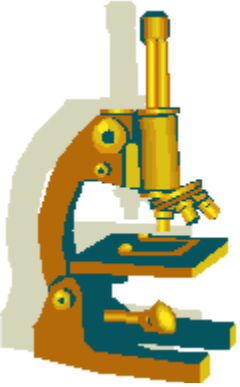

IBASM NEWSLETTER

July 2006

Volume 8, #2

Message from the President — Dominique Galli

First of all, please join me in thanking Jeanne Barnett, our outgoing president, for her dedication to our society, her hard work, and her leadership in the past two years. She has made it easy for me to take over the reigns and I am honored to serve as the new President of the IBASM. I am equally pleased that John McKillip, who hails from Ball State University, has agreed to serve as the new President-Elect and I am looking forward to working with him.

We had another successful annual meeting this spring and I would like to thank of all of you who attended. I am particularly grateful to my numerous colleagues who helped me organize this event, including Jeanne Barnett, Christian Chauret, Mark Levinthal, Glenn Merkel, Jim Mitchell, and all of our award judges. It made it so much easier for me to have their support. I hope you enjoyed this year's meeting as much as I did. If you couldn't attend this spring, I hope to see you in 2007.

Looking ahead, we are already working on next year's gathering at Turkey Run State Park. Two speakers have been invited so far, namely Drs. David E. Briles and Cindy H. Nakatsu. More on these speakers in our next newsletter. There will be some minor changes to the agenda. It has been decided that eight instead of four students/postdoctoral fellows will get the opportunity to give an oral presentation and hone their skills in public speaking. Furthermore, in an attempt to increase our interactions with other microbiologists in the Midwest, we

*See **D. Galli**—page 2*

Inside this issue:

Points of Interest

- IBASM has a new President-Elect.
- This year's award winners/ honorable mentions are from BSU and IU-B.
- The next annual meeting will be held at Turkey Run State Park in April.
- The 107th General ASM meeting will be in Toronto, Canada in May.

Message from the President– Elect — John McKillip

I am looking forward to serving IBASM as President-Elect for several reasons. First, it has been my pleasure to already have served as founding faculty advisor for the BSU student chapter of ASM for the last couple of years. I envision each Spring IBASM an ideal showcase for the research many of these undergraduate and M.S. students are completing, as well as an avenue for student service by volunteering in various

*See **J. McKillip**—page 2*

D. Galli's message (continued from page 1)

will invite students and faculty at the University of Illinois at Urbana-Champaign to join us next year. This effort is spearheaded by David Kehoe (IU Bloomington).

Last but not least, I would like to encourage all of you to actively participate in our society. If you have any ideas/suggestions on how we can improve the annual meetings, the format and content of the newsletter, or serve you better in general, please let us know.

J. McKillip's message (continued from page 1)

capacities at the meeting. This small-but-growing student chapter, thus far the only one in Indiana, will grow in enrollment through the opportunities that IBASM provides. Each of us, as mentors, will benefit as much as the students themselves, from their (hopefully long-term) participation.

Secondly, I am anxious to learn a great deal from my predecessors on how IBASM can grow and better offer opportunities to our students and future colleagues. I have the fortune of having an outstanding resource just down the hall in former President Jim Mitchell, with whom I will be consulting frequently. Jim has great follow-through on responsibilities and is a great role model for being proactive in IBASM leadership. However, I also have much to glean from the advice and input of Jeanne Barnett and Dominique Galli, and am willing and eager to learn and implement thoughtful influence on IBASM with the help of such a terrific executive committee.

Lastly, the process of planning and organizing future meetings and programs is a very enjoyable responsibility! At the time of this article draft, I am in contact with the Ohio Branch of ASM, Dr. Don Langworthy at Proctor & Gamble, in an exploratory effort to possibly offer a joint 2008 meeting between our two states. Although a number of logistical issues need to be negotiated, a slightly larger venue would offer greater chances to network, wider exposure to research presentations, and would likely attract a significantly higher number of attendees. This idea, not without disadvantages, is being carefully weighed, however, and is one of several challenges I look forward to addressing. Alternatively, the possibility of offering a 2008 meeting on one of our campuses rather than at a State Park has also been discussed. Your constructive input on these matters is important and influences the end result; I welcome your comments.

In the not-so-distant future, I am beginning to plan (actually continuing the plans that Dominique has already started) on the 2007 IBASM meeting, to be held at Turkey Run State Park in Marshall, IN. As details are worked out, they will be made available in future IBASM newsletters and on our website, but please plan on attending with students in tow. Thank you for what promises to be a great upcoming year.

A Message from Jeanne Barnett-... Past President & Councilor

I hope the summer is going well for all. It has been a busy time with the annual IBASM spring meeting and the national ASM in Orlando. Although I was not able to attend the national meeting, the IBASM meeting was quite a success. The participation continues to be good and we had some great speakers.

We started the meeting with 4 presentations from graduate students and postdoctoral fellows. The work presented was fascinating and included information on fruiting body formation in *Myxococcus xanthus*, biofilm formation in *Agrobacterium tumefaciens*, mutants in initiation and late stage cell division of *Caulobacter crescentus*, and regulation of expression of DNA polymerase IV in *Escherichia coli*. Many of these presentations had accompanying work presented at the poster session. My thanks go to all of the presenters. They did a great job of presenting their work and keeping within the time constraints. Because of the success and quality of the presentations, we will continue with presentations at the meeting at Turkey Run, in April, 2007.

