

GSBS NEWS

Summer
2003

Graduate School of Biomedical Sciences The University of Texas Health Science Center at Houston/M. D. Anderson Cancer Center

**Happy 40th Anniversary and Welcome to the
Next Generation of Biomedical Scientists!**



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Benefactor News

New Greer Professor



Steven Norris, Ph.D.,

Medical School and Graduate School of Biomedical Sciences faculty member, was recently named the third Robert Greer Professor. Dr. Norris (left in photo) is a professor of pathology and laboratory medicine in the Medical School with a dual appointment at the Graduate School of Biomedical Sciences. His work in the molecular genetics of pathogenic bacteria, particularly Lyme's disease and tuberculosis, is highly regarded. Previous Robert Greer Professors included Robert Marc, Ph.D., 1986; and Frank Booth, Ph.D., 1997-1999.

Robert Greer (right) started his career as a summer intern at a small bank in Boulder, Colorado, where his family vacationed. Years later he became the founding president of Cullen Bank of Tanglewood Bancshares, which opened with a then national record of \$28.8 million in deposits. In 1986, the University funded The Robert Greer Professorship in Biomedical Sciences in honor of his service as Development Board President from 1983-1985.

Sam Taub and Beatrice Burton Endowed Fellowship

Mary Wright and her sister Joanna Ross decided they wanted to do something to honor their grandfather and great aunt by supporting graduate education. With this in mind, they decided to support students whose research studies are in the area of sight-related vision problems, and the genetics and potential therapies behind these life-altering health concerns. Their initial gift of \$10,000, to be repeated over the next four years, will complete the circle in providing a renewable fellowship award which will generate yearly tuition. Together they chose a very special way to create a 'living memory' that will carry the names of their loved ones forever, as exceptional individuals are selected for the honor of becoming Sam Taub and Beatrice Burton Fellows.

Thomas S. Matney Endowed Professorship

Thomas S. Matney, Ph.D., has completed the funding for the Thomas S. Matney Endowed Professorship ahead of schedule with a \$60,000 gift that will benefit faculty and students from both the Graduate School of Biomedical Sciences and the School of Public Health. The process for deciding who will be appointed to this honored professorship in the genetic or environmental sciences will begin in September 2003.

Cover Photos: Clockwise from top left: Cherie Butts, Maribelis Ruiz, Tatianna Robles, Catherine Papasakelariou, Jennifer O'Daniel, Laura Nolden, Byong Kim, Elizabeth Lafleur and son, Jennifer Malone, Sandra Darilek, Carolyn Wilson, Wei Liu, Wei Li, Jessica Indrigo, Elizabeth Oldham Hileman, Rebecca Hamm, Wei Guo, Rebecca Grijalva, Jessica Indrigo



Dean's Notes

Educating the next generation of biomedical scientists

The cover of this 40th Anniversary newsletter depicts a number of our spring graduates, including Beth Lafleur shown with her son. It is a bit premature to speculate whether the young fellow will follow in his mother's footsteps and enroll in the GSBS, but we trust that his parents will teach him the things they believe he will need to know as an adult. Some of these, e.g., basic values and beliefs, are likely to be similar to ones learned from their parents, but others will depend on their view of the future.

So it is with us as faculty who are responsible for teaching the next generation of scientists. I feel confident that we will continue to provide students with a broad interdisciplinary exposure to key concepts in the biomedical sciences, while providing sufficient depth in an area that they learn how to identify important problems, design appropriate experimental approaches, and rigorously interpret the findings. I imagine we will also continue to teach, by word and example, the standards of conduct we expect of our graduates, but what do we modify depending on our view of the future?

As a faculty member, my own vision includes more tools for analyzing massive data sets, greater familiarity with genomic and proteomic databases, enhanced communication skills, and so on. Ultimately, the faculty, working through the governance process in our Bylaws, will decide these issues. I believe strongly in this process, but am increasingly concerned that there are external factors that might cloud the deliberations and distort the outcomes. We are all painfully aware of the financial condition in Texas, and its adverse impact on the GSBS and higher education in general. At the local level, increased patient care costs and decreased reimbursements are strapping the resources of our parent institutions. At the national level, there is much uncertainty whether future NIH funding will be sufficient. The situation is especially frustrating since biomedical science has never held more promise or been more exciting.

Perhaps more important than the specific changes we make in the future, we must not let financial pressures become a rationalization for stagnation, nor allow shortfalls to justify shortcuts, by either students or faculty, in the research training process. All of us must recognize economic reality, but within that context, we should remember what we were repeatedly admonished by parents and mentors, "Whatever you do, do it well!" We frequently speak this dictum to children, but it is important that we practice it as faculty members and administrative leaders. While a simple principle, adhering to it and several key corollaries, is the best way to educate the next generation of biomedical scientists in any financial climate, and to ensure that the exercise remains stimulating and rewarding.

to the Class of 2003

Faculty President's Message



Kenneth R. Hogstrom, Ph.D.

On behalf of the graduate school faculty, it is my pleasure to welcome our 2003 graduates, your family, your colleagues, and your friends. Today both graduates and faculty celebrate the successful completion of a contract that we entered into with you upon your arrival. Your faculty members have imparted their scientific knowledge, skill at research, and moral principles to you in the best way we could. In return you have helped further our research programs, and most importantly, you have earned your right of passage to enter a career in biomedical science in academia, industry, or patient care.

During your time here most faced times of doubt, times when key data evaded you, times when data told you what you did not want to hear, times your committee challenged you more than you had bargained for, and times when the end seemed unattainable. Yet, here you are today, work completed and prepared to embark upon a promising and exciting future.

In your quest for future success, you will again face significant challenges and sometimes adversity. Today I will share with you your final lesson from the faculty, a reminder that you are prepared to face them and to succeed. Let's briefly look at three stories of well-known scientists, all long before us, and all who succeeded in the face of adversity. Being a physicist, I have selected examples with which I am more familiar, although I expect similar ones can be found in all disciplines.

