

BIOCHEMISTRY & MOLECULAR BIOLOGY TODAY

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Chair's Message

The first part of this year promises to be very busy for all. In addition to the usual commencement of courses, most of us have been busy preparing a number of grant applications. As NIH and other funding sources are themselves changing the protocols and application forms and mechanisms of funding, I know this presents a challenge to faculty and staff alike.

In addition, there is the Department/ Grad Program review, the SACS site visit, and the much announced State Fire Inspector's visit on the institutional side. At the Departmental level we have a vigorous faculty and graduate student recruitment program in progress as well as space renovation, and for many of our faculty, involvement in preparations for a new CTSA application and possible Cancer initiatives. The State of Texas will dedicate \$300 million per year over the next decade to Cancer Research, an amount larger than the total NCI awards in all of Texas at this time. Competition for these funds will be significant. Also at the Departmental level, we just finished our retreat and discussed the next phase in faculty recruitment for the next 5-10 years.

Please continue to attend seminars by faculty candidates. This is a critical time of year for recruitment, and we have had a very large number of

outstanding candidates. Your input is most important.

Thanks to all the faculty for their participation in the recent retreat, and especially to Wayne Bolen, Lillian Chan, Margie Wronski and Marianne Miller for their hard work organizing the content and venue of the retreat. Well Done! The third in the last three years or so, these events are vital to make sure we refresh our vision for the Department and our Graduate Program at an important time in our Department's development, just prior to an external review process. (Don't forget that the external review committee will be visiting May 19 to 20; please mark your calendars). The retreat also presented a good opportunity to address recurring and new challenges in terms of issues of faculty recruitment, infrastructure and space needs for the future, as well as addressing issues relevant to our educational mission. Maybe one equally important aspect, not listed on the program, was the opportunity for the entire faculty to talk with each other and get to know our colleagues better. One immediate outcome is that I feel it would be useful to return to an annual state of the Department presentation as we used to do before the Navigant ordeal. It will soon be announced.



The Dean has announced the formalization and restructuring of the Research Executive Committee as the major advisory group for research strategic planning. This group participates with the Dean in discussions on how best to serve the research mission of the School of Medicine, including allocation of resources. I have to say that the Dean has been most receptive to suggestions, and at a meeting with the President, Dr. Callender endorsed the most recent set of recommendations the Committee made through the Dean.

In the last week we have been informed that annual evaluations are now required for an expanded number of staff members due to SACs requirements, and that since the SACs site visit is due late this month, we must accelerate the process. Please work with Margie and Marianne on this process. Hopefully, after this instance we will return to our usual more evenly paced evaluation process.

Finally, this is the time of year for You Count. This is an instrument by which each member of UTMB can make his or her voice heard. Please take advantage of the opportunity.

-regino

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Special Items of Interest

- [Research Spotlight — UTMB Comprehensive Cancer Center](#)
- [Dr. Konkel's Research Coordinator's Columns Online](#)
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Graduate Program News

The BMB Graduate Program invites everyone to attend the student seminars held each Friday at noon in the Basic Science Auditorium. For a list of the speakers and dates, please click [here](#).

Admissions and Recruitment is in full swing. The first recruitment weekend has just passed and there are three more scheduled for the spring. We want to thank our faculty and student members for their hard work on these Committees.

Springtime also is when the Qualifying Exam is given, and this year we have 10 BMB and 2 BSCB students going through the process. We are grateful to the BMB/BSCB Examination Committee members for all their hard work.

Two of our students will be presenting a seminar, Friday, February 15th from 4-5pm at Rice University as part of the Keck Annual Research Conference Poster Winners. For detailed information, please go to:

<http://cohesion.rice.edu/services/events/index.cfm?EventRecord=9101>

Kerry Fuson, BSCB student in Dr. Bryan Sutton's laboratory
Houston Area Molecular Biophysics Training Program predoctoral fellow
"The mechanical properties of human synaptotagmin 1 C2 domains"

Robert Malmstrom, BMB student in Dr. Stan Watowich's laboratory
Pharmacoinformatics Training Program predoctoral fellow
"Discovering dengue drugs-together: improving drug discovery tools"

- Debora Botting



Awards and Announcements

Grants:

Dr. Olivera Nestic-Taylor

Aquaporins and Neuropathic Pain after Spinal Cord Injury R21NS058417 02/01/2008-02/01/2010 in the amount of \$181,200

Dr. Elena Frlova

John Sealy Memorial Endowment Fund: Sindbis nonstructural protein nsP2: Interaction with cellular proteins: 12/15/2007 - 12/14/2008.

