the programs that *TechTIPS* provides to the UCSD community. Locally, Dr. Paau discussed the economic impact of technology transfer at the Economic Development Agency's Western Regional Meeting earlier this month.

Marketing is an important value in the *TechTIPS* model. Market intelligence can be gathered by attending industry conferences since these events attract many large companies that are market leaders in technology advancement. In early September, Dr. William Decker, another *TechTIPS* Licensing Officer, attended the International Microelectronics and Packaging Society's (IMAPS) International Symposium on Microelectronics in Denver, Colorado. Through his market research efforts, Dr. Decker can better identify potential companies that would be interested in specific technology thereby increasing the possibility of generating license agreements.

TechTIPS is available for informal presentations to UCSD faculty, staff or departments interested in learning about UC intellectual property policies, the *TechTIPS* organization and the services we provide. Please contact us at (858) 534-5815 to arrange a time and venue convenient to all.

Visit the *TechTIPS* website at <http://invent.ucsd.edu/> for current information on the following:

- ◆ Upcoming Pipeline Events
- ◆ Downloadable Forms
- ◆ Policies & Procedures

Newly Issued U.S. Patents (cont.)

- 6,391,648
Photoluminescent Metal - (Bis) Ligand Complexes Having Different Ligands
Timothy Karpishin
- 6,380,358
Guanidinylation Reagents
Murray Goodman
- 6,375,925
Method and Reagent for Non-Invasive Imaging of Atherosclerotic Plaque
Sotorios Tsimikis
- 6,369,097
Treatment and Prevention of Hepatic Disorders
Mario Chojkier
- 6,357,332
Process For Making Metallic/ Intermetallic Composite Laminate Material and Materials so Produced Especially for Use in Lightweight Armor
Kenneth Vecchio
- 6,355,863
Seed Plants Exhibiting Inducible Early Reproductive Development and Methods of Making Same
Martin Yanofsky
- 6,355,790
Inhibition of HIV Replication Using a Mutated Transfer RNA Primer
Joseph Rosenblatt
- 6,353,688
Accelerated Signal Encoding and Reconstruction Using Pixons
Richard Puetter

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Laura Wolszon, Ph.D.

Engineering & Physical Sciences
Barry Gelernt, Ph.D.
Bill Decker, Ph.D.
David Gibbons, MBA

*Research is formalized curiosity.
It is poking and prying with a
purpose. It is a seeking that he who
wishes may know the cosmic
secrets of the world and that they
dwell therein.*

- Zora Neale Hurston

What a difference a year makes.

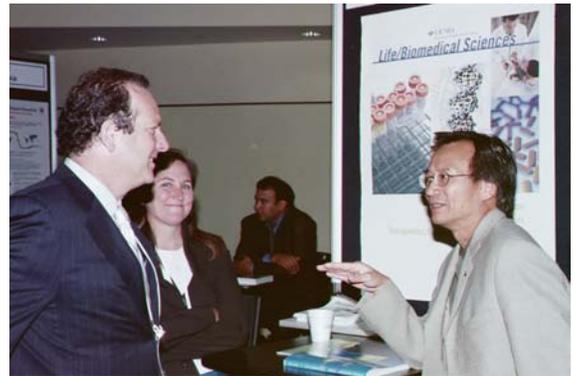
In June 2001, San Diego hosted the BIO2001 Annual Convention, which was remarkable both in the excitement brought to the region by the Biotechnology Industry Organization (BIO), and in the attention paid by the national media to the smattering of peaceful protestors and hoards of law enforcement officials countering their threats. In a sobering contrast, there were no protestors in sight at BIO2002 this June in Toronto, while the former Fire Commissioner for the New

York City Fire Department, Thomas van Essen, delivered a stirring keynote address on the bravery of his men at the World Trade Center on September 11. His account was an inspiring story of courage, hope, and humanity amid utter devastation.

The theme for BIO2002, "Life's Advances" could just have well have been "*Life Advances*" following the tragic events of September 11. These events brought a heightened sense of responsibility to BIO members to fight the threat of terrorism by developing biosensors, vaccines, monoclonal antibodies, and therapeutics effective against biological agents.

Despite the gravity of world affairs, BIO2002 was able to celebrate the improvement in the extension of *life*, and the *advances* made by biotechnology over the last 20 years. Over 15,000 were in attendance for the meeting, which featured over 800 exhibitors, 18 meeting tracks, and an investor and partnering forum. BIO represents more than 1,100 biotechnology companies, academic institutions, and regional development organizations worldwide, which are involved in the research and development of healthcare, agricultural, industrial, biodefense, and environmental biotechnology products.

UCSD Biomedical inventions were showcased by *TechTips* at the BIO2002 Technology Transfer Forum, a new addition to the Investor and Partnering Forum. Dr. Melissa Fitzgerald, Senior Licensing Officer, gave a presentation on UCSD innovations, which included a case study of a technology available for licensing, "Novel Uses for an



Dr. Fitzgerald (center) and Dr. Paa (right) representing UCSD at the BIO2002 Conference, which was held in Toronto this year.

Already Approved Drug," from Professor Ajit Varki's lab. By elucidating the binding specificity of heparin to a family of cellular adhesion molecules called selectins, Dr. Varki and Dr. Andrea Koenig discovered a novel use for heparin in the treatment of cancer, inflammation, and immune diseases. Heparin leads drug sales worldwide, and is already approved as an anticoagulant.

Additional UCSD technologies available for licensing were featured at a poster presentation by Dr. Alan Paa, Assistant Vice Chancellor; Dr. Denise Lew, Senior Licensing Officer; and Dr. Fitzgerald. These technologies included therapeutics for cancer, cardiovascular disease, CNS disease, endocrine disease, infectious disease, inflammation and immune disease, respiratory disease, and eye or skin disease. Additional biotechnology related inventions that were marketed included devices, diagnostics, research tools, BioMEMS and biochips, and technologies for tissue engineering, genomics, proteomics, and bioinformatics.

Overall, BIO2002 presented a good opportunity for UCSD *TechTIPS* to promote UCSD innovations. Executives and business development professionals from both the biotechnology and pharmaceutical industries worldwide were readily accessible in the exhibit halls, symposia, and networking functions over the four day meeting. As evidenced by the abundance of local companies, trade organizations, and universities featured at BIO2002, America's Finest City continues to be at the forefront of *advances* in biotechnology.