### Saturday, June 20th

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>3:00 – 7:00 p.m.</td>
<td><strong>Conference Registration &amp; Check-In</strong>&lt;br&gt;<em>Palisades Lobby</em></td>
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<tr>
<td>6:00 – 8:00 p.m.</td>
<td><strong>Welcome Reception &amp; Invited Historical Lecture</strong>&lt;br&gt;Hors d’oeuvres and some beverages included (a selection of beer, wine and soda).&lt;br&gt;<em>Palisades Ballroom</em></td>
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<tr>
<td>7:00 p.m.</td>
<td><strong>Invited Historical Lecture: History of Typhus</strong>&lt;br&gt;David H. Walker, <em>University of Texas Medical Branch</em>&lt;br&gt;<em>Palisades Ballroom</em></td>
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### Sunday, June 21st

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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>7:00 – 8:30 a.m.</td>
<td><strong>Breakfast Buffet</strong> – Plaza Bar in the Olympic House&lt;br&gt;<em>The Olympic House is approximately a 10 minute walk from the presentations room.</em></td>
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<tr>
<td>7:30-8:15 a.m.</td>
<td>Oral presentation check-in and drop-off – <em>Palisades Ballroom</em></td>
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<tr>
<td>8:15 – 9:40 a.m.</td>
<td><strong>Plenary Presentations</strong> – <em>Palisades Ballroom</em>&lt;br&gt;Session Chair: Jere McBride</td>
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<td>8:15 a.m.</td>
<td><strong>Howard Ricketts Memorial Invited Lecture</strong>&lt;br&gt;Ecological opportunity and the evolution of flea-borne plague; or how to become an arthropod-borne pathogen in five easy steps&lt;br&gt;Joseph Hinnebusch, <em>Rocky Mountain Laboratories</em></td>
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<tr>
<td>9:00 a.m.</td>
<td><strong>Plenary Presentation: Type I Interferon: Master Regulator of Inflammasome Activation in Ehrlichiosis</strong>&lt;br&gt;Nahed Ismail, <em>University of Pittsburgh</em></td>
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<td>9:40 – 10:00 a.m.</td>
<td><strong>Coffee Break on the Mountain Stream Deck</strong>&lt;br&gt;<em>Beverages will move to the Palisades Lobby if the morning is too cold.</em>&lt;br&gt;Oral presentation drop-off – <em>Palisades and Mountain Stream Ballrooms</em>&lt;br&gt;Poster Session 1 – <em>Squaw Valley Conference Center</em></td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>10:00 a.m.</td>
<td><strong>Scientific Session 1</strong></td>
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<td></td>
<td><strong>1A: Epidemiology, Ecology, and Emerging Diseases</strong></td>
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<tr>
<td>10:00 a.m.</td>
<td><strong>Abstract #1: Status of Rickettsia parkeri and R. parkeri rickettsiosis in the Americas in 2015</strong></td>
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<td>10:45 a.m.</td>
<td><strong>Abstract #3: The Eco-epidemiology of Pacific Coast Tick Fever in California</strong></td>
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<tr>
<td>11:00 a.m.</td>
<td><strong>Abstract #4: Relationship between infection, dissemination, and transmission of Rickettsia felis in cat fleas (Ctenocephalides felis)</strong></td>
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<tr>
<td>11:00 a.m.</td>
<td><strong>Abstract #5: Disaggregating tropical disease prevalence of Anaplasma marginale by climatic and vegetative zones within tropical West Africa</strong></td>
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<td>11:15 a.m.</td>
<td><strong>Abstract #6: Bartonella henselae biofilm detected in culture and on peripherally inserted central venous catheters (PICC) from patient with persistent Bartonellosis</strong></td>
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<tr>
<td>10:00 a.m.</td>
<td><strong>1B: Coxiella/Bartonella Pathogenesis</strong></td>
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<td>10:00 a.m.</td>
<td><strong>Abstract #8: Defining the Human Alveolar Macrophage Response to Coxiella burnetii</strong></td>
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<td>10:25 a.m.</td>
<td><strong>Abstract #9: Unravelling differential gene regulation of Coxiella burnetii induced by different cultivation models</strong></td>
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<td>10:45 a.m.</td>
<td><strong>Abstract #10: CCVs and CCVs: The Coxiella burnetii effector Cig57 subverts clathrin-coated vesicles within the human host cell</strong></td>
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<tr>
<td>11:00 a.m.</td>
<td><strong>Abstract #11: Bartonella henselae biofilm detected in culture and on peripherally inserted central venous catheters (PICC) from patient with persistent Bartonellosis</strong></td>
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<tr>
<td>11:15 a.m.</td>
<td><strong>Abstract #12: Developmental forms of Coxiella burnetii exhibit distinct lipid profiles</strong></td>
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</tbody>
</table>
11:30 a.m.  **Abstract #6:** Association of specific *Coxiella burnetii* genotypes with animal reservoirs and human disease  
Gilbert J. Kersh*, Rachael Priestley, Joshua Self, Kelly Fitzpatrick, and Robert Massung

11:45 a.m.  **Abstract #7:** Evolution, Phylogeography and Transmission of *C. burnetii*  
Crystal Hepp* and Talima Pearson

11:45 a.m.  **Abstract #13:** The number of EK motif repetition predetermine the anti-apoptotic capacity of the *Coxiella burnetii* type IV secretion system substrate CaeA  
Stephanie Bisle, Leonie Klingebisch, Katharina Sobotta, Jan Schulze-Luehrmann, Christian Menge, Carsten Heydel, Joao Paulo Gomes and Anja Lührmann*

11:45 a.m.  **Abstract #14:** Cig2 controls transport of autophagosomes and homotypic fusion of vacuoles containing *Coxiella burnetii*  
Lara J. Kohler*, Hayley Newton, Justin McDonough, Morayma Temoche, and Craig Roy

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The Squaw Valley Conference Center is about a 10 minute walk from the meeting rooms. If you will need assistance getting to the SVCC, please see Kathryn or Nichole at the registration check-in area.

