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May - June 2013

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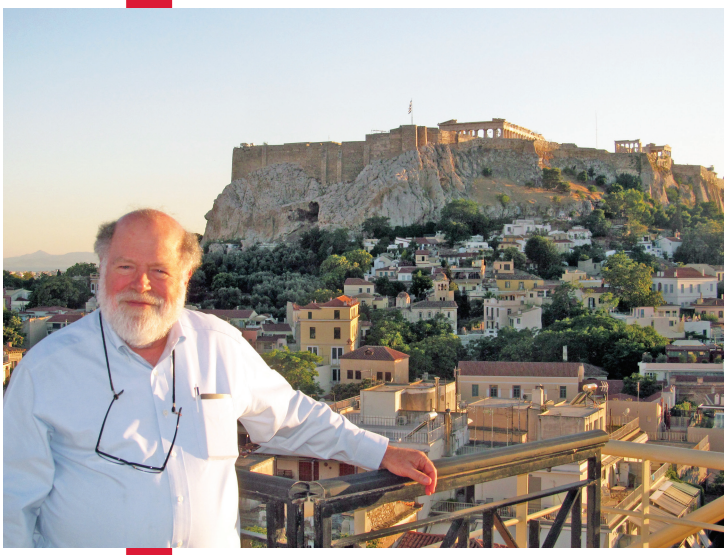
BioMET

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

When in Rome.....



Dr. Lederer in Athens with the Acropolis in the background.

Actually, Rome is one place that BioMET Director W. Jonathan Lederer did not get to when he took an extended lecture tour of Italy with a side trip to Greece. Several scheduled European meetings aligned to allow Dr. Lederer to give three invited lectures at scientific meetings, as well as one university seminar.

Flying into Milan, Dr. Lederer drove across Italy to Padua for the annual meeting of the European Union FP-7 Grant in which he has a project. This meeting brings together all 14 of the laboratories that participate in this grant entitled I*dentification and Therapeutic Targeting of Common Arrhythmia Trigger Mechanisms.* From Padua, Dr. Lederer headed to Bologna for a Gordon Research Conference on calcium signaling, an area on which Dr. Lederer is a leading expert. Since he was in the area, colleagues at the University of Barga invited him to give a seminar as he was heading back to Milan to pick up a flight to Athens, for the last scientific meeting of the trip.

The last meeting was organized by the European Society of Cardiology, one of the premier cardiology meetings in Europe, for one of its subgroups, the European Heart Rhythm Association. While it is not a meeting that Dr. Lederer often has a chance to attend, his travel to Italy made it easy for him to attend and speak.

Even the meeting rooms are historically decorated! Dr. Lederer (center) with colleagues, Dr. Colin Nichols (left) and Dr. Saleet Jafri (right).

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

UNIVERSITY of MARYLAND

UMCP

The School of Medicine held its Annual Gala on May 11 to kick off its largest capital campaign ever. BioMET Director W. Jonathan Lederer and his wife attended. Fundraising is a necessary part of fiscal responsibility since state funds and grants cannot cover all expenses nor be used to expand facilities and operations.

Fischell Department Chair, William Bentley, discussed alternatives to the use of animals using biomimetic devices (machines that mimic living systems) being developed by his laboratory. More information can be found at http://www.bioe.umd.edu/news/news_story.php?id=7407.

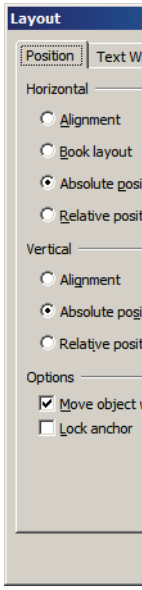
Continuing Education

Advanced degrees are rather commonplace at the University of Maryland, where Ph.D.'s, J.D.'s, M.D.'s and assorted Master's degrees abound. The field of study of most of them reflect the areas of study within the University, but not always. BioMET Research Coordinator and Assistant to the Director, Pamela Wright, just received her Master of Arts degree in Theology, not a course of study found at UMB.

