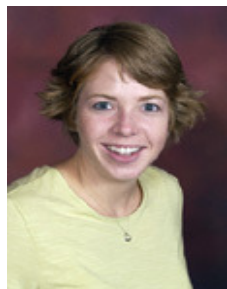


IBASM NEWSLETTER

Volume 14, Issue 2

February, 2012

Greetings from the President: Jennifer Metzler



Greetings to all!! Hopefully everyone is feeling rejuvenated and ready to start 2012 after enjoying some much deserved rest and relaxation over the holiday season. May 2012 be a productive

and exciting year for you all. 2012 should prove to be an exciting year for our branch as well. We have our upcoming annual meeting to look forward to. This year our event will be held at Wabash College on April 20th and 21st. Please mark your calendars now and plan on attending and strongly encourage your students to as well. Also, encourage your students to give oral presentations, as our meeting is a wonderful environment to get some practice with and feedback on such a presentation, including from our invited speakers. In the message from our President-Elect, Rebecca Sparks-Thissen, you will find all sorts of valuable information about this meeting. She has been working hard on planning an exciting and intellectually stimulating event for us. In this edition of the newsletter you can also find the needed registration materials as well as a tentative agenda. Please get those abstracts and registration materials in soon!!

We are also working on putting together a forum at the annual meeting where students can meet and ask questions,

perhaps even network, with representatives from various local companies and government agencies and hear about career and potential internship opportunities. If anyone has contacts at such places, feel free to contact me via email..

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I am pleased to announce that we will be offering student grant opportunities again this spring for undergraduates as well as graduate/professional students. One award of \$1000 will be awarded in each category to students who are members of IBASM. These awards can be quite helpful in furthering your research endeavors, but also look great on a CV or on a graduate or professional school application. Please look in this edition of the newsletter for the official announcement of this opportunity as well as guidelines. We look forward to receiving many competitive applications by the deadline of March 30,

2012!

My term in the Presidency will be ending in May of this year, and our hope is to elect a new President-Elect at our spring meeting as Rebecca-Sparks-Thissen will be moving into the Presidency. The primary role of this individual is to deal with the planning of the annual meeting as well as registering individuals who plan to attend. Please submit any nominations you have to me, and this could include self-nominations as soon as possible.

I also want to remind everyone to renew their IBASM memberships for this year. You can easily do Or, you can renew when you register for the meeting. I would also encourage you to have your students become members as well, if they have not done so already. A student membership is only \$5 and students must be members to present at the meeting. Membership in our Branch is just one more way to round out a CV or application.

In closing, I wish much success to all in 2012. I hope you will take advantage of all our Branch has to offer you. I look forward to seeing you all in April at our meeting at Wabash. Please feel free to contact me with any questions, ideas, or concerns at jametzler@bsu.edu.

Message from the President– Elect: Becky Sparks-Thissen

I hope everyone is excited to start getting ready for our annual Spring IBASM meeting. This year's meeting will be held at Wabash College, Crawfordsville, IN April 20-21. In this edition of the newsletter, you will find all the information you need to prepare for and register for what should be another great meeting.

We will have ample opportunities for student presenters to present poster and oral presentations. This is a great opportunity to present your latest research to your colleagues. Oral presentations are highly encouraged. In addition, we are privileged to have

Dr. Andrew Darwin joining us from NYU as our branch speaker and Kathleen Dannelly joining us as our IBASM teaching award winner. It promises to be two days of good science and conversation!

We encourage you to register and reserve accommodations early. You will find all the needed information on the registration form in this edition of the newsletter. Lodging will be available at the Comfort Inn (2991 N. Gandhi St, 765-361-0665). The hotel provides a complimentary breakfast, indoor pool, wireless access, and exercise facilities. The following website is a link to a campus map of Wabash College (<http://www.wabash.edu/map/>). All events will be held in Hays Science. You will be able to park in the lot right next to the building. Directions to Crawfordsville and Wabash College can be found here: <http://www.wabash.edu/aboutwabash/location>.

Local attractions in Crawfordsville include the Rotary Jail museum and the Ben Hur Museum. We are also within 30 minutes of Turkey Run State Park and Shades State Park. Links to information about things to do in and around Crawfordsville can be found here: <http://www.crawfordsville.org/index.html/>.