**Noon – 1:30 p.m.**

**Buffet Luncheon – Squaw Valley Conference Center**

**1:30 – 2:45 p.m.**

**Poster Session 1 – Squaw Valley Conference Center**

2:30 – 3:00 p.m.  Oral presentation drop-off – Palisades Ballroom

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**Poster Session 1 – Abstract Titles and Presenters**

**Abstract #15:** Genomic comparison of New and Old World *Anaplasma phagocytophilum* reveals a lineage correlating with infectivity for humans  
A.F. Barbet*, M.J. Dark, R.F. Felsheim, V. Dyachenko, J.C. Dunning Hotopp, C.M. Fraser and U.G. Munderloh2

**Abstract #16:** “*Rickettsia amblyommii*” in *Amblyomma americanum* collected in Oklahoma  
Anne W. Barrett* and Susan E. Little

**Abstract #17:** Q Fever Outbreak on a Large U.S. Goat and Cattle Dairy: A One Health Investigation  
Holly M. Biggs, George Turabelidze, Suzanne R. Todd, Kara Jacobs Slifka, Naomi A. Drexler, Drew Pratt, Gail McCurdy, Jennifer K. Lloyd, Cecelia Y. Kato, David Sun, Minh L. Tang, Joseph Singleton, Gilbert J. Kersh, Alicia D. Anderson, Casey Barton Behravesh*

**Abstract #18:** Translocation of type 4B secretion system substrates by a *Coxiella burnetii icmS* mutant  
Paul A. Beare*, Charles L. Larson, Eric Martinez, Matteo Bonazzi, and Robert A. Heinzen

**Abstract #19:** Genotypic characterization of *Orientia tsutsugamushi* from patients in two geographical locations in Sri Lanka  
Ranjan Premaratna, Donald H. Bouyer, David H. Walker, Lucas S. Blanton*
Abstract #20: An in vivo Screen to Identify Essential Virulence Loci of Coxiella burnetii
Elizabeth Di Russo Case*, Erin J. van Schaik, Debra Dederich, Sandy M. Wong, Daniel Jones, Brian J. Akerley, and James E. Samuel

Abstract #21: From structural perspective to understand substrate recognition and catalysis in two OmpB methyltransferases
Chien-Chung Chao*, Amila H. Abeykoon, Nicholas Noinaj, Lindsay Wise, Guanghui Wang, Marjan Gucek, P. Boon Chock, Susan K. Buchanan, Wei-Mei Ching and David C. H. Yang

Abstract #22: Spotted fever group rickettsiae from foxes and dogs in Romania
Lidia Chitimia-Dobler*, Oana Melanía Popa, Gabriel Radbea, Gerhard Dobler

Abstract #23: Urbanization of Scrub Typhus Disease in South Korea
Sang-Won Park#, Na-Young Ha#, Boyeong Ryu, Ji Hwan Bang, Hyeon Song, Yuri Kim, Gwanghun Kim, Myoung-don Oh, Nam-Hyuk Cho*, Jong-koo Lee

Abstract #24: Comparative Genome Sequencing of Rickettsia rickettsii Strains Differing in Virulence
Tina R. Clark*, Nicholas F. Noriea, DeAnna C. Bublitz, Damon W. Ellison, Craig Martens, Erika I. Lutter, and Ted Hackstadt

Abstract #25: Social Determinants associated with infestation of ectoparasites in housing of rural community in Yucatan; Mexico

Abstract #26: Student Knowledge About and Exposure to Tick-borne Diseases in Georgia, USA
Marina E. Eremeeva*, Bionca M. Davis, Deltrye L. Jackson, Paul Fergusson

Abstract #27: Orientia tsutsugamushi inhibits NF-κB nuclear trafficking during intracellular infection
Sean M. Evans* and Jason A. Carlyon

Abstract #28: Prevalence of Tick-borne Rickettsia, Ehrlichia chaffeensis, Borrelia, and Anaplasma phagocytophilum in Central & Southwestern Pennsylvania
Alison Luce-Fedrow, Alex P. Kostik, Katherine Baldwin, Richard G. Robbins, Heidi St. John, Antony Odhiambo, Alice Maina, Richard Stewart, Marcie L. Lehman, Allen L. Richards*

Abstract #29: Detection of C. burnetii in cows, goats, and environmental samples during a Q fever outbreak
Kelly Fitzpatrick*, Holly M. Biggs, Naomi Drexler, Rachael Priestley, Suzanne Todd, Joshua Self, Alicia A. Anderson, and Gilbert J. Kersh

Abstract #30: Disentangling host and phylogeographic signals in Anaplasma phagocytophilum genes: evolutionary implications contrasting the putative human virulence marker drhm gene and the highly variable ank gene
Janet Foley*, Nicole Stephenson, Michelle Pires Cubilla, Barbara A. Qurollo, Edward B. Breitschwerdt

Abstract #31: Survey for arthropod-borne pathogens: Rickettsia, Ehrlichia, Anaplasma, Coxiella, Borrelia in Thailand and development of an ecological niche model to predict endemic areas
Abstract #32: Detection and Identification of Spotted Fever Group Rickettsiae in *Dermacentor occidentalis* ticks in the County of San Diego
Saran Grewal*, Lynnie Cua, Victoria Nguyen, Nikos Gurfield

