Program (Final)
2011 Molecular Basis of Infectious Diseases (MBID) Retreat
Thursday, March 24, 2011
UTH (University of Texas Health Science Center at Houston)
Brown Foundation Institute of Molecular Medicine (IMM)
1825 Pressler Street, Houston, TX 77030
Website: http://www.uth.tmc.edu/pathology/MBID/2011MBIDRetreat/

Sponsored by:
The Molecular Basis of Infectious Diseases Training Program (http://www.uth.tmc.edu/pathology/MBID/)
Center of Emerging and Re-Emerging Infections, UTH
Center for Infectious and Inflammatory Diseases, Texas A&M Institute of Biosciences and Technology
(http://ibt.tamhsc.edu/labs/ciid/)

Co-Organizers:
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Magnus Höök, Ph.D., Professor and Director, Center for Infectious and Inflammatory Diseases, Texas A&M Institute of Biosciences and Technology, Houston, TX. mhook@ibt.tamhsc.edu; 713-677-7551

OVERVIEW

8:00-10:00 Registration and coffee – James T. Willerson (JTW) Discovery Hall
(Note: No food or drinks are allowed in the IMM Auditorium)

8:30-9:30 Optional Workshop on Career Development in Microbiology/Infectious Diseases – IMM Auditorium

9:30-10:00 Break

10:00-11:00 Keynote Speaker: Craig R. Roy, Ph.D., Professor of Microbial Pathogenesis, Boyer Center for Molecular Medicine, Yale University School of Medicine, New Haven, CT
“Pathogen evolution reflected in type IV effector repertoires” – IMM Auditorium

11:00-12:00 Presentations by postdoctoral fellows and students

12:00-12:30 Platform presentation: Gavin Bowick, Ph.D., Assistant Professor of Pathology and Microbiology & Immunology, University of Texas Medical Branch, Galveston, TX
“Pathogenesis of emerging viruses: the role of cell signaling” – IMM Auditorium

12:30-2:30 Poster session and lunch

2:30-3:00 Platform presentation: Ransome van der Hoeven, Ph.D., Postdoctoral Fellow, Department of Microbiology and Molecular Genetics, UTH Medical School, Houston, TX
“Reactive oxygen species generated by Ce-duox1 in response to infection activates the oxidative stress transcription factor SKN-1 in C. elegans” – IMM Auditorium

3:00-3:30 Presentations by postdoctoral fellows and students

3:30-4:30 Keynote Speaker: Lynn Zechiedrich, Ph.D., Associate Professor of Molecular Virology and Microbiology, Biochemistry and Molecular Biology, and Pharmacology, Baylor College of Medicine, Houston, TX
“Combating resistance to antimicrobial agents” – IMM Auditorium

4:30-6:00 Poster award presentations and social hour – JTW Discovery Hall
**SCHEDULE**

8:00-10:00  Registration and coffee – JTW Discovery Hall
(Note: No food or drinks are allowed in the IMM Auditorium)

8:30-9:30  Optional Workshop on Career Development in Microbiology/Infectious Diseases – IMM Auditorium

9:30-10:00  Break

10:00-12:30  **Morning Session – IMM Auditorium**

**Moderator:** David M. Raskin, Ph.D., Asst. Member, Dept. of Infectious Disease, The Methodist Hospital Research Institute, Houston, TX

10:00-11:00  **Keynote Speaker:** Craig R. Roy, Ph.D., Professor of Microbial Pathogenesis, Boyer Center for Molecular Medicine, Yale University School of Medicine, New Haven, CT
“Pathogen evolution reflected in type IV effector repertoires”

11:00-11:15  Mingsong Kang, Graduate Student, Center for Infectious and Inflammatory Diseases, Texas A&M Institute of Biosciences and Technology, Houston, TX
“CNA from *Staphylococcus aureus* inhibits the classical complement pathway activation by a direct interaction with C1q”

11:15-11:30  Charles Darkoh, Graduate Student, Division of Infectious Diseases, UTHealth School of Public Health and Graduate School of Biomedical Sciences, Houston, TX
“Detection of toxigenic *Clostridium difficile* by harnessing the glucosyltransferase activities of its toxins”

11:30-11:45  Taylor Schoberle, Graduate Student, Dept. of Pathology and Lab Medicine, UT MD Anderson Cancer Center, Houston, TX
“Identifying genes involved in gliotoxin biosynthesis in *Aspergillus fumigatus*”

11:45-12:00  Lara M. Bull-Otterton, Ph.D., Postdoctoral Fellow, Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX
“Viral genomes in whole genome shotgun sequencing of hepatocellular carcinoma”

12:00-12:30  Gavin Bowick, Ph.D., Assistant Professor of Pathology and Microbiology & Immunology, University of Texas Medical Branch, Galveston, TX
"Pathogenesis of emerging viruses: the role of cell signaling"

12:30-2:30  **Poster session and lunch (Goode Company) – JTW Discovery Hall**

(A key of abbreviations is provided on the last page.)

