

WEDNESDAY, AUG. 9		
9:00-10:30 a.m.	5K Scurry	Contact Karen.dobos@colostate.edu for more information
1:00-4:00 p.m.	Visit to Soapstone Prairie Bison Herd	Vans leave from south side of Lory Student Center, in Morgan Library Parking Lot
6:00-8:00 p.m.	BBQ and Beer Tasting	Gilded Goat Brewing Company, 3500 S College Ave #194, Fort Collins (Use your MAX pass to go to the Horsetooth Station and walk two blocks to the east).
THURSDAY, AUG. 10		
7:30-8:00 a.m.	Arrival, Check-In, Breakfast	Ballroom D, Lory Student Center, Colorado State University
8:00-8:45 a.m.	Welcome and Remarks	<p>Dr. Bruno Sobral (Director, One Health Institute, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Francisco Olea-Popelka (Associate Professor, Department of Clinical Sciences, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Mary Jackson (Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Michelle Larsen (Assistant Professor, Department of Medicine, Albert Einstein College of Medicine, Bronx, N.Y.)</p>
PANEL 1		
Human TB caused by <i>M. bovis</i>		
8:45-10:15 a.m.	<p>Dr. Francisco Olea-Popelka (Associate Professor, Department of Clinical Sciences, Colorado State University, Fort Collins, Colo.) – Facilitator</p> <p>Dr. Tyler Thacker (Research Microbiologist, USDA Agricultural Research Service, Ames, Iowa)</p> <p>Dr. Konstantin Lyashchenko (Senior R&D Director, Chembio Diagnostic Systems, Medford, N.Y.)</p> <p>Dr. Pauline Nol (Veterinary Epidemiologist, Animal and Plant Health Inspection Services, Fort Collins, Colo.)</p> <p>Dr. Fred Quinn (Professor/Department Head, Department of Infectious Diseases, University of Georgia, Athens, Ga.)</p> <p>Dr. Laura Rosen (PhD Student, Department of Ecology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Mitchell Palmer (Research Scientists, Infectious Bacterial Diseases Research, USDA-ARS, Ames, Iowa)</p> <p><i>Topics:</i></p> <ul style="list-style-type: none"> • <i>How to treat TB patients infected with M. bovis?</i> • <i>What are the key steps needed to improve the global surveillance of M. bovis as a causal agent of human TB?</i> • <i>What are the key stakeholders that need to be involved to address the field challenges posed by M. bovis regarding its prevention, diagnosis, and treatment?</i> • <i>Past, current, and 'on the pipe' diagnostic tools for TB in wildlife species</i> • <i>Understanding the difference between screening and diagnostic tests</i> • <i>Differentiating between exposed, infected, infectious, and affected animals, and understanding the implications of different tests results.</i> • <i>Why does a serology test for TB work well in elephants and does not in humans?</i> • <i>Use and value of whole genome sequence comparisons.</i> 	
10:15-10:30 a.m.	Coffee and Snack Break	
PANEL 2		
Leprosy; <i>M. leprae</i> and <i>M. lepromatosis</i> in humans, armadillos, and squirrels		
10:30 a.m.-12:00 p.m.	<p>Dr. John Spencer (Associate Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.) - Facilitator</p> <p>Dr. Kate Dupnik (Assistant Professor of Medicine, Department of Microbiology and Immunology, Weill Cornell Medical College, Cornell University, New York, N.Y.)</p> <p>Dr. Patrick Brennan (University Distinguished Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Rahul Sharma (Research Scientist, National Hansen's Disease Program, Baton Rouge, La.)</p> <p>Dr. Maria Pena (Research Scientist, National Hansen's Disease Program, Baton Rouge, La.)</p> <p>Dr. Ramanuj Lahiri (Research Scientist, National Hansen's Disease Program, Baton Rouge, La.)</p> <p>Dr. Linda Adams (Research Scientist, National Hansen's Disease Program, Baton Rouge, La.)</p>	