Message from the Student Representative: Lindsey Steiner

Welcome back from holiday break! I hope you had a great holiday with family and friends and were able to recharge for the Spring semester.

Keep in mind that now is the time for summer internship searches.

Last summer, I did a summer internship at Dow AgroSciences and had a great experience! There are many microbiology-related summer research and internship opportunities through universities, private organizations, and government organizations. Summer internships are a great addition to your job experience portfolio. They give you plenty of experiences to discuss in future interviews whether it is for graduate school or a job. A good place to start is to look at

places you would consider attending graduate school or working at and checking to see if they have a graduate or undergraduate research program. Don't hesitate to ask me for information on any of these opportunities! I have contact information that could be helpful. I hope everyone is looking forward to the spring meeting. I would like to hold a student business meeting to discuss what IBASM can do to provide better opportunities for its student members. Also, IBASM will be looking for a new student representative, as I will be heading off to medical school in the fall. This will be a great opportunity for anyone interested in the position to ask questions and interact with the faculty executive members. I look forward to meeting each of you!

Please continue to take advantage of the great programs IBASM offers undergraduate and graduate students. We offer a grant program and a way to nominate one of your favorite professors for a teaching award! I hope to see many students participating in the poster session or giving an oral presentation. I plan to submit an abstract again this year to present the final results of my research. Make sure you take advantage of these professional development opportunities that will make you a stronger candidate as you move on to the next stages of your career and education!

Don't hesitate to contact me if you have any questions or suggestions! My email is lmsteiner@bsu.edu.



Save the Date!

Next IBASM

Spring Meeting

Wabash College

April 20-21, 2012

From the Desk of Jim Mitchell...Educational Representative



Student Poster Competition

Abstract submission form will be distributed by email separately but is also located at IBASM website: <http://users.ipfw.edu/merkel/IndianaASM.html>. We will be utilizing 4x4 sq.ft. tri-fold styrofoam poster boards and each student is limited to one board. Tacks will be supplied but it wouldn't hurt to bring some extras in case we run short. You may participate in both oral (limited # of slots available) and poster sessions but you will only be judged for an award in the poster session. Awards will be presented in the following divisions: Undergraduate, MS graduate and PhD graduate. Post-Doctoral Fellows are welcome to participate in either session but are not eligible for the award competition.

Students will be judged in 5 categories:

Professional Appearance: Jeans and sweat pants are unacceptable; torn, dirty, or frayed clothing is unacceptable. Business casual dress is the standard dress code. (20 points)

Scientific Thought: Is there a clear hypothesis? Are the goals of the study defined? Were data correctly analyzed? Were statistical analyses performed? Did a logical conclusion result? (20 points)

Creativity: Was the topic original? Is there anything new in the approach to answering the question? Were new methods developed? (20 points)

Thoroughness: Was the study as complete as possible? Does the student understand the background material? Were subject headings (e.g. Introduction, Materials & Methods, etc.) presented? Is the student aware of the drawbacks of the study? (20 points)

Presentation (poster): Were the results/conclusions clearly presented? Was the student's verbal expression clear and concise? Was the student able to answer questions? How well did the poster convey the information? (20 points)

**2012 IBASM Spring Meeting
Tentative Agenda**

Friday April 20, 2012

All events will be held in Hays Hall at Wabash College

- | | |
|---------|--|
| 6-7 PM | Registration |
| 7-8 PM | ASM Branch Lecture , Dr Andrew Darwin, New York University,
<i>Yersinia enterocolitica</i> Virulence: The Cost of Doing Business |
| 8-10 PM | Welcome reception |

Saturday April 21, 2012

- | | |
|----------------|--|
| 7:30-8:30 AM | Breakfast @ Hotel |
| 8:30-10:00 AM | Poster Judging/Registration |
| 10:00-11:30 AM | Poster Viewing |
| 10:30-11:30 AM | Student Oral Presentations |
| 11:30-12:30 PM | IBASM Business Meeting |
| 12:30-1:30 PM | Lunch on your own |
| 1:30-2:30 PM | Student Oral Presentations |
| 2:30-3:30 PM | Presentation by Kathleen Donnelly, IBASM Teaching Award winner, Indiana State University |
| 3:30-4:00 PM | Announcement of Student Award Winners and Closing Remarks |

