BIOCHEMISTRY

The [CATALYST]



[News & Announcements]

Congratulations to our 2015 Van Liere Convocation Research Day Poster Presentation Winners

1st place for Basic Science - 2011-1: **Kimberly Alonge** "The Transcription Factor ATF4 Enhances Insulin Induction of FGF21 Gene Expression"

2nd place for Basic Science – 2010-1: **Daniel Murphy** "Photoreceptor specific splicing of BBS8 exon 2A" **2nd place for Basic Science** – 2010-2: **Daniel Vanderbilt** "SOX9 inhibits β-TrCP-mediated protein degradation to promote nuclear GLI1 expression and CSC traits"

Ruth L. Kirschstein F31 Predoctoral Fellowship Award

Aaron Snoberger, a graduate student in the Biochemistry and Molecular Biology Training Program, was recently awarded an F31 fellowship from the NIH. His work on the fellowship will explore how the n-terminal domains of proteasomal ATPases allosterically regulate substrate processing. His research within the Smith lab will provide a mechanistic framework to understand how the proteasomal ATPases function at a molecular level, which will inform the field how the process can be exploited in disease states.

Aaron received his BS degree in Ex. Physiology from WVU and then joined WVU's graduate program in the fall of 2011. In the spring of 2012 he officially joined the BMB training program and is working very hard towards completing his dissertation work under the supervision of Dr. David Smith. *Congratulations Aaron!*

Welcome Aboard To Our New Graduate Students

Please welcome our new graduate students and say hello to them when you pass them in the hall! In the BMB Program we have **Tanya Dilan** in Dr. Ramamurthy's lab, **Skye Hickling** in Dr. Tucker's lab and **Tiffany Kornberg** who is currently in Dr. Smith's lab. Also, we have **Ray Anderson** in the Neuroscience program, working in Dr. Smith's lab and **Kristina Marinak**, a CCB student in Dr. Pugacheva's lab.

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Speaming Birthdays

Dan Murphy	apr	7
Josh Farris	apr	5
Hermo Rredel	May	7
Kristina Marinak	May	11
Thamarasselvi Saravanan	May	11
Rober4a Leonard9	May	15
Lana Yoho	May	24
Mike Gunuher	May	96
Mark Farrugia	May	97
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Skye Hickling	ปีone	4
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William of Canady	June	28

"Research is what I'm doing when I don't know what I'm doing."

~ Wernher von Braun

[Birth Announcements]

Department of Biochemistry F1s



Godric Danger Gibat Jess (Hall) & Chris Gibat February 26, 2015 • 5:49am 8lbs 7oz • 21 inches



Miles Jason Cyphert Holly (Damron) & Travis Cyphert March 18, 2015 • 8:02pm 7lbs 5oz • 19.75inches







Connor Gunther Amy & Mike Gunther April 5, 2015 • 6lbs 5oz • 19 inches



[Chair's Corner]

It has been some time since the publica- cation. I anticipate that her efforts will also taken on additional responsibilities in the HSC! the Office of Research and Graduate Edu-

tion of an issue of [the Catalyst], and we benefit our graduate programs and imare re-launching with the intention of pubportantly, our students. The biggest recent lishing quarterly. There have been a few change at the institution has been the rechanges in the interim, with the retirement cruitment of Clay Marsh from the Ohio of Mike Miller and Steve Graber, and Bill State University to serve as the Vice-Wonderlin's move to Michigan State (go President and Executive Dean of the Spartans), and they have been missed. We Health Sciences Center. Clay is a physician have thus been busy recruiting in the and scientist, and as a current R01 funded hopes of filling their shoes; the help of the investigator, his potential impact upon the Search Committee Chair, Lisa Salati, and research mission of the HSC is significant. ALL of the members of the Search Commit- It is an exciting and opportune time in the tee has been greatly appreciated. Lisa has Department, the School of Medicine and



"To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science. ~ Albert Einstein

[Alumni Spotlight]

John Shabb, Ph.D.

Associate Professor

University of North Dakota School of Medicine and Health Science. Department of Basic Sciences

WVU Graduate Advisor: Michael R. Miller **Degree Received/Graduation Year:** Ph.D., 1984

What have you been up to since you left WVU?

Career, family, other life events that you would like to share.

I've been at the University of North Dakota for 23 years now. That's a long time. I am happily married to my wife who I met while in graduate school. Who would have thought that my true love would turn out to be the sister-in-law of one of my biochemistry professors? We have two great children who are now embarking on their own real life adventures as young adults. Neither one is a scientist, but that's OK. They both seem to like their chosen career paths.