Our guest speakers were Dr. Bill Summers and Dr. Yves Brun. Dr. Summers was the Waksman Foundation speaker. On Friday evening, he spoke about the history of science using the discovery of the double helix structure of DNA as an example. His presentation was a reminder that science is not usually a "eureka" moment, but a series of events and interpretations. Errors are made along the way to the foundation of information. Because Dr. Maloy, ASM president, could not attend the meeting, Dr. Summers agreed to speak again on Saturday. The presentation was an entertaining and informative talk on the geopolitical uses of science. We learned a lot about marmots and the Manchurian plague.

On Saturday, Dr. Yves Brun presented his research on surface adhesion in *Caulobacter*. In a comparison with spiderman, the adhesive material produced by *Caulobacter* is stronger. The presentation was both entertaining and informative. Dr. Brun was the recipient of the IBASM Academic Scientific Achievement Award in Research.

This is my last newsletter as President. Dominique Galli is the incoming president and has done a great job as president-elect. I know she will provide IBASM with strong leadership over the next 2 years. The new president-elect is John McKillip from Ball State. John is already busy with plans for the 2007 meeting. I have enjoyed serving as president of IBASM and will continue to participate in the meetings and activities. I look forward to seeing everyone at Turkey Run State Park in April, 2007.

McClung First Place Graduate (Ph.D.) 2005 Winner

Regulation and Synthesis of the Exopolysaccharide Succinoglycan Differentially Influences Biofilm formation of *Agrobacterium tumefac*iens on Abiotic Surfaces and Plant Tissues

Amelia D. Tomlinson*, Bronwyn E. Ramey, Travis W. Day, José L. Rodriguez, and Clay Fuqua

Department of Biology, Indiana University, Bloomington.

Department of Biology, Ball State University, Muncie, IN

Bacteria are often found in complex surface-associated communities known as biofilms. Biofilms are characterized as a single or multi-species community of bacteria enmeshed in an extracellular matrix. Biofilm maturation occurs in a series of steps that originate with adherence of an individual cell or cluster of cells adhering to a surface. The process of attachment has not been fully elucidated, but our preliminary data suggests that proper regulation of a variety of cell surface attributes is critical for adherence and biofilm maturation on abiotic and plant surface substrates.

A transposon mutagenesis screen designed to identify mutants in biofilm maturation identified the surface interaction mutant sin2. This mutant was shown to be deficient for biofilm formation in a standard microtiter plate assay, and hypermucoid on nutrient agar plates (Figure 1). The transposon was mapped, and it was demonstrated that the transposon insertion disrupted a gene homologous to the exoR gene of *Sinorhizobium meliloti* (Figure 2).

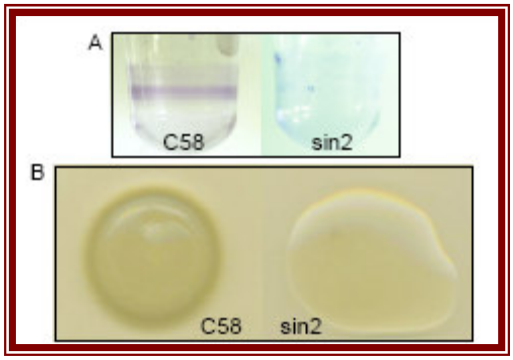

Figure 1. Transposon mutant is (A) biofilm deficient and (B) hypermucoid.

*See **A. tumefaciens**—page 5*

Figure 2. Alignment of ExoR sequences of *A. tumefaciens*, *S. melilloti*, and *Rhizobium leguminosarum*. The TPR domain is indicated in purple.

(continued from page 4)

A. tumefaciens

ExoR is a negative regulator of exopolysaccharide synthesis in several rhizobia, but shares no significant homology with proteins outside the Rhizobiaceae. However, the ExoR sequence does contain a tetratricopeptide repeat (TPR), a domain implicated in protein-protein interactions. Additionally, the ExoR sequence suggests the presence of an N-terminal signal sequence and hydrophobicity mapping suggests a possible transmembrane domain. In *S. meliloti*, exoR mutants overproduce succinoglycan, an exopolysaccharide, and are capable of eliciting, but not invading, host nodules (Yao et al., 2004).

To determine whether the biofilm deficiency observed in the mutant screen was due to overproduction of succinoglycan, an in-frame deletion mutation of the *exoA* gene was constructed. ExoA is a glycosyl transferase involved in the early stages of succinoglycan production. Next, an *exoR*/*exoA* double mutant was constructed. All of these mutants were assayed for biofilm formation on the model abiotic surface polyvinylchloride (PVC) in a standard static culture biofilm formation assay.