IBASM Annual Meeting Registration and Meal Reservation Form

April 20-21, 2012

Wabash College, Crawfordsville, IN

Please use this form to register for the IBASM meeting and reserve your room and meals. The meeting registration fee is \$25 for regular members and \$5 for student members. **You must be an IBASM member to participate in the meeting.** Family members are encouraged to attend, however, they do not have to pay registration fees. Upon completion, **e-mail** this form to Becky Sparks-Thissen (thissenr@wabash.edu) no later than March 20, 2012. If necessary, forms may also be mailed to Becky Sparks-Thissen at the address given at the end of the form. **Registrations received after March 20^h will be subject to a \$7.00 late fee (regular members) or a \$4.00 fee (student members).** Please feel free to contact Becky at the email address provided above if you have any questions.

Please fill in the requested information.

Name: _____ **#Adults** _____ **#Children** _____

Address: _____

Phone: _____ **Fax:** _____ **Email:** _____

IBASM member: ___Yes ___No **If you are not a member, you will need to become a member and include your dues with your payment for the meeting.**

Please indicate which sessions you plan to attend:

- ___ Friday evening session
- ___ Saturday morning session
- ___ Saturday afternoon session

If you are a student presenter, do you request travel assistance?

- ___ Yes
- ___ No

Lodging

A block of rooms have been reserved at the Comfort Inn, 2991 N. Gandhi St, Crawfordsville, IN (\$76.48/ night). You should contact them directly (765-361-0665) to make your reservations. Group name **Indiana ASM.**

Payment

Registration

Member (\$25) \$ _____

Student (\$5) \$ _____

Dues (if applicable)

Non-student (\$15) \$ _____

Student (\$5) \$ _____

Late fees (if applicable) \$ _____

Total Enclosed \$ _____

A check payable to “[Indiana Branch ASM](#)” for the total costs of registration and dues (if applicable) must be sent by mail by **March 20, 2012** to: Becky Sparks-Thissen, Department of Biology, Wabash College, Crawfordsville, IN 47933.



2012 Membership Application/Renewal

If you have not done it already, it is time to pay your IBASM dues for 2012. You can do it either online when you pay your dues to the ASM National Organization (www.asm.org) or by using this form. Dues are \$15.00 for non-students and \$5.00 for students (per year). Please return the completed form with check, payable to IBASM, to

Dr. Christian Chauret
Science, Mathematics, and Informatics Department
Indiana University Kokomo
2300 South Washington Street
Kokomo, IN 46904-9002
Phone: (765) 455-9371; email: cchauret@iuk.edu

Please check:

New Member Application

Renewal for 2012

and

Student Member in 2012 (\$ 5)

Full Member in 2012 (\$15)

Name:

Current Position & Title:

Institution:

Mailing Address (new address Yes / No?) :

Phone:

Email:

Fax:

National ASM Member #::

Background

Highest Degree:

Institution:

Professional Interests:

I. SUMMARY & ANNOUNCEMENT

The Indiana Branch of ASM announces an opportunity for undergraduate or graduate students (M.S., Ph.D., or Ed.D.) in current good standing with IBASM to apply for research grants of up to \$500. Two awards will be made for undergraduates and two for the graduate student category. The awards are intended to offset costs to purchase laboratory/field supplies, to support travel, and provide other items required to conduct novel scientific research. The deadline for the electronic submission of the proposal to the IBASM President is March 30, 2012 (see below for additional details). Awardees are expected to deliver an oral presentation of their findings at the Annual Spring IBASM meeting within two (2) calendar years of the award being made.

III. ELIGIBILITY

Student applicants who meet any of the following criteria are eligible to apply for research grants:

- Current student members of IBASM in good standing during the preceding year and at the time of the application who are undergraduates, M.S. students, or doctoral students with a G.P.A. of 3.25 or higher (on a 4.0 scale).

Awards will be made to the academic institution through the relevant grants/sponsored programs office, not to an individual. Therefore, each application must be signed by the organization's official with the authority to approve the request (e.g., President, Chief Academic Officer, College or University Research Officer, etc.) and commit the institution to the conditions of the award. This information is to be included on the mini-grant cover page and, if awarded, will necessitate an account be set up for the student use.