	<p><i>Topics:</i></p> <ul style="list-style-type: none"> • <i>Identification of environmental sources and possible zoonotic transmission of these mycobacteria in armadillos, squirrels, sphagnum moss, ponds, and garden soil. How has whole genome sequencing of outbreaks in U.S. Gulf States pointed to likely zoonotic transmission to humans in this area?</i> • <i>Since armadillos came from Mexico originally, is there evidence of zoonosis in this species in Central or South America? What are the implications of widespread zoonotic disease in animals used as a food source by humans with the epidemiological control of leprosy?</i> • <i>What are possible explanations for persistence of <i>M. leprae</i> in squirrels in the U.K. since leprosy was essentially eliminated as a human disease hundreds of years ago in this region?</i> • <i>Do co-infections, nutritional status, poverty and living in high-density households play a role in immune dysfunction or degradation that causes higher rates of infection and persistence in hyperendemic settings like Brazil and India?</i> • <i>What new insights in future vaccines for leprosy may be realized by using the armadillo model?</i>
12:00-1:00 p.m.	Lunch
PANEL 3	Reservoirs and vectors of transmission
1:00-2:30 p.m.	<p>Dr. Michelle Larsen (Assistant Professor, Department of Medicine, Albert Einstein College of Medicine, Bronx, N.Y.) – Facilitator</p> <p>Dr. Karen Dobos (Associate Professor, Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. William Wheat (Research Scientist, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Mercedes Gonzalez-Juarrero (Associate Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Paul Converse (Research Associate, Center for Tuberculosis Research, Johns Hopkins University, Baltimore, M.D.)</p> <p>Dr. Pam Small (Professor Emeritus, Department of Microbiology, University of Tennessee, Knoxville, Knoxville, Tenn.)</p> <p>Dr. Jennifer Honda (Instructor, Center for Genes, Environment, and Health, National Jewish Health, Denver, Colo.)</p> <p><i>Topics:</i></p> <ul style="list-style-type: none"> • <i>Where does <i>M. ulcerans</i> reside in the environment?</i> • <i>How is <i>M. ulcerans</i> transmitted to humans?(mosquitoes, water bugs, amoebae, etc. as potential vectors)</i> • <i>Role of free-living amoebae in the environmental persistence, virulence enhancement and transmission of mycobacterial diseases (NTM, <i>Mtb</i>/<i>M. bovis</i>, <i>M. paratuberculosis</i>, <i>M. ulcerans</i> and <i>M. leprae</i>)</i> • <i>Non-traditional transmission routes for MTB complex organisms</i> • <i>Non-traditional reservoirs of mycobacteria in the host (e.g., adipocytes, other cell types)</i>
2:30-2:45	Coffee and Snack Break
PANEL 4	Co Infections
2:45-4:30 p.m.	<p>Dr. Karen Lacourciere (Program Officer, Tuberculosis, Leprosy, and Other Mycobacterial Diseases, National Institute of Allergy and Infectious Diseases, Rockville, M.D.) – Facilitator</p> <p>Dr. Christine Sizemore (Section Chief, Tuberculosis, Leprosy, and Other Mycobacterial Diseases, National Institute of Allergy and Infectious Diseases, Rockville, M.D.)</p> <p>Dr. Diane Ordway (Associate Professor, Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Michael Strong (Assistant Professor, Center for Genes, Environment, and Health, National Jewish Health, Denver, Colo.)</p> <p>Dr. Luiz Bermudez (Professor, Department of Microbiology, Oregon State University, Corvallis, Ore.)</p> <p>Dr. Igor Kramnik (Associate Professor of Medicine, Boston University School of Medicine, Boston, Mass.)</p> <p>Dr. Richard Robinson (Assistant Professor, Department of Microbiology and Immunology, Medical College of Wisconsin, Milwaukee, Wisc.)</p> <p>Dr. Deanna Hagge (Head, Mycobacterial Research Laboratories, The Leprosy Mission, Kathmandu, Nepal)</p>

	<p>Dr. Luanne Hall-Stoodley (Associate Professor, Microbial Infection and Immunity, Center for Microbial Interface Biology, The Ohio State University, Columbus, Ohio)</p> <p><i>Topics:</i></p> <ul style="list-style-type: none"> • <i>Current animal models of co-infections</i> • <i>Lung microbiome: What are the correlates of progression from colonization to active disease in NTM? Is there a role for quantitative culture in treatment decision?</i> • <i>NTM exposure and how it affects immunopathogenesis, diagnostics and vaccine efficacy.</i> • <i>Helminth co-infections</i> • <i>Microbiome and biofilms</i> • <i>Unculturable/non-culturable</i> 	