In this assay, coverslips are arranged vertically in the wells of a 12-well plate and inoculated with bacteria. After a period of culture growth and biofilm formation, coverslips are removed from the wells, rinsed thoroughly with water, and stained. Coverslips were either stained with crystal violet or Calcofluor, a fluorescent dye that binds to β linkages in polysaccharides (Figure 3). These data clearly demonstrate that the overproduction of succinoglycan is not the cause of the biofilm formation deficiency in the *exoR* mutant, as the *exoRexoA* double mutant is blocked for biofilm formation on a PVC surface despite the fact that it does not produce SCG (Figure 3A). Calcofluor staining (Figure 3B) of wildtype biofilms reveals the presence of a cell-associated β-linked polysaccharide, presumably cellulose. Additionally, wild-type biofilms show diffuse, extracellular staining of an exopolysaccharide. The *exoR* mutant shows overproduction of the diffuse exopolysaccharide, while the *exoA* mutant is stained only in a cellassociated manner. This indicates that the primary component of the diffuse staining of the *exoR* mutant is succinoglycan.

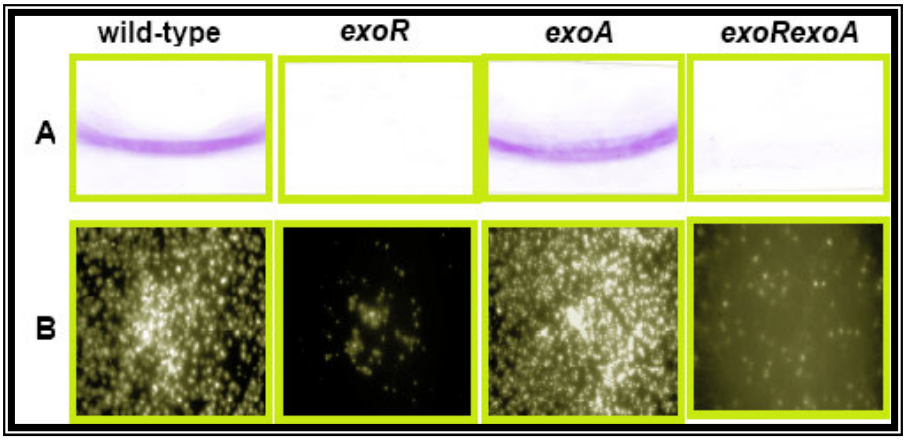

Figure 3: Biofilm formation (A) on PVC coverslips and distribution of β-linked polysaccharides (B) in *exoR, exoA*, and double-mutant biofilms.

*See **A. tumefaciens**—page 6*

(continued from page 5)

A. tumefaciens

However, a small amount of diffuse staining can be seen in the *exoRexoA* double mutant, indicating that succinoglycan is not the sole β-linked exopolysaccharide in *A. tumefaciens* biofilms. The *exoR* phenotype is successfully complemented by the addition of a Plac*exoR* plasmid (data not shown).

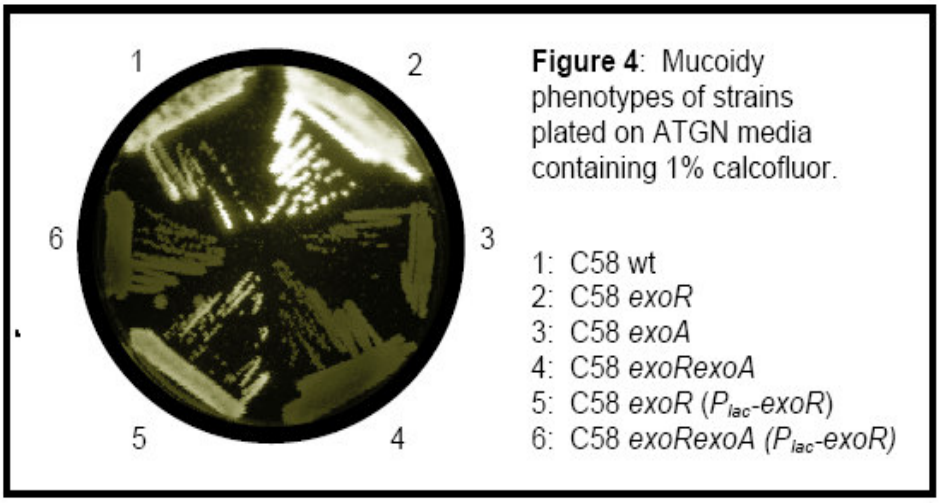

Figure 4: Mucoidy phenotypes of strains plated on ATGN media containing 1% calcofluor.

1: C58 wt
2: C58 *exoR*
3: C58 *exoA*
4: C58 *exoRexoA*
5: C58 *exoR* (P_{lac}-*exoR*)
6: C58 *exoRexoA* (P_{lac}-*exoR*)

The mucoidy phenotype of all mutants and complemented strains was assessed. Strains were plated on ATGN media containing 1% Calcofluor, and fluorescence was visualized under UV light (Figure 4). Compared to wild-type cells, *exoR* mutant cells are hyperfluorescent, while *exoA* mutant cells are hypofluorescent. Double mutant cells are hypofluorescent, indicating that the hyperfluorescence of the *exoR* mutant is primarily due to overproduction of SCG.