Mrs. Wright received her degree from the Ecumenical Institute, the evening college of St. Mary's University and Seminary. She has been attending the Institute since 2006. When asked what she will do with her new degree, she replied, "I am not changing careers. This was more for me than anything else. I wanted to see if I could write a thesis, since I had been in degree programs before but never got a chance to do my own research."

Mrs. Wright's thesis, entitled "Whose Knowledge Is It, Anyway? Practical Objectivity and Knowledge Production in Science and Theology," used her considerable science background in conjunction with her recently acquired theological expertise. The highly philosophical nature of the thesis will undoubtedly come as a surprise to many of her colleagues, but reflects her interest in the interaction of science and faith. The thesis looks at the academic disciplines of Science and Theology, and how similar their respective communities are organized.

Mrs. Wright is very active in her parish, St. Charles Borromeo, in Pikesville, MD, where she is a lector, a member of the Finance Committee, a member of the Parish Council, and Chair of the Annual Church Sale. She also holds a Master in Administrative Science from Johns Hopkins University, in addition to her Bachelor of Science degree from Michigan State University.



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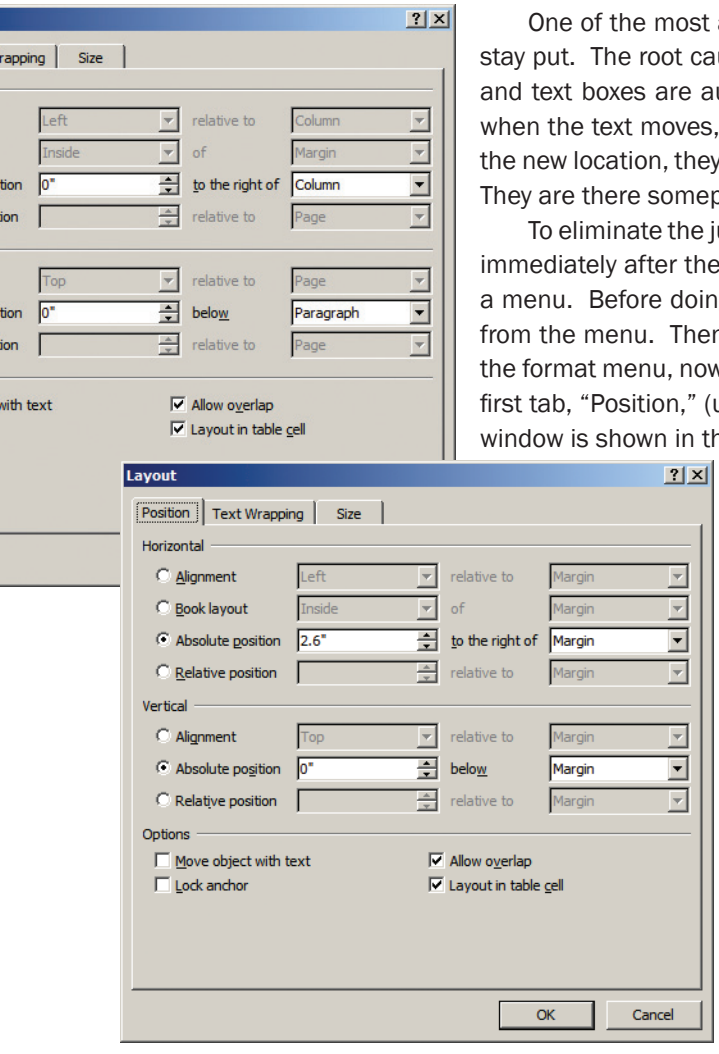
Pharmacy South Space Finished

Except for things on order and a few tweaks, the fifth floor of Pharmacy South is ready for the three BioMET faculty members scheduled to go there. The first move will start July 8, with Dr. Mariusz Karbowski going first. Then two weeks later, Dr. Joseph Kao will move. The last move will begin in August, with Dr. Lederer's laboratory beginning his move. However, the last move will be done over three months, since the extensive array of confocal microscopes that Dr. Lederer has must be moved by Zeiss. Each microscope must be packed up in specially designed crates, then moved and unpacked, and then the systems re-assembled and calibrated. Each system takes a week and there are 6 such systems. Since Zeiss, understandably, cannot dedicate six weeks in a row to this project, two weeks each in August, September and October will be used to move the systems. The rest of the laboratory and offices will complete the move after the systems are in place, though some people and items may come over in stages.

