

OKLAHOMA CENTER FOR RESPIRATORY AND INFECTIOUS DISEASES



10TH ANNUAL RESEARCH SYMPOSIUM

Centers of Biomedical Research Excellence

TUESDAY, APRIL 11, 2023

8AM - 6PM

THE MCKNIGHT CENTER FOR THE PERFORMING ARTS

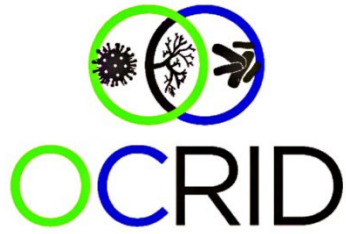
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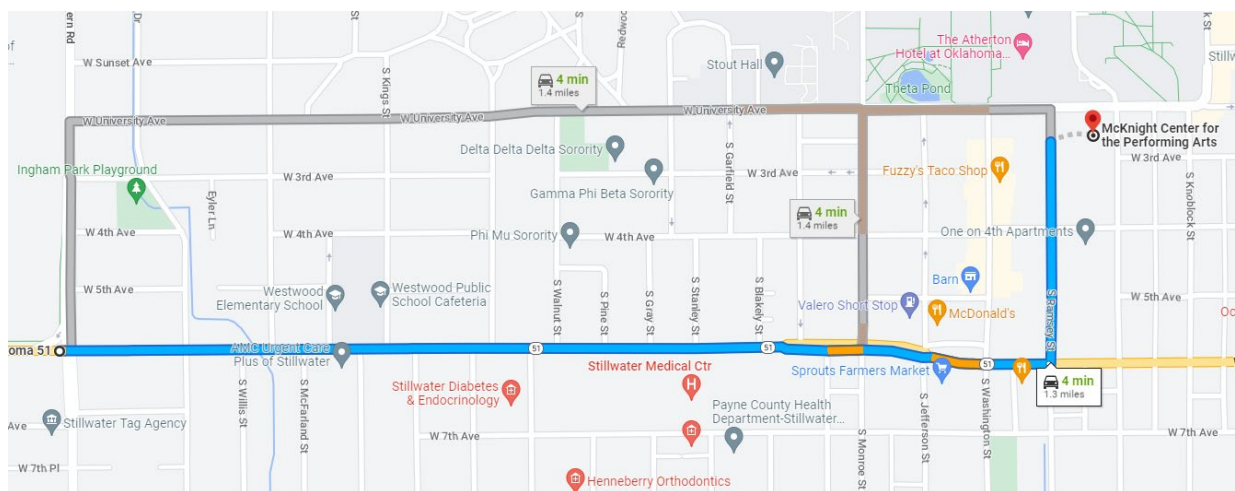
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Venue Information



The McKnight Center for the Performing Arts



Parking Information

Parking is available for a fee in the 4th Avenue Garage, with entrances on S. Ramsey St. and W. 4th Ave. The garage is directly behind the McKnight center. Additionally, you can park in the Student Union Parking garage across the street.

McKnight Center Garage level 2 connects directly to the lobby level of The McKnight Center; level 4 connects to the mezzanine and balcony levels. ADA accessible parking is available on every level. Spaces are first come, first served. Additional parking may be found on campus or city streets.

Please be aware that specially marked spaces, including accessible spaces, are enforced 24 hours a day, 7 days a week.



Symposium Program

Tuesday, April 11, 2023

07:30 –
8:30am Registration and Breakfast; Please drop off posters at the registration table.

Session I – Session Chair: Tom Oomens Ph.D. – Department of Veterinary Pathobiology,
College of Veterinary Medicine, Oklahoma State University

08:30 –
8:50am Opening Remarks

Kenneth W. Sewell, Ph.D., Vice President for Research, Oklahoma State
University

Carlos Risco, DVM, Dean of the College of Veterinary Medicine

Director's Report

Lin Liu, Ph.D., Department of Physiological Sciences, College of Veterinary
Medicine, Oklahoma State University

08:50 –
9:00am My Road to Success in Obtaining R01

Yong Cheng, Ph.D., Department of Biochemistry and Molecular Biology, Division
of Agricultural Sciences and Natural Resources, Oklahoma State University

09:00 -
9:45am Keynote Address #1

Hector Aguilar-Carreno, Ph.D., Department of Microbiology & Immunology,
College of Veterinary Medicine, Cornell University

Novel Vaccine Development Technologies for Enveloped Viruses

09:45 -
10:20am Phase II Project Presentation #1

Veronique Lacombe, Ph.D., Department of Physiological Sciences, College of
Veterinary Medicine, Oklahoma State University

