Volume 18, Number 2
March-April 2015

Inside:

BioMET NOW

Center for Biomedical Engineering and Technology - University of Maryland School of Medicine
in conjunction with the Fischell Department of Bioengineering, School of Engineering, University of Maryland, College Park

National Guard on Campus

Universities often seem far removed from worldly happenings, but the end of April brought a reminder that violence affects everyone. The tragic death of Freddie Gray in police custody sparked demonstrations that in turn became destructive. Because some of the demonstrations were close to the campus, and any injuries would come to Shock Trauma, UMB was impacted in unprecedented ways. On April 27, the University closed at 2 pm and insisted that the campus be vacated as soon as possible, a shelter in place order was subsequently given.

The following day, the Army National Guard, armed and in assault gear, was stationed on campus. On multiple street corners, particularly around Shock Trauma, two or three soldiers carefully watched everyone who passed. The first day they were on campus was tense but empty, as most employees had stayed home. Subsequent days saw a easing of tensions, as the threat of violent demonstrations slowly dissipated.

UMB has always had a strong commitment to community service. The Office of Community Engagement through its web site UMB Responds (http://www.umaryland.edu/oce/umb-responds/), as noted by President Perman in his letter of April 30, began almost immediately to gear up to help affected communities.

Violence is all too often infectious and insidious. BioMET is very proud to be part of a university community that aggressively counteracts violence.

SOM Dean Talks at Annual Retreat

Deans, especially ones of high-profile schools like the University of Maryland School of Medicine, tend to be very parsimonious with their time. So BioMET was particularly honored to have Dean E. Albert Reece speak at our annual retreat. The Dean broke his talk into two parts, the first detailing his Vision 2020 and ACCEL-Med initiative that began in 2014 and BioMET's place in the general scheme of the school and the second going over some of his research in diabetes-induced birth defects and free radicals. It was quite fascinating to see BioMET's solid standing in all the metrics used for evaluating programs in the School of Medicine. Dean Reece was very gracious and complimentary. His ACCEL-Med initiative already has impacted BioMET, with BioMET Professor Joseph P.Y. Kao receiving one of the Dean's Challenge Awards, as documented in the previous issue.

In addition, Dr. Shengyun Fang, another BioMET faculty member, has published research with Dean Reece. So the

CONTINUED PAGE 2

BioMET
Scientific Programs

Laboratory of
Molecular Cardiology

Laboratory of
Nanobiology

Laboratory for
Neurodegenerative Diseases

Laboratory for
Prion Diseases

Program in
Cancer Biology

Program in
Cell Structure and
Development

Program in
Mitochondrial Dynamics

University of Maryland
School of Medicine

Annual Retreat
April 21, 2015

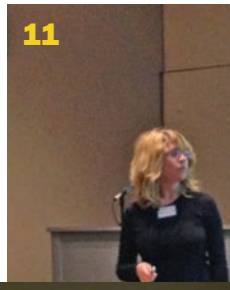
Dean, continued

science side of his talk was also very pertinent to the scientific interests of BioMET. Dean Reece has attended parts of previous retreats, but having him talk was really a treat.

As has become the standard for our retreat, three other outside speakers presented their work, all of whom have either ongoing collaborations with BioMET faculty or are in talks about collaborations. The first speaker was Dr. Anthony Kim (below right) from the Department of Neruosurgery, UMSOM. A collaborator with Dr. Kao, Dr. Kim detailed a multi-PI group for attacking invasive brain cancer. The second speaker was from the Department of Chemical, Biochemical and Environmental Engineering, University of Maryland Baltimore County, Dr. Jennie B. Leach (left). She spoke about her work on biopolymers to act as surrogate tissues to better understand cell behavior and healing. The final speaker was Dr. Robert Bloch (below left) from the Department of Physiology, UMSOM. Dr. Bloch's research focuses on large structural proteins, particularly in skeletal muscle. Abnormalities in these proteins, particularly dystrophin and related proteins, cause several muscular dystrophies.

Besides outside speakers, other guests included Dr. Terry Rogers, Director of the SOM Office of Research and Faculty Development, Dr. Dan Schultz, Department of Microbiology and Immunology, and Dr. Christopher Ward, Department of Orthopaedics, SOM. Dr. Ward has a number of joint projects with BioMET.