That still leaves three faculty and the business office in the old space. However, construction has started on the General Research Building on Penn Street. If things go as planned, those moves will begin in November.

Eliminating Jumping Boxes – Part 1



One of the most annoying problems in Microsoft Word is a picture or text box that will not stay put. The root cause is the default setting in Word for formatting the position. All pictures and text boxes are automatically linked to the text nearest the insertion point. That means when the text moves, so does the picture or text box. However, if there is not enough room in the new location, they end up in some sort of limbo—something like the place for missing socks. They are there someplace, but you can't find 'em.

To eliminate the jumping, the picture or text box must be re-formatted. This should be done immediately after the picture or box is inserted into the text. For PC's, right click to bring up a menu. Before doing anything about positioning, you must set the text wrap, so choose that from the menu. Then select "tight" from the wrapping menu. Right click again to go back to the format menu, now select "size and position." When the new window comes up, choose the first tab, "Position," (usually the third tab, "Size," shows on top when the window opens). That window is shown in the top left figure. Notice that the position is relative either to "Column" or "Paragraph." These are the settings that cause all the trouble. If you are a Mac user, you will find this window under "Format." The windows are the same after that.

I recommend changing "Column" and "Paragraph" to "Margin," though "Page" works as well. Then you can change the left hand settings, which give the specific location (see bottom figure). Rather than an actual measurement, which I generally do not care about, I try to align either to the top or side margins by choosing "Absolute" and putting a "0" in the box, or choosing "Top" or "Right" etc. It really does not matter at this point, because once you have the formatting in relation to the margin (or page), you can drag the picture where you want it, and it will not jump around.

One more thing, if you cut and paste, the formatting reverts back to the default. You have to re-format then. Dragging the picture to where you want, retains the formatting.

Next time, I will discuss placing pictures inside text boxes.

BioMET Happenings

Comings and Goings

Dr. Young Jin Lee has left Dr. Baskakov's laboratory. Dr. Irina Kolosova is a postdoctoral fellow in Dr. Baskakov's laboratory. Dr. Shen Hang from Anhui Medical College, China, has joined Dr. Fang's laboratory as a Research Fellow. He will do his thesis research here.

The summer intern program has started. Yasmin Kadry, UMCP, returns to Dr. Baskakov's laboratory. Kristina Dziki, UMCP, is working with Dr. Mervyn Monteiro. Meghan Loughery, Lindsey Petrelle and Akira Shepherd are all with Dr. Karbowski. Andrew Wescott (UMB) is doing an internship and rotation with Dr. Lederer. Stephen Sims, Reservoir High School, is working with Dr. Kao.

Publications

Rosen GM, Muralidharan S, Zavalij PY, Fletcher S, **Kao JP.** Ethyl 2,5-di-tert-butyl-5-eth-oxy-4-oxo-4,5-di-hydro-1H-pyrrole-3-carboxylate. Acta Crystallogr Sect E Struct Rep Online. 2013 May 11;69(Pt 6):o878.

Williams GS, Boyman L, Chikando AC, Khairallah RJ, **Lederer WJ.** Mitochondrial calcium uptake. Proc Natl Acad Sci U S A. 2013 Jun 25;110(26):10479-86.

Lederer WJ. Superresolution imaging-caveolae, caveolins, mitochondria, and function in heart. Biophys J. 2013 Jun 4;104(11):2323.

Gonzalez-Montalban N, Lee YJ, Makarava N, Savtchenko R, **Baskakov IV.** Changes in prion replication environment cause prion strain mutation. FASEB J. 2013 May31. [Epub ahead of print]

Boyman L, Williams GS, Khananshvili D, Sekler I, **Lederer WJ.** NCLX: the mitochondrial sodium calcium exchanger. J Mol Cell Cardiol. 2013 Jun;59:205-13.