Abstract #33: Comparison of PCR and viable count as a method for enumeration of bacteria in an AI mouse aerosol model of Q Fever.
M Gill Hartley*, Michelle Nelson, Esther Ralph, Carwyn Davies, Isobel Norville, and Timothy Atkins

Abstract #34: Susceptibility of the common marmoset (*Callithrix jacchus*) to an aerosol infection of *Coxiella burnetii*
Michelle Nelson, Isobel Norville, Timothy Atkins*

Abstract #35: Transcriptional analysis of the putative conjugal transfer genes of *Rickettsia bellii* RML369-C
Chan C. Heu*, Timothy J. Kurtti, and Ulrike G. Munderloh

Abstract #36: Detection of rickettsial infections among fever patients and ticks in Henan Province, China
Ju Jiang*, Huijuan An, Yanmin Zhang, Dan Song, Yu Fan, Yuzhou Bao, and Allen L. Richards

Abstract #37: The host cell protein ORP1L mediates interactions between the *Coxiella burnetii* vacuole and host endoplasmic reticulum
Anna V. Justis*, Paul Beare, Bryan Hansen, Robert Heinzen, and Stacey D. Gilk

Abstract #38: The Genetic Relationship of EMLA to Other *Ehrlichia* spp.
Sandor E. Karpathy*, Michelle E.J. Allerdice, Lynne M. Sloan, Yasuko Rikihisa, Tomoko Tajima, Susan M. Paskewitz, Diep K. Hoang Johnson, Darby Murphy, Christopher D. Paddock, Bobbi Pritt

Abstract #39: Isolation of *Ehrlichia ewingii* in Cell Culture
Lindsay Killmaster*, Galina Zemtsova, and Michael Levin

Abstract #40: *Coxiella burnetii* Cvp effectors mimic eukaryotic linear motifs to subvert host cell functions
Charles L. Larson*, Paul A. Beare, Diane C. Cockrell, and Robert A. Heinzen

Abstract #41: The seroprevalence of *Bartonella henselae* in healthy population in Korea
Hea-Yoon Kwon, Jae Hyoung Im, Sun-Myoung Lee, JiHyeon Baek, Shin-Ku Park, Jae-Seung Kang, and Jin-Soo Lee*

Abstract #42: A serosurvey of Q fever for high risk group in South Korea
Seon Do Hwang, Seung Hun Lee, Mi Jin Jang, Kyu Jam Hwang, Hyuk Chu, Sang Hee Park, Mi Yeon Park, Young Ran Ju, Yeong Seon Lee*

Abstract #43: Sequence Determinants Spanning -35 motif and Spacer Sequences Impacting *Ehrlichia chaffeensis* Sigma 70-Dependent Promoter Activity of Two p28 Outer Membrane Protein Genes
Huitao Liu*, Laxmi Uma Maheswar Rao Jakkula*, Tonia Von-Ohlen* and Roman R. Ganta*

Abstract #44: *Coxiella burnetii* employs the Dot/Icm type IV secretion system to modulate host NF-kB/RelA phosphorylation
Saugata Mahapatra*, Brandi Gallaher and Edward Shaw

Abstract #45: Whole Genome Sequence of *Candidatus* Rickettsia asemboensis: Genetic relationship to *Rickettsia felis*, *Rickettsia felis*-like organisms, and other *Rickettsia* species
Alice N. Maina*, Alison L. Fedrow, Jima Dereje, Sylvia Omulo, M Kariuki Njenga, Hang Jun and Allen L. Richards
Abstract #46: Rabomic analysis reveals roles for Rab GTPases involved in *Coxiella burnetii* infection
Justin A. McDonough*, Hayley J. Newton, and Craig R. Roy

Abstract #47: Characterization of Infection with a Moderately Pathogenic Strain of *Orientia tsutsugamushi*
Nicole L. Mendell*, David H. Walker, Donald H. Bouyer

Abstract #48: Searching Algorithm for Type IV Effector proteins (S4TE) 2.0: tools for type IV effector prediction, analysis and comparison
Christophe Noroy, Nathalie Vachiéry, Thierry Lefrançois and Damien F. Meyer

Abstract #49: *Coxiella burnetii* Type IV-Secretion Dependent Accumulation of Lipid Droplets in Alveolar Macrophages
Minal Mulye* and Stacey D. Gilk

Abstract #50: Little but Important: Novel Small Regulatory RNAs in *Rickettsia conorii*
Hema P. Narra*, Casey L. C. Schroeder, Jignesh G. Patel, Abha Sahni and Sanjeev K. Sahni

Abstract #51: Preliminary investigation of native rodents from Wisconsin for *Ehrlichia muris*-like agent and other Rickettsiales infections

Abstract #52: A *Coxiella*-like Endosymbiont is a potential vitamin source for the Lone Star Tick
Todd A. Smith, Timothy Driscoll, Joseph J. Gillespie, Rahul Raghavan*

Abstract #53: Transcription of T4ASS ORFs in Spotted Fever Group *Rickettsia*
Chris Richards* and Edward Shaw

Abstract #54: *Orientia tsutsugamushi* ankyrin repeat-containing proteins target the host ER and induce ER stress
Kyle Rodino*, Lauren VieBrock, Jason A. Carlyon

Abstract #55: *Orientia tsutsugamushi* Ank4 targets the host smooth endoplasmic reticulum
Lauren VieBrock*, Andrea R. Beyer, Hong Ge, Allen L. Richards, and Jason A. Carlyon

