

**First Annual Conference on Gram-Positive Pathogens  
Omaha, Nebraska**

**Sunday, October 15<sup>th</sup>**

- 6:00 - 7:00            Buffet Dinner - Embassy Suites Hotel
- 7:00 - 7:15            Opening Remarks - Ken Bayles
- 7:15 - 8:15            Featured Speaker #1 - Dr. Michael Caparon, "The ExPortal of *Streptococcus pyogenes*"
- 8:15 -                    Happy hour...

**Monday, October 16<sup>th</sup>**

- Moderator: Andy Benson**
- 8:10 - 8:30            Victor Torres, Jelena Bezbradica, Sebastian Joyce, and Eric Skaar  
"Staphylococcus aureus modulates virulence by sensing host heme, an abundant marker of invasive infection"
- 8:30 - 8:50            Amy Siegesmund, Donald O. Chaffin, Peter C. Gilbreath, and Craig E. Rubens  
"Regulation of *Streptococcus agalactiae* polysaccharide capsule production by the RofA-like protein RogB"
- 8:50 - 9:10            Xudong Liang, Chuanxin Yu, Junsong Sun, and Yinduo Ji  
"The role of a two-component system, SaeRS, in pathogenicity of *Staphylococcus aureus*"
- 9:10 - 9:30            Adam C. Wilson, Marta Perego and James A. Hoch  
"Transposon mutagenesis of the regulatory circuit controlling toxin gene expression in *Bacillus anthracis*"
- 9:30 - 9:50            Marta Perego, Adam Wilson, Billyana Tsvetanova , Cristina Bongiorno and James A. Hoch  
"Mechanism of AtxA regulation of toxin gene expression in *Bacillus anthracis*"
- 9:50 - 10:20            Break

- Moderator: Lisa Plano**
- 10:20 - 10:40 Alexander V. Dmitriev, Emily J. McDowell, Brienne Lineweber, and Michael S. Chaussee  
“Rgg-mediated regulation in *Streptococcus pyogenes*: Inter and intraserotypic diversity”
- 10:40 - 11:00 Adhar C Manna and Binata Ray  
“Role of SarA protein family in regulation of various genes in *Staphylococcus aureus*”
- 11:00 - 11:20 David F. Fujimoto, Kristen M. Sterba, Robin H. Higgenbotham, Soheila J. Maleki, Anca M Segall, Mark S. Smeltzer and Barry K. Hurlburt  
“Biochemical evidence implicating SarA of *Staphylococcus aureus* as a chromosomal architectural protein”
- 11:20 - 11:40 Kelsi L. Anderson, Corbette Roberts, Terrence Disz, Veronika Vonstein, Kaitlyn Hwang, Ross Overbeek, Patrick D. Olson, Steven J. Projan, and Paul M. Dunman  
“Characterization of stress responses and their effects on *Staphylococcus aureus* mRNA turnover”
- 12:00 - 2:00 Lunch break and poster session #1
- Moderator: Michael Chaussee**
- 2:00 - 2:20 Melissa Spears, Erik Eastlund, Greg Davis  
“Mobile Group II introns as a tool for chromosomal engineering and bacterial functional genomics”
- 2:20 - 2:40 Michael J. Federle and Bonnie L. Bassler  
“AI-2 dependant quorum sensing in *S. pyogenes*”
- 2:40 - 3:00 Kiran Madanahally Divakar and Naomi Balaban  
“Regulation of virulence in Gram-positive bacteria by quorum sensing mechanisms”
- 3:00 - 3:20 Marilynn A. Larson, Scott A. Koepsell, Mark A. Griep, and Steven H. Hinrichs  
“Specificity of *Staphylococcus aureus* primase and helicase”
- 3:20 - 3:40 Shinichiro Kurosawa, Florea Lupu, Fletcher B. Taylor, Jr., Gary Kinasewitz, and Deborah J. Stearns-Kurosawa  
“Development of a clinically relevant primate model of *B. anthracis* infection”
- 3:40 - 4:10 Break