Research Spotlight: UTMB Cancer Center

Cancer Facts

Many people are surprised to learn that cancer is the number one killer in America, surpassing heart disease in 2005. In Texas, more than 95,000 new patients will learn they have cancer this year; 37,000 Texans will die from the disease. More than 650,000 Texans have a history of cancer. Nearly 1 in 2 men and 1 in 3 women in Texas will develop cancer during their lifetime. Here in Galveston County, the number of reported new cases and deaths far exceeds the state average for certain cancers including breast, prostate, gastrointestinal and lung.

These statistics, coupled with a high demand for cancer treatment that consistently exceeds available resources in the state (cancer costs Texans \$30 billion a year in direct and indirect costs), are prompting the expansion of oncology treatment, research and educational outreach programs at the UTMB Cancer Center.

Cancer Programs at UTMB

For more than three decades, UTMB has built a solid reputation in oncology research. The university, today, is considered an international authority in several areas of cancer, particularly gastrointestinal (GI) cancers, including rectum, colon, endocrine pancreas, hepatobiliary and liver cancers. With the establishment of the UTMB Transplant Center in 2006, and the addition of a liver transplant surgeon to the faculty in 2007, UTMB now offers comprehensive treatment for these cancers, including liver transplantation. The research arm of the UTMB Cancer Center, the Sealy Center for Cancer Cell Biology, is also recognized nationally and internationally for its work in breast, prostate, head and neck and brain cancers.

In the treatment arena, the UTMB Cancer Center is emerging as a primary resource for patient care for many different cancers, but specifically the same cancers in which it has oncology research expertise. In previous years, with the rapid growth of major cancer centers in Houston, UTMB primarily concentrated its oncology efforts in research. For the past two years, however, UTMB has moved strategically to strengthen and expand its oncology diagnostic and treatment programs for most cancers to meet demand.

From the educational and community outreach perspective, the UTMB Educational Cancer Center, with the support of the Department of Preventive Medicine and Community Health (PMCH), is a noted leader in promoting cancer awareness, early detection and treatment and nutritional health. In 2006, the Cancer Center, through several outreach initiatives, conducted more than 16,000 breast, cervical and skin cancer screenings throughout Texas. Via its "Cancer Passport" program, PMCH and the Cancer Center provided oncology detection, treatment and nutritional information to more than 10,000 residents of Texas.

New Initiatives in Oncology Treatment

Several new initiatives have been completed or are underway to enhance diagnosis, treatment and care for oncology patients at the UTMB Cancer Center. Major renovations have been completed in the Department of Radiation Oncology to make the area more aesthetically pleasing and customer friendly. Radiation patients and their families are now able to park very close to the facility and can easily walk or be transported to the radiation area at the rear of the University Hospitals Clinic (UHC) building.

In late 2007, Radiation Oncology became the first in the state and among the first in the nation equipped with a Novalis state-of-the-science photon beam device, used in imaging as well as shaped beam surgery on tumors. Effectively, Novalis is used in the place of conventional surgery on certain patients, as a faster and more accurate method with significantly lower risks.

Likewise, dramatic changes have occurred in the Division of Hematology/Oncology. Patients receiving chemotherapy were relocated in early 2008 to the highly accessible Primary Care Pavilion. At the new location, patients are dropped off right at the clinic door and escorted into treatment areas mere feet away from the waiting area. Creating an environment that was more accessible and patient-centered was the top priority of new leadership recruited to Hematology/Oncology in late 2006. Renovations were completed in late 2007,

and staff and patients moved into their new space early in 2008.

Clinical Trials Office Opened

One of the most notable and significant changes that occurred in the UTMB Cancer Center was the establishment of the Oncology Clinical Trials Office (OCTO). Prior to the formation of OCTO, the management of oncology clinical trials was splintered across departments within the university. Now, under the umbrella of one, cohesive staff and facility, the number of clinical trials in oncology has doubled in one year.

Clinical trials are a critical link between basic oncology research and patient care; the establishment of OCTO has provided an important conduit for advances in research to quickly become protocols for treating cancer at UTMB.

Marketing and Development of UTMB Cancer Center

An important tool in expanding and enhancing cancer services at UTMB is increasing awareness of current programs and building support for future initiatives. In late 2007, the UTMB Cancer Center developed and began implementation of a multi-faceted marketing program to heighten the profile of the center to both internal and external markets. It also considers the strengths of current Cancer Center programs, such as research and treatment expertise in certain cancers, and challenges such as the lack of a named building for all UTMB cancer initiatives.