Abstract #56: MicroRNA-regulated, FG2/FGFR1-mediated *Rickettsia conorii* invasion into host endothelial cells
Abha Sahni*, Jignesh Patel, Hema P. Narra, Casey L. C. Schroeder, David H. Walker, and Sanjeev K. Sahni

Abstract #57: Investigation of hepatic immunopathogenesis in EMLA infection
Tais Berelli Saito* and David H. Walker

Abstract #58: A Completely Defined Axenic Medium Facilitates Nutritional Profiling of *Coxiella burnetii*
Kelsi M. Sandoz* and Robert A. Heinzen

Abstract #59: Identification and Validation of Small, Noncoding RNAs in *Rickettsia prowazekii*
Casey L. C. Schroeder*, Hema P. Narra, Kamil Khanipov, Mark Rojas, Abha Sahni, Jignesh Patel, Yuriy Fofanov, and Sanjeev K. Sahni

Abstract #60: Tissue-specific endothelial activation and IL-33-mediated responses during *Orientia* infection
Thomas R. Shelite*, Yuejin Liang*, Nicole L. Mendell, Guang Xu, Jiaren Sun, Bin Gong, David H. Walker, and Lynn Soong
Abstract #61: Development of an Ecological Niche Model for *Rickettsia montanensis* Infected *Dermacentor variabilis* Ticks

Abstract #62: Cryptic diversity of *Rickettsia* spp. in a community of domestic animals, wildlife and ectoparasites in northern California
Nicole Stephenson*, Alexandra Blaney, Mourad Gabriel, Greta Wengert, Richard N. Brown, Mark Higley, Sarah Buckenberger-Mantovani and Janet Foley

Abstract #63: Does *Coxiella burnetii* express Nucleomodulin proteins?
Sara Talmage*, Mary M. Weber, Erin J. van Schaik, Elizabeth Di Russo Case, James E. Samuel

Abstract #64: Propagation of *Neorickettsia* sp. Through Digenean Life Cycle: Quantitative Aspects of Transmission and Localization Within Host
Stephen E. Greiman, and Vasyl V. Tkach*

Abstract #65: Molecular identification of a novel spotted fever group rickettsia in *Dermacentor taiwanensis* (Acari: Ixodidae) from domestic dog in Taiwan
Kun-Hsien Tsai*, Tsen-Ju Shiu, Wen-Jer Wu

Abstract #66: Molecular characterization of Australian *Coxiella burnetii* isolates reveals novel genotypes and a unique phylogenetic clade
Gemma Vincent*, Stephen Graves, John Stenos

Abstract #67: Alternative NLRC4 Inflammasome Activation Upon Bacterial Infection

Abstract #68: *Coxiella burnetii* Manipulation of Host Autophagy and Cargo Receptors
Caylin G. Winchell*, Joseph G. Graham, Punsiri M. Colonne, Richard C. Kurten, Daniel E. Voth

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**3:00 – 5:10 p.m.**
**Scientific Session 2: Host, Vector and Pathogen Interactions/Pathogenesis**
Session Chairs: Jason Carlyon and Andrea Beyer

**Palisades Ballroom**

3:00 p.m.  **Abstract #69: Global analysis of Chlamydia Inc-host protein interactome**
Joanne Engel, *University of California, San Francisco*

3:30 p.m.  **Abstract #70: The Orientia tsutsugamushi Ank effector arsenal modulates multiple host cell functions**
Jason A. Carlyon, *Virginia Commonwealth University*

3:55 p.m.  **Abstract #71: Nuclear localization and interacting proteins of Erip1, a novel tyrosine-phosphorylated Type IV effector of *Ehrlichia ruminantium***
Adela S. Oliva Chavez*, Amal Mounene, Christophe Noroy, Silvina Gonzalez-Rizzo, Thierry Lefrançois, Nathalie Vachiery, Daniel E. Voth, and Damien Meyer
4:10 p.m.  **Abstract #72: Infection and Release of Obligatory Intracellular Pathogen *Anaplasma* Require Regulation of Actin Cytoskeleton Dynamics by Type IV Secretion Effector AnkA**
Mingqun Lin* and Yasuko Rikihisa

4:25 p.m.  **Abstract #73: *Anaplasma marginale* Outer Membrane Protein A-Receptor Interactions**
Kathryn S. Hebert*, David Seidman, Sarvani Emani, Brittney K. Tegels, Daniel P. Miller, Richard T. Marconi, Jason A. Carleyon

4:40 p.m.  **Abstract #74: *Ehrlichia chaffeensis* Activates Wnt Signaling Pathways to Enter and Survive in the Host Cell**
Tian Luo*, Paige S. Dunphy, Xiaofeng Zhang, Taslima T. Lina, and J. W. McBride

4:55 p.m.  **Abstract #75: *Rickettsia typhi* Utilizes the Bacterial Arf-GEF RalF for Invasion of Host Cells**

**5:30 – 6:30 p.m.**
**ASR Business Meeting and Election of New Officers — Palisades Ballroom**

**7:00 – 9:00 p.m.**
**Dinner Buffet — High Camp (8, 200 ft.)**

*The aerial tram departs approximately every 15 minutes beginning at 6:30 p.m. The bar will open at 7:00 p.m. Dinner will be served buffet-style starting at 7:30 p.m.*

*Your ticket to ride the aerial tram was provided at check-in (in your name badge). Please wear your name badge to dinner as that will be your dinner ticket.*

*If you purchased a guest meal for dinner, it includes the tram ride, dinner, and drinks. Please ask your guest to bring both the tram and dinner ticket with them.*

*A selection of beer, wine, and soda will be complimentary from 7-9 p.m.*

*Additional tickets for dinner will be sold at the registration check-in desk based on availability.*

Funding for this conference was made possible [in part] by R13 AI118193-01 from the National Institute of Allergy and Infectious Diseases. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.
Monday, June 22nd

7:00 – 8:30 a.m.
Breakfast Buffet – Plaza Bar in the Olympic House
The Olympic House is approximately a 10 minute walk from the presentations room.