4:10 - 5:10            Featured speaker #2 - Dr. Theresa Koehler, "Virulence gene expression by *Bacillus anthracis*"

6:30 - 9:00            Banquet at the Western Heritage Museum

**Tuesday, October 17<sup>th</sup>**

- Moderator: Melody Neely**
- 8:10 - 8:30            Tomaz Kantyka, Magdalena Kisielewska, Milosz Gruca, Stephen Pak, Gary A. Silverman, Bjarne Vincents, Magnus Abrahamson, and Jan Potempa  
  
"The interaction of staphylococcal cysteine proteases (the staphopains) with human protease inhibitors"
- 8:30 - 8:50            Amanda L. Jones, Robert H. Mertz, David J. Carl, and Craig E. Rubens  
"A streptococcal penicillin-binding protein is critical for resisting innate airway defenses in the neonatal lung"
- 8:50 - 9:10            Christy L. Ventura, H. Denny Liggitt, Shawn J. Skerrett, and Craig E. Rubens  
"Host::pathogen interactions during the early stages of *Staphylococcus aureus* pneumonia"
- 9:10 - 9:30            Anthony R. Richardson, Paul M. Dunman, and Ferric C. Fang  
"The nitrosative stress response of *Staphylococcus aureus* is required for resistance to innate immunity"
- 9:30 - 9:50            Lynne A. Becker, A. R. Richardson, and F. C. Fang  
"Characterization of the nitrosative stress response of *Listeria monocytogenes*"
- 9:50 - 10:20            Break
- Moderator: David Heinrichs**
- 10:20 - 10:40            Brian Corbin, Brian Dattilo, Michael Miller, Walter Chazin and Eric Skaar  
"Mechanism and function of calprotectin in the host response against *Staphylococcus aureus* infection"

- 10:40 - 11:00 Marissa H. Braff, Amanda L. Jones, Shawn J. Skerrett, and Craig E. Rubens  
 “*Staphylococcus aureus* exploits cathelicidin antimicrobial peptides produced during early pneumonia to promote staphylo-kinase dependent fibrinolysis”
- 11:00 - 11:20 A.X. Cuirolo, J. Petrutka, K. Plata, Joanne Morris, and Adriana Rosato  
 “Association of  $\beta$ -lactam induced SOS response and heteroresistance expression in MRSA isolates”
- 11:20 - 11:40 Vincent Fischetti and Thomas Broudy  
 “The role of bacteriophage in the pathogenicity of *S. pyogenes*”
- 12:00 - 2:00 Lunch break and poster session #2
- 2:00 - 7:00 Afternoon break
- Moderator: Sam Katzif**
- 7:00 - 7:20 Keith Weaver, Smita Patel, Sonia Chahal, and Shirisha Reddy  
 “Antisense RNAs and killer peptides: programmed cell death in *Enterococcus faecalis*”
- 7:20 - 7:40 Kelly C. Rice, Ethan E. Mann, Jennifer Endres, Jim Cassat, Mark S. Smeltzer, and Ken Bayles  
 “Contribution of the *cidABC* operon to DNA release and biofilm development in *S. aureus*”
- 7:40 - 8:00 Jong-Sam Ahn, Lakshmi Chandramohan, and Ken Bayles  
 “CidR-mediated regulation of cell death and lysis in *Bacillus anthracis*”
- 8:00 - 8:20 Morly Fisher, Elizabeth E. Bentley, Ya-Shu hang, and Zehava Eichenbaum  
 “SHR, a multifunctional protein in GAS involved in virulence”
- 8:20 - 8:30 Break
- 8:30 - 9:30 Featured speaker #3 - Dr. Nancy Freitag, “Regulation of the transition of *Listeria monocytogenes* from environmental bacterium to intracellular pathogen”
- 9:30 - ??? Bar discussions...