At the turn of the 17th century Italian physicist Galileo Gallilei conducted important astronomical observations (a study of the moons of Jupiter, sunspots, and comets) that supported the Copernican theory that the earth was not the center of the universe. His science was viewed as heresy by the Roman Catholic Church, in large part due to the church being provoked by philosophy professors of his time who found his conclusions contrary to what they wanted to be true. After Galileo published his findings, the books were burned, he was sentenced to life imprisonment (house arrest), and he was made an example of by his sentence being read publicly at every university. While under house arrest, he lived another nine years contributing significantly to the principles of mechanics. We are reminded of Galileo's courage in a verse of Rudyard Kipling's poem *If*:

***If you can bear to hear the truth spoken
Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to broken,
And stoop and build 'em up with wornout tools;***

The second example takes us to 1714 in the reign of Queen Anne of England, when the Longitude Act was issued. It offered a significant monetary reward for solving the greatest problem of the time, how to accurately determine longitude at sea, an unsolved problem that resulted in loss of much life and property by lost ships crashing to their death. John Harrison dared to imagine a mechanical solution requiring a clock that could keep accurate time at sea, something no clock had been able to do, even on land. His work received little encouragement or recognition from the Board of Longitude, which consisted mostly of astronomers, mathematicians, and navigators who saw the solution as being one based on astronomy. It was ironic that less than 100 years after Galileo that astronomers were now the persecutors. Harrison's concept prevailed after decades of work and many prototype clocks, some that met expectations, some that did not. Only through innovation, faith, and perseverance did he succeed. The commitment and steadfastness of John Harrison to his ideas are reflected in another verse of Kipling's *If*:

***If you can make one heap of all your winnings
And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
And never breathe a word about your loss;
If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you,
Except the Will which says to them: "Hold on;"***

The final example takes us to 1905, when Swiss physicist Albert Einstein published $E=mc^2$, one of the major intellectual achievements of all time. At the time, Einstein was a patent clerk; he had no laboratory and no university colleagues; he could not get a university appointment. Yet, he succeeded. His achievement was in part a result of his not being afraid to step into the unknown. It took several years after publishing his theory of relativity before others accepted his work, some avoiding it initially out of jealousy. It took over 30 years before experimental evidence substantiated it, when Lise Meitner recognized that this theory explained observations of nuclear fission. Einstein's self confidence and patience served him well, which once again is echoed in Kipling's *If*:

***If you can trust yourself when all men doubt you,
But make allowance for their doubting too;
If you can wait and not be tired of waiting,
Or, being lied about, don't deal in lies,***

These anecdotes are classic and most with which you are likely familiar; however, these situations are not restricted to only the famous. All scientists, including your mentors, have faced and now you will face similar challenges in your career, whether it be government policy, lack of understanding by your peers, lack of funding and resources, questions of ethics, or institutional politics. The faculty cannot tell you that future achievement will be any less challenging, rather the faculty can tell you that the things that you experienced as a student have made you the person you are today, and have prepared you for what lies ahead.

Remember, the future lies in your hands. Despite how many contributions your mentors and faculty have made, you will make more. You are entrusted with the future; you will be part of our legacy! The faculty wishes you good fortune and a rewarding career! With the caveat that interpretation of Kipling's *If* is meant for both genders, the faculty hope that one day many years from now, that its final stanza will be especially fitting of you:

***If you can talk with crowds and keep your virtue,
Or walk with kings-nor lose the common touch;
If neither foes nor loving friends can hurt you;
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty seconds' worth of distance run-
Yours is the Earth and everything that's in it,
And – which is more – you'll be a Man my son!***

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David Bodanis, *A Biography of the World's Most Famous Equation $E=mc^2$* , Berkley Books, New York, 2000, 337 pp.
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The Duty of Citizenship in the Profession of Science

William R. Brinkley, Ph.D.
Distinguished Service Professor
Vice President for Graduate Sciences
Dean, Graduate School of Biomedical Sciences
Baylor College of Medicine

Thank you, Dean Stancel, President Willerson, President Mendelsohn, distinguished members of the faculty, guest, and graduates. It is a very special honor to be invited to share this important occasion with you.

I feel especially proud to be here today because The University of Texas GSBS was my first academic home and provided my baptism into the world of academic health science. I came to UT M. D. Anderson Cancer Center in 1964. Then, it was called The UT M. D. Anderson Hospital and Tumor Institute, with Dr. R. Lee Clark as President. The State Coordinating Board had approved the GSBS one year before I arrived in Houston. There were only a few students in the beginning and not many faculty members. I was invited to teach cell biology to students in their first year at GSBS, and became personally acquainted with all of the early graduate students in the program. I have watched many of them progress up the academic ladder and into distinguished careers in science, with leadership roles in the current revolution of molecular biology, a testament to the quality of their graduate training at GSBS. These leaders include such individuals as Dr. Larry Deaven, recently named a distinguished alumnus of GSBS, now the Director of the Human Genome Center at Los Alamos, New Mexico. The arrival of graduate students added a vital new dimension to the intellectual climate of the Texas Medical Center. A few years later, we of the faculty of the GSBS were asked to serve as the surrogate faculty for the UT Medical School that was admitting its first class under the leadership of Dean Chevis Smythe. Today, it is an absolute joy to see how the academic institutions of the Texas Medical Center have grown into national powerhouses for medical science.

I take special pleasure in looking out on this class and seeing the next generation of leaders about to step up to the plate. Congratulations to each of you on achieving this remarkable milestone. You are about to enter a career in the health sciences at a watershed moment in the history of our profession. By every standard, you are well-prepared to face the scientific and academic challenges of the biomedical sciences.

Because of the pace of scientific discovery and the explosion of new knowledge in the biomedical sciences during the past decade, you are among the best trained and most highly educated graduates, not only in the history of this School, but in the history of your profession. Therefore, you stand on the shoulders of those who came before you. Some said, "We cast long shadows when we stand on the shoulders of giants." In so doing, I urge you to take full advantage of this lofty perspective to survey the terrain that lies ahead.

In his commencement address at The American University in 1963, John F. Kennedy paraphrased Woodrow Wilson, who said "every man sent out from a university should be a man of his nation as well as a man of his time." The specific language is somewhat dated, but the message still resonates today, the men and women who graduate from UT GSBS must "give from their lives, from their talents, a high measure of public service and public support." I have little doubt that you will all become outstanding scientists. My message to you is not just about being good scientists, —but also about being very good citizens of science!