A second component of the plan reaches to the communities the UTMB Cancer Center is best positioned to serve, such as Galveston, all of Galveston County and the Bolivar peninsula. Presentations to civic clubs, media exposure and special events are avenues being utilized to increase the visibility of the Center in the larger communities beyond UTMB. A recent special event, "Cookies for the Cure," has proven successful in building awareness not only among UTMB staff, but also throughout Galveston County because of strategic media coverage. More events, aimed at profiling UTMB's cancer efforts, are planned this spring and summer.

A Bright Future

On the development side, UTMB Cancer Center is working closely with the university's Offices of University Advancement (OUA) and Public Affairs and Marketing to ensure that the marketing and resource needs of the center are considered on a consistent basis. Leadership in all three divisions are working aggressively with Cancer Center staff to promote the center and to ensure it is well positioned for the planned enhancements and rapid expansion that is expected to occur.

With the appointment of David L. Callender, M.D., as UTMB President in 2007 and his goal to establish the UTMB Cancer Center as one of four "Centers for Excellence" at the university, the future of cancer treatment programs, research and community outreach initiatives is very bright.

- Sheila Lidstone, Marketing and Development



UTMB Cancer Center Leadership

B. Mark Evers, M.D., Director

D. Gosky, MBA, Administrator

B. Phillips, Ph.D., Associate Director, Prevention and Control/Community Outreach.

A. Markowitz, M.D., Associate Director of Clinical Research, Oncology Clinical Trials.

M. Colman, M.D., Professor and Chair, Radiation Oncology.



Administrator's Notes

Revised NIH Forms

Department members concerned with submitting grant proposals to the NIH and other federal agencies should be sure to note following changes:

- ✦ Revised PHS 2590 forms (paper progress reports) and instructions must be used for reports with a due date of March 1, 2008 and beyond.
- ✦ Revised PHS 398 forms (paper applications) and instructions must be used for applications with a due date of May 25, 2008 and beyond.

UTMB's templates have been revised to reflect elements required by the new forms and are posted on the Research Services web site: <http://research.utmb.edu/osp/forms.shtm>.

Revised Requirements Relating to Publications

Submission of Publications to PubMed Central

Beginning April 7, 2008, all articles arising from NIH funds must be submitted to PubMed Central upon acceptance for publication.

Provision of Reference Numbers for Publications Cited in Applications, Proposals, and Progress Reports

Beginning May 25, 2008, anyone submitting an application, proposal or progress report to the NIH must include the PubMed Central or NIH Manuscript Submission reference number when citing applicable articles that arise from their NIH funded research. This policy includes applications submitted to the NIH for the May 25, 2008 due date and subsequent due dates.

More information: *NIH Guide* Notice January 11, 2008, or contact Tracie Albritton, the Department's Pre-Award Specialist in OSP at talbritton@utmb.edu.

Thanks to All for Cooperation in Preparing for Upcoming Fire Safety Inspection

Along with Dr. Perez-Polo, Lisa Pippet and I appreciate the effort everyone has devoted to evaluating and preparing labs and associated spaces for the upcoming visit by the State Fire Safety inspectors. The UTMB safety officers have noted the Department's work, and we have received compliments on the improvements that have been achieved. We will send more information about the inspection as we receive it.

New Date for ECRT Implementation

The schedule has been altered slightly for implementation of UTMB's new system for effort reporting. Training of researchers in the use of ECRT and completion of the first effort confirmation process is now slated to take place in April 2008.



Administrator's Notes

Efforts to Improve Elevator Service

FOAM's supervisor of elevator operations, Lewis Cantrell, has reported that a number of actions are being taken to improve elevator service, partially in response to chronic problems encountered in BSB and MRB. One measure recently implemented is the assignment of a full-time supervisor from Otis Elevator to the UTMB campus, which is expected to expedite the assessment and resolution of problems. Please continue to call the FOAM Maintenance/Utilities Center at 2-1586 as soon as any elevator problem is noted. Also, please notify me of any instance in which a department member is "stuck" in an elevator for more than 10 minutes – please give the specific elevator designation, the time the problem occurred, and the amount of time it took to be "released". For information: the UTMB contract with Otis Elevator specifies that an Otis technician must respond to the site within 15 minutes of receiving a report of people trapped in an elevator.

Request for Feedback on Research Services' Website

Research Services has embarked on a project to re-design their website. They have asked for feedback from researchers about ways in which the site is currently used as well as recommendations for improvements. Please send comments and suggestions to Jo Bremer at jobremer@utmb.edu.

-Marianne

ONLINE Research Coordinator's Corner
www.bmb.utmb.edu/department/RCC/

13th Sealy Center for Structural Biology and Molecular Biophysics
Symposium

The University of Texas Medical Branch

May 16-17, 2007

Registration is Open.