Analysis of the swimming phenotypes of all mutants and complemented strains indicate that the motility deficiency of the *exoR* mutant is independent of succinoglycan overproduction (Figure 5). The *exoR* mutant displays a reduced motility phenotype, which is fully complemented by addition of a Plac-exoR plasmid. The exoA mutant is fully motile, thus motility is not dependent on the production of SCG. The exoRexoA double mutant is motility deficient, which indicates that the overproduction of SCG is not responsible for the motility deficiency. Additionally, the motility deficiency of the double mutant is recovered by complementation with Plac-exoR. This data suggests that ExoR regulates motility functions independently of SCG production. However, it is still unknown whether ExoR regulates motility or chemotaxis functions, or both, or by what pathway.

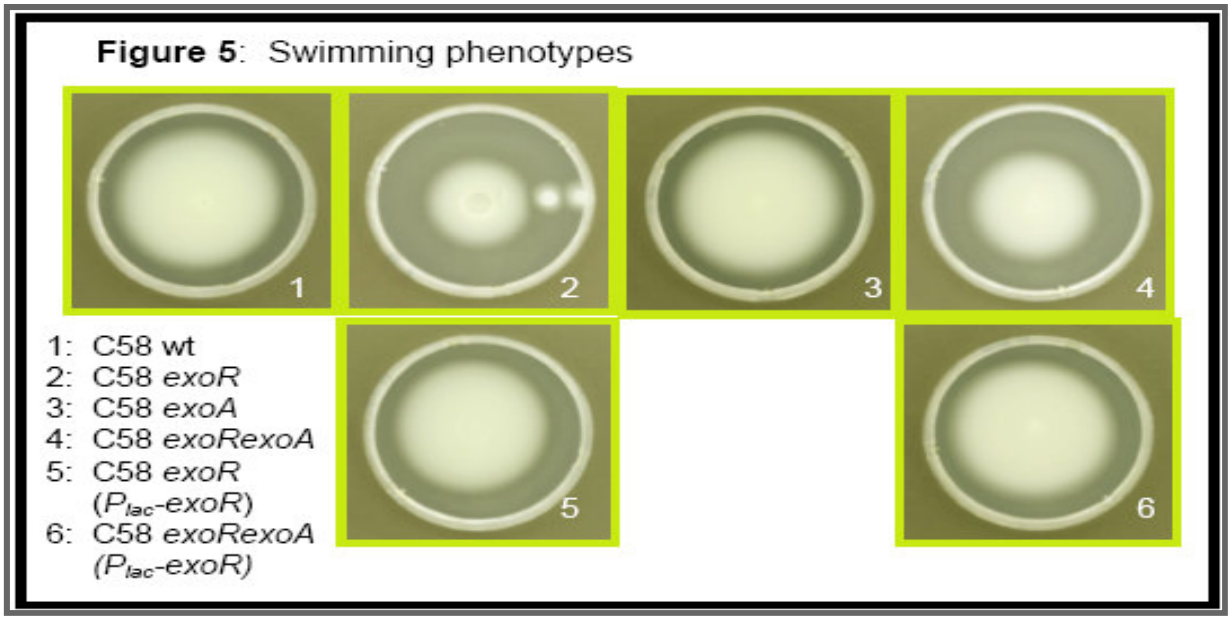

Figure 5: Swimming phenotypes

See ***A. tumefaciens***—*page 7*

(continued from page 6)

A. tumefaciens

To confirm that ExoR regulates expression of *exo* genes the *exoT* promoter region was fused, in-frame, to a *lacZ* reporter plasmid and the resultant plasmid introduced in *A. tumefaciens* C58, *exoR*-, and *exoR*-(Plac-*exoR*) strains. β- Galactosidase assays were conducted to determine the relative expression of the *exoT* promoter fusion in each strain (Figure 6). The *exoR*- strain showed a 2-fold increase in β-galactosidase assay over the wild-type strain. The complemented mutant demonstrated a wild-type level of β-galactosidase activity. This data clearly demonstrates that ExoR negatively regulates expression of *exo* genes.