IV. APPLICATION PROCEDURE

Submit the grant application to the President of IBASM (Dr. Jennifer Metzler, Ball State University, jametzler@bsu.edu). Each research proposal should be brief but complete and must include the following information arranged in the following order, with each section starting on a new page:

1. A COVER PAGE FORM (see attached) giving the name, mailing and e-mail addresses, and affiliation of the student investigator and of the faculty mentor, together with a descriptive title for the proposed project. The cover page should also include the date of submission; the level of funding requested; the name of the person authorized to make grant-related commitments on behalf of the applicant organization; and, the name and address of the institutional official to whom the check should be sent (again, note that award checks are made out to the institution, not to any individual). Student applicants are also asked to include a statement as

to whether the requested funding is for a 'new' project, or an 'ongoing' one with current funding.

2. An ABSTRACT of no more than 300 words.
3. A NARRATIVE of *no more than three pages* (single or double spaced with double spaces between paragraphs, 10-12 point font, 1" margins). This section must
 - describe the problem to be investigated and justify the proposed study,
 - provide a review of the published relevant literature,
 - state the research objectives, hypothesis, scope of the problem, and methodology to be followed,
 - describe previous research, if applicable,
 - include 1-2 sentences on the timeline of the proposed activities, and
 - a brief statement on how the research results will be disseminated.
 - If applicable, include approx. ½ page of preliminary data

This is an important part of the proposal and will be scrutinized by the reviewers. Applications with a narrative exceeding three pages may be returned without review.

4. A REFERENCES CITED page listing all literature cited in the application (ASM style, not included in 3 page limit).
5. A *detailed* BUDGET. The budget may include
 - supplies (defined as items that by their nature will be consumed during the course of the research),
 - vehicular travel to field sites or related; travel outside of Indiana is not supported

The budget *may not* include funds to

- attend meetings,
- pay publication costs,
- support institutional administrative or overhead/indirect costs,
- pay salaries to applicants or sponsors,
- sponsor pedagogical research, or
- purchase computers or computer time.

The budget must also describe the expected or actual source of funding for resources essential for the project not included in the request to IBASM.

It is essential to understand that enough detail must be provided to allow members of the IBASM Executive Committee to evaluate the appropriateness of each element of the budget. The Committee may delete items from the request that it feels are not justified as long as it believes the project would not be unduly impaired; such a conclusion usually results in the application's rejection. Consequently, it is essential that each item be explained and justified for the request to receive full funding.

6. For work involving Human Subjects, Animal Care & Use, infectious agents, and/or recombinant DNA, a statement needs to be included indicating how and when compliance approval will be obtained from the sponsor institution. Formal compliance approval is not needed for grant awards to be made, but is required prior to the commencement of any research work.
7. Current transcript(s)
8. Support letter from faculty mentor

V. REVIEW PROCESS

The IBASM Executive Committee will review every application. The Executive Committee members represent a wide range of subdisciplines within the field of microbiology, and the results of their discussions determine which requests will be awarded and for what elements of the request. The IBASM President will inform applicants by email of the Committee's final decision and will contact the Branch Secretary/Treasurer who will then mail award checks to the official identified in the application. The review process is normally completed within six weeks of the application deadline. Names of awardees will be published in the IBASM newsletter. The decision of the Committee is final and all questions concerning awards and the decision process should be directed to the IBASM President.

In reviewing proposals for possible support, the IBASM Executive Committee will consider the following criteria:

- Significance of project
- Soundness of scientific idea
- Appropriateness of methodological approach
- Feasibility of study within given timeframe and environment
- Quality of preliminary data (if applicable)
- Appropriateness of budget
- Completeness and clarity of proposal

No grant proposal, however worthy, may request more than \$1000; proposals requesting more than this amount will not be reviewed.

VI. GENERAL POLICIES

Grants will normally be made for investigative periods of one year beginning on the date of the award letter unless otherwise requested in the grant application, approved by the Committee, and specifically mentioned in the award letter.

Unexpended funds are to be returned to the IBASM Secretary/Treasurer.

Oral presentation of research results at the Spring IBASM meeting expected.

Publications or presentations resulting from projects supported by IBASM mini-grant funds must acknowledge Branch support.

VII. REQUESTS FOR CHANGES IN FUNDED REQUESTS

Requests for extensions, without additional funds, or requests for redirection of funds, will be made on a case-by-case basis through individual requests to the IBASM President.