SPEAKERS	NOVEL ANIMAL MODELS	
4:30-5:30 p.m.	<p><i>“The rabbit model for Tuberculosis Meningitis”</i> Dr. Alvaro Ordonez (Research Associate, Center for Tuberculosis Research, Johns Hopkins University, Baltimore, M.D.)</p> <p><i>“The ferret model for Tuberculosis”</i> Dr. Fred Quinn (Professor, Department of Infectious Diseases, University of Georgia, Athens, Ga.)</p>	
6:30-9:00 p.m.	Dinner at Coopersmith’s Pub	Coopersmith’s Pub, 5 Old Town Square, Fort Collins, Colo. (Use your MAX pass to go to the Mountain Station. Walk east 2 blocks)
FRIDAY, AUG. 11		
7:30-8:00 a.m.	Breakfast	Ballroom D, Lory Student Center, Colorado State University
SPEAKERS	UPDATES ON NOVEL TOPICS	
8:00-9:00 a.m.	<p><i>“Cigarette smoke and nicotine exposure: an under-appreciated driver of the TB pandemic”</i> Dr. Ed Chan (Professor, National Jewish Health, Denver, Colo.)</p> <p><i>“Zoonotic TB caused by M. bovis in humans: challenges and opportunities”</i> Dr. Francisco Olea-Popelka (Associate Professor, Department of Clinical Sciences, Colorado State University, Fort Collins, Colo.)</p>	
PANEL 5	TB and diabetes; TB and Host Metabolism	
9:00-10:00 a.m.	<p>Dr. Mary Jackson (Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.) – Facilitator</p> <p>Dr. Blanca Restrepo (Associate Professor of Epidemiology, University of Texas Health Science Center at Houston, Brownsville Regional Campus, Brownsville, Tex.)</p> <p>Dr. Brendan Podell (Assistant Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Randall Basaraba (Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Selvakumar Subbian (Assistant Professor, Public Health Research Institute, Rutgers Biomedical and Health Sciences, Newark, N.J.)</p> <p><i>Topics:</i></p> <ul style="list-style-type: none"> • <i>What is the contribution of malnutrition to TB risk in a setting where growing diabetes prevalence is recognized? Malnutrition may be defined by a number of micro and macronutrient deficiencies. What are the most important deficiencies contributing to TB risk and can they be readily resolved in resource poor settings?</i> • <i>What is the value of bidirectional screening for diabetes and TB? At this point, we know that more diabetes cases will be found by screening for TB. However, we do not understand what the contribution of active TB is to inducing a diabetes-like phenotype. It may be that TB-associated hyperglycemia is leading to false diagnoses of diabetes. If so, can this be distinguished from true diabetes?</i> 	

	<ul style="list-style-type: none"> • <i>Should preventive therapy be pursued in patients with metabolic risk factors for TB? Isoniazid preventive therapy has been proposed for patients diagnosed with diabetes and at risk for TB. However, diabetes screening efforts are not likely stringent enough currently to implement this. Furthermore, the efficacy of this is not known – even in animal models.</i> • <i>Effective and appropriate treatment approaches are completely unexplored. Should type 2 diabetes be controlled first, then antimicrobials? What is the reason for poor response to treatment and high mortality in human diabetic patients receiving TB treatment? Animal models have great value in answering these questions, but this has not been evaluated yet.</i> • <i>Do diabetes patients have altered responses to antimicrobial drugs? Since diabetes is often mediated by changes in liver metabolism, are diabetes patients at greater risk of toxicity? Do diabetes patients have the same PK for TB drugs as patients without diabetes? Are there drug-drug interactions that must be considered in treating TB-diabetes patients?</i> • <i>What is the link between obesity, insulin resistance and diabetes? Uncontrolled diabetes increases the risk of TB, but severe obesity without diabetes is actually protective. The mechanisms of these susceptibility patterns are not well understood but could be evaluated with a combination of human and animal studies.</i> • <i>What is the prevalence of diabetes among people with HIV? With a growing convergence, it is likely that this is increasing but the influence of TB susceptibility is not known. Will this dual comorbidity make patients at even greater risk of active disease? Additionally, ART drugs used with frequency now are associated with diabetes-like side effects.</i> • <i>Impact of mycobacterial infection on host metabolism</i>