1. Pearl Bakhru, Arshad Khan, Dorothy Lewis and Chinnaswamy Jagannath. DPALM, UTHMS TLR-adjuvanted BCG induces stronger Th1 responses in mice leading to increased vaccine efficacy.

2. Lara M. Bull-Otterton, Yanru Ren, Jennifer Drummond, Jiangong Niu, Lisa R. Treviño, Kyle Chang, Harini Kandadi, Nipun Kakkar, Donna Munzy, Jeff Reid, Richard A. Gibbs and David A. Wheeler. Human Genome Sequencing Center, BCM
Viral genomes in whole genome shotgun sequencing of hepatocellular carcinoma.

*MBID Retreat 2011 Program (last updated March 22, 2011)*
Large-Scale identification and translocation of type IV secretion substrates by *Coxiella burnetii*.

4. Amanda Clark and Ambro van Hoof. MMG, UTHMS
The antiviral activities of the yeast mRNA decay machinery and viral countermeasures.

5. Jennifer L. Dale and Theresa M. Koehler. MMG, UTHMS
Control of *att*A expression and its impact on *Bacillus anthracis* pathogenesis and development.

6. Charles Darkoh, Heidi B. Kaplan, Nicole M. Poole, Herbert L. DuPont. Pathology Program/Infectious Diseases, GSBS/UT School of Public Health
Detection of toxigenic *Clostridium difficile* by harnessing the glucosyltransferase activities of its toxins.

7. Sruti DebRoy, Arati Ramesh, Kristina Fox, Wade Winkler and Danielle Garsin. MMG, UTHMS
The mechanism of antitermination by ANTARs: a model.

8. Jessica R. Galloway-Pena, Kavindra Singh, Changyu Chang, Hung Ton-That, Barbara E. Murray. IM Division of Infectious Diseases, UTHMS
*Enterococcus faecium* proteins with the “WxL” motif are antigenic surface proteins encoded by genes located in putative operons.

Transcriptional control of carbon metabolism in *Candida albicans*.

10. Troy G. Hammerstrom, Jung Hyeob Roh, Edward P. Nikonowicz, and Theresa M. Koehler. MMG, UTHMS
Multimerization of AtxA, the major virulence gene regulator of *Bacillus anthracis*.

11. Huajun He, Jennifer Cooper and David Raskin. Infectious Disease, TMHRI
Regulation of virulence factors by stringent response in *Vibrio cholerae*.

12. Jennifer Head, Terence E. Hill, Shuetsu Fukushi, Monica A. Tseng, Tetsuro Ikegami, Clarence J. Peters, and Chien-Te K. Tseng. Microbiology & Immunology, UTMB
Mechanisms of host innate immune response to Rift Valley Fever Virus: impact of NSs and NSm on the effector functions of dendritic cells.

The Rift Valley Fever Virus NSs protein limits intensity of inflammatory response and macrophage activation.

14. Bo Hu, Dustin Morado, Xiaowei Zhao, William Margolin, Jun Liu. DPALM, UTHMS
Molecular architecture of intact flagellar motor and chemotaxis array revealed by cryo-electron tomography of motile and tiny *Escherichia coli*.

15. Mingsong Kang, Ya-Ping Ko, Xiaowei Liang, Cana Ross and Magnus Höök. CIID, Texas A&M IBT
CNA from *Staphylococcus aureus* inhibits the classical complement pathway activation by a direct interaction with C1q.

16. Bijay Khajanchi, Michelle Kirtley, Sheri Brackman, and Ashok Chopra. Microbiology and Immunology, UTMB
Immunomodulatory and protective roles of quorum sensing signaling molecules N-acyl homoserine lactones during infection of mice with *Aeromonas hydrophila*.
17. Arshad Khan, Jaymie L. Estrella, Chris Singh, Eulogia Roman, Robert L. Hunter, Chinnaswamy Jagannath. DPALM, UTHMS
   TLR agonists modulate antigen processing in macrophages and dendritic cells and enhance the efficacy of BCG
   vaccine against tuberculosis.

18. Ya-Ping Ko, Ilse. Jongerius, Xiaowen. Liang , Claudia. Freitag, C. Wayne Smith, Jos van Strijp, Suzan Rooijakkers,
   Magnus Höök. CIID, Texas A&M IBT
   Interaction of Efb from S. aureus with fibrinogen inhibits neutrophil adherence and phagocytosis.

19. Tao Lin, Lihui Gao, and Steven J. Norris. DPALM, UTHMS
   Dissecting the mechanism of Borrelia chemotaxis and motility and the relationship between the virulence and
   chemotaxis/motility.

   Visualization of bacteriophage P1 infection by cryo-electron tomography of tiny Escherichia coli.

21. Elizabeth Massey-Gendel and Danielle A. Garsin. MMG, UTHMS
   The role of G-Protein coupled receptors in innate immunity.

22. Tien Pham, James Shaw, Heidi B. Kaplan, Milan Sen, and Catherine Ambrose. MMG, UTHMS
   Eradicating Staphylococcus aureus biofilm and planktonic cells by exposure to silver nanodressing.