The Role of Glucose Homeostasis During Respiratory Infections

Coffee Break

10:20 - 10:40am

Session II – Session Chair: Jordan Metcalf M.D. – Division of Pulmonary, Critical Care & Sleep
Medicine Section, College of Medicine, The University of Oklahoma Health Sciences Center



- 10:40 – Phase II Project Presentation #2
11:15am **Rudra Channappanavar, Ph.D. D.V.M.**, Department of Veterinary Pathobiology,
College of Veterinary Medicine, Oklahoma State University
*Inflammatory monocyte-macrophages in age-related susceptibility to SARS-CoV-2
infection*
- 11:15 – Pilot Project Presentation #1
10:30am **Yu Feng, Ph.D.**, School of Chemical Engineering, College of Engineering,
Architecture, and Technology, Oklahoma State University
*Modeling Transmission Aerobiology of SARS-CoV-2 Aerosols in Human and Mouse
Lungs*
- 11:30 – Pilot Project Presentation #2
11:45am **Xia Lei, Ph.D.**, Department of Biochemistry and Molecular Biology, Division of
Agricultural Sciences and Natural Resources, Oklahoma State University
Role of human CTRP6 in SARS-Cov-2 infection: helper or defender
- 11:45 – Core Presentation #1: Animal Models Core
11:55pm **Myron Hinsdale, DVM, Ph.D.**, Department of Physiological Sciences, College of
Veterinary Medicine, Oklahoma State University

Lunch and Group Photo

12:00 – 1:30pm

Session III – Session Chair: Josh Ramsey, Ph.D., P.E. – School of Chemical Engineering,
College of Engineering, Architecture and Technology, Oklahoma State University

- 01:30 - Keynote Address #2
02:15pm - **Volker Briken, Ph.D.**, Department of Cell Biology & Molecular Genetics,
University of Maryland
Interferons, inflammasomes and their manipulation by pathogenic bacteria
- 02:15 - Phase II Project Presentation #3
2:50pm **Marianna Patrauchan, Ph.D.**, Department of Microbiology and Molecular
Genetics, College of Arts and Sciences, Oklahoma State University
Key Intersections of Calcium Signaling in Pseudomonas aeruginosa



02:50 – Pilot Project Presentation #3
03:05pm **Xufang Deng, Ph.D.**, Department of Physiological Sciences, College of Veterinary
Medicine, Oklahoma State University
Genetic mutations associated with SARS-CoV-2 Omicron attenuation

Refreshments Break

3:05 – 3:25pm

Session IV – Session Chair: Susan Kovats Ph.D. – Arthritis & Clinical Immunology Research
Program, Oklahoma Medical Research Foundation

03:25 - Phase II Project Presentation #4
04:00pm **Yong Cheng Ph.D.**, Department of Biochemistry and Molecular Biology, Division
of Agricultural Sciences and Natural Resources, Oklahoma State University
*The Role of Airway Macrophages in Cystic Fibrosis during Non-tuberculous
Mycobacterial Lung Infection*

04:00 - Pilot Project Presentation #4
04:15pm **Joshua Butcher, Ph.D.**, Department of Physiological Sciences, College of
Veterinary Medicine, Oklahoma State University
Dynamic Interaction of Exercise and Obesity with Influenza Infection

04:15 – Core Presentation #2: Immunopathology Core
04:25pm **Craig Miller, DVM, Ph.D.**, Veterinary Pathobiology, College of Veterinary
Medicine, Oklahoma State University

04:25 – Core Presentation #3: Molecular Biology Core
04:35pm **Lin Liu, Ph.D.**, Department of Physiological Sciences, College of Veterinary
Medicine, Oklahoma State University

Poster Session

4:35 – 6:00pm

Award Presentation

6:00 – 6:15pm



Organizing Committee

- **Tom Oomens – Chair** College of Veterinary Medicine, OSU
- **Dingbo Daniel Lin** College of Education and Human Sciences, OSU
- **Yu Feng** College of Engineering, Architecture, and Technology, OSU
- **Marianna Patrauchan** College of Arts and Sciences, OSU
- **Yong Cheng** Ferguson College of Agriculture, OSU
- **Wenxin Wu** College of Medicine, OU-HSC
- **Susan Schroeder** College of Arts and Sciences, OU-Norman
- **Christina Bourne** College of Arts and Sciences, OU-Norman
- **Erin Langford-Loftis** Oklahoma Center for Respiratory and Infectious Diseases