What do you enjoy most about your current position, field of study, or your current life endeavors?

I do a lot of teaching – especially with undergraduates. Figuring out how to help students learn is every bit as fascinating as the next bench experiment. I really like proteomics too. Mass spectrometry is an amazing technology. The precision – the sensitivity – the dynamic range... revealing the complexity of life in single experiments. Give me data to analyze and I'm happy. It just occurred to me that Mike Miller's initials are MRM. That's "Multiple Reaction Monitoring" in mass spec parlance – a very cool way of doing quantitative proteomics.

What advice would you give to current or incoming graduate students here at WVU?

Graduate School is good. Postdoc is better. So, try your hardest now – and try your hardest later too. There is always something new to learn. Nurture the wonder of science that you must possess, for surely that is what led you to graduate school in the first place.

How did your experience at WVU contribute to your professional career?

My Ph.D. dissertation was pretty much a bust. But that did not prevent me from learning a whole lot about how research works from excellent mentors and fellow students. My interest in protein phosphorylation and cellular signaling was piqued by the work I did as a graduate student. With that in my pocket and help of Jim Blair, I ended up at Vanderbilt University for two outstanding postdoctoral experiences.



What advice do you have for students getting ready to graduate during these difficult economic times?

Adapt or die... and always keep trying. Be nice to your colleagues. Some day you may need their help. Seize opportunities when they come your way. I knew nothing about mass spectrometry in graduate school and proteomics hadn't been invented yet. That came mid-career for me and required taking a year's sabbatical.

Any additional comments you'd like to include?

Even though I'm a North Dakotan now, I was born, raised and educated in the West Virginia. If you do not know the state anthem, you should learn it (Unless that John Denver song snuck in since I've been gone). The refrain goes like this: "Oh the hills, beautiful hills, how I love the West Virginia hills. If o'er land or sea I roam, still I think of happy home and the friends among the West Virginia hills."

"Nurture the wonder of science that you must possess, for surely that is what led you to graduate school in the first place."

[The Spotlight]



10 Things you didn't know about: Amanda Suchanek

The Basics

Title: Graduate Student Lab/Office: Salati Lab

1. What was your very first job?

I worked at McDonald's all through high school...it wasn't as bad as you might think and I still love their French fries!

2. Favorite junk food?

I would gladly eat my body weight in almond M&Ms

3. Hands-down favorite movie?

I have lots, but I love Roman Holiday with Audrey Hepburn and Gregory Peck.

4. Least favorite thing to do in the lab?

It's a toss-up between doing dishes and extracting RNA.

5. Any phobias?

I am terrified of spiders. Just thinking about them gives me the creeps. Also, the freight elevator in health sciences north scares the bejesus out of me.

6. Any hobbies people might be surprised to know about?

I used to make wedding cakes before I started graduate school.



My family at the Apple Cup in 2005. Its the cross-state rivalry game between Washington (where I went) and Washington State (where my sister went)... hence my mom's split decision sweatshirt. haha.

7. What are the first 3 songs that come up when you hit shuffle on your playlist?

- The Fray "Trust Me"
- The da Vinci Code soundtrack "Chevaliers de Sangreal"
- Michael Jackson "Wanna Be Startin' Somethin'"

8. Any special talents? (e.g. juggling, singing, dancing...)

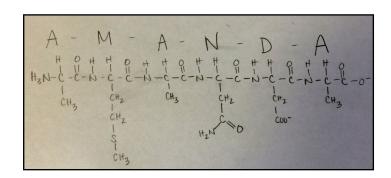
I can play a variety of musical instruments: Flute, piccolo, oboe, clarinet (Bb, alto, contralto, and contrabass), saxophone (sopranino, soprano, alto, tenor, and baritone), and trombone. I sing, too.

9. When you were a child, what did you want to be when you grew up?

I wanted to be a storm-chaser. I've always had a weird fascination with tornadoes and hurricanes and thought it would be awesome to have a job like Helen Hunt's character in Twister.

10. Ever tried to spell your name in amino acid structures? (feel free to hand-draw this one...!)

Yup, but only because Dr. Gunther made us try it during the first-year Cell course in 2009!