VIII. APPLICATION DEADLINES AND SUBMISSION DETAILS

Applications for IBASM Student Research Mini-Grants **must be postmarked by Friday, March 30, 2012** and must arrive within three days of these deadlines applications. Receipt of application will be acknowledged by electronic mail within a week of the final deadline date. Grant announcements will normally be made by the IBASM President within six weeks of the deadline date. Applicants whose requests are denied will be notified on or soon after the corresponding award announcement dates.

CHECKLIST

- ✓ Cover sheet with all requested information (listed on pg. 1 of this announcement)
- ✓ Abstract of 300 words or less
- ✓ Project description that follows general guidelines on pg. 2
- ✓ Statement of compliance approval
- ✓ Preliminary data, if applicable
- ✓ Budget of \$1000.00 or less with justification(s)
- ✓ Transcripts (e-mail electronic copies or post hard copies)
- ✓ Faculty mentor support letter (e-mail electronic copies or post hard copies)

Applications should be e-mailed to:

Dr. Jennifer Metzler
IBASM President
Ball State University
Department of Biology
2000 W. University Ave.
Muncie, IN 47306
jametzler@bsu.edu

IBASM Student Research Grant Cover Page

Complete the following information below and save/send this cover page with the other proposal components to the contact provided below. **Deadline:** March 30, 2012

Name:

Research advisor:

Address:

Phone:

Fax:

email:

Please indicate your student status:

Undergraduate

M.S/M.A.

Ph.D/Ed.D.

What is the title of your proposed project?

Date:

Total funding amount requested :

Indicate whether this project is:

New project/no current funding

Ongoing project/current funding

Name & address of the institutional official to whom the check should be sent, if funded :

Name & address of the person authorized to make grant-related commitments on behalf of the organization:

Saturated Fatty Acids Lead to Mitochondrial Dysfunction and Insulin Resistance

Excessive levels of certain saturated fatty acids cause mitochondria to fragment, leading to insulin resistance in skeletal muscle, a precursor of type 2 diabetes, according to a paper in the January issue of the journal *Molecular and Cellular Biology*. This is the first time mitochondrial fragmentation has been implicated in insulin resistance, says corresponding author Yau-Sheng Tsai, of the College of Medicine, National Cheng Kung University, Taiwan, Republic of China.

Mitochondria are the intracellular machines that turn sugar into energy, and skeletal muscle is packed with them. Normally, cells respond to insulin, a hormone, by importing glucose from the bloodstream. Type 2 diabetes is characterized by insulin resistance, a cellular impairment in glucose uptake.

The new research offers an explanation for this phenomenon. “Disruption of mitochondrial dynamics may underlie the pathogenesis of muscle insulin resistance in obesity and type 2 diabetes,” says Tsai. That explanation suggests a hypothetical treatment. “Manipulating mitochondrial morphology may provide a novel therapeutic strategy for insulin resistance and type 2 diabetes,” says Tsai. In the study, the research showed that inhibiting mitochondrial fission in mouse models reduced the insulin resistance, he says.

The study also supports previous research suggesting that reducing saturated fats in the diet would reduce insulin resistance, says Tsai. “It has been well documented that saturated fatty acids can lead to insulin resistance in humans and rodents.” Palmitate, a particularly harmful saturated fatty acid, “is very abundant in lard, butter, and margarine,” says Tsai.

“Most studies of mitochondria and diabetes have focused on mitochondrial *quantity*, and they all agree that increasing mitochondrial biogenesis does help mitochondrial function and cellular metabolism,” says Tsai. “Our study showed that maintaining the balance of mitochondrial *dynamics* is also important for mitochondria to maintain normal function.”

(H.-F. Jheng, P.-J. Tsai, S.-M. Guo, L.-H. Kuo, C.-S. Chang, I.-J. Su, C.-R. Chang, and Y.-S. Tsai, 2012. Mitochondrial fission contributes to mitochondrial dysfunction and insulin resistance in skeletal muscle. *Mol. Cell. Biol.* 32:309-319).