**Wednesday, October 18<sup>th</sup>**

- 8:30 - 9:30           Featured speaker #4 - Dr. Steven Projan, "Antibacterial drug discovery in the 21st century: has understanding pathogenesis made a difference?"
- 9:30 - 9:50           Break
- 9:50 - 10:10          **Moderator: Eric Skaar**  
Helmut Hirt  
"Biology of lipoteichoic acid in *Enterococcus faecalis*"
- 10:10 - 10:30        Tomaz Koprivnjak and Jerrold P. Weiss, University of Iowa  
"DltX, a novel protein involved in D-alanylation of teichoic acids in *Staphylococcus aureus*"
- 10:30 - 10:50        Jolyne Drummelsmith  
"An investigation into mechanisms of intermediate vancomycin resistance in *Staphylococcus aureus*"
- 10:50 - 11:10        Maurine D. Miner, Jennifer C. Chang, H.G. Archie Bouwer, and Nancy E. Freitag  
"A regulatory mutation that prevents the *Listeria monocytogenes* transition from environmental bacterium to pathogen"
- 11:10 - 11:30        Paul J. Jackson, Karen K. Hill, Lawrence O. Ticknor, Charles H. Helma and Alex R. Hoffmaster  
"Phylogenetic analyses of *Bacillus anthracis* and it's very near neighbors"

## Poster Session #1

Robert Tebbs, Lily Wong, Rixun Fang, Cristin O'Shea, Olga Petrauskene and Manohar Furtado

"Development of integrated systems for Gram-positive bacteria detection"

Katherine Y. King-Casas, Edward O. Mason, Sheldon L. Kaplan, Kristina G. Hulten

"Increased hemolytic activity in community-acquired methicillin resistant *Staphylococcus aureus* (USA300)"

Magdalena Kisielewska, Grzegorz Szmyd, Milosz Gruca, Zuzana Valnickova, Ida B. Thøgersen, Jan J. Enghild, and Jan Potempa

"Differential inhibition of staphopains by mammalian macroglobulins"

Ramy K. Aziz, L. McNeil, M. Kotb, Svetlana Gerdes, V. Vonstein, R. Overbeek, R. Stevens

"Using the NMPDR and the SEED subsystems approach for comparative genomics and understanding streptococcal virulence"

Orit Gat, Galia Zaide, Haim Grosfeld, Itzhak Inbar, Theodor Chitlaru, Naomi Ariel, Anat Zvi, Sara Cohen and Avigdor Shafferman

"Identification of *Bacillus anthracis* potential virulence determinants and vaccine candidates by a functional genomic serologic screen"

Darin E. Allen and Helmut Hirt

"Role of *dltA* in *Enterococcus faecalis* virulence and analysis of upstream promoter region"

Megan J. Kaltinger and Helmut Hirt

"EbsG, a novel surface protein, is involved in the biology of lipoteichoic acid in *Enterococcus faecalis*"

Torrey Parrish, John F. Anderson, and Helmut Hirt

"Characterization of mobile genetic elements in environmental isolates of enterococci"

Vinai C. Thomas and Lynn E. Hancock

"Gelatinase contributes to the release of extracellular DNA in the development of *Enterococcus faecalis* biofilms"

Lance R. Thurlow and Lynn E. Hancock

"The genetic basis for capsular polysaccharide production in *Enterococcus faecalis* serogroups C and D"

Jean-Nicholas P. Brouillard, Sebastian Günther, Irene Gryski, A. K. M. Nur-ur Rahman, Christine A. Herfst, Patrick M. Schlievert, Donald Y. M. Leung, Joaquín Madrenas, Eric J. Sundberg, and John K. McCormick  
“Crystal structure of the streptococcal superantigen Spel and functional role of a novel loop domain in T cell activation by group V superantigens”

Sam Katzif

“Production of the cold shock protein CspA by *Staphylococcus aureus*”

Andrei Pomerantsev; Tallant-Blanco C.; Yeh, L; Gomis-Ruth, F.X.; Leppla, S.H.