I am often asked by younger scientists why I think it necessary for them to become involved in the "politics" of science (i.e., the political process). After all, most of us have received little or no training in the arena of public affairs. You may also think that other professionals, perhaps elected officials, should look after the political agenda of science. I hope to convince you that the task of good citizenship in science is too important to abdicate the responsibility to less qualified and less interested individuals. You will not be able to practice science in a vacuum, and you will never truly be left alone at the bench—perhaps this is the way scientists worked in the past, but not today!

Today, more than ever, scientists have a need and obligation to engage themselves in the political process that affects the future of biomedical research, health care delivery and indeed, all of science and medicine. In other words, each of you, as a scientist, owes a direct duty to the public. The spirit of inquiry behind science is not self-sustaining. It is a privilege to be engaged in scientific research, and that privilege is purchased, primarily, by taxpayers' dollars. If Adam Smith, the forefather of modern economics, were alive today, he would remind us that the public will only buy into science if it understands the demand.

So, the reasons we owe a duty to the public are clear. I can assure you that the methods we adopt to fulfill our duty are also self-evident. We must do what we do best: *we must educate*. To quote Dr. Neal Lane, former White House Science Advisor in the

Clinton Administration and distinguished Professor of Physics at Rice University, *"Too many voters have not made the connection between science and prosperity. Scientists need to tell the story. It's a good story. It has to be told and it has to be sold. Tell the story with data, tell it with anecdotes and tell it often."* In the public realm beyond the laboratory, scientists have a critical role to play in setting the priorities of public spending and guiding the discourse of public debate. If we fail to do this, it will be done for us (perhaps by lawyers?)!

As educators, our first task of scientific citizenship is to underscore health and science funding on the list of national priorities. A recent national poll conducted by this nation's leading advocacy group for medical research known as Research!America, found that the American public overwhelmingly favors increasing funds for research to promote better health and prevent disease and disabilities. In addition, following the events of September 11, 2001, Americans also want more research on how to protect the public against biological and chemical weapons and to combat emerging and re-emerging infectious diseases like SARs, West Nile virus and smallpox.

The year 2003 has been truly historic—the Administration and Congress doubled the budget of the National Institutes of Health (NIH) over the previous five -year period, raising the amount spent on biomedical research from \$14 billion in 1998 to over \$27 billion in 2003. This remarkable achievement was made possible by the work and advocacy effort of thousands of bench scientists who took time from their work to write letters, send emails, make phone calls and travel to the Nation's capitol to meet with key members of the Administration, and legislature. As one who participated, almost daily, in this remarkable "campaign to double in five" I can assure you that it would not have happened if individual working scientists had not exercised their citizenship through advocacy. Working independently or through various scientific societies, researchers cultivated powerful "champions" in the House and Senate in order to achieve this remarkable victory—individuals like Senator Arlen Specter, Chair of the Senate Subcommittee on Labor Health and Human Services, and his counter-part in the House, Congressman John Porter, Senator Tom Harkin, Democrat of Iowa and many other, including some of our own contingent from the state of Texas. Scientists in each of their respective states and districts were in frequent contact with these leaders, commending them on their good work and volunteering money and time to help them with their re-election campaigns.

In the long haul, our remarkable victory in doubling the biomedical research enterprise will have little impact on medical research unless the support can be sustained and Congress continues to provide reasonable annual increases in the NIH budget in the post-doubling years. Currently, the Administration has proposed only a 2% increase in the NIH budget for FY 2004. Thus, the task of advocacy for more dollars for the NIH, NSF, and other government agencies, and further education of Congress on the importance of what you do will, almost certainly, fall upon your shoulders.

Citizen scientists have another critical role to play: we must shape the public discourse that determines science policy. Without careful scrutiny and constant vigilance, your ability to carry out independent, investigator-initiated research might be jeopardized by capricious government policies — policies that not only burden or impede freedom of investigation but may actually criminalize the pursuit of cutting-edge research. Hotly disputed issues include stem cell research and the ability to carry out somatic cell nuclear transfer (SCNT) to produce human stem cells; the use of animals in research; and the use of human subjects in research, to name a few. The life science community is especially vulnerable to emerging science policies. Headlines of scientific breakthroughs and blockbuster discoveries appear almost daily in our news media. For example, the cloning of Dolly the sheep, in Scotland, was "a shot across the bow" of medical ethics that sent shock-waves throughout the American public. In my many trips to visit legislators on Capitol Hill last year, no topic was more volatile or inflammatory to Congress than cloning and its potential use in human reproduction — specifically, the cloning of a human baby.

Almost every scientific organization that I know, including the 60,000 member Federation of American Societies for Experimental Biology (FASEB), passed resolutions to reject reproductive cloning of a human infant. No credible scientist wants to engage in this type of experimentation. Nevertheless, the American public is frightened and mistrustful of any type of experimentation that includes the word "cloning" in its title. Regrettably, this pervasive fear, along with a lack of knowledge of basic biology of the process, has threatened to derail one of the most potentially important developments in medical research, the use of the technique of somatic cell nuclear transfer (SCNT) to produce human embryonic stem cells. This remarkable procedure holds great promise for medicine including the production of immunologically matched tissues and organs to be used therapeutically in very ill patients. As you know, this procedure calls for the transfer of a cell's nucleus, usually from a skin cell of a patient (not an egg or sperm), into an unfertilized egg — an egg whose own nucleus has been removed or rendered inert. The egg is then allowed to divide in a dish to form an unfertilized blastocyst containing cells with the potential to develop into functional tissues and organs such as brain and pancreatic islets. As you know, this tissue mass could never develop into a human embryo. Moreover, SCNT is an asexual process with the entire genome of the progeny cells coming from a single donor, rather than, two individuals.

Incidentally, SCNT is endorsed by many respected research organizations including the National Academy of Sciences, the NIH, AIMA and the American Pediatric Association.

