Centers of Biomedical Research Excellence

Oklahoma Center for Respiratory & Infectious Diseases

4th Annual Research Retreat

Tuesday, April 4th

7:30am-5:00pm

ConocoPhillips OSU

Alumni Center

Stillwater, OK

2017

Official Program

Sponsored By:

National Institutes of Health Centers of Biomedical Research Excellence, Grant # P20GM103648

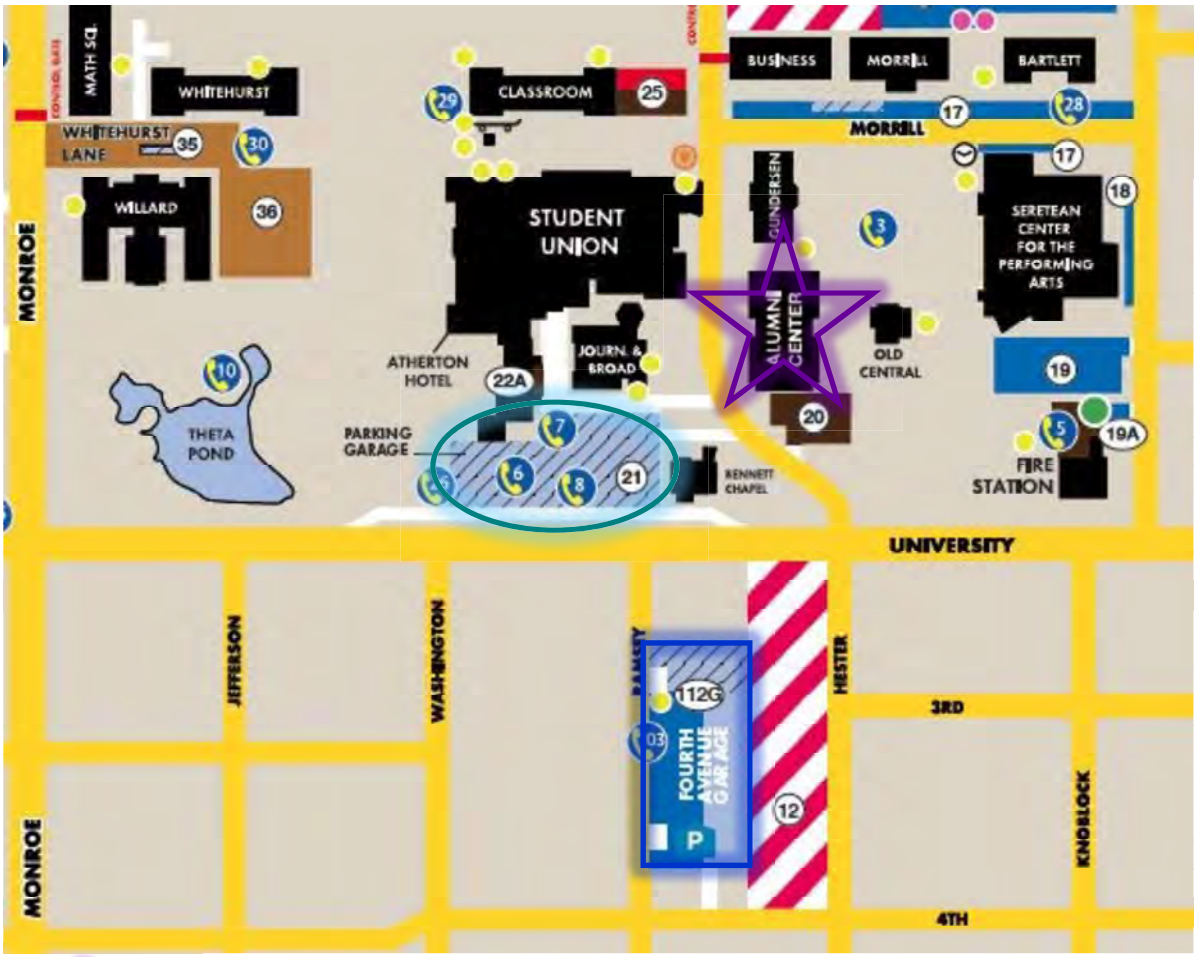
OSU VP Office for Research

OSU Center for Veterinary Health Sciences

Table of Contents

Oklahoma Center for
Respiratory & Infectious Diseases

Map of the Venue



Event Location: **ConocoPhillips OSU Alumni Center**
201 ConocoPhillips OSU Alumni Center, Stillwater, OK 74078. Events will take place in Click Alumni Hall West and Jones Seminar Room.