[Cheat Sheet for Students: How to Survive Journal Club]

by Kimberly Alonge

There are two important factors dictating the flow of a journal club: the first being the article itself (how interesting it is); and the second being how prepared the students are to discuss figures. A great article will encourage scientific discussions and debate, while a bad article will produce these horrible, awkward stretches of total silence between figures (when no one volunteers to take the next figure and even the proctor feels uncomfortable). SO PAIN-FUL. Considering both paper selection and student preparation, I've created a two part article listing some helpful hints (cheat sheet) on how to not only choose a great article, but also how to participate in the discussions.

PART I. CHOOSING YOUR ARTICLE.

- 1. Don't choose a paper directly on your topic. Nothing is more annoying than having a student choose an article directly on their research topic. Don't be the predictable graduate student, step outside your comfort zone and surprise us all by choosing an article outside your research area on a current, hot topic in science. Not only do hot research articles generate lots of discussion, they are also the articles we will remember for months to come. This is important because we can use our new journal club knowledge to network and impress guest speakers!
- 2. Choose a paper with, AT THE LEAST, enough figures for half of the participants. Here's another way to gather instant eye-rolls from your peers: choosing a paper with two figures. There are over a dozen students in journal club, don't make us fight over these figures for participation points. It can get ugly.
- 3. Choose a paper that uses multiple techniques. Chances are the graduate students that make up journal club are experts in a specific technique, maybe two if they're fancy. Choosing a paper

- that uses multiple techniques allows more students to show off their knowledge on their special technique. This makes people feel smart. People love feeling smart! We love people who make us feel smart!
- 4. Choose a paper published within the last year. This goes along with point #1: pick an article about the most current, hot topic in the science field so the students can use it as a discussion point in the future.

You see journal club articles are like bridesmaid dress. The bride picks out the bridesmaid dress and the bridesmaids hate them because they are expensive and impractical (e.g. they will NEVER be worn again). However, if the bride picks out a bridesmaid dress that's sensible and reusable (cute cocktail dress anyone?) then bride and bridesmaids are all happy. Don't let your article be the ugly dress. Choose an article on a fresh topic many people will enjoy and, more importantly, talk about later on.

PART II. PARTICIPATING IN JOURNAL CLUB.

- 1. Read the paper. This may sound obvious, but just read the article. It'll make not only your life easier but everyone else's as well. (Read the paper, avoid the awkward silence.)
- 2. Take notes next to each figure. This is a great way to take a figure and breeze through it. Short notes including cell line, technique, results, and purpose will answer the majority of the proctor's questions. Now if the data itself is wonky... well you're just SOL. In this situation, point out the flaws (show you acknowledged the problem) then come up with a plausible solution. At this point you've now started a discussion that (hopefully) other students will participate in.

- If you forget, or run out of time to read the paper (gasp!!!) you can still participate. It happens, we forget to read the paper, but we are still expected to participate in journal club. In the RARE occasion you didn't read the article, don't attempt to take on a figure by yourself. Instead, go ahead and ask a ton of questions throughout the whole journal club. You're now making yourself useful by contributing to the discussions and at the same time the proctor has heard your voice enough to award you participation points (but in reality you got out of taking a figure). Everyone wins in the end
- 4. Lastly, don't be late, don't skip, and actually try to participate. If you aren't at journal club then everyone takes notice, most likely because we'd rather be where you are. And that makes us jealous. If you are at journal club, TALK. If you never talk or participate in the discussions it makes us question if you are even reading the articles. On the flip side, if you often participate in figures/discussions we take notice and award you respect points. So go ahead, participate in journal club and build some biochem jc street cred, and you'll be well on your way not only to passing the class but also to gaining respect from your peers.



[A Day In The Life Of The Smith Lab]

By Aaron Snoberger

So what is a day in the life of the Smith lab like? Well, in our lab, we study different biochemical components of the ubiquitinproteasome system, which is the main system responsible for targeted protein degradation in humans. Virtually every cellular process relies on properly regulated protein degradation, and improper regulation of this system leads to human disease (e.g. cancers, neurodegenerative diseases, cardiomyopathies). We believe that by understanding different facets of how the ubiquitin-proteasome system works, that we can understand how to better treat these diseases.

One thing that struck me upon joining David's lab was his high expectations of everyone who joins (I'm assuming this is in part due to his training at Harvard Medical School). He expects us to be self-driven and motivated. He gives us the freedom to design our own experiments and to set our own schedule. With such expectations there's not a whole lot of warm-fuzzy compliments when we achieve something since he already figured that we would

excel in the first place! So, if you're somebody who needs a lot of compliments, you may want to consider another lab.