7:30-8:00 a.m. Oral presentation check-in and drop-off – Palisades and Mountain Stream Ballrooms
Poster Session 2 – Squaw Valley Conference Center

8:00 – 10:00 a.m.
Concurrent Sessions – Scientific Session 3

3A: Animal Models and Vaccine Development
Session Chairs: Roman Ganta and Anthony Barbet

3B: Host, Vector and Pathogen Interactions/Pathogenesis
Session Chairs: Kevin Macaluso and Patrik Engström

Palisades Ballroom

8:00 a.m. Abstract #76: Invited Plenary
Recombinant chimeric epitope based vaccines for Lyme disease and other tick borne pathogens
Richard Marconi, Virginia Commonwealth University

Mountain Stream Ballroom

8:00 a.m. Abstract #82: An endosymbiont negatively correlates with pathogen acquisition in Dermacentor andersoni ticks
Cory A. Gall, Glen A. Scoles and Kelly A. Brayton*

8:15 a.m. Abstract #83: Transovarial and transstadial transmission of coexisting Orientia tsutsugamushi genotypes in laboratory-reared Leptotrombidium imphalum
Ratree Takhampunya, Bousaraporn Tippayachai, Acharereya Korkusol, Sommai Promsathaporn, Surachai Leepitakrat, Warattaya Sinwat, Anthony L. Schuster, Allen L. Richards*

8:30 a.m. Abstract #77: Invited Plenary
Attenuated Mutants of Ehrlichia chaffeensis in Inducing Protection against Wild-type Infection Challenge in the Reservoir Host and in an Incidental Host
Roman Ganta, Kansas State University

8:30 a.m. Abstract #84: Together we are better: Tick- Anaplasma phagocytophilum interactions
Girish Neelakanta

8:45 a.m. Abstract #85: Investigating the roles of Rickettsia outer membrane protein B (OmpB) during host cell invasion and infection
Patrik Engström*, Rebecca L. Lamason, Natasha Kafai, Matthew D. Welch
9:00 a.m.  **Abstract #78:** Immunoinformatic approaches to identifying novel protective proteins of *Ehrlichia chaffeensis*
Thangam Sudha Velayutham*, Xiaofeng Zhang, and Jere W. McBride

9:15 a.m.  **Abstract #79:** Using a Chigger challenge mouse model to evaluate a recombinant protein based scrub typhus vaccine candidate
Wei-Mei Ching*, Woradee Lurchachaiwong, Zhiwen Zhang, Temitayo Awoyomi, Chien-Chung Chao, Anthony Schuster

9:30 a.m.  **Abstract #80:** Immunization with an autotransporter protein of *Orientia tsutsugamushi* provides protective immunity against scrub typhus
Na-Young Ha, Prashant Sharma, Gwanghun Kim, Yuri Kim, Chan-Ki Min, Myung-Sik Choi, Ik-Sang Kim, and Nam-Hyuk Cho*

9:45 a.m.  **Abstract #81:** T4SS proteins for vaccination against *A. phagocytophilum*
Francy L. Crosby*, Anna M. Lundgren, Soojung Seo, David W. Pascual and Anthony F. Barbet

9:15 a.m.  **Abstract #86:** Targeted knockout of the *Rickettsia rickettsii* rOmpA surface antigen does not diminish virulence in a mammalian model system
Nicholas F. Noriea*, Tina R. Clark, and Ted Hackstadt

9:30 a.m.  **Abstract #87:** The molecular chaperone ClpB supports the infectious stage of *Ehrlichia chaffeensis*
Ting Zhang, Huitao Liu, Chuanmin Cheng, Arathy Nair, Roman Ganta, and Michal Zolkiewski*

10:00 a.m.-12:00 p.m.
**Poster Session 2 and Refreshments**
*Squaw Valley Conference Center*

**Poster Session 2 – Abstract Titles and Presenters**

**Abstract #90:** Development of a real-time PCR Assay for Molecular Detection of the *Ehrlichia muris*-like agent, a Newly Recognized Pathogen of Humans in the Upper Midwestern United States
Michelle E.J. Allerdice*, Bobbi S. Pritt, Lynne M. Sloane, Christopher D. Paddock, Sandor E. Karpathy

**Abstract #91:** Development of an ELISA Assay with Recombinant OmpB antigens of *R. prowazekii* and *R. typhi*
Oscar Aurelio*, Wei-Mei Ching, Chien-Chung Chao, Julia Reyna and Lee Fuller

**Abstract #92:** *Amblyomma maculatum* feeding augments *Rickettsia parkeri* infection in a rhesus macaque model: a pilot study
Kaikhushroo H. Banajee*, Monica E. Embers, Ingeborg M. Langohr, Lara A. Doyle, Nicole R. Hasenkampf, Kevin R. Macaluso
Abstract #93: *Orientia tsutsugamushi* Ank9 Interacts with COPB2 to Co-opt Host Cell Retrograde Traffic
Andrea R. Beyer*, Ryan S. Green, Lauren VieBrock, Kyle G. Rodino, Jason A. Carlyon