Fourth Avenue Parking Garage (free with OSU staff/ faculty permits.) For non-permit holders, a guest permit will be provided by OCRID at garage entrance between 7:30 and 9:00am.

Student Union Parking Garage: Pay to park. $15 daily maximum rate

Oklahoma Center for Respiratory & Infectious Diseases

Schedule

Tuesday, April 4, 2017

07:30-08:30 Registration and Breakfast; Please drop off posters at the registration table.

08:30-08:50 Welcome Remarks by **Kenneth Sewell, Ph.D.**, Vice President for Research, Oklahoma State University & **Chris Ross, Ph.D.**, Interim Dean of Veterinary Medicine, followed by Director's Report by **Lin Liu, Ph.D.**, Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University

Session I (Session Chair: Lin Liu, Ph.D., Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University)

08:50-09:25 Keynote Address #1
Susan Kovats, Ph.D., Associate Member, Arthritis & Clinical Immunology Research Program, Oklahoma Medical Research Foundation
IRF4-dependent DCs regulate T cell effector and memory responses in influenza infection

09:25-09:50 Project Presentation #1
Tom Oomens, Ph.D., Veterinary Pathobiology, Center for Veterinary and Health Sciences, Oklahoma State University
Developing vaccines for respiratory syncytial virus

09:50-10:05 Pilot Project Presentation #1
Shitao Li, Ph.D., Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University
Plakophilin 2 Controls Polymerase Assembly of Influenza A Virus

10:05-10:20 Pilot Project Presentation #2
Veronique Lacombe, Ph.D., Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University
Regulation of Glucose Transport in the Diabetic Lung: Novel Targets

10:20-10:35 Pilot Project Presentation #3
Dianne McFarlane, Ph.D., Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University
The role of cytomegalovirus infection in immunosenescence

10:35-10:50 Coffee Break

Session II (Session Chair: Jordan Metcalf, M.D., University of Oklahoma Health Science Center)

10:50-11:15 Project Presentation #2
Heather Gappa-Fahlenkamp, Ph.D., Chemical Engineering, College of Engineering and Architecture Technology, Oklahoma State University
Differential Immunophenotype of Small Airway Epithelial Cells in a Human Tissue-Engineered Lung Model in Response to H1N1 and H3N2 Influenza A Virus Infections

11:15-11:30 Pilot Project Presentation #4
Yu Feng, Ph.D., Chemical Engineering, College of Engineering and Architecture Technology, Oklahoma State University
Multi-scale Dosimetry Modeling of Influenza Virus-Laden Droplets through the Pulmonary Route

11:30-11:40 Core Report #1
Immunopathology Core, **Jerry Ritchey, DVM, Ph.D.**, Veterinary Pathobiology, Center for Veterinary and Health Sciences, Oklahoma State University

11:40-11:55 Pilot Project Presentation #5
Ashlee Ford Versypt, Ph.D., Chemical Engineering, College of Engineering and Architecture Technology, Oklahoma State University
Computational Modeling of the Transition from Latent to Active Tuberculosis

11:55-12:05 Abstract Presentation #1
Santosh Adhikari, Graduate Student, Chemistry, College of Arts and Sciences, Oklahoma State University
Designing Eumelanin-inspired Antimicrobials that Target Drug Resistant Bacteria

12:05-12:30 Group Photo

12:30-01:30 Lunch

Session III (Session Chair: Tom Oomens, Ph.D., Veterinary Pathobiology, Center for Veterinary and Health Sciences, Oklahoma State University)

01:30-02:05 Keynote Address #2
Bethany Moore, Ph.D., Professor of Internal Medicine and Microbiology and Immunology & Director of Program Immunology, Rackham Graduate School, University of Michigan
Innate and Adaptive Immunity and Lung Complications post-Stem Cell Transplant