Time
8:00-8:50am
8:50-9:00
9:00-9:20
9:20-9:40
9:40-10:20
10:20-10:45
10:45-11:45
11:45-12:05
12:05-12:25
12:25-1:40
1:40-2:00
2:00-2:20
2:20-3:00
3:00-3:40
3:40-4:00
4:00-4:20
4:20-5:00



Pictures: 1. Drs. Kao, Hagen and Xu in discussion; 2. Drs. Ward, Kao, Rogers and Schultz at lunch; 3. Dr. Robert Bloch and Pamela Wright enjoying the talk; 4. Dr. Bruce Vogel; 5. Dr. Joseph Kao; 6. Dr. W. Jonathan Lederer; 7. Dr. Mervyn Monteiro; 8. Dr. Shengyun Fang; 9. Graduate Student Sunan Li; 10. Dr. Guiling Zhao; 11. Dr. Elizaveta Katorcha; 12. Dr. Liron Boyman.

BioMET Now *is indebted to Natallia Makarava and Brian Hockenberry for taking pictures throughout the event.*

Editor and Designer: Pamela B. Wright
Assistant Editor: Brian Hockenberry

Publisher: W. Jonathan Lederer, Director BioMET
Assistant Publisher: Joseph Kao, Associate Director BioMET

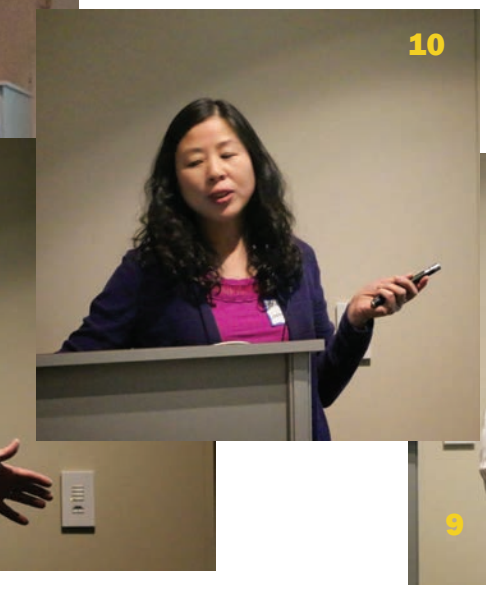
Contact us at: pbwright@umaryland.edu
or 1-410-706-8181

BioMET
111 S. Penn St., Rm 104
Baltimore, MD 21201 USA

Back issues of BioMET NOW are available on the web at: http://biomet.umaryland.edu

Meeting Schedule

	Presenter	Title
	Arrival/Continental Breakfast	
	W. Jonathan Lederer	Welcome
	Elizaveta Katorcha Baskakov Laboratory	Sialylation Determines Prion Fate
	Joseph Kao BioMET Faculty	Imaging thiol redox status in vivo
	Anthony Kim UMSOM	Therapeutic Strategies to Target Invasive Brain Cancer
	Break (25 min)	
	Dean E. Albert Reece UMSOM	Vision 2020 Goals & Update on the Birth Defects Research Group
	Mervyn Monteiro BioMET Faculty	UBQLN2 mouse models of ALS
	Shengyun Fang BioMET Faculty	A novel nuclear protein pathway and its implication for pathogenesis and early detection of SOD1-linked ALS
	Lunch (90 min)	
	Sunan Li Karbowski Laboratory	Transient assembly of F-actin on the outer mitochondrial membrane contributes to mitochondrial fission
	Bruce Vogel BioMET Faculty	The Role of Extracellular Matrix in Cell Division
	Jennie Leach UMBC	Biomaterial Systems to Evoke Physiological Cellular Programs
	Break (40min)	
	Liron Boyman BioMET Faculty	Calcium Movement in Cardiac Mitochondria
	Guiling Zhao BioMET Faculty	STIM1 in heart
	Bob Bloch UMSOM	Cellular and Molecular Mechanisms of Dysferlinopathy: New Insights



BioMET Happenings

Publications

Li J, Chen Z, Gao LY, Colorni A, Ucko M, **Fang S**, Du SJ. A transgenic zebrafish model for monitoring xbp1 splicing and endoplasmic reticulum stress in vivo. Mech Dev. 2015 Apr 16. pii: S0925-4773(15)00039-8.