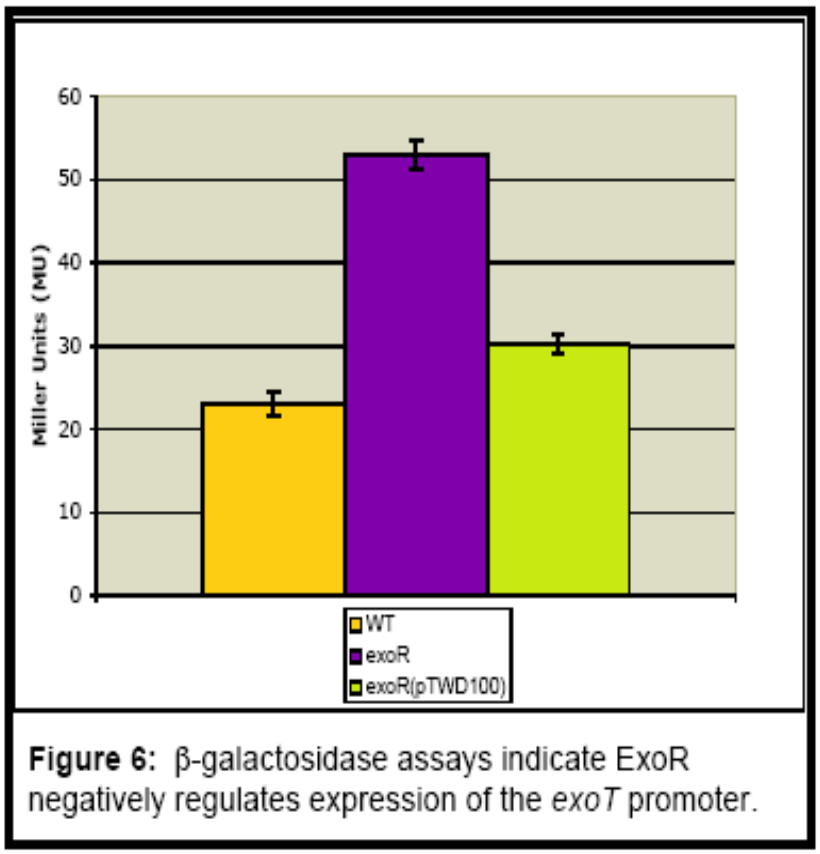

Figure 6: β-galactosidase assays indicate ExoR negatively regulates expression of the *exoT* promoter.

To further explore the biofilm formation phenotypes of the single and double mutant strains, a flow cell system and the COMSTAT analysis program (Heydorn et al., 2002) were used to qualitatively and quantitatively assess biofilm formation under continuous culture flow conditions. In a flow cell system, cultures are inoculated into chambers with a continuous influx of fresh media and efflux of waste. Microscopic examination of maturing biofilms can be done in real-time, without disrupting the samples. The COMSTAT program provides quantitative analysis of biofilms via analysis of Z-stacks of images. Analysis of exo mutants in the flow cell system (Figure 7) demonstrated the abiotic surface binding deficiency of the exoR mutant in comparison to wild-type C58, while the exoA mutant was fully competent for biofilm formation. The exoRexoA double mutant is indistinguishable from the exoR mutant biofilms through the third day of growth. Intriguingly, however, the double mutant biofilm formation explodes between days three and four, and becomes statistically indistinguishable from the exoA mutant and complemented exoR mutant on day four. Calcofluor staining of these biofilms indicates the presence of a diffuse β-linked polysaccharide present in the double mutant, suggesting that succinoglycan is not the sole β-linked polysaccharide produced by *A. tumefaciens* C58.

Finally, I have conducted plant root binding assays. These assays were conducted to determine whether the effects of the exoR mutation and succinoglycan production were consistent between abiotic and biotic surfaces. For this assay, sterile segments of *Arabidopsis thaliana* roots are incubated with the *A. tumefaciens* strain of interest, which carries a Plac-gfp plasmid. Root segments are then washed to remove loosely associated bacteria, and examined under epifluorescence microscopy.

*See **A. tumefaciens**—page 8*

(continued from page 7)