“Cre/Lox application to functional genomics of bacteria”

Kimberly J. Mueller, Maurine D. Miner, Dr. Nancy E. Freitag

“Novel mutations contributing to the regulation of *Listeria monocytogenes* virulence gene expression”

Cristina Bongiorno and Marta Perego

“Negative regulation of sporulation in *Bacillus anthracis* by Spo0E-like phosphatases”

Katherine J. Kasper, A. K. M. Nur-ur Rahman, and John K. McCormick

“Low-affinity MHC class II binding by streptococcal superantigens”

Nur-ur Rahman, Christine A. Herfst, Beenu Moza, Stephanie R. Shames, Luan A. Chau, Clara Bueno, Joaquín Madrenas, Eric J. Sundberg, and John K. McCormick

“Molecular basis of T cell receptor selectivity, cross-reactivity and allelic discrimination by a bacterial superantigen: integrative functional and energetic mapping of the Spec-Vbeta2.1 molecular interface”

Calvin C. Daniels, Patricia A. Coan, David E. Briles and Susan K. Hollingshead

“Immunogenicity of mosaic pneumococcal surface proteins PspA and PspC”

Diana L. Dupraw, Krzysztof Trzcinski, Nikhil Kumar, Pat Coan, Mark Lipsitch, Herve Tettelin, Susan K. Hollingshead

“Unselected variation during natural transformation in *Streptococcus pneumoniae*: a view from comparative genome hybridization”

Mark W. Lisanby and John F. Kearney

“Analysis of the susceptibility of *Bacillus anthracis* to cationic peptides”

Shaper Mirza, and David E Briles

“A pneumococcal serine protease plays a role in the killing of *Streptococcus pneumoniae* by apolactoferrin”

Melissa K. Swiecki and John F. Kearney

“Increased virulence of  $\Delta BclA$  spores of *Bacillus anthracis*”

John M. Pfeffer and Anthony J. Clarke

“Characterization of the pathway for the O-acetylation of peptidoglycan in *Bacillus cereus* ATCC10987”

Julie A. Kelsey, E.E. Mosley, A. M. Morrison, C.Y. Roberts, L. K. Fox and M.A. McGuire

“Lipase and fatty acid modifying enzyme (FAME) activity of bovine *Staphylococcus aureus* mastitis isolates”

Franco Ferracci, Bo Zhou, and Lisa R.W. Plano

“Surface expression of cloned human desmoglein 1 as a target for *Staphylococcus aureus* exfoliative toxins”

Medora Huseby, Ke Shi, Douglas H. Ohlendorf and Cathleen A Earhart

“Structural analysis of beta-hemolysin: mechanism of sphingomyelin cleavage”

Ke Shi, C. Kent Brown, Zuyi Gu, Briana K. Kozlowicz, Gary M. Dunny, Douglas H. Ohlendorf and Cathleen A. Earhart

“Crystal structures of PrgX/Cf10 and PrgX/lcf10 complexes from *Enterococcus faecalis*”



## Poster Session #2

Hsin-Yeh Hsieh Ching Wen Tseng, and George Stewart  
“Regulation of the repressor of toxins (Rot) determinant of *Staphylococcus aureus*”

Brian Thompson and George Stewart  
“Characterization of a *BclB* knockout mutant of *Bacillus anthracis*”

Melissa R. Lucas and Greg A. Somerville  
“Cloning mutagenesis and purification of *Staphylococcus aureus* aconitase”

Yefei Zhu and Greg A. Somerville  
“*Staphylococcus aureus* metabolism in a biofilm”

Kendall A. Bryant, Steven H. Hinrichs, and Paul D. Fey  
“The characterization of the macromolecular synthesis operon of *Staphylococcus epidermidis*”

Michael E. Olson, Luke D. Handke, Shawn R. Slater, and Paul D. Fey  
“The role of *icaR* in the regulation of and production of polysaccharide intercellular adhesin (PIA) in *Staphylococcus epidermidis*”

Kathie L. Rogers, M. E. Rupp, P. D. Fey  
“Fitness of *icaADBC* positive *Staphylococcus epidermidis* on human skin determined by competition studies”

P. Dziamka, B. Nunez, M.P. Pai, S. Young, M.K. Walker, Renee-Claude Mercier  
“Methicillin-resistant *Staphylococcus aureus* (MRSA) strains as an independent risk factor in hospitalized patient outcomes”