Most legislators want "cloning" (as they understand it) to be banned—totally! However, once they learn the distinctions between cloning methods and outcomes, i.e., reproductive vs therapeutic cloning, leading politicians and citizens such as Senators Arlen Specter, Orrin Hatch, Connie Mack and former first lady, Nancy Reagan, and many others agree, that the use of this technique to produce human stem cells for the purpose of therapy, must continue. Thus, if scientists do not act as educators and fail to draw

—Continued on page 13



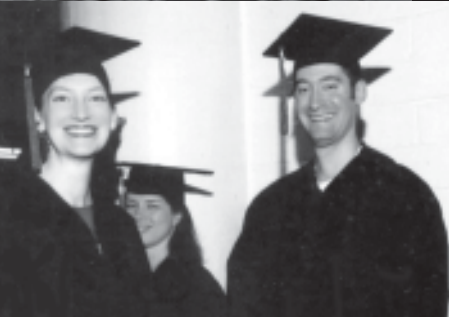
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THE UNIVERSITY OF
GRADUATE
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CELEBRATES
1963 ★





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ITY OF TEXAS
SCHOOL OF
SCIENCES
USTON



FORTY YEARS
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Graduating Class

Master of Science

Sachin Apte (Isaiah Fidler, D.V.M., Ph.D.)

Anti-Vascular Therapy of Human Ovarian Cancer

Michael Beach (Geoffrey Ibbott, Ph.D.)

Implementation of a Polymer Gel Dosimetry Insert for an Anthropomorphic Phantom Used to Evaluate Head and Neck Intensity-Modulated Radiation Therapy

Ashley Cain (Anne Sereno, Ph.D.)

The Effects of Medications on Voluntary and Reflexive Eye Movements in Parkinson's Disease Patients

Sandra Darilek (Jacqueline Hecht, Ph.D.)

Hereditary Multiple Exostosis and Pain: To What Extent is Pain Associated with the Condition?

Emily Gutter (Dianna Milewicz, M.D., Ph.D.)

Characterization of the Clinical Phenotype Associated with Familial Thoracic Aortic Aneurysms and Dissections

Nicholas Koch (Wayne Newhauser, Ph.D.)

Assessment of Respiratory Motion for Radiation Therapy of Lung Cancer Using Magnetic Resonance Imaging

Christine Lee (Mien-Chie Hung, Ph.D.)

The Ceruloplasmin Promoter in Ovarian Cancer: Potential for Enhancing the Activity of a Therapeutic Gene

Mark Lickteig (Anthony Wright, Ph.D.)

Familiarity vs. An Abstract Concept in the Matching-to-Sample Task

Pierrette Lo (Z. Hong Zhou, Ph.D.)

Structural Studies of Kaposi's Sarcoma-Associated Herpesvirus

Jennifer Malone (Joan Mastrobattista, M.D.)

Anxiety and Prenatal Testing: Do Women with Soft Ultrasound Findings have Increased Anxiety Compared to Women with Other Indications for Testing

Steven Moredock (David Mitchell, Ph.D.)

Photobiology and DNA Repair Characteristics of Two Xiphophorus Cell Lines

Laura Nolden (Pierre Zoldhelyi, M.D.)

Gene Transfer of the Tumor Suppressor PTEN in Vascular Smooth Muscle Cells

Jennifer O'Daniel (Lei Dong, Ph.D.)

The Delivery of IMRT with a Single Physical Modulator for Multiple Fields: A Feasibility Study for Prostate and Paranasal Sinus

Eugena Pixley (Jocelyne Bachevalier, Ph.D.)

Visual Processing of Facial Expressions by Adult Rhesus Monkeys (Macaca Mulatta)

Tatianna Robles (Steven Norris, Ph.D.)

Enhancement of Breast Tumor Cell Killing Mediated by a Polyethylenimine/HSV-Thymidine Kinase Vector

Leslie Roeder (John Powers, Ph.D.)

Comparison of Surface Texture Parameters to Gloss of Resin Composites with Different Filler Size

Johnny Simmons (Jagannadha Sastry, Ph.D.)

Oral Immunization for the Induction of Antigen-specific Cytotoxic T-lymphocyte Responses

Eric Swan (Jeffrey Myers, M.D., Ph.D.)

Anoikis Resistance is Critical for Tumor Progression of Oral Squamous Cell Carcinoma, and is Mediated by the PI-3K/AKT Pathway

Javier Vega (Chun Li, Ph.D.)

Tumor Targeting using Polymeric Drug Delivery System

Ryan Von Lindern (Mien-Chie Hung, Ph.D.)

Cell Type Preferential Gene Expression Targeting Her2 Overexpressing Cancer Cells via an Autocatalytic Hammerhead Ribozyme Located in the 5' Untranslated Region of a Reporter Gene

Shoubin Wen (William Mattox, Ph.D.)

Analysis of dmrt93B, a Doublesex Related Gene, Suggests that it Plays a Role in Sexual Differentiation

Carolyn Wilson (Hope Northrup, M.D.)

Phenotypic Comparisons in 107 Familial Cases of Tuberous Sclerosis; Further Evidence for Genotype-Phenotype Correlations

Qing Xia (Z. Hong Zhou, Ph.D.)

Structural Studies of Cytoplasmic Polyhedrosis Virus

ss of 2002-2003

Doctor of Philosophy

Dayna Akey (Li Jin, Ph.D.)

Delineating the Molecular Basis of Human Genetic Diseases: Epigenetic and Functional Studies

Joshua Akey (Li Jin, Ph.D.)

Theoretical and Experimental Studies of Linkage Disequilibrium in Human Populations

Melissa Aldrich (Rodney Kellems, Ph.D.)

B Cells in ADA Deficiency

Cherie Butts (Ralph Freedman, M.D., Ph.D.)

Activation of Dendritic Cells from Patients with Epithelial Ovarian Cancer

Sangeeta Cheema (Gabriel Lopez-Berestein, M.D.)

Regulation of BCL-2 Expression by the Product of the Prostate Apoptosis Response Gene-4, PAR-4

Jack Chen (Kapil Mehta, Ph.D.)

Significance of Tissue Transglutaminase Expression in the Multidrug Resistant MCF-7 Human Breast Cancer Cells

Chengkai Dai (Eric Holland, M.D., Ph.D.)

The Role of Platelet-Derived Growth Factor (PDGF) Signaling in Gliomagenesis

Randall Evans (David Goodrich, Ph.D.)

Structural and Functional Analysis of p84N5

Trent Fowler (Magnus Hook, Ph.D.)