A. tumefaciens

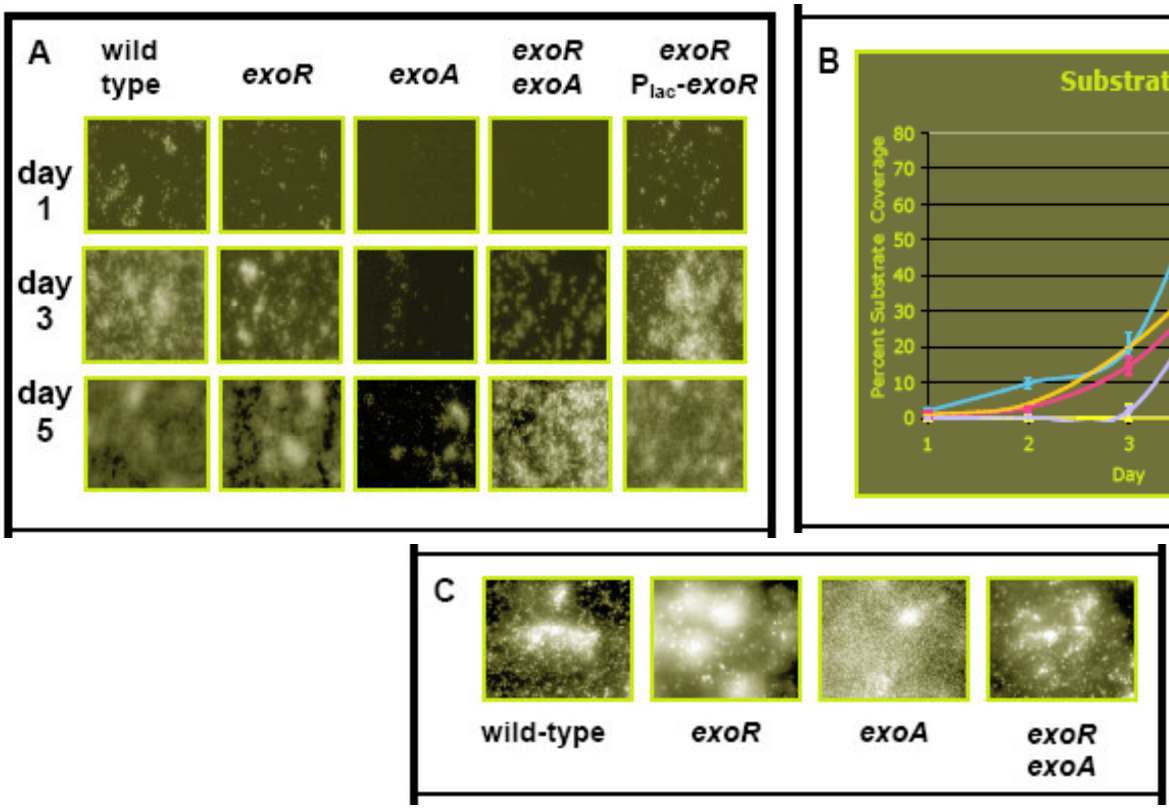

Figure 7: Flow cell analysis of biofilm formation. **A**. Top-down images of biofilms grown in a flow-cell system at days 1, 3, and 5. The *exoRexoA* image in row day 5 is from day 4, as day 5 double mutant biofilms were too dense to be photographed. **B.** COMSTAT analysis of percent substrate coverage. **C.** Calcofluor images of late-stage biofilms.

These images (Figure 8) demonstrate that both C58 wild-type and exoA mutants are competent to bind *Arabidopsis thaliana* root cuttings, but that exoR mutants are deficient for plant binding. Intriguingly, and in contrast to the results of the aforementioned PVC coverslip assays, the exoRexoA double mutant is competent to bind to the root surface. This result indicates that the overproduction of succinoglycan is responsible for the binding deficiency of exoR mutants on plant tissue. This result is in stark contrast to the conclusions regarding abiotic surface attachment.

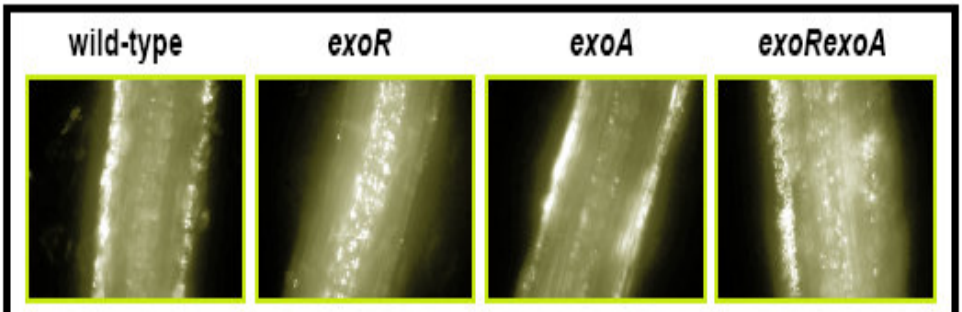

Figure 8: Only *exoR* demonstrates a deficiency in binding to root surfaces, indicating that overproduction of SCG leads to this phenotype. Please note that plant vasculature autofloresces, and this does not represent colonization of vascular tissue by *A. tumefaciens*.

*See **A. tumefaciens**—page 9*

(continued from page 8)

A. tumefaciens

As shown in the model (Figure 9), our data suggests that ExoR is a membrane-bound protein. We hypothesize that it interacts with a signal transduction system, possibly the ChvG/ChvI two-component system, to exert regulatory effects. The regulatory effects of ExoR include: 1) *exo* genes, and therefore the production of succinoglycan, 2) positive regulation of motility functions, and 3) unknown regulation of an additional function or functions involved in abiotic surface interactions.

Further, our data suggest that overproduction of SCG does not influence biofilm formation on abiotic surfaces, but does contribute to diminished adherence on plant tissues. However, SCG is not required for attachment to either abiotic or plant surfaces. ExoR plays an important role on both surfaces, but must regulate functions in addition to SCG production that influence adherence to abiotic surfaces.

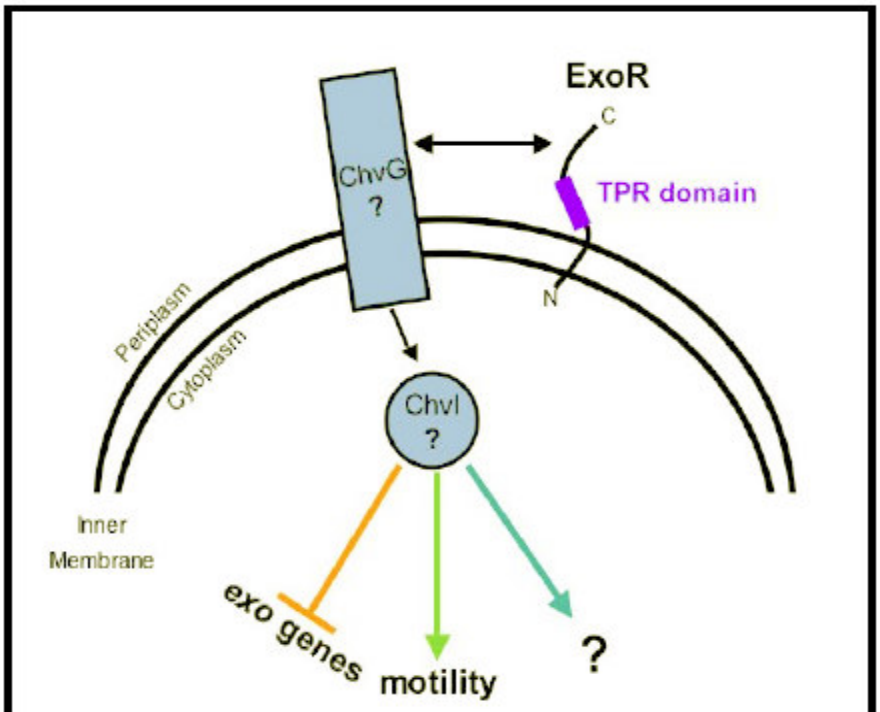

Figure 9: We hypothesize that ExoR regulates surface adherence functions via interaction with a signal transduction system. ExoR has been shown to regulate expression of *exo* genes, motility, and must regulate one or more functions involved in abiotic surface adherence.