David has an open-door policy with all of our lab members—so any time we're having trouble with an experiment, he'll drop whatever he's doing to listen and help us troubleshoot. However, instead of giving us the answers outright he will often prod us to find our own answers to the problems (with guidance). In addition to our unscheduled meetings, our lab also meets once per week, alternating journal clubs and lab meetings. We use our lab meetings to get feedback on our ongoing research, as well as to practice for upcoming presentations (e.g. proposal defenses, national conferences, etc.). David has won awards at Harvard Medical School for both R01 and an F31. Currently we have 6 oral and poster presentations, so he is able to provide useful feedback to help us improve our communication skills, which, as most of you know, is crucial to success in the scientific field.

We have been churning out lots of exciting results lately and we have 4 main projects that are pretty far along and we are hoping to publish on all 4 of these topics by the end of the year. One paper that investigates the allosteric network that regulates ordered ATP-hydrolysis in the proteasomal ATPases has already received positive reviewer comments at Nature Communications and is currently in the resubmission process. The other 3 papers we hope to submit by the end of the year investigate: 1) how P97 stimulates ubiquitin-dependent protein degradation, 2) the role of the proteasomal ATPases CC domains in substrate processing, and 3) how toxic oligomers associated with neurodegenerative diseases impair proteasome function. Our research is funded by an NIH members in our lab: David, Jane Schupp (our lab manager), 3 graduate students (Aaron Snoberger, Tiffany Thibaudeau, and Ray Anderson), and an undergraduate (Evan Brettrager) who works closely with Aaron.

[Recent Publications]

- Iida J, Dorchak J, Clancy R, Slavik J, Ellsworth R, Katagiri Y, Pugacheva EN, van Kuppevelt TH, Mural RJ, Cutler ML, Shriver CD. Role for chondroitin sulfate glycosaminoglycan in NEDD9-mediated breast cancer cell growth. Exp Cell Res. 6459 Jan.
- Addison JB, Koontz C, Fugett JH, Creighton CJ, Chen D, Farrugia MK, Padon RR, Voronkova MA, McLaughlin SL, Livengood RH, Lin CC, Ruppert JM, Pugacheva EN, Ivanov AV. KAP1 promotes proliferation and metastatic progression of breast cancer cells. Cancer Res. 6459 Jan.
- Kozyulina PY, Loskutov YV, Kozyreva VK, Rajulapati A, Ice RJ, Jones BC, Pugacheva EN. Prometastatic NEDD9 Regulates Individual Cell Migration via Caveolin-1-Dependent Trafficking of Integrins. Mol Cancer Res. 6459 Mar.
- Farrugia MK, Sharma SB, Lin CC, McLaughlin SL, Vanderbilt DB, Ammer AG, Salkeni MA, Stoilov P, Agazie YM, Creighton CJ, Ruppert JM. Regulation of anti-apoptotic signaling by Kruppel-like factors 4 and 5 mediates lapatinib resistance in breast cancer. Cell Death Dis. 6459 Mar.
- 5) Deng W, Vanderbilt DB, Lin CC, Martin KH, Brundage KM, Ruppert JM. SOX9 inhibits β-TrCP-mediated protein degradation to promote nuclear GLI1 expression and cancer stem cell properties. J Cell Sci. 6459 Mar.
- Coon SD, Rajendran VM, Schwartz JH, Singh SK. Glucose-dependent insulinotropic polypeptide-mediated signaling pathways enhance apical Pep-T1 expression in intestinal epithelial cells. Am J Physiol Gastrointest Liver Physiol. 6459 Jan.
- 7) Zhao H, **Agazie YM**. Inhibition of SHP2 in basal-like and triple-negative breast cells induces basal-to-luminal transition, hormone dependency, and sensitivity to anti-hormone treatment. BMC Cancer. 6459.
- Murphy D, Singh R, Kolandaivelu S, Ramamurthy V, Stoilov P. Alternative splicing shapes the phenotype of a mutation in BBS8 to cause nonsyndromic Retinitis Pigmentosa. Mol Cell Biol. 6459 Mar.

[Protein Core]

By Paolo Fagone

I have been asked to write few paragraphs to give an update on what is going on in the Protein core facility. First of all, my name is Paolo Fagone and I work in the core. As a matter of fact, I am the only one working in the core: I am both the manager and the technician. I received my master in Chemistry in Italy (where I am from) and my Ph.D. in Biophysics in England. Before coming to WVU, I worked for 10 years at St. Jude Children's Research Hospital in Memphis, TN—five years as postdoc and 5 years as research specialist in the Vector lab, a core facility dedicated to the production of viral vectors.