Jacobo Zuniga-Castillo, Anand, S.P., Naqvi, A., Khan, S.A.  
“Biochemical activities and functions of the PcrA helicase in *Bacillus anthracis*”

Sonia Chahal and Keith E. Weaver  
“Structures regulating translation and stability of a toxin-encoding RNA affect species specificity of the toxin”

Biswas I., Laura Drake and S. Biswas  
“Regulation of *gbpC* expression in *Streptococcus mutans*”

Brienne Lineweber, Alexander V. Dmitriev, Michelle A. Chaussee, Emily J. McDowell, Eduardo A. Callegari, and Michael S. Chaussee  
“Rgg regulon activity among different clinical isolates of *Streptococcus pyogenes*”

Emily J. McDowell, Lindsey D. Rieck, Alexander V. Dmitriev, Michelle A. Chaussee, Cassandra L. Peterson, and Michael S. Chaussee  
“Complementation of a *rgg* mutant strain of *Streptococcus pyogenes*”

Bagram Chatuev and Peterson J.W  
“Gemolytic activity of *B. anthracis*: in vitro and in vivo study”

Agathe Bourgoigne, Kristina A. Fox, Danielle A. Garsin, and Barbara E. Murray.  
“An AtxA-like protein regulates expression of the *Enterococcus faecalis* genes, *ebpABC*, encoding the pilus components, but not *strC*, in OG1RF”

Kristina A. Fox, Arash Maadani and Danielle A. Garsin  
“Regulation of ethanolamine utilization in *Enterococcus faecalis*”

Danielle A. Garsin, Qin Xiang, Huaiyang Jiang, Barbara E. Murray, George M. Weinstock  
The genome sequence of *E. faecalis* Strain OG1RF reveals significant differences compared to V583

Joseph Bruno, Bryce Mansfield, and Nancy Freitag  
“Identification and characterization of glutathione reductases in *Listeria Monocytogenes* contributing to virulence”

Jodie Neukirch, Andrea Hamilton, Heather C. Maisey, Donald Chaffin, Victor Nizet and Amanda L. Jones  
“Resistance of group B streptococcus to antimicrobial peptides is associated with expression of penicillin-binding protein 1a”

J.C. Grigg, C.L. Vermeiren, David Heinrichs and M.E.P. Murphy  
“Structural basis for heme binding by *Staphylococcus aureus* IsdA neat domain and contribution of IsdA to heme-iron acquisition”

Judy Arnold  
“Measurement of biofilm formation by *Listeria* species within a biofilm reactor”

Michelle L. Reniere and Eric P. Skaar  
“*Staphylococcus aureus* heme degradation by IsdG and IsdI”

Devin L. Stauff, David B. Friedman, Corbin W. Whitwell, Gleb Pishchany, and Eric P. Skaar

“*Staphylococcus aureus* iron-affected proteome analysis reveals novel strategies for nutrient acquisition from host sources”

Victor J. Torres, Gleb Pishchany, Jelena S. Bezbradica, Laura Gordy, Devin Stauff, Sebastian Joyce, and Eric P. Skaar

“The *S. aureus* Hss/Hrt systems sense an abundant host marker of invasive infection and modulate virulence”

Jared D. Heffron and David L. Popham

“Germination specific lytic enzyme homologs in *Bacillus anthracis* spores”

Benjamin C. Orsburn and David L. Popham

“Factors contributing to the heat resistance of *Clostridium perfringens* Cpe+ endospores”

Hilary A. Phelps and Melody N. Neely

“The role of a lantibiotic locus in *Streptococcus pyogenes* virulence”

Indranil Biswas and N. Fromm

“Uncovering *CovR* in gene expression”

Brooke H. Russell, Ranga Vasan, Douglas R. Keene, and Yi Xu

“*Bacillus anthracis* internalization by human non-phagocytic cells”

Pomerantseva, O.M., Pomerantsev, A.P., Leppla, S.H., and Baillie, L.W.

“Evidence for contribution of the *Bacillus cereus* PlcR-PapR quorum-sensing system to activation of the *Bacillus anthracis* secretome”

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