02:05-02:30 Project Presentation #3
Shanjana Awasthi, Ph.D., Pharmaceutical Sciences, College of Pharmacy, University of Oklahoma Health Sciences Center
Control of lung inflammation by a TLR4-interacting SP-A-derived peptide

02:30-02:40 Pilot Project Presentation #6
William Michael McShan, Ph.D., Pharmaceutical Sciences, College of Pharmacy, University of Oklahoma Health Sciences Center
Phage-like Chromosomal Islands and Global Transcription in Streptococcus pneumoniae

02:40-02:50 Abstract Presentation #2
William Starr, Undergraduate Student, Microbiology and Molecular Genetics, Oklahoma State University
Antibiotic Resistance of Pseudomonas aeruginosa Recovered From Cystic Fibrosis Patients

02:50-03:00 Core Report #2
Animal Model Core , **Myron Hinsdale, DVM, Ph.D.**, Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University

03:00-03:15 Pilot Project Presentation #7
Kevin Wilson, Ph.D., Biochemistry and Molecular Biology, College of Agricultural Sciences and Natural Resources, Oklahoma State University
Ribosome Analysis of Pseudomonas Biofilms

03:15-03:40 Project Presentation #4
Raju Teluguakula, Ph.D., Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University
Role of neutrophils in influenza virus pneumonia

03:40-03:50 Core Report #3
Molecular Biology Core Report, **Lin Liu, Ph.D.**, Physiological Sciences, Center for Veterinary and Health Sciences, Oklahoma State University

03:50-04:00 Refreshment Break

04:00-04:55 Poster Session

04:55-05:00 Announcement of Poster Competition Winners

Abstract List

Presenter	Abstract No.	Abstract Title
Adhikari, S.	101	Designing Eumelanin-inspired Antimicrobials that Target Drug Resistant Bacteria
Ainsua-Enrich, E.	102	IRF4-dependent DCs regulate T cell effector and memory responses in influenza infection
Anderson, Michael	103	3-Dimensional Evaluation of the Glutamatergic Sensory Innervation of Rat Visceral Pleura
Bamunuarachchi, G.	104	miR-206 Inhibits Influenza A Virus Replication by Targeting Tankyrase 2
Bhowmick, R.	105	Differential Immunophenotype of Small Airway Epithelial Cells in a Tissue Equivalent Respiratory Model in Response to H1N1 and H3N2 Influenza A Virus Infections
Blair, A.	106	An analytics approach to the study of COPD drug therapies on 30-day readmissions
Campolo, A.	107	Diabetes Alters the Translocation of the Insulin-Sensitive Glucose Transporters in the Lung
Derakhshan, M.	108	A Three-dimensional Tissue Model for the Study of Mast Cell Response in Inflammatory Reactions
Eleshy, R.	109	Detection and Characterization of Antibiotic Resistant S. aureus from Cystic Fibrosis Patient Isolates
Feng, Y.	110	A New Pulmonary Drug Targeted Delivery Method for Lung Diseases Treatment: An In-Silico Study
Gallaway, E.	111	Antimicrobial Properties of Novel Silver(I) Cyanoximates
Gujar, V.	112	Utility of Attenuated Mycobacteria in Creation of Robust Inflammatory Rat Model for Determining the Expression of Nerve Growth Factor in Epithelial Cells
Gupta, A.	113	Comparison of mortality prediction in septic patients using SIRS and qSOFA screening criteria
Hatipoglu, I.	114	A dual role of IRF4 in DC differentiation and function during influenza virus infection
Hatipoglu, S.	115	Inhalable Microparticulate SHetA2 Nanocrystals for Lung Cancer Treatment
Huang, C.	116	A role of iron in the pathogenesis of idiopathic pulmonary fibrosis
Kadel, S.	117	Regulation of lung resident type II innate lymphoid cells (ILC2s) by ERα
Kayastha, B.	118	A Calmodulin-like Calcium Binding Protein, EfhP, Plays Role in Virulence of *Pseudomonas aeruginosa*