H5N1 Virus Targets Pulmonary Endothelial Cells

The H5N1 virus has killed roughly 60 percent of humans infected, a mortality rate which is orders of magnitude higher than that of seasonal influenza virus. Many victims of the former fall heir to acute respiratory distress syndrome—the inability to breathe. Now researchers from the Centers for Disease Control and Prevention, and the University of South Alabama show that the highly pathogenic avian influenza H5N1 virus, but not seasonal influenza viruses, can target the cells of human lung tissue, where they replicate fast and efficiently, and induce inflammation, which correlates with H5N1-induced acute respiratory distress syndrome that is observed in humans. The research is published in the January *Journal of Virology*.

“The pulmonary endothelium is strategically located within the lung and its function and structural integrity are essential for adequate pulmonary function,” says coauthor Terrence Tumpey of the Centers for Disease Control and Prevention. “We compared the infection rate of different subtype influenza viruses in human lung endothelial cells, and assessed the host response to infection,” he says. “We found that the H5N1 virus, but not common seasonal influenza viruses, can target human pulmonary endothelial cells.” There, the viruses replicate rapidly, creating an overwhelming inflammatory cytokine response, essentially causing an immune response so powerful that it kills the pulmonary endothelial cells, results which Tumpey says correlate with the H5N1-induced acute respiratory distress syndrome that is observed in humans where the production of cytokines, immune system compounds, has been detected in lung endothelial cells.

The Spanish influenza pandemic of 1918 is thought to have resulted in a similarly high influx of inflammatory cells and profound vascular leakage in the lower respiratory tract, often precipitating the same acute respiratory distress syndrome seen in H5N1 influenza cases. That pandemic, estimated to have sickened 350 million, killing roughly 50 million, had a mortality rate of approximately 14 percent—far less than that of H5N1, but still shockingly high.

“Although the mechanism of H5N1 pathogenesis is not entirely known, our research identified one virulent factor, the cleavage site of the viral surface glycoprotein hemagglutinin, which we found to be critical for the production of infectious progeny H5N1 virus in pulmonary endothelial cells,” says Tumpey. Other unknown virulence factors undoubtedly exist, and require further study, he says.

(H. Zeng, C. Pappas, J.A. Belser, K.V. Houser, W. Zhong, D. A Wadford, T. Stevens, R. Balczon, J.M. Katz, and T.M. Tumpey, 2011. Human pulmonary microvascular endothelial cells support productive replication of highly pathogenic avian influenza viruses: possible involvement in the pathogenesis of human H5N1 virus infection. *J. Virol.* 86:667-678.)



MICROBIOLOGY IN THE NEWS

Viruses con bacteria into working for them

PhysOrg

January 26, 2012

Researchers have discovered that certain photosynthetic ocean bacteria should beware of viruses bearing gifts: These viruses are carrying genetic material taken from their previous bacterial hosts that tricks the new host into using its own machinery to activate the genes, a process never before documented in any virus-bacteria relationship.

<http://www.physorg.com/news/2012-01-viruses-con-bacteria.html>

Extracellular Matrix Identified As Source Of Spreading In Biofilms

MedicalNewsToday

January 25, 2012

New research at Harvard explains how bacterial biofilms expand to form slimy mats on teeth, pipes, surgical instruments, and crops.

<http://www.medicalnewstoday.com/releases/240682.php>

Entry point for hepatitis C infection identified

MedicalXPress

January 24, 2012

A molecule embedded in the membrane of human liver cells that aids in cholesterol absorption also allows the entry of hepatitis C virus, the first step in hepatitis C infection.

<http://medicalxpress.com/news/2012-01-entry-hepatitis-infection.html>

Unlocking Seaweed's Next-Gen Crude: Sugar

New York Times

January 23, 2012

Seaweed often brings to mind thoughts of surf and sushi, not fuel. But that could change if a biotechnology start-up called Bio Architecture Lab succeeds in building a new kind of energy company from designer bacteria and a low-cost process for harvesting seaweed.

<http://green.blogs.nytimes.com/2012/01/23/unlocking-seaweeds-next-gen-crude>

Important Dates

March 20, 2012:	Registration deadline for Annual IBASM Meeting
March 30, 2012:	Research grant applications due
April 20-21, 2012:	Annual IBASM meeting at Wabash College
June 16-19, 2012:	112 th Annual Meeting of the ASM, San Francisco, CA

2011-2012 IBASM OFFICERS

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