Requirements for Staphylococcus Aureus in vitro Cellular Internalization

Rebecca Grijalva (Dihua Yu, M.D., Ph.D.)

Cell Line Origin and Tumor Inhibition of Breast Cancer Cell Lines

Wei Guo (Lalitha Nagarajan, Ph.D.)

Isolation and Characterization of a Novel Human Mix-Like Homeobox Gene MIXL

Rebecca Hamm (Timothy McDonnell, M.D., Ph.D.)

The Role of the Sonic Hedgehog Signaling Pathway in Epidermal Homeostasis

Sumera Hasham (Dianna Milewicz, M.D., Ph.D.)

Genetic Basis of Thoracic Aortic Aneurysms and Dissections: Genetic Heterogeneity and Mapping of the First Locus (TAAD1) to 5q13-14 and Second Locus (TAAD2) to 3p24-25

Stephen Henry (Magnus Hook, Ph.D.)

Gene Clustering of the Small Leucine Rich Repeat Gene Family

Elizabeth Hileman (Peng Huang, M.D., Ph.D.)

Intrinsic Oxidative Stress in Cancer Cells: A Biochemical Basis for Therapeutic Selectivity Using ROS-Generating Agents

Qiqing Huang (Eric Boerwinkle, Ph.D.)

Single Nucleotide Polymorphism (SNP) Selection for Genotype-Phenotype Association Studies

Jessica Indrigo (Jeffrey Actor, Ph.D.)

Influence of Mycobacterial Trehalose 6,6'-dimycolate (TDM) on Macrophage Responses

Tricia Ishimoto (Francis Ali-Osman, D.Sc.)

Pharmacogenetics of the Human Glutathione S-Transferase P1 Gene in the Metabolism and Therapeutic Efficacy of cis-Diamminedichloroplatinum

David Jendiroba (Emil Freireich, M.D., D.Sc.(Hon.))

Dimethylsphingosine Induces Diverse Cell Death Modes on Leukemia Cells

Roshini Kandyl (Benoit de Crombrughe, M.D., Agrege)

L-Sox5 and Sox6: Architectural Transcription Factors in Chondrogenesis and rZFH: a Novel Transcription Factor with a Potential Role in Eye Development

Byong Kim (Randy Johnson, Ph.D.)

The Function of Math5 and Myocilin in Mammalian Eye Development and Disease

Hyewon Kim (Stevan Marcus, Ph.D.)

Molecular Mechanisms Involved in the Regulation of Cell Polarity and Genome Stability by the p21-activated Kinase, Shk1, in the Fission Yeast, Schizosaccharomyces Pombe

John Kurland (Raymond Meyn, Ph.D.)

Pathways Leading to Apoptosis Resistance in a Murine B-Cell Lymphoma Cell System

Elizabeth Lafleur (Eugenie Kleinerman, M.D.)

IL-12 Inhibits the Metastatic Potential of Osteosarcoma Cells and Induces Tumor Regression via a Mechanism Involving Fas/Fas Ligand Pathway

Errin Lagow (Daniel Carson, Ph.D.)

NF (κ B) and STAT Binding Elements Participate in Regulation of MUC1 Expression in Normal and Transformed Mammary Epithelium

Matthew Lawrenz (Steven Norris, Ph.D.)

The Immune Response to the VIsE Antigenic Variation Protein of Borrelia Burgdorferi

Hu-Hui Lee (Richard Behringer, Ph.D.)

Conditional Expression of Sry, and Wnt4 by Gene-Targeting Studies in Sexual and Skeletal Development

Deana Leonard (Randy Legerski, Ph.D.)

Characterization of hLodestar: A CDC5L Interacting Protein

Wei Li (Stephen Massey, Ph.D.)

Confocal Analysis of the Synaptic Connectivity of Rod Pathway in the Rabbit Retina

Yun Lin (Robert Newman, Ph.D.)

Use of Cardiac Glycosides for Treatment of Cancer; Determinants of Cancer Cell Sensitivity

Wei Liu (James Martin, M.D., Ph.D.)

The Functions of Pitx2 and Bmp Signaling in Craniofacial Development

Kirstin Matthews (Rick Wetsel, Ph.D.)

The Characterization of Mouse Carboxypeptidase N Small Subunit Gene Structure and Presence in Developing Embryos

Meredith Moore (Jeanie McMillin, Ph.D.)

Genetic Integration of a Nuclear-Encoded Mitochondrial Gene with Cardiac Function

Joye Purser (Steven Norris, Ph.D.)

Plasmid Encoded Virulence Determinants of Borrelia Burgdorferi

V Ashutosh Rao (William Plunkett, Ph.D.)

Mechanism of Damage Sensing and Cell Killing Following the Inhibition of Nucleotide Excision Repair by Fludarabine in Quiescent Cells

Christopher Richie (Randy Legerski, Ph.D.)

Mammalian SNM1 Participates in Multiple Responses to Genotoxic Stress

Maribelis Ruiz (Menashe Bar-Eli, Ph.D.)

Role of Transcription Factor Activator Protein-2 in Prostate Carcinogenesis

Cynthia Shirley (Marvin Meistrich, Ph.D.)

Importance of Sperm Transition Proteins Demonstrated in Mice Carrying Tnp1 and Tnp2 Null Alleles

Carmen Tellez (Menashe Bar-Eli, Ph.D.)

Loss of Activator Protein-2 Results in Overexpression of the Thrombin Receptor and Correlates with the Malignant Phenotype of Human Melanoma

Simon Williams (David McConkey, Ph.D.)

Preclinical Evaluation of Proteasome Inhibition for the Treatment of Prostate Cancer

Wa Xian (Laurence Etkin, Ph.D.)

Tumorhead and XFGBP12 Interact and Regulate Proliferation and Differentiation in Neural Ectoderm Through the TOR Signaling

Hongyan Xu (Ranjit Chakraborty, Ph.D.)

Detecting the Signature of Natural Selection with Microsatellites

Chundong Yu (Wallace McKeehan, Ph.D.)

The Heparan Sulfate-Fibroblast Growth Factor Signaling System in Liver Growth and Function

Zhenming Yu (Mien-Chie Hung, Ph.D.)

Anti-tumor Activity of an Ets Protein, PEA3, in Breast Cancer Cell Lines MDA-MB-361DYT2 and BT474M1

Kun Zhang (Li Jin, Ph.D.)