23. Esmeralda Ramirez-Peña, Jeanette Treviño, Zhuyun Liu, and Paul Sumby. Pathology, TMHRI
   The Group A Streptococcus sRNA FasX enhances streptokinase expression by inhibiting degradation of the SKA
   mRNA transcript.

24. Mayukh Sarkar, Koushik Paul and David Blair. Dept. of Biology, University of Utah
   Bacteria flagella - A dynamic nano-machine.

25. Taylor Schoberle, Jennifer Herold, Kim Coleman, Gregory May. Pathology and Lab Medicine, UT MD Anderson
   Identifying genes involved in gliotoxin biosynthesis in Aspergillus fumigatus.

26. Emanuel Smeds, Jay L. Degen, Tim Foster and Magnus Höök. CIID, TAMHSC-IBT
   Staphylococcus lugdunensis Fbl is a causative virulence factor in experimental murine sepsis.

27. Brian Stover, Catherine G. Ambrose, Milan Sen, Heidi B. Kaplan. MMG, UTHMS
   Comparison of biofilm formation on different biomaterials in an in vitro diabetic joint model.

28. George Tiller and Danielle Garsin. MMG, UTHMS
   BLI-3's partner(s) in crime? The role(s) of novel peroxidases in C. elegans innate immunity.

29. Jeanette Treviño, Esmeralda Ramirez-Peña, Zhuyun Liu, and Paul Sumby. Pathology - Infectious Disease, TMHRI
   Identification of Group A Streptococcus sRNAs transcribed following exposure to human saliva, human plasma,
   and laboratory media.

30. Zalman Vaksman, Veronica M. Garcia, Karen Gomez, Gina Tribble, Ray Taylor and Heidi B. Kaplan. MMG, UTHMS
   Developing an in vitro biofilm model for dental caries.

31. Ransome van der Hoeven, Katie McCallum, Melissa Fellers and Danielle Garsin. MMG, UTHMS
   Reactive oxygen species generated by Ce-duox1 in response to infection activates the oxidative stress
   transcription factor SKN-1 in C. elegans.
Poster session, ctd.

   Bacterial secretion: pore properties of the type III system translocon.

33. Melanie E. Watkins, Randall J. Olsen, Connie C. Cantu, Stephen B. Beres, James M. Musser. Infectious Disease/Pathology, TMHRI
   A wax worm (Galleria mellonella larvae) model of Group A Streptococcus infection.

34. Bonnie Youmans, Matthew Ross, Tulin Ayvaz, Donna Muzny, Xiang Qin, Richard Gibbs, Herbert DuPont, Joseph Petrosino, Sarah K. Highlander. MVM, BCM
   Alterations in the gut microbiome associated with travelers' diarrhea.

35. Xiaowei Zhao, Joshua E. Pitzer, Md A. Motaleb, Steven, J. Norris, Jun Liu. DPALM, UTHMS
   Flagellar stator revealed in situ.

2:30-4:30  Afternoon Session – IMM Auditorium
   Moderator: Jeffrey D. Cirillo, Ph.D., Professor of Microbiology and Molecular Pathogenesis, Texas A&M Health Science Center, College Station, TX.

2:30-3:00  Ransome van der Hoeven, Ph.D., Postdoctoral Fellow, Department of Microbiology and Molecular Genetics, UTHealth Medical School, Houston, TX
   “Reactive oxygen species generated by Ce-duox1 in response to infection activates the oxidative stress transcription factor SKN-1 in C. elegans”

3:00-3:15  Bijay Khajanchi, Graduate Student, Dept. of Microbiology and Immunology, UT Medical Branch, Galveston, TX
   “Immunomodulatory and protective roles of quorum sensing signaling molecules N-acyl homoserine lactones during infection of mice with Aeromonas hydrophila”

3:15-3:30  Xiaowei Zhao, Ph.D., Postdoctoral Fellow, Dept. of Pathology and Lab Medicine, UTHealth Medical School, Houston, TX
   “Flagellar stator revealed in situ”

3:30-4:30  Keynote Speaker: Lynn Zechiedrich, Ph.D., Associate Professor of Molecular Virology & Microbiology, Biochemistry, and Pharmacology & Molecular Biology, Baylor College of Medicine, Houston, TX
   “Combating resistance to antimicrobial agents”

4:30  Poster award presentations and adjournment

Abbreviations

BCM = Baylor College of Medicine
CIID = Center for Infectious and Inflammatory Diseases
DPALM = Dept. of Pathology and Laboratory Medicine
IBT = Institute of Biosciences and Technology
IM = Internal Medicine
IMM = Institute of Molecular Medicine
MMG = Dept. of Microbiology and Molecular Genetics
MMP = Dept. of Microbial & Molecular Pathogenesis
MVM = Dept. of Molecular Virology & Microbiology
TAMHSC = Texas A&M Health Science Center
TMHRI = The Methodist Hospital Research Institute
UTH = Univ. of Texas Health Science Center at Houston
UTHMS = UTHealth Medical School (Houston)
UTMB = Univ. of Texas Medical Branch (Galveston)
UH = Univ. of Houston

Attendee list available on request: Laura.Nixon@uth.tmc.edu