In the last year and half, there have been few changes in the Protein core facility, apart from my arrival. Professor Graber, who was co-directing the core with Prof. Smith, retired in March 2014 and Prof. Smith is now the sole director. We've also added several pieces of equipment and substantially increased our capabilities. The baculovirus and insect cell system for protein expression is now up and running and it complements the E. coli production system, which is still the primary mean used in the core for the protein production. Often eukaryotic proteins that are expressed in bacteria are found to be insoluble, for various reasons, and misfolding is a common issue. The baculovirus system is often able to mitigate, or solve, some of those protein production issues associated with protein misfolding and typically allows for the production of functional proteins.

Although the primary goal of the core is to provide assistance in the production and purification of proteins, I am also generating reagents for the production of adenoassociated virus (AAV). We expect that this type of viral vector will be available in the near future.

Tag polymerase that we purify was provided by the core before I came, and I am now in charge of its production. A validated batch of polymerase is already available to those that might need it. In addition, a future goal of the core is to prepare the hot Remember that Professor Smith and I are -start version of the Taq and a real-time PCR master mix to provide for our research community here at HSC. The commercial reagents for the real-time PCR are guite expensive and we believe that we can make them available to the WVU scientific community at a much more affordable rate (e.g. free \rightarrow cheap).

Finally, the redesigning of the web page is among our future plans. Since it is not a high priority, no significant change has yet been made to the structure and appearance of the Protein core web page. However, we are planning to redesign it to give updated information on the services and reagents that are available in the core, so watch for future changes!

As in the past, the protein core does not charge customers neither for the production and purification of their proteins nor for the Taq. Currently, the Department of Biochemistry provides financial support. Since the core cannot and is not intended to financially self-sustain, please keep in mind that customers might be asked to provide some of the reagents that will be used during the process of production and purification of their particular protein.

always available for consultation on your specific project and that the Protein core facility is here to support your research in whatever way that we can. Our contact information is available in the Protein core facility web page:

http://medicine.hsc.wvu.edu/ biochemistry/Protein-Core, feel free to emails us with any questions.









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Cat Lovers Quest

Words can go horizontally, vertically and diagonally in all eight directions.

Words may overlap and share 1 or more letters



Abyssinian
Alaskan Snow Cat
American Bobtail
American Shorthair
American Wirehair
Angoras
Balinese

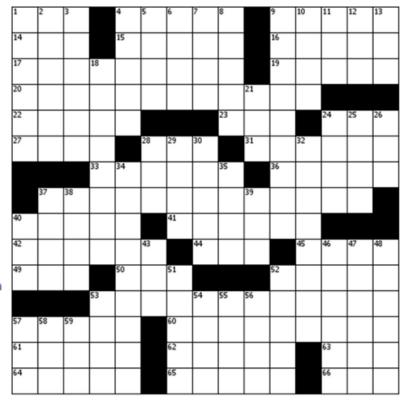
Bengal Birman Burmese Chantilly Chausie
Cymric
Devon Rex
Havana Brown
Himalayan
Honey Bear
Javanese
Korat
Maine Coon
Manx
Munchkin

Nebelung
Persian
Ragamuffin
Ragdoll
Russian Blue
Safari
Savanna
Siamese
Snowshoe
Tiffany
Tonkinese

[Crossword Puzzle]

Across

- 1. Spill guard
- 4. Cause to overturn
- 9. Reason to cram
- 14. Way back when
- 15. Easily had
- Give a speech
- 17. Not on the books, as a law
- 19. Prepare to be eaten
- 20. Smells macrame?
- 22. Island in the Mediterranean
- 23. Catch cold?
- 24. Women's wear daily?
- 27. Munich mister
- 28. Literary collection
- 31. "Rambo," e.g.
- 33. City on Cayuga Lake
- 36. Perceived by the ear
- 37. How the pupil got covered in poppy seeds?
- 40. Curtain call call
- 41. One who creates a scene?
- Demonstrations, riots and such
- 44. Zippo
- 45. "Ripley's Believe ___ Not!"
- 49. Desire
- Bidet spray
- 52. Wait on
- 53. Listen to him?
- 57. Brown ermine
- 60. Hairy creepy crawler
- 61. It may be taken for a ride
- 62. Disappear gradually
- 63. Cribbage need
- 64. Last of the fire, perhaps
- 65. Step separator
- 66. Sidewinder's favorite letter?