Towards the Identification of Tumor Suppressor Gene on Chromosome 3P12: Physical Mapping and Candidate Gene Screening

CONGRATULATIONS

John P. McGovern Outstanding Teacher Award 2003

Michelle C. Barton, Ph.D.



I am very appreciative of this award, and very surprised and honored. However, I have to say when I heard that I was expected to do more than mumble, “Thank you very much,” into the microphone, I thought perhaps this award was more students’ revenge rather than a students’ award. But my fear of public speaking does provide an object lesson for this talk, and one cannot have too many object lessons at a graduation ceremony. The lesson is that one should not let fear of one part set you up for failure in the whole. Science education especially is multi-faceted. It is more than classroom lectures in front of scary graduate students. Our fundamental goal in providing graduate education should be more than teaching in a classroom or training in research. Our goal must be to give our students the self-confidence to become successful members of a scientific community based on collegiality and competition.

In closing, I’d like to share the secrets of education as imparted to me by my own graduate institution, before they threw us into teaching freshman chemistry students. One, don’t lean against the chalkboard, especially if you are wearing dark pants. Two, when a fire breaks out in your lab class, aim the extinguisher low and directly at the fire. Three, enjoy what you are doing and have fun in your teaching. And, four, take pride in a job well done.

Congratulations, to you all. Go on to the next stages of your career with self-confidence, and take pride in what you have accomplished and what you will achieve in the future.

Brinkley Commencement Address Continued from page 7

the necessary distinctions, ignorance or misunderstanding may lead to laws that are egregious and impeding to emerging research that could revolutionize patient care.

For example, as I speak, all is not well in Texas! I urge you to read Bill 1175, currently being drafted in the Texas House. This bill, if enacted, would not only criminalize human reproductive cloning (which we scientists generally support), but would make it a serious crime for a Texas scientist to use SCNT experimentally to develop stem cells for the purpose of human therapy.

I would not want to abuse your kind invitation to be your commencement speaker today, by lobbying for or against any legislation!! (Actually, a scientist who holds grants from the state or federal government can’t legally lobby—*but we sure can educate!!!*).

Therefore, I hope that all of you will use the fruits of your graduate education, your skills as educators, and your new, distinguished credentials as citizens of science, to educate and advise the framers of bills like 1175, and to urge state and federal legislators to prioritize research funding, and guide the public as it debates issues of public policy, medical and scientific ethics, and science education. In so doing, you will ensure that biomedical research laboratories continue to break new ground, and that the therapies and technologies will not be delayed in reaching the bedsides of our very sick and injured patients. In short, you will ensure your own futures and do a great service for your country.

In closing, we are all very grateful that the shooting war in Iraq is over and our troops are coming home. I remind you, however, that the war on disease, has just begun. As you take your place on the front lines of this war, go forth, be good citizens of science, do no harm, and embrace the democracy of science—perhaps the purest example of democracy on the planet!

Thank you and *carpe diem!*

This presentation is dedicated to my wife, Shirley, a cancer survivor and benefactor of cancer research, and my lawyer son, Kevin, who continues to provide help and inspiration.

GSBS Awards

Shell Oil Company Foundation Excellence in Toxicology Scholarships



Shell Oil Company Foundation Excellence in Toxicology Scholars for 2002-2003 are (left to right) Jennifer Carew (advisor, Peng Huang, Ph.D.) Keith Chan (advisor, John DiGiovanni, Ph.D.) and Eric Williams (advisor, Henry Strobel, Ph.D.) who each received \$2,000 towards their research studies. This program awards students for excellence in the areas of environmental and physical toxicology. The GSBS hosted a symposium for the presentation of their research projects.

2002-2003 Sowell-Huggins Professorship and Graduate Fellowship

The Andrew Sowell-Wade Huggins Professorship and Graduate Fellowship in Cancer Research were established in 2001. This joint award goes to a professor/graduate student team, working in any area of cancer research, who display distinguished experience, exemplary work, and excellence in research. The selected professor and graduate student receive funding of a year's stipend, and are named the Sowell-Huggins Professor and the Sowell-Huggins Fellow. The renewable award this year continues to honor **Sharon Dent, Ph.D.** (left), and her student, **Yvonne Evrard** (right).



Andrew Sowell-Wade Huggins Endowed Scholars



Cancer research has been deeply enriched by two mothers, Ms. Joann Sowell (far left) and Ms. Marcia Huggins Jahncke (far right) who started their 'quest' for support for graduate students working in the myriad areas of cancer research following the successful recovery of their own sons when teenagers. In twelve years Cancer Answers, the charitable organization they founded, has raised over \$500,000 and their goal is to complete a \$1M endowment. Currently the endowment supports up to five \$2,000 scholarships yearly as well as the Sowell-Huggins Professorship/Fellowship team with matched stipend support. The 2003 Andrew Sowell/Wade Huggins Scholars, here with Ms. Sowell and Ms. Jahncke are, from left, **Leisa Talbert** (advisor, Rodney Nairn, Ph.D.); **Jerry Lu** (advisor, John DiGiovanni, Ph.D.), **Kun Zhang** (advisors, Li Jin, Ph.D. and Ann Killary, Ph.D.).

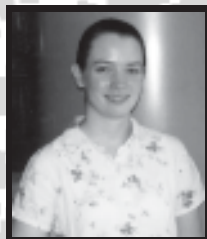
Cancer Answers/Sylvan Rodriguez Scholars

Graduate student **Simon Williams** (advisor, David McConkey, Ph.D.), second from left, is the third Cancer Answers/Sylvan Rodriguez Scholarship recipient of a \$2,000 scholarship. Shown here with board members from the Sylvan Rodriguez Foundation, far left, Mr. Andy Plata, board president; Mr. Williams; Houston City Council member, Dr. Shelly Sekula (Rodriguez) Gibbs, second from right; and Mr. Mike Flory, board member. The group gathers each spring, along with the Cancer Answers charitable organization, to celebrate and learn about the research studies of their scholar who is chosen not only for excellence in cancer research, but exemplary generosity to the community—in the footsteps of the Scholarship's namesake, Sylvan Rodriguez, local newscaster, who died of pancreatic cancer in 2001.