Please visit our website at: www.scsb.utmb.edu/symposium

Faculty on the Road



Dr. Cheryl Watson attended the Nuclear Receptors and Coregulators Scientific Meeting at Baylor College of Medicine/MD Anderson, Houston on January 22, 2008

She also attended the High Throughput Systems Biology: Drug Discovery and Applications for Personalized Medicine at Baylor College of Medicine, Houston, Texas on January 28, 2008

Dr. Tapas Hazra attended and presented at the Radiation Therapy Oncology Group Meeting in San Diego. Jan 17-20, 2008

To have your travels included in the monthly newsletter, please send the information directly to Lisa Pipper (lkipper@utmb.edu) by the 1st of each month.

New - ONLINE Version
Research Coordinator's Corner
www.bmb.utmb.edu/department/RCC/

BMB Faculty Publications

Adams, EL, Rice, PJ, Graves, B, Ensley, HE, Yu, H., Brown, GD, Gordon, S, Monteiro, MA, Papp-Szabo, E, Lowman, DW, **Power, TD**, Wempe, MF, Williams, DL. *J. Pharmacol. Exp. Ther.*, 2007, (*in press*), Differential High Affinity Interaction of Dectin-1 with Natural or Synthetic Glucans is Dependent upon Primary Structure and is Influenced by Polymer Chain Length and Side Chain Branching.

Acharya, N., L. Haracska, **S. Prakash**, and **L. Prakash** (2007) Complex formation of yeast Rev1 with DNA polymerase h. *Mol. Cell. Biol.* 27: 8401-8408.

Oh, J.H., Kim, Y.B., Gurnani, P., **Rosenblatt, K.P.**, and Gao, J. (2007) Biomarker selection for predicting Alzheimer disease using high-resolution MALDI-TOF data. *Proceedings of the 7th IEEE International Conference on Bioinformatics and Bioengineering (BIBE 2007)* 2007: 464-471, 14-17 October 2007.

Brasier, A.R., Victor, S., Boetticher, G.D., Ju, H, Lee, C., Bleecker, E.R., Castro, M., Busse, W.W. and Calhoun W.J. Molecular Phenotyping Of Severe Asthma Using Pattern Recognition of Bronchoalveolar Lavage-Derived Cytokines. *Journal of Clinical Allergy and Immunology*, 121: 30-37, 2008.

Ovidiu Ivanciuc, Electrotopological State Indices. In: *Molecular Drug Properties. Measurement and Prediction*, Ed.: R. Mannhold, Wiley-VCH, Weinheim, 2008, pp. 85-109.

Pretzer, E.P., **Wiktorowicz, J.E.** Saturation Fluorescence Labeling of Proteins for Proteomic Analyses, *Analytical Biochemistry* <http://dx.doi.org/10.1016/j.ab.2007.12.014>

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Featured Abstract by BMB Faculty

Molecular phenotyping of severe asthma using pattern recognition of bronchoalveolar lavage-derived cytokines.

[Brasier AR, Victor S, Boetticher G, Ju H, Lee C, Bleecker ER, Castro M, Busse WW, Calhoun WJ.](#)

Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX 77555-1060, USA. arbrasie@utmb.edu

BACKGROUND: Asthma is a heterogeneous clinical disorder. Methods for objective identification of disease subtypes will focus on clinical interventions and help identify causative pathways. Few studies have explored phenotypes at a molecular level.

OBJECTIVE: We sought to discriminate asthma phenotypes on the basis of cytokine profiles in bronchoalveolar lavage (BAL) samples from patients with mild-moderate and severe asthma. **METHODS:** Twenty-five cytokines were measured in BAL samples of 84 patients (41 severe, 43 mild-moderate) using bead-based multiplex immunoassays. The normalized data were subjected to statistical and informatics analysis. **RESULTS:** Four groups of asthmatic profiles could be identified on the basis of unsupervised analysis (hierarchical clustering) that were independent of treatment. One group, enriched in patients with severe asthma, showed differences in BAL cellular content, reductions in baseline pulmonary function, and enhanced response to methacholine provocation. Ten cytokines were identified that accurately predicted this group. Classification methods for predicting methacholine sensitivity were developed. The best model analysis predicted hyperresponders with 88% accuracy in 10 trials by using a 10-fold cross-validation. The cytokines that contributed to this model were IL-2, IL-4, and IL-5. On the basis of this classifier, 3 distinct hyperresponder classes were identified that varied in BAL eosinophil count and PC20 methacholine.

CONCLUSION: Cytokine expression patterns in BAL can be used to identify distinct types of asthma and identify distinct subsets of methacholine hyperresponders. Further biomarker discovery in BAL may be informative.