Jeanne (R) presenting 1st place McClung award (Ph.D. category-2005) to Amelia Tomlinson (L).

Highlights from the Journals of the ASM, June 2006 (ASM Tipsheet)

New Non-Invasive Vaccine Strategy May Offer Protection Against Tetanus and Anthrax

A new vaccine strategy using genetically engineered bacteria topically applied to the skin elicits an immune response to both tetanus and anthrax in animals say researchers from Vaxin Inc., Birmingham, Alabama. They report their findings in the June 2006 issue of the journal *Infection and Immunity*.

The new vaccine strategy described in this study consists of a topically applied vaccine containing live *Escherichia coli* bacteria that are genetically engineered to produce proteins associated with the bacteria that cause anthrax and tetanus. These compounds can be administered by nonmedical personnel. Past studies have shown the outer layer of the skin to be more immunocompetent than deep tissue and experts believe that self-applied painless vaccines will further increase the compliance rate.

In the study mice were administered a topical *E. coli* vectored vaccine and then challenged with tetanus cells and anthrax spores. Ninety percent of the vaccinated mice infected with tetanus survived, those that didn't receive the vaccine died within five days. Of the mice vaccinated and challenged with anthrax, only 44% survived, but when additional *E. coli* particles were added, the survival rate increased to 55%.

"The nonreplicating *E. coli* vector overproducing an exogenous immunogen may foster the development of a new generation of vaccines that can be manufactured rapidly and administered noninvasively in a wide variety of disease settings," say the researchers.

(J. Zhang, Z. Shi, F. Kong, E. Jex, Z. Huang, J.M. Watt, K.R. Van Kampen, D.C. Tang. 2006. Topical application of *Escherichia coli*-vectored vaccine as a simple method for eliciting protective immunity. Infection and Immunity, 74. 6: 3607-3617.)

Houseflies Collected in Fast Food Restaurants Found to Carry Antibiotic Resistant Bacteria

Houseflies in food-handling and serving facilities carry and may have the capacity to transfer antibiotic-resistant and potentially virulent bacteria say researchers Kansas State University. They report their findings in the June 2006 issue of the journal *Applied and Environmental Microbiology*.

Multi-drug resistance is a serious problem plaguing the world today as the number of antibiotics effective at treating human infections continues to decline. Although it is not yet well understood, preliminary research has indicated a connection between antibiotic resistance and food of animal origin. Experts are now examining the role that insects that develop in decaying organic material (specifically manure) may play in transmitting antibiotic resistant bacteria to residential settings.

Enterococci are commonly found in animal and human digestive tracts and are known for their frequent multi-antibiotic resistance. Two of the 26 species, *Enterococcus faecalis* and *Enterococcus faecium* are responsible for the majority of human infections. In the study the digestive tracts of 260 houseflies collected from five fast food restaurants were tested for enteroccoci and characterized. Ninety-seven percent tested positive for the bacteria with *E. faecalis* identified in the majority of the isolates (88.2%). *E. faecalis* was found to carry virulence genes and have varying percentages of resistance to tetracycline, erythromycin, streptomycin, ciproflaxin and kanamycin. *E. faecium* showed up at a rate of 6.8%.

"This study showed that houseflies in food-handling and serving facilities carry antibiotic-resistant and potentially virulent enterococci that have the capacity for horizontal transfer of antibiotic resistance genes to other bacteria," say the researchers.

(L. Macovei, L. Zurek. 2006. Ecology of antibiotic resistance genes: characterization of enterococci from houseflies collected in food settings. Applied and Environmental Microbiology, 72. 6: 4028-4035.)

Highlights from the Journals of the ASM, July 2006 (ASM Tipsheet)

Waterfowl May Contaminate Drinking Water with Bacteria Harmful to Humans

Waterfowl have the potential to contaminate drinking water with opportunistic parasites say researchers from the U.S. and abroad. Their findings appear in the July 2006 issue of the journal *Applied and Environmental Microbiology*.

Microsporidia are opportunistic pathogens that commonly infect immunocompromised and immunosuppressed people through zoonotic and environmental transmission. However, because specific transmission routes are still unknown, spore identification, removal, and inactivation in drinking water are challenging, and human infections are hard to treat. Preliminary studies offer considerable evidence indicating drinking water as a source of human microsporidiosis, but nothing conclusive has been proven.