Burks SR, Legenzov EA, Martin EW, Li C, Lu W, **Kao JP.** Co-encapsulating the fusogenic peptide INF7 and molecular imaging probes in liposomes increases intracellular signal and probe retention. PLoS One. 2015 Mar 27;10(3):e0120982.

Zhong Y, Shen H, Wang Y, Yang Y, Yang P, **Fang S.** Identification of ERAD components essential for dislocation of the null Hong Kong variant of α-1-antitrypsin (NHK). Biochem Biophys Res Commun. 2015 Mar 6;458(2):424-8.

Wang F, Wu Y, Gu H, Reece EA, **Fang S**, Gabbay-Benziv R, Aberdeen G, Yang P. Ask1 gene deletion blocks maternal diabetes-induced endoplasmic reticulum stress in the developing embryo by disrupting the unfolded protein response signalosome. Diabetes. 2015 Mar;64(3):973-88.

Grants and Contracts

Awards

Fang, Shengyun, 4/1/2015, NIH/NIAAA, "ER Stress in Ethanol-Induced Injury to Hepatocytes," $182,281, yr 1 of 2.

Submissions

Zhao, Guiling, 3/5/2015, NIH, "Stretch-Dependent Calcium Signaling in Arterial Smooth Muscle," Total Request: = $1,918,750.

Fang, Shengyun, 3/6/215, ALS Foundation, "Investigator Initiated Research Grant," Total Request = $240,000. Dr. Fang was invited to put in a complete proposal after a preliminary proposal. This grant program was the result of the ALS Bucket Challenge.

Talks and Travels

Dr. Mervyn Monteiro, invited speaker, "Mechanistic Insight into UBQLN2 mutations that cause ALS," ALS Packard Center. Johns Hopkins University, January 16, 2015.

Dr. Ilia Baskakov, invited speaker, "What do protein aggregation and Darwinian evolution have in common?", Department of Chemistry and Biochemistry, University of Maryland Baltimore County, MD, January 27, 2015.

Dr. Mariusz Karbowski, invited speaker, "New insights into the outer mitochondria membrane-associated degradation (OMMAD) pathway," Graduate Program in Life Sciences, Department of Biochemistry & Molecular Biology; University of Maryland School of Medicine, February 2, 2015.

Dr. Ilia Baskakov, NIH Study Section BPNS, Baltimore, MD, February 5, 2015.

Dr. Mervyn Monteiro, invited speaker, "Transgenic mice expressing ALS-linked UBQLN2 mutations display motor defects," ALS Packard Symposium, Hilton, Baltimore, MD, February 20, 2015.

MPower Update

Editor's Note: While BioMET may not participate in all activities relating to the new initiative, the success of the entire enterprise benefits everyone. Thus, all activities of the new initiative will be highlighted in BioMET Now. *As before, all members of the BioMET community are encouraged to look at the MPower web site at mpowermaryland.com for current information.*

MPower's Agricultural Law Education Initiative has been in the news this spring. This unique combination of lawyers and agricultural experts look at the legal issues that confront farmers in the Midatlantic region. Farmers are often unaware or ill equipped to deal with complex legal ramifications of legislation concerning environmental or economic concerns.

General Research Building Gets New Doors

After all the extensive internal renovations, one would expect that everything was finished in the General Research Building that houses BioMET administration and the laboratories of Drs. Baskakov, Fang and Vogel. However, there are a few items still slated for the building. Security had become an issue as the front doors were not closing and locking properly after hours. After several attempts to fix the problem through adjustments of the security system, it was determined that new doors would be necessary.

The removal of the old doors proved more difficult than expected, as it was found that they held up the ceiling in the entrance way. After some re-adjustments to the installation process for the new doors, the front entrance was finally completed. There is not much difference in looks, but doors are now limited to two, and they are very secure. The back doors will also be replaced.

The only thing left is outside signage. Eventually the taped-up signs indicating BioMET's existence, loading area and actual address will be replaced with permanent signs similar to the rest of campus. It is amazing that the canvas printed signs have held up this long.

Congratulations!

Dr. Ilia Baskakov and his partner welcome a new baby girl to their family, Alina.