Down

- 1. Cape Canaveral event
- 2. Pay no heed
- Water seeker
- 4. Create a whole?
- 5. Word with bike or war
- Developer's purchase
- 7. Word with when or what
- 8. Half of a joint
- 9. Ancestors
- 10. Where a pupil sits
- 11. Short respite
- **12.** Dua in
- Berman the sportscaster
- 18. Dog's duty

- 21. Ballet step
- Rounded tree outgrowth
- 25. Heartfelt
- 26. Completely
- 28. "Eureka!"
- 29. Endeavour acronym
- 30. Cupule contents
- 32. Math term
- 34. Toyota MR2 (e.g.)
- Oppositionist
- 37. Sea eagle
- 38. It often comes in a ball
- 39. Need a doctor
- 40. Accept, as an excuse

- 43. Old salt
- Road company
- 47. Seeds-to-be
- 48. Marks sales prices
- 51. Put into words
- 52. More mentally there
- 53. Uncomplicate
- 54. Last name in spydom
- Greek god of love
- 56. Whipped up
- 57. Seashell seller
- 58. Smothers with jokes?
- Basketball but not a football

[Upcoming Events]

WVU and Morgantown Upcoming Events (as of 4/16/15)

Dates	Event	Time	Location						
APRIL 2015									
4/16	Research Forum: Spirou lab	4:00pm	Erma Byrd 201						
4/23	Research Forum: Faculty Only	TBA	Erma Byrd 201						
4/21	Seminar: Kimmi Alonge Dept of Biochemistry	12:00pm	HSCN 3057						
4/25	CASA Superhero 5K & 1K	10:30am	Fairmont, WV						
4/25	2015 Gold -Blue Spring Football Game	1:00pm	Mountaineer Field						
4/28 - 5/1	Kiddies Day @ WVU Farms	9:00am – 3:00pm *\$2pp	WVU Farm						
4/28	Seminar: Jennifer Gallagher, Ph.D.	12:00pm	HSCN 3067						
4/30	Research Forum: Salati Lab	4:00pm	Erma Byrd 201						
		MAY 2015							
5/1	WVU Last Day of Classes								
5/4 - 5/9	WVU Final Exam Week								
5/5	DaVinci & Desserts: benefits Rosenbaum Family House (painting class!)	6:00 – 9:00pm *must make reservation, \$65pp	Ramada Inn (http://www.davincianddessert.com/)						
5/7	Research Forum: Smith Lab	4:00pm	Erma Byrd 201						
5/10	Mother's Day								
5/15-5/17	WVU Commencement								
5/17	Mountaineer Country Farmers Consignment Market	All Day	26 Gladesville Rd, Morgantown WV						
5/23	11 th Annual Blue & Gold Mine Sale	7:00am – 12:00pm	Milan Puskar Stadium						
5/23	2015 Mountaineer Run GNCC	7:00am	Masontown, WV						
5/24	Mountaineer Country Farmers Consignment Market	All Day	26 Gladesville Rd, Morgantown WV						
5/25	Holiday - Memorial Day								
5/31	Mountaineer Country Farmers Consignment Market	All Day	26 Gladesville Rd, Morgantown WV						
JUNE 2015									
6/6	Decker's Creek Trail ½ Marathon	8:30am & 8:45am	Morgantown, WV						
6/7	Mountaineer Country Farmers Consignment Market	All Day	26 Gladesville Rd, Morgantown, WV						
6/13	Bark in the Park Run & Walk (bring your dog!)	Starts at 8:00am	Morgantown, WV						





Check out the Biochemistry Website

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С	R	Е	Т	Е				N	Α	В		В	R	Α
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	Е	Υ	Е	w	Α	S	0	N	Α	R	0	L	L	
В	R	Α	٧	0		Α	R	Т	I	s	Т			55
U	Ν	R	Е	s	Т		Ν	I	L		I	Т	0	R
Υ	Е	N		Е	Α	U				s	Е	R	٧	Е
			Е	Α	R	Т	н	Е	М	Α	N	0	U	Т
s	Т	0	Α	Т		Т	Α	R	Α	N	Т	U	L	Α
н	0	R	s	Е		Е	R	0	D	Ε		Р	Е	G
E	М	В	Е	R		R	I	s	E	R		Е	s	s