In the study researchers examined feces from 570 free-ranging, captive, and livestock birds for microsporidian spores known to infect humans, mainly *Encephalitozoon hellum* and *Encephalitozoon intestinalis*. Out of eleven avian species found to shed *E. hellum* and *E. intestinalis*, eight were aquatic. Microsporidial infections were significantly higher in waterfowl than any other bird and their fecal droppings contained more spores.

"Our findings demonstrate that waterborne microsporidian spores of species that infect people can originate from common waterfowl, which usually occur in large numbers and have unlimited access to surface waters, including waters used for production of drinking water," say the researchers.

(A. Slodkowicz-Kowalska, T.K. Graczyk, L. Tamang, S. Jedrzejewski, A. Nowosad, P. Zduniak, P. Solarczyk, A.S. Girouard, A.C. Majewska. 2006. Microsporidian species known to infect humans are present in aquatic birds: implications for transmission via water? Applied and Environmental, 72. 7: 4540-4544.)

New Self Test Found to be Effective at Cervical Screening

A new user-friendly self-sampling device has accurately detected the human papillomavirus (HPV) in cervical cells collected by women at home and may increase cervical cancer screenings overall say researchers from The Netherlands. Their findings appear in the July 2006 issue of the *Journal of Clinical Microbiology*.

Human papillomavirus is believed to be on of the main causes of cervical cancer in women. Treatment of cervical cancer in its early stages is considered to be fairly easy and void of any major side effects, however current compliance rates for cervical screenings are not optimal. Records show that annually 30% of woman in The Netherlands, as well as the United Kingdom and the U.S., invited to participate in cervical screening programs do not attend and as a result half of the cervical cancer cases diagnosed are within this same group. A recent study polled more than 2,500 of the women who would not participate in screening programs and found that almost 30% of them actively responded when offered the option of a self-sampling method.

In the study women who had previously had a positive cervical smear test for HPV as well as healthy volunteers took a self-obtained sample at home and then visited a gynecologist where another sample was taken using an endocervical brush. Both samples were then processed using the high-risk human papillomavirus (hrHPV) test and self-obtained samples were shown to be equally sensitive in detecting high-grade cervical intraepithelial neoplasia as those collected from the endocervical brush.

"In conclusion, self-obtained samples taken by this novel device are highly representative of the hrHPV status of the cervix," say the researchers. "In combination with hrHPV testing, the use of this device may have implications for increasing the attendance rate for cervical cancer screening."

(A.A.T.P. Brink, C.J.L.M. Meijer, M.A.H.M. Wiegerinck, T.E. Nieboer, R.F.P.M. Kruitwagen, F. Van Kemenade, N.F. Daalmeijer, A.T. Hesselink, J. Berkhof, P.J.F. Snijders. 2006. High concordance of results of testing for human papillomavirus in cervicovaginal samples collected by two methods, with comparison of a novel self-sampling device to a conventional endocervical brush. Journal of Clinical Microbiology, 44. 7: 2518-2523.)

Special Thanks to All Judges!

On behalf of all of the students in the poster competition I would like to express sincere appreciation to all of the members who volunteered their time to judge at the meeting. Students were evaluated in 4 different categories: scientific thought, creativity, thoroughness and presentation (abstract, oral and poster). This was no easy task! Next time you see any of these persons please thank them for sweating through a very difficult challenge:

- Team #1 Undergraduate/MS Graduate = *Kehoe (IUB), Galli (IUSD) & DeLoney-Marino (USI)*
- Team #2 Ph.D. Graduate = *Barnett (USI) and Gustavsson (IUSD)*
- Team #3 Ph.D. Graduate = *McKillip (BSU) and Mitchell (BSU)*

From the Desk of Jim Mitchell-...
Alternate Councilor & Educational Representative

There were a total of 21 posters presented at the meeting. The quality of the student presentations was awesome and it was very informative for me to see the range of different research areas. Minhtam Dang (BSU) and Brandon Rapier (BSU) won honorable mentions in the undergraduate and MS categories, respectively. Amelia Tomlinson (IU-B) received the Leland S. McClung award for 1st place and Deanne Pierce (IU-B) for 2nd place in the Ph.D. division.

Congratulations !!! The socializing which occurred during the judging segment was almost deafening at times, but a great opportunity for students to visit with each other and also interact with professionals who can provide valuable ideas and advice for future education and employment. All of us who viewed the poster session look forward to a similar number of participants next year, and I hope to possibly see students compete in the high school division. Amelia Tomlinson received a complimentary ASM membership and she and Deanne Pierce will receive a certificate and monetary gift when a short paper is published in the IBASM newsletter.

Photos from the 2006 Annual Meeting

Poster Judging

L to R: David Kehoe, Cindy Deloney & Janelle Renschler (Ph.D. student)

L to R: John McKillip & Jim Mitchell

L to R: Andrian Gutu (Ph.D. student) & Clay Fuqua

Speakers

Bill Summers (our ASM Foundation speaker)

Yves Brun (IBASM Award in Research 2005)

Important Dates

Feb. 2007:	Completed abstract form due for the IBASM meeting
March 2007:	Completed registration form due for the IBASM meeting
April 20-22, 2007:	Annual IBASM meeting at Turkey Run State Park
May 21-25, 2007:	107th Annual Meeting of the ASM, Toronto, Canada

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