10:00-10:30 a.m.	Coffee and Snack Break
PANEL 6	NTM infections in patients with predisposing lung disease
10:30 a.m.-12:00 p.m.	<p>Dr. Mary Jackson (Professor, Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colo.) – Facilitator</p> <p>Dr. Diane Ordway (Associate Professor, Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Dr. Jerry Nick (Professor, National Jewish Health, Denver, Colo.)</p> <p>Dr. Mary Ann DeGroot (Affiliate Assistant Professor, , Department of Microbiology, Immunology and Pathology, Colorado State University, Fort Collins, Colo.)</p> <p>Topics:</p> <ul style="list-style-type: none"> • <i>How often is TB misdiagnosed when it is really NTM?</i> • <i>Approximately 20% of CF patients will have positive NTM cultures over their lifetime. Those who have a NTM will become infected with additional NTM at a predictable rate. What factors predispose or protect against NTM infections?</i> • <i>In CF, NTM occurs in the setting of pre-existing infection with Pseudomonas and Staph. Does inflammation induced by prior infections increase susceptibility for subsequent infections?</i> • <i>In CF, persistent positive NTM cultures are frequently not associated with clinical disease. Is there a role for attempted eradication in the absence of ATS criteria for clinical disease, given the difficulty with treatment?</i> • <i>What biomarkers may distinguish between indolent infection and disease? How can new tests be used to help us decide whom to treat? Can we find biomarkers of cure?</i> • <i>Mixed infections in the CF patient: what are optimal treatments?</i> • <i>What is a feasible approach to clinical trials testing new therapeutic agents and to get regulatory approval for new drugs and delivery systems?</i> • <i>Any hope for host directed therapies?</i> • <i>Shall we re-visit the old 1960s data on Battey antigen with more modern tools</i>
12:00-1:00 p.m.	Lunch

ONE HEALTH SATELLITE MEETING

1:00-1:10 p.m.	<i>"One Health: Bringing science to community"</i> Dr. Bruno Sobral (Director, One Health Institute, Colorado State University, Fort Collins, Colo.)	
1:10-1:40 p.m.	<i>"Leveraging One Health for infectious disease research"</i> Dr. Richard Bowen (Professor, Department of Biomedical Sciences, Colorado State University, Fort Collins, Colo.)	
1:40-2:00 p.m.	<i>"Animal reservoir and zoonotic transmission of leprosy"</i> Dr. Rahul Sharma (Research Scientist, National Hansen's Disease Program, Baton Rouge, La.)	
2:00-2:20 p.m.	<i>"Strengthening Partnerships to Solve Complex Problems at the Animal-Human-Environmental Interface"</i> Dr. Jane Rooney (Assistant Director, One Health Coordination Center, United States Department of Agriculture, Fort Collins, Colo.)	
2:20-2:40 p.m.	<i>"Multiple hosts, disease, and One Health"</i> Dr. Dan Salkeld (Research Scientist and One Health Faculty Fellow, Department of Biology, Colorado State University, Fort Collins, Colo.)	
2:40-3:00 p.m.	<i>"Climate change, ecosyndemics, and One Health: exploring a community-engaged approach"</i> Dr. Ivan Ramirez (Research Associate, Consortium for Capacity Building, University of Colorado, Boulder, Colo.)	
3:00-3:15 p.m.	Break	
3:15-4:00 p.m.	<i>Panel Discussion: Science and Community</i> Speakers Above	
SATURDAY, AUG. 12		
7:00 a.m.-5:00 p.m.	Visit to Rocky Mountain National Park	Vans leave from south side of Lory Student Center, Morgan Library Parking Lot