

10TH ANNUAL NORTH PARK UNIVERSITY UNDERGRADUATE RESEARCH SYMPOSIUM

THURSDAY, MAY 5, 2016

BRANDEL LIBRARY, NORTH PARK UNIVERSITY

CHICAGO, ILLINOIS

PROGRAM

Event	Time	2 nd Floor Gallery
Welcome	3:30 pm	Professor Yoojin Choi
Student Presentations	3:35 pm 3:50 pm 4:05 pm 4:20 pm	Saul Lopez (Biology) Elwin Clutter (Chemistry) Juliana Spricigo (Nursing) Jessica Hale (Biology)
Refreshments 4:20-4:30 pm		
Student Presentations	4:30 pm 4:45 pm 5:00 pm 5:15 pm	Sladana Nikezic (Biology) Gracie Williams and Lucia Tejada (Biology) Emily Mordan (Chemistry) Rebecca DeKorne (Psychology)
Closing Remarks	5:30 pm	Professor Yoojin Choi

Following the symposium: Discussion and dinner (served at 6:30pm) for presenters and faculty advisors at the Hawkinson House: 5258 N. Spaulding Avenue.

ACKNOWLEDGMENTS

Screening the Chicagoland Area for *Borrelia miyamotoi*

Saul Lopez
Dr. Matthew Schau, Dr. Drew Rholl
Biology Department

Borrelia burgdorferi sensu stricto is the causative agent of Lyme disease and its presence is well established in the Chicagoland area (Jobe). Lyme disease is an infection that comes with myalgia, fever, fatigue, and sometimes a bull's-eye rash. A related organism, *Borrelia*

Sources

Jobe, Dean A., Jeffrey A. Nelson, Michael D. Adam, and Stephen A. Martin. "Lyme Disease in Urban Areas, Chicago." *Emerg. Infect. Dis. Emerging Infectious Diseases* 13.11 (2007): 1799-800. Web.

Johnson, R. C., G. P. Schmid, F. W. Hyde, A. G. Steigerwalt, and D. J. Brenner. "Borrelia Burgdorferi

Efficient Guanidine-Catalyzed Amidation of Alkyl Acetates

Elwin D. Clutter II
Dr. Isabel Larraza
Chemistry Department

Acetamides have several uses within organic chemistry. This ubiquitous functional group can be found in many natural products, such as chitin in exoskeletons of insects and pharmaceuticals, such as hyaluronic acid used as joint lubricants, as well as during eye surgery.

Chitin

References

- (1) Alfonsi, K. et al, *Green Chemistry* 2008, 10, 31-362.
- (2) Ishikawa, T. editor *Superbases in Organic Synthesis*, John Wiley & Sons : West Sussex , 2009

The success of the project can help the organization achieve its desired goals, and allow patients to receive appropriate care that meets their needs. The brochure can increase patients' awareness, and promote knowledge, facilitating transition through the process of death and dying. Open communication can not only enhance patient and family satisfaction, but also decrease healthcare costs and readmission rates (Wittenberg-Lyles, Goldsmith & Ragan, 2011).

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The Relationship between Window Collisions and Blinds on Fall Migratory Birds over North Park University

Jessica Hale
Dr. Linda Vick
Biology

Every year during the fall birds from Canada and the Northern parts of the United States make their journey south flying through areas which are not as familiar to them and may encounter various obstacles. These birds' innate behavior is to follow the location of the sun and landmarks along their

It was found that there were a significantly more bird collisions when blinds were open versus when the blinds were closed. Also, the Johnson Center was found to be the prime culprit involved in collisions. These results provide concern over the impact that the Johnson Center is having on biodiversity but also hope that we may fix the issue. The data can be used to further test how manipulating the blinds can have an effect on the number of collisions and eventually lead to a higher LEED status of the Johnson Center by improving its impact on biodiversity.

References

- Leonard, Pat. "Glass Action: Advances in the Science of Making Windows Safer for Birds." *Abstract*. Cornell University, 15 Jan. 2013. Web. 16 Jan. 2016.
- WMBD. "Climate Change and Migratory Birds." *Case Studies*. UNEP/AEWA, 2007. Web. 19 Apr. 2016.

Locating the Gene(s) in *Burkholderia ubonensis* Responsible for the Antagonistic Activity
Against *Burkholderia pseudomallei*

Sladana Nikezic
Drew Rholl and Matthew Schau
Biology

Melioidosis is an infectious disease whose signs and symptoms are similar to that of other respiratory infections, making diagnosis difficult. The disease is endemic in low income, tropical regions. It has a high morbidity and mortality rate due to its ambiguous presentation, lack of knowledge, and poor laboratory facilities (Currie *et al*, 2000; Inglis *et al*, 2001). The causative agent of melioidosis is *Burkholderia pseudomallei*. *B. pseudomallei*

Figure 1: Growth Inhibition Assay displaying zones of inhibition against *Burkholderia thailandensis*.

References

- Currie, B., Fisher, D., Howard, D., Burrow, J., Selvanayagam, S., Snelling, P., Mayo, M. (2000). The epidemiology of melioidosis in Australia and Papua New Guinea. *Acta Tropica*, 121-127.
- Inglis, T., Mee, B., & Chang, B. (2001). The environmental microbiology of melioidosis. *Reviews in Medical Microbiology*, 13-20.

References:

Kindle, K. L. (1990). High-frequency nuclear transformation of *Chlamydomonas reinhardtii*.

References

1. Lintelmann, J. A.; Katayama, N.; Kurihara, L.; Shore; Wenzel, A. "Endocrine Disruptors in the Environment (IUPAC Technical Report)." *Pure and Applied Chemistry* 2003, 75, 631-81.
2. Loffredo, E.; Senesi, N. "Fate of Anthropogenic Organic Pollutants in Soils with Emphasis on Adsorption/desorption Processes of Endocrine Disruptor Compounds." *Pure and Applied Chemistry* 2006, 78, 947-61.
3. Sein, L.; Varnum, J.; Jansen, S. "Conformational modeling of a new building block of humic acid: Approaches to the lowest energy conformer." *Enviro. Sci. Technol.* 1993, 33, 546-552.
4. Lipshutz, B. H.; Ghorai, S. "Transition Metal Catalyzed Cross-Couplings Going Green. In Water at Room Temperature." *Aldrichimica Acta* 2008, 41, 59-72.
5. Lipshutz, B.H., and Ghorai,S. "Designer-Surfactant-Enabled Cross-Couplings in Water at Room Temperature." *Aldrichimica Acta* 2012, 45, 3-16.

References

- Angermeyer, M. C., & Dietrich, S. (2006). Public beliefs about and attitudes towards people with mental illness: A review of population studies. *Acta Psychiatrica Scandinavica*, *113*(3), 163-179.
- Center for Disease Control and Prevention. (2010). Attitudes toward mental illness -- 35 states, District of Columbia, and Puerto Rico, 2007. *MMWR: Morbidity & Mortality Weekly Report*, *59*(20), 619-625.