Abstract #94: Biochemical Characterization of the Folate Biosynthetic Pathway in a Rickettsial Endosymbiont of *Ixodes pacificus*
James Bodnar*, Sergio Fitch, Jessica Sanchez, Allison Rosati, Jianmin Zhong

Abstract #95: Comparison of culture and PCR from skin biopsies to quantitative serology in dogs experimentally infected with *B. burgdorferi*
Melissa J. Beall, Jennifer C. Dant, Jill Saucier, Phyllis Tyrrell, Marko Estrada, Christian Leutenegger, Richard Goldstein, Rhonda L. LaFleur, Ramaswamy Chandrashekar*

Abstract #96: Comparative evaluation of two rapid in-clinic serologic assays for detection of antibodies to canine monocytic and granulocytic ehrlichiosis
B. Thatcher, J. Liu*, B. Andrews, E. Breitschwerdt, M. Beall, R. Chandrashekar

Abstract #97: Evaluation of the truncated 47 kDa antigen without the homologous protease domain for the homologous protection of mice challenged by *Orientia* Karp strain
Hua-Wei Chen*, Giulia Weissenberger, Teik-Chye Chan, Zhiwen Zhang, Tatyana Belinskaya, Chien-Chung Chao, and Wei-Mei Ching

Abstract #98: Evaluation of ST Detect™ as a diagnostic tool for undifferentiated fever patient
Hua-Wei Chen*, Chien-Chung Chao, Giulia Weissenberger, Zhiwen Zhang, Tatyana Belinskaya, Wilawan Thipmontree, Yupin Suputtamongkol and Wei-Mei Ching

Abstract #99: Preliminary analysis of IncRNAs in *Rickettsia conorii*-infected human vascular endothelium in vitro and murine lungs in vivo

Abstract #100: Antigenic characterization of *Ehrlichia muris*-like (EML) pathogen
Patricia A. Croquet-Valdes*, Tais B. Saito, and David H. Walker

Abstract #101: *Bartonella* infection in very young kittens: impact of queen infection on kitten susceptibility to various strains of *B. henselae*
Drew Fleischman, Katlin Burgos, Pedro Paulo V. P. Diniz*, Rickie W. Kasten, Monica R. Durden, Bruno Chomel

Abstract #102: Multi-photon imaging of native *Bartonella henselae* invading human erythrocytes in real-time.
Gislaine Vieira-Damiani, Marna E. Ericson*, Marilene Neves da Silva, Kalpna Gupta, Tânia B. Soares, Maria L. Cintra, Amanda R. de Almeida, Vitor B. Pelegati, André A. de Thomaz, Mariana O. Baratti, Hernandes F. Carvalho, Carlos L. Cesar and Paulo ENF Velho

Abstract #103: Autophagy in Macrophages Serves as a Mechanism of Host Defense to Control *Rickettsia* Infection
Rong Fang*, Jeremy Bechelli, Leoncio Vergara, Xuemei Zhao, Bing Zhu, Claire Smalley, Sean Bender, Yan Liu, Seungmin Hwang, Vsevolod L. Popov, David H. Walker

Abstract #104: Elucidation of the Biochemical Interaction between *Rickettsia conorii* Adr1 and Human Host Vitronectin
A.I. Fish*, S.P. Riley, J.J. Martinez

Abstract #105: Antibody Profiling for Spotted Fever Group Rickettsiosis
Lee Fuller*, Oscar Aurelio and Julia Reyna
Abstract #106: Comparison of Real-Time PCR Assays for Orientia tsutsugamushi
S Gillani*, IH Chung, AL Austin, ME Condit, GA Dasch, CY Kato

Abstract #107: Primary structural variation in Anaplasma marginale Msp2 efficiently generates immune escape variants
Telmo Graça*, Lydia Paradiso, Shira Broschat and Guy H. Palmer+

Abstract #108: ANAVAC - A combined tissue culture and reverse vaccinology approach to develop a vaccine against Anaplasma phagocytophilum in sheep.
Erik G. Granquist*, Ulrike G. Munderloh, Snorre Stuen, Stig Tollefsen, Per-Eric Lindgren and Anthony F. Barbet

Abstract #109: Insect Innate Immune Response to Rickettsia typhi

Abstract #110: Characterization of vertical transmission of Rickettsia species within the ticks, Dermacentor variabilis and Amblyomma maculatum

Abstract #111: Development of a R. bellii specific TaqMan assay targeting the gltA gene
Joy A. Hecht*, Christopher D. Paddock, Sandor E. Karpathy

Abstract #112: A serological study of tick-borne rickettsial diseases in patients with suspected SFTS, coxiellosis, Lyme borreliosis, scrub typhus
Mi Jin Jang, Yeong Nang Jo, Seung Hun Lee, Kyu Jam Hwang, Su Yeon Kim, Won Ja Lee, Young Ran Ju, Seon Do Hwang*

Abstract #113: Needle-inoculated ticks are competent to transmit Ehrlichia chaffeensis to naïve hosts
D.C. Jaworski*, C. Cheng, A.S. Nair, and R.R. Ganta

Abstract #114: Outcomes following treatment of canine monocytic ehrlichiosis with minocycline versus doxycycline
Stephen Jenkins, Patrick Kelly, James Dundas, Jennifer Ketzis, Diana Scorpio*

Abstract #115: Rickettsia and Listeria hijack host intercellular communication during cell-to-cell spread
Rebecca Lamason* and Matthew Welch

Abstract #116: Role of neutrophils in protective immunity against Coxiella burnetii
Alexandra Elliot, Lindsey Ledbetter*, Laura Schoenlaub, William Mitchell, and Guoquan Zhang