Presenter	Abstract No.	Abstract Title
Khanam, S.	119	Intracellular Calcium Regulates Antibiotic Resistance and Virulence in *Pseudomonas aeruginosa*
King, M.	120	A β Propeller Protein, CarP, Plays Role in *Pseudomonas aeruginosa* Response to Calcium
Mahjabeen, S.	121	Comparative Analysis of the Immunogenicity Elicited after Pulmonary or Subcutaneous Immunization with BCG in Mice
McCullor, K.	122	Genomic Characterization of the High Efficiency Transducing *Streptococcus pyogenes* Bacteriophage A25 Reveals an Escape from Lysogeny and Resistance Mechanism
McLeod, D.	123	Generating mutations for functional studies of the putative Ca^{2+}-binding protein CarP
Meshram, C.	124	Mapping of the Phosphoprotein Domains Involved in RSV Particle Assembly
Munteanu, C.	125	Long Non-coding RNA FENDRR Enhances IFNgamma-Induced Inflammatory Phenotype in Human Macrophages
Nelson, N.	126	Recruitment of Protein Kinase C and Protein Kinase C substrates to the *Chlamydia trachomatis* inclusion
Ochoa Corona, F.	127	Alternatives to Biomedical Research You Can Use From Plants in Animals & Humans
Pande, R.	128	The role of miR23b and let-7a in glutamatergic myenteric innervation in trinitro-benzene-sulphonic acid-induced colitis in rats
Patil, G.	129	Ubiquitin E3 ligase TRIM41 targets nucleoprotein of influenza A virus and limits viral replication
Pilvankar, M.	130	Computational Modeling of Tuberculosis Granuloma Activation
Pushparaj, S.	131	Identification of novel cellular lnc-PINK1-2 transcripts during influenza infection
Rahman, M.	132	Comparative Genome Analysis of *Streptococcus anginosus* J4206: Daptomycin Resistant strain responsible for Breakthrough Bacteremia
Roberts, B.	133	Exploring the anti-viral properties of the natural product OSW-1 through long term OSBP depletion
Roberts, B.	134	Broad Spectrum Anti-Enteroviral Prophylaxis and Drug Treatment Through Targeting the Oxysterol-binding Protein (OSBP)
Rogers, R.	135	Calcium Binding in the EF-Hand Protein, EfhP, Regulating Calcium-Dependent Virulence in *Pseudomonas aeruginosa*
Rudd, J.	136	Novel Combination Therapy for Dual Infection Pneumonia

Abstract List

Presenter	Abstract No.	Abstract Title
Sah, P.	137	*Chlamydia trachomatis* Manipulation of Protein Kinase C
Sathiaseelan, R.	138	IL-21 enhances TGFβ-mediated differentiation of pulmonary fibroblasts to myofibroblasts
Sawant, L.	139	Identification of sequences in the bovine herpesvirus 1 (BoHV-1) genome that are transcriptionally activated by stress and stress-induced transcription factors.
Senavirathna, L.	140	Hypoxia promotes human pulmonary fibroblast proliferation by activating NFAT signaling
Seshadri, S.	141	Anthrax lethal toxin suppresses MAP kinase pathway to decrease IL-22 production in the type 3 innate lymphoid cells
Starr, C.	142	Antibiotic Resistance of *Pseudomonas aeruginosa* Recovered From Cystic Fibrosis Patients
Stewart, S.	143	Tissue and developmental expression patterns of claudin-1 and claudin-2, two major tight junction proteins, in chickens
Truelock, M.	144	Elevated levels of Calcium increases rhamnolipid production in *Pseudomonas aeruginosa*
Wang, L.	145	Comparative Influenza Protein Interactomes Identify the Role of Plakophilin 2 in Virus Restriction
Whitworth, L.	146	Oklahoma State University Microscopy Laboratory
Willis, E.	147	The effects of the chronic herpesvirus cytomegalovirus on lymphocyte populations and on markers of inflammation in a baboon model of immunosenescence
Yang, X.	148	miR-193b suppresses influenza virus infection via the Wnt/β-catenin signaling by targeting β-catenin
Zhu, L.	149	A potential role for a β-catenin coactivator (high mobility group AT-hook 1 protein) during the latency-reactivation cycle of bovine herpesvirus 1