GSBS Awards

2003-2004 P.E.O. (Philanthropic Educational Organization) Scholar



Ruth Ann Barkley Advisor, Eric Boerwinkle, Ph.D.

In 1991 the P.E.O. (Philanthropic Educational Organization) Scholarship Awards were established as the fifth international project of the P.E.O. Sisterhood. They are one-time, highly competitive awards for women of the United States and Canada who are pursuing a graduate degree, undertaking advanced study, or research. Since 1992 over 880 outstanding women graduate students have become P.E.O. Scholars selected in part for their potential to excel. This year's recipient receives \$8,000.

Rosalie B. Hite Award

In 1946, Houston citizen Rosalie B. Hite left her entire estate to establish a fellowship program for cancer research. This award includes a stipend of \$19,000 per year, tuition and fees, and a single travel allowance up to \$850 for the student to present his or her research at a national meeting.

Hite Scholars for 2003-2004 are:

Meghan Minard

Advisor: Gary Gallick, Ph.D.

Chi-Hui Tang

Advisor: Elizabeth Grimm, Ph.D.

Ke Zhang

Advisor: Sharon Dent, Ph.D.

Christopher Danes

Advisor: Dihua Yu, Ph.D.



Aaron Blanchard Research Award in Medical Physics

Award Recipient for 2003-2004 is

Jennifer O'Daniel Advisor: Lei Dong, Ph.D.

Named in memory of Aaron M. Blanchard, a GSBS student in the Medical Physics Program who succumbed to brain cancer in 1998, this \$300 cash award recognizes a Medical Physics graduate (M.S. or Ph.D.) for completion of an outstanding thesis or dissertation judged to make a significant contribution to cancer therapy or diagnosis.



Keck Center Predoctoral Fellowship

Rebecca Milman Advisor: Ken Hogstrom, Ph.D.



Thomas Burks Outstanding Service and Leadership Award

Stephen Kry Advisor: Mohammad Salehpour, Ph.D.



Society of Chinese Bioscientists in America, Texas Chapter

Jun Xie Advisor: William Dowhan, Ph.D.

Second prize for an oral presentation of her research at the annual symposium



2002-2003 GSBS Adopt-A-Student Scholar

David Roy Coleman Advisor: John McMurray, Ph.D.

News & Events

Robert Wells, Ph.D., GSBS faculty member and Houston scientist, leads the 60,000 member Federation of American Societies for Experimental Biology (FASEB). While president of FASEB, the largest group of biomedical research scientists in the United States, Dr. Wells continues to serve as director of the Center for Genome Research at the Institute of Biosciences and Technology, a part of Texas A&M University located in the Texas Medical Center. Comprised of 24 scientific societies representing molecular biology through to clinical research, FASEB often works with Congress to foster understanding of the importance of biological research and the necessity of supporting it. FASEB's Congressional work has helped increase federal funding for both the National Institutes of Health and the National Science Foundation.



Karron G. Lewis, Ph.D., from the Center for Teaching Effectiveness at The University of Texas at Austin, gave a workshop in the *Major Issues in Course & Instructor Evaluations* for GSBS faculty.



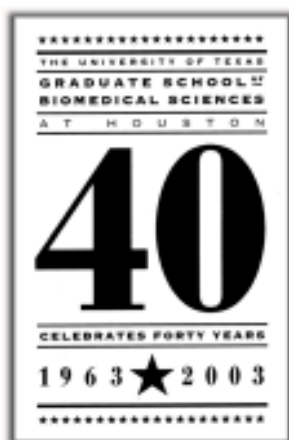
GSBS Student and Faculty Softball Game

An Evening with Megan Cole

Award-winning actress, Megan Cole, dramatically 'tells it like it is' after gathering over 60 hours of taped interviews with GSBS faculty and students. She presented, complete with background music and title placards, what it is really like from the perspective of both groups. Serious thoughts, fears, achievements, and hopes came alive in a performed reading of actual words that echoed the challenges, inspiration, and wonder of being and becoming a scientist.



Happy 40th Anniversary to the GSBS



In 2002-2003 the Graduate School of Biomedical Sciences (GSBS) celebrates its 40th Anniversary. It has changed dramatically since 1963 when 13 students and 16 faculty members sought to answer the needs of the State of Texas through studies in three categories: biochemistry, physics and biology. Today, one of six degree-granting schools in The University of Texas Health Science Center at Houston, the Graduate School of Biomedical Sciences, is an institution with 500 faculty (from UTHSC-H, M. D. Anderson Cancer Center, and Texas A&M University), and 1,414 graduates with 1,556 degrees. Over 450 current students are studying, inventing, designing, and developing the healthcare solutions for the future.

Congratulations and warmest best wishes to all those loyal GSBS Faculty who are currently retiring, have recently retired, or who will be retiring. Specifically, these individuals have been brought to our attention:

Dennis Johnston, Ph.D.

Jeanie McMillin, Ph.D.

(Faculty President 2001-2002)

J. Arly Nelson, Ph.D.

Sen Pathak, Ph.D.

Doris Ross, Ph.D.

W. Barry VanWinkle, Ph.D.

If you would like your name, or the name of your colleague who is retiring, listed in the newsletter, contact Linda.M.Carter@uth.tmc.edu or call 713-500-9865.

Special Thanks & Gratitude

Special Thanks

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Cynthia Skinner-DeBord
George Stancel
James Stoops
Lixuan Tackett
Kishor Wasan
Brenda Whaley
Wei Yu
Z. Hong Zhou

GSBS Outreach



Meghan Minard and Joanna Koch receive the requisite T-shirts for their hardwork coordinating the graduate student volunteer efforts in the School's Outreach Program at Brookline Elementary and several science fair contests. Thank you to Meghan and Joanna and all the 20+ students who give of their time to assist the Graduate School and provide lively educational interactions with the community.



Tom Goka, GSBS Assistant Dean for Outreach and Minority Affairs, and alumnus, spoke at the N.A.S.A. Jr. Scientist Conference at The University of Texas Pan America about becoming scientists and self-learners.