Abstract #117: Rickettsial distribution in tissues of experimentally infected Amblyomma maculatum (Gulf Coast tick)
Jung Keun Lee*, Gail Moraru, Amanda Benton, John Stokes, Katie Graham, Haley Parker, and Andrea Varela-Stokes

Abstract #118: T4SS-dependent secretion of RARP-2 (Rickettsia Ankyrin Repeat Protein 2) by Rickettsia typhi during host cell infection

Abstract #119: Detection of Low Abundance Spotted Fever Group Rickettsia Infecting Amblyomma americanum Ticks in Tennessee Using a Novel PCR Exclusion Assay
Shari L. Lydy* and Amanda Jo Williams-Newkirk, Ellen J. Dugan, Maria L. Zambrano, Abelardo C. Moncayo, and Gregory A Dasch
Abstract #120: In vivo tissue distribution and ultrastructure of the *Ehrlichia muris*-like agent
Geoffrey E. Lynn*, Jonathan D. Oliver, Curtis M. Nelson, Roderick F. Felsheim, Timothy J. Kurtti, and Ulrike G. Munderloh

Abstract #121: Trafficking of *Dermacentor andersoni* vacuoles is modulated by infecting *Anaplasma marginale* through RabGTPases
Forgivemore Magunda*, Chelsea Wright and Susan Noh

Abstract #122: MAGPIX Molecular Assay Development: *Rickettsia* Species and Black-legged Tick panels
J. A. Gibbons, E. Y. Stromdahl, M. K. Miller*

Abstract #123: DNA-binding activity, SUMOylation, and localization of *E. chaffeensis* effector TRP47
Sarah L. Milligan*, Bing Zhu, and Jere W. McBride

Abstract #124: Characterization of uninfected and *Rickettsia parkeri*-infected Amblyomma maculatum tissues
Gail Miriam Moraru*, John Stokes, Andrea Varela-Stokes

Abstract #125: Artificial membrane feeding of immature *Ixodes scapularis* for infection with pathogens
Jonathan Oliver*, Geoffrey Lynn, Nicole Burkhardt, Curt Nelson, Ulrike Munderloh

Abstract #126: Congruent *Coxiella* effector function in wax moth and tissue culture models of pathogenesis
Shawna C.O. Reed* and Craig R. Roy

Abstract #127: Analysis of in vivo physical properties of fluorescent *Rickettsia conorii*
Sean P. Riley*, Abigail I. Fish, Daniel A. Garza, Juan J. Martinez

Abstract #128: The role of B cells in host defense against primary *Coxiella burnetii* infection

Abstract #129: Effect of *Rickettsia rickettsii* Infection on the Biological Parameters and Survival of its tick vector – *Dermacentor variabilis*
Lauren B.M. Schumacher, Michael L. Levin*

Abstract #130: Animal model for assessment of virulence and infection dynamics of *Rickettsia parkeri.*
Galina Zemtsova, Lindsay Killmaster, Lauren McColley, Alyssa Snellgrove and Michael Levin*

Abstract #131: Reduction of Background Fluorescence in Spotted Fever Group *Rickettsia* Indirect Immunofluorescence Assays
Joseph Singleton, Jr.* and Cecilia Kato

Abstract #132: Inflammasome Activation by Rickettsiae
Claire Smalley*, Jeremy Bechelli, Xuemei Zhao, David H Walker, Rong Fang

Abstract #133: Assessment of the risk of laboratory aerosol exposure to *Rickettsia rickettsii* using guinea pig model
A. Snellgrove* and M. Levin

Abstract #134: Acute phase proteins in *Anaplasma phagocytophilum* infected lambs
Heidi Ramstad Brenna, Lene Myhrusten Krogstad, Snorre Stuen*
Abstract #135: Real-time PCR Detection of *Ehrlichia chaffeensis* and *Anaplasma phagocytophilum* in Whole Blood Specimens Using the Focus Diagnostics/3M™ Integrated Cycler
James T. Summersgill

Abstract #136: Transposable Cassette for Detection of Secreted Fusion Proteins in *Rickettsia prowazekii*
Aimee M. Tucker* and David O. Wood

Abstract #137: Identification of a Putative Relish-type NF-kB Protein, DvRelish, in *Dermacentor variabilis*
Victoria I. Verhoeve*, Natthida Petchampai, Emma K. Harris, Kaikhushroo H. Banajee and Kevin R. Macaluso

Abstract #138: Non-Canonical Activation of the Immune Deficiency Pathway in Ticks
Dana K. Shaw, Lindsey Brown, Xiaowei Wang and Joao H.F. Pedra*

Abstract #139: Investigation of Host Immunity during *Orientia Tsutsugamushi* Infection with a newly developed Mouse Model
Guang Xu*, Thomas R. Shelite, Nicole L. Mendell, Lynn Soong, Bin Gong, Donald H. Bouyer, David H. Walker*

Abstract #140: Nutritional interactions between *Ixodes pacificus* and its *Rickettsia* endosymbiont
Jianmin Zhong

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**Free Afternoon to Explore Lake Tahoe!**

Funding for this conference was made possible [in part] by R13 AI118193-01 from the **National Institute of Allergy and Infectious Diseases**. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.
Tuesday, June 23rd

7:00 – 8:30 a.m.
Breakfast Buffet – Plaza Bar in the Olympic House
The Olympic House is approximately a 10 minute walk from the presentations room.