Oklahoma Center for Respiratory & Infectious Diseases

Participant List

First Name	Last Name	Email Address	Institution
Santosh	Adhikari	santosh.adhikari@okstate.edu	Oklahoma State University
Erola	Ainsua-Enrich	Erola-AinsuaEnrich@omrf.org	Oklahoma Medical Research Foundation
Noah	Allen	noah.allen@okstate.edu	Oklahoma State University
Michael	Anderson	michael.b.anderson@okstate.edu	Oklahoma State University
Shanjana	Awasthi	Shanjana-Awasthi@ouhsc.edu	University of Oklahoma Health Sciences Center
Gayan	Bamunuarachchi	bamunua@okstate.edu	Oklahoma State University
Rudra	Bhowmick	rudra.bhowmick@okstate.edu	Oklahoma State University
Andrea	Blair	andrea.blair@okstate.edu	Oklahoma State University
Darlene	Croci	darlene.croci@okstate.edu	Oklahoma State University
Subhas	Das	subhas.das@okstate.edu	Oklahoma State University
Zhuo	Deng	zhuo.deng@okstate.edu	Oklahoma State University
Mina	Derakhshan	mina.derakhshan@okstate.edu	Oklahoma State University
Richard	Eberle	r.eberle@okstate.edu	Oklahoma State University
Rawan	Eleshy	rawan.eleshy@okstate.edu	Oklahoma State University
Fouad	Elmayet	fouad.elmayet@okstate.edu	Oklahoma State University
Heather	Fahlenkamp	heather.fahlenkamp@okstate.edu	Oklahoma State University
Yu	Feng	yu.feng@okstate.edu	Oklahoma State University
Ashlee	Ford Versypt	ashleefv@okstate.edu	Oklahoma State University
Erin	Gallaway	erin.gallaway@okstate.edu	Oklahoma State University
Lucila	Garcia-Contreras	lucila-garcia-contreras@ouhsc.edu	University of Oklahoma Health Sciences Center
Adolfo	Garcia-Sastre	adolfo.garcia-sastre@mssm.edu	Icahn School of Medicine at Mount Sinai
Vikramsingh	Gujar	vikram.gujar@okstate.edu	Oklahoma State University
John	Gustafson	john.gustafson@okstate.edu	Oklahoma State University
Minyeong	Han	hmystar@hanmail.net	
Kevin	Harrod	kevinharrod@uabmc.edu	University of Alabama at Birmingham
Sevim	Hatipoglu	sevim-hatipoglu@ouhsc.edu	Oklahoma State University
Ibrahim	Hatipoglu	ibrahim-hatipoglu@omrf.org	Oklahoma Medical Research Foundation
Chaoqun	Huang	chaoqh@okstate.edu	Oklahoma State University
Brent	Johnson	brent.johnson@okstate.edu	Oklahoma State University
Clinton	Jones	clint.jones10@okstate.edu	Oklahoma State University
Sapana	Kadel	sapana-kadel@omrf.org	Oklahoma Medical Research Foundation
Biraj	Kayastha	biraj.kayastha@okstate.edu	Oklahoma State University
Sharmily	Khanam	khanam@gmail.com	
Michelle	King	mmking@okstate.edu	Oklahoma State University
Jay	Kolls	jay.kolls@chp.edu	Children's Hospital of Pittsburgh
Susan	Kovats	kovatss@omrf.org	Oklahoma Medical Research Foundation
Veronique	Lacombe	veronique.lacombe@okstate.edu	Oklahoma State University
Shitao	Li	shitao.li@okstate.edu	Oklahoma State University
Yurong	Lian	Yurongl@okstate.edu	Oklahoma State University
Dingbo	Lin	dingbo.lin@okstate.edu	Oklahoma State University
Kong	Lin	kong.lin@okstate.edu	Oklahoma State University
Lin	Liu	lin.liu@okstate.edu	Oklahoma State University
Erika	Lutter	erika.lutter@okstate.edu	Oklahoma State University
Wentao	Lyu	wentao.lyu@okstate.edu	Oklahoma State University