Brookline Elementary 5th grader,

Carlos Herrera, expresses his appreciation to Charlie Minard for teaching them some "interesting things" while eating pizza, chocolate cookies, and drinking Kool-aid. If you would like to *reach out and make a difference* by joining the GSBS Outreach Program, contact Dr. Tom Goka at Thomas.J.Goka@uth.tmc.edu or 713-500-9868.



In Progress



The George and Cynthia Mitchell Basic Science Research Building

Here is a preview of the New UT M. D. Anderson Cancer Center's Basic Science Research Building - the future home of the GSBS. In our new home (on the third floor) we will be centrally located in the Texas Medical Center, on Bertner Street, right across from Methodist Hospital. The construction schedule is right on target for a move-in date of mid Summer, 2004.

Taking the first "grand tour" of the new building are from left to right: George Stancel, Dean, GSBS; Paul Darlington, GSBS; Stephen Tomasovic, MDACC; Guillermina Lozano, MDACC; William Klein, MDACC; Richard Behringer, MDACC; John Mendelsohn, President, MDACC; and Leonard Zwelling, MDACC.



Steps to the new classrooms



Ground floor foyer area



Stiltsmen working ladder free!

Alumni News



Hi Alumni,

Happy 40th Anniversary GSBS! This year marks a very special year for the school, as well as a fourth birthday for the Alumni Association. Welcome to all of you who are new alumni (as well as those seasoned brothers and sisters) that joined us in May 2003. I look forward to working with you in a variety of ways, and visiting with you at our annual alumni reunion. The GSBS reunion is scheduled this fall for the evening of November 22, 2002. So please mark your calendars now. It is a great opportunity to catch up with colleagues and friends.

*Perhaps the most important news I have to share is to announce that **Eugene Gerner, Ph.D. (1974)**, has been selected to receive the honor of GSBS Distinguished Alumnus for 2003. Dr. Gerner, renowned biomedical scientist in the area of gastrointestinal cancer research, will be joining us for the reunion.*

2003 continues to be a busy year for the Alumni Association. We provided a second community outreach activity to the Sylvan Rodriguez, Jr. Elementary School with a program exploring the mysteries of DNA, at a 5th grade level. Stephen Lott, Ph.D. (1997), and Ann Killary, Ph.D. (1980) headed the effort. I hope the new semester will include efforts to additional schools. The In-Reach Mentoring program assisted several current GSBS students with their efforts by answering questions, and spurring interest in career opportunities ahead (life after Ph.D.). If you would like to volunteer for this on-line service, please let me know. Bwhaley@hbu.edu

As time moves along at a rapid clip, I want to mention my vision for a future effort by your Alumni Association, and that is my hope to organize a scientific research competition for undergraduate students throughout Texas. More about this topic will be coming soon. Have a great summer, and I'll see you in November.

Brenda Whaley, Ph.D. (1995)

President, 2002-2003, GSBS Alumni Association



Catherine Wicklund, M.S. (1993), GSBS alumna and genetic counselor, attended the NIH Genome celebration in Washington DC for the Board of Directors for the National Society of Genetic Counselors (NSGC). While attending the preview of the DNA exhibit set to open at the Smithsonian, she, and her colleague, Patricia Robbins-Furman, MPH, a genetic counselor at Baylor College of Medicine, had their photograph taken with James Watson.

Energetic alumnus **Stephen Lott, Ph.D.**, spearheaded a presentation he, Ann Killary, Ph.D., Yvonne Rodriguez, research investigator and Yan Xie, Ph.D. made recently to 150 fifth graders at Sylvan Rodriguez Elementary School. They provided interactive experiments in conjunction with the national recognition of the 50th anniversary of James Watson and Francis Crick's discovery of the structure of DNA.



The Board of Directors of The Center for AIDS: Hope and Remembrance Project has named GSBS alumnus, **Thomas Gogeny, M.S. (1997)**, as the agency's first Executive Director.

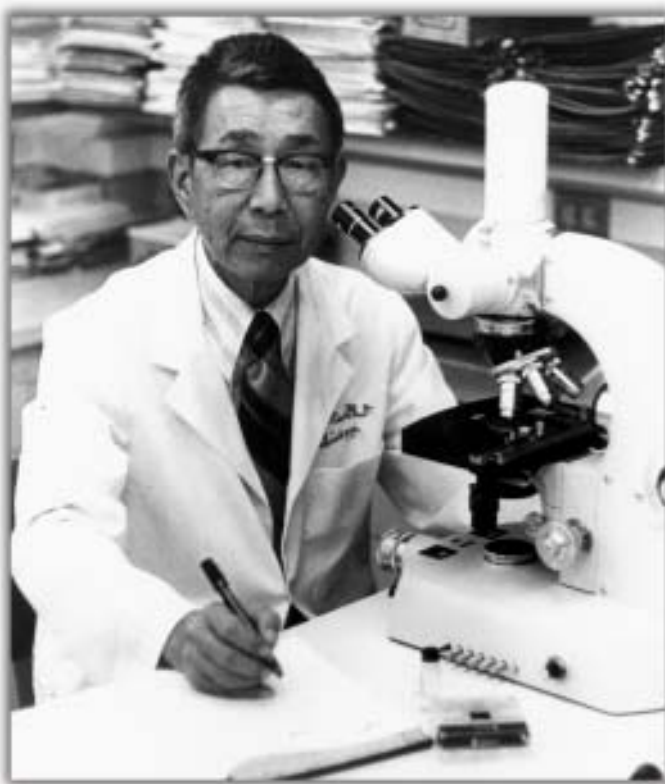
Jennifer Newcomb Fernandez, Ph.D. (2000), has just incorporated her own scientific writing and consulting business, Newcomb Scientific LLC.

www.newcombscientific.com

Bill Simcik, Ph.D. (1989) received the Faculty Excellence Award as Biology professor and coordinator at Tomball College.

*If you would be interested in participating in the **GSBS Alumni Outreach** program, contact Brenda Whaley at bwhaley@hbu.edu*

In Memoriam



T. C. Hsu, Ph.D.
1917 - 2003

*A world-famous scientist,
advocate for graduate education, and
remarkable individual.*

*The T. C. Hsu Memorial Scholarship Endowment, a
living testimony to his memory, has been established to
support, in perpetuity, exemplary graduate students
whose studies are in genetics or cell biology.*

A tax-deductible gift may be sent to:
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