7:30-8:00 a.m. Oral presentation check-in and drop-off – Palisades Mountain Stream Ballrooms

8:00 – 10:00 a.m.
Concurrent Sessions – Scientific Session 4

**Palisades Ballroom**

8:00 a.m. Abstract #141: *Anaplasma marginale* Infection Induces an Exhausted CD4 T-cell Response
Wendy C. Brown, *Washington State University*

8:30 a.m. Abstract #142: Alternative NLRC4 Inflammasome Activation upon Bacterial Infection
Joao H.F. Pedra, *University of Maryland*

9:00 a.m. Abstract #143: MyD88 Mediates Host Protective Immunity Against Rickettsiae
Jeremy Bechelli*, Claire Smalley, Xuemei Zhao, David H. Walker, Rong Fang

9:15 a.m. Abstract #144: Impact of antimicrobial effector mechanisms of in vitro generated murine neutrophils on the growth of *Anaplasma phagocytophilum*
Kathrin Gussmann and Friederike D. von Loewenich*

**Mountain Stream Ballroom**

8:00 a.m. Abstract #147: Innate immune response against *Coxiella burnetii* in healthy individuals and chronic Q fever patients
Anne Ammerdorffer*, Teske Schoffelen, Leo Joosten, Marcel van Deuren, Mihai Netea, Hendrik-Jan Roest, Annemarie Rebel, Tom Sprong

8:20 a.m. Abstract #148: Clinical course and associated factors of fatal Rocky Mountain spotted fever (RMSF) in children from Sonora, Mexico
Gerardo Alvarez*, Coral Murillo, Maria del Carmen Candia, Manuel Moro

8:40 a.m. Abstract #149: Scrub typhus in Pregnancy at Umphang Hospital
Yupaporn Wattanagoon*, Chayadol Namaik-larp, Tobias Brummaier, Chatporn Kittitrakul, Vorada Choovivhian

8:55 a.m. Abstract #150: Molecular detection and genetic diversity of *Anaplasma marginale* and *A. marginale* subsp. *centrale* in cattle in South Africa
Mamohale Chaisi*, Janine Baxter, Paidashe Hove, Chimvwele Choopa, Marinda Oosthuizen, Kelly Brayton, Nicola Collins

9:10 a.m. Abstract #151: Clinical Validation of New and Existing *Anaplasma phagocytophilum* Real-Time PCR Assays
IH Chung*, AL Austin, RF Massung, CY Kato
9:30 a.m.  Abstract #145: Ontogeny and Differentiation of IgM Memory B cells During Ehrlichial Infection
Amber Papillion, Kevin Kenderes, and Gary Winslow*

9:45 a.m.  Abstract #146: Exacerbated endothelial activation and type 1 immune responses, but impaired type 2 responses, contribute to severe scrub typhus in mice
Lynn Soong*, Hui Wang, Thomas Shelite, Yuejin Liang, Nicole Mendell, Wenbo Zhang, Jiaren Sun, Bin Gong, Donald Bouyer, Gustavo Valbuena, David Walker

10:00 – 10:30 a.m.
Refreshment Break on the Mountain Stream Deck
Refreshments will move to the Palisades Lobby if the morning is too cold.
Oral presentation drop-off – Palisades Ballroom

10:30 a.m. – 12:40 p.m.
Scientific Session 5: Genetics/Genomics/Tools – Palisades Ballroom
Session Chairs: Ulrike Munderloh and Joseph Gillespie

10:30 a.m.  Abstract #154: From Rickettsiales Genomes to Gene Function - the challenges of linking DNA to biology
Ulrike G. Munderloh*, Roderick F. Felsheim, Anthony F. Barbet, Curtis M. Nelson, Michael J. Herron

11:00 a.m.  Abstract #155: Structural and Functional Insights on the Rickettsiales vir Homolog (rvh) Type IV Secretion System

11:25 a.m.  Abstract #156: mRNA analysis of blood from inbred mice infected by Karp strain of Orientia tsutsugamushi
Chien-Chung Chao*, Ruoting Yang, Stacy-Ann Miller, Teik-Chye Chan, Zhiwen Zhang, Hua-Wei Chen, Rasha Hammamieh, Marti Jett-Tilton, Wei-Mei Ching

11:40 a.m.  Abstract #157: Iron starvation conditions upregulate Ehrlichia ruminantium Type IV secretion system and map1 genes through the master regulatory protein ErxR
Adela S. Oliva Chavez*, Amal Moumène, Silvina Gonzalez-Rizzo, Thierry Lefrançois, Nathalie Vachiéry, and Damien F. Meyer

11:55 a.m.  Abstract #158: Generation of an Anaplasma phagocytophilum transposon mutant library
Kate O’Conor*, Michael J. Herron, Roderick F. Felsheim, Anthony F. Barbet, Curtis M. Nelson, Ulrike G. Munderloh

9:25 a.m.  Abstract #152: Estimation of Rickettsia rickettsii Bacteremia from Clinical Rocky Mountain Spotted Fever Specimens
Cecilia Kato*, Ida Chung, and Christopher Paddock

9:40 a.m.  Abstract #153: Comparative value of blood and skin samples for diagnosis of SFG rickettsial infection in model animals
M. L. Levin*, A. Snellgrove, G. E. Zemtsova
Funding for this conference was made possible [in part] by R13 AI118193-01 from the National Institute of Allergy and Infectious Diseases. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

12:10 p.m.  Abstract #159: A family of genus-specific putative regulatory RNAs in Bartonella henselae
Nhan Tu*, Ronan K. Carroll, Andy Weiss, Justin Gibbons, Lindsey Shaw, and Burt Anderson

12:25 p.m.  Abstract #160: The Lipid Biosynthesis Hole in the Rickettsiales
Eric D. LoVullo*, Richard B. Furlong, and Paul D. Shirk

27th Meeting of the American Society for Rickettsiology is Adjourned