Prosser BL, Ward CW, **Lederer WJ.** X-ROS signalling is enhanced and graded by cyclic cardiomyocyte stretch. Cardiovasc Res. 2013 May 1;98(2):307-14.

Kao JP, Muralidharan S. Characterizing caged molecules through flash photolysis and transient absorption spectroscopy. Methods Mol Biol. 2013;995:57-77.

Prosser BL, Khairallah RJ, Ziman AP, Ward CW, **Lederer WJ.** X-ROS signaling in the heart and skeletal muscle: stretch-dependent local ROS regulates [Ca^{2+}]i. J Mol Cell Cardiol. 2013 May;58:172-81.

Grants and Contracts

Awards

Dr. Ilia Baskakov, 5/1/13, NIH, "Self-propagating mechanism of prion diseases, $402,308, yr 2 of 5.

Dr. George S.B. Williams, 5/16/13, NRSA, Molecular basis of Ca^{2+} leak in heart, $58,275, yr 3 of 3.

Submissions

Dr. W. Jonathan Lederer, 5/31/13, NIH, "Multiscale spatiotemporal modeling of cardiac mitochondria," Total Request: $5,199,331.

Dr. Joseph P.Y. Kao, 6/1/13, TEDCO, "Molecular Probes for Electron Paramagnetic Resonance Imaging and Analysis," Total Request: $99,995.

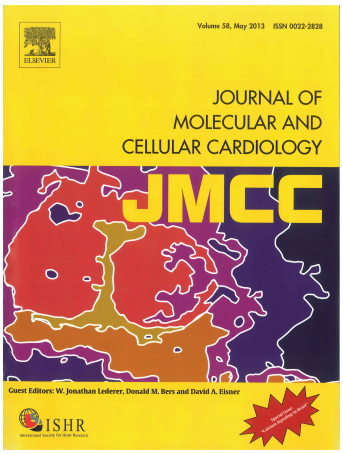
Dr. Shengyun Fang, 6/5/13, NIH, "ER-associated degradation of luminal proteins in mammalian cells," Total Request: $1,315,000.

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.*

Lederer Edits Special Issue

Special issues of journals are comprised of invited articles targeted to a specific area, along with regular submissions on the same topic. Determining the scope of the area to be covered and soliciting is part of the work done by the editor or editors, also invited for the particular area. The May issue of the Journal of Molecular and Cellular Cardiology (JMCC) was a special issue entitled "Calcium Signaling in Heart." BioMET Director, W. Jonathan Lederer, was the lead guest editor, along with Drs. Donald Bers (University of California Davis) and David Eisner (University of Manchester, UK). In addition to organizing the articles, the editors write the introduction to the issue and highlight articles.



Dr. Lederer is a regular associate editor of JMCC, but the special issue was in addition to his usual duties. He is a leading researcher in calcium signaling, primarily in heart, but his laboratory also works with the vasculature and nerves. Calcium is an almost ubiquitous signaling ion in cells and tissues, besides being a structural component in bones and teeth. In the heart, it underlies each beat. Its importance in human biology cannot be underestimated.

Talks and Travels

Dr. Joseph Kao, invited speaker and session co-chair, "Developing nitroxides with long intracellular half-life," "EPR 2013," (an international conference on electron paramagnetic resonance), Hanover, NH, June 24-28.

Dr. Ilia Baskakov, seminar speaker, "Genesis of Mammalian Prions: from protein to disease", Department of Neurology, University of Maryland School of Medicine, Baltimore, MD, May 10.

Dr. Ilia Baskakov, grant review, Alberta Prion Research Institute, Canada, May 25.

Dr. Ilia Baskakov, NIH Study Section - CMND, Baltimore, MD, May 30-31.

Dr. Benjamin Prosser, seminar speaker, "Pulling on the heart strings - Stretch-dependent ROS and Ca^{2+} signaling," Columbia University Medical Center. New York, NY, May 2.

Postdoctoral Fellow **Elizaveta Katorcha** and UMB graduate student-**Nina Klimova**, both from the Baskakov Laboratory, attended FASEB Summer conference "Molecular Mechanism and Physiological Consequences of Protein Aggregation", Big Sky, Montana, June 23-28 .