Participant List

First Name	Last Name	Email Address	Institution
Xiao	Ma	mxiao@okstate.edu	Oklahoma State University
Sanjida	Mahjabeen	sanjida-mahjabeen@ouhsc.edu	University of Oklahoma Health Sciences Center
Jerry	Malayer	jerry.malayer@okstate.edu	Oklahoma State University
Xiangbing	Mao	xiangbing.mao@okstate.edu	Oklahoma State University
Xiangbing	Mao	xiangbing.mao@okstate.edu	Oklahoma State University
Zahra	Maria	mariaz@okstate.edu	Oklahoma State University
Kimberly	McCullor	Kimberly-McCullor@ouhsc.edu	University of Oklahoma Health Sciences Center
Daniel	McLeod	daniel.mcleod@okstate.edu	Oklahoma State University
Chetan	Meshram	fmeshra@okstate.edu	Oklahoma State University
Kenneth	Miller	kenneth.miller@okstate.edu	Oklahoma State University
Courtney	Montgomery	courtney-montgomery@omrf.org	Oklahoma Medical Research Foundation
Maria Cristina	Munteanu	cristina.munteanu@okstate.edu	Oklahoma State University
Toby	Nelson	toby.nelson@okstate.edu	Oklahoma State University
Christina	Norton	boeke@okstate.edu	Oklahoma State University
Tom	Oomens	oomens@okstate.edu	Oklahoma State University
Radhika	Pande	radhika2437@gmail.com	
Girish	Patil	girish.patil@okstate.edu	Oklahoma State University
Anne	Pereira	anne-pereira@ouhsc.edu	University of Oklahoma Health Sciences Center
Minu	Pilvankar	minu.pilvankar@okstate.edu	Oklahoma State University
Maliha	Rahman	maliha-rahman@ouhsc.edu	University of Oklahoma Health Sciences Center
Rajagopal	Ramesh	rajagopal-ramesh@ouhsc.edu	University of Oklahoma Health Sciences Center
Jerry	Ritchey	jerry.ritchey@okstate.edu	Oklahoma State University
Samuel Pushparaj	Robert Jeyasingh	samuel.pushparaj@okstate.edu	Oklahoma State University
Brett	Roberts	brett.l.roberts@ou.edu	University of Oklahoma
Jennifer	Rudd	jennifer.rudd@okstate.edu	Oklahoma State University
Steven	Ruggiero	stevemruggiero@okstate.edu	Oklahoma State University
Prakash	Sah	prakash.sah@okstate.edu	Oklahoma State University
Roshini	Sathiaseelan	roshini.sathiaseelan@okstate.edu	Oklahoma State University
Laximan	Sawant	laximan@okstate.edu	Oklahoma State University
Lakmini	Senavirathna	lakmini.senavirathna@okstate.edu	Oklahoma State University
Sudarshan	Seshadri	sudarshan-seshadri@ouhsc.edu	University of Oklahoma Health Sciences Center
Manjunath	Siddappa	manjunath.siddappa@okstate.edu	Oklahoma State University
William	Starr	william.starr@okstate.edu	Oklahoma State University
Sydney	Stewart	sydney.n.stewart@okstate.edu	Oklahoma State University
Ralph	Tripp	ratripp@uga.edu	University of Georgia
Jing	Wang	helen.wang@okstate.edu	Oklahoma State University
Lisa	Whitworth	lisa.whitworth@okstate.edu	Oklahoma State University
Erin	Willis	erin.willis@okstate.edu	Oklahoma State University
Jun	Xie	jun-xie@ouhsc.edu	University of Oklahoma Health Sciences Center
Qing	Yang	qing.yang@okstate.edu	Oklahoma State University
Vadim	Yerokhin	vadimyerokhin@gmail.com	
Glenn	Zhang	glenn.zhang@okstate.edu	Oklahoma State University
Mengmeng	Zhao	mengmeng.zhao@okstate.edu	Oklahoma State University
Liqian	Zhu	liqian.zhu@okstate.edu	Oklahoma State University