Abstract List

Presenter	Abstract No.	Abstract Title
Undergraduate Students		
Chatman, P.	101	Antifungal Activity of Novel Compound EIPE-1 against the Fungal Pathogen <i>Cryptococcus neoformans</i>
Cotton, K.	102	Effects of Organoantimony Compounds on Fungal Pathogens <i>Cryptococcus neoformans</i> and <i>Candida albicans</i>
Guthrie, C.	103	Engineering a Dual Vaccine Against SARS-CoV-2 and Tuberculosis
Lieberman, J.	104	Antifungal Activity of Novel Macrocyclic Derivatives on <i>Cryptococcus neoformans</i>
Vermeire, C.	105	Exosomes Released by Mycobacterium Abscesses-Infected Macrophages Facilitate Mycobacterial Intracellular Survival within Host Cells
Whitley, C.	106	Utilizing IL-10 as a Potential Therapeutic to Suppress SARS-CoV-2-Induced Inflammation
Graduate Students		
Achour, M.	107	Characterizing Transcriptional Regulation and Potential Protein Binding Partners of Calcium Sensor, EfhP, In <i>Pseudomonas Aeruginosa</i>
Beakley, S.	108	Bio-Engineered CAR-T Cell Therapy to Treat Cryptococcosis
Beathard, A.	109	Aerosol Administration of OHet72 Nanosuspensions for Tuberculosis Treatment
Bourlon, M.	110	OHet72 Treatment Causes Differential Gene Expression in The DevR/DevS Two-Component System of <i>Mycobacterium Tuberculosis</i> .
Braga, R.	111	Uncovering Ca-Regulated Molecular Mechanisms of <i>Pseudomonas Aeruginosa</i> Interactions with Host Cells



Chanda, D.	112	Dysregulated Myeloid Cell Activity Is Associated with Fatal Disease In SARS-CoV-2 Infected Aged Mice.
Chi, X.	113	Investigating The Complexity of EndoU-Mediated Immune Evasion By SARS-CoV-2 nsp15
Conn, B.	114	Role Of Differentially Regulated Genes in Interactions of Cryptococcus Neoformans with Human Airway Phagocytes
Dagnell, A.	115	New Drug Development for Non-Tuberculous Mycobacterial Lung Infection in Cystic Fibrosis Patients
Dang, Q.	116	Coordinated Regulation of SLC40A1 Gene Expression in Human Lung Fibroblasts By TGF- β 1 And Iron
Dasgupta, N.	117	Chlamydia Trachomatis Recruits PKA and Phosphorylated PKA Substrates During Infection.
Falcon, E.	118	Oxysterol-Binding Protein (OSBP) As A Potential Drug Target for Broad-Spectrum Antiviral Treatment
Ghimire, R.	119	Differential Role of TLR7 Signaling In SARS-CoV-2-Induced Antiviral and Inflammatory Responses
Goyal, T.	120	Chlamydia Trachomatis Inclusion Membrane Protein CT226 Interaction with Host Proteins TMOD3 And FL2.
Gunasekara, S.	121	The Association Between Neutrophil Functionality and SARS-CoV-2 Infection in A Feline Animal Model
Hewawasam, S.	122	Homeodomain Interacting Protein Kinase-2 Activates Lung Fibroblasts Via TGF β 1 and WNT3a Signaling Pathways
Heydarian, N.	123	Mitigating Staphylococcus Aureus LTA-Induced Cytokine Production by Cationic Branched Polyethyleneimine (BPEI) and Its PEGylated Derivative
Hull, M.	124	A B-Propeller Phytase-Like Protein, CarP, Mediates Calcium-Regulation of Virulence in Pseudomonas Aeruginosa as A One-Component Regulatory System



Kaur, B.	125	Altered Circular RNA Expression in Human Blood and Mouse Lung Monocytes and Macrophages During Mycobacterium Tuberculosis Infection
Kotey, S.	126	The Role of Long Non-Coding RNA Mir155Hg in The Host-Mycobacteria Interactions In Macrophages
Luczak, J.	127	Role Of Invariant Natural Killer T (iNKT) Cells During Influenza A Virus (IAV) Responses.
Murugesan, J.	128	Improving Cross-Protection of A Live-Attenuated Vaccine Against Respiratory Syncytial Virus
Nair, A.	129	The Role of Differentially Regulated Genes in The Outcome of Murine Phagocyte-Cryptococcal Interaction
Rochowski, M.	130	Sars-CoV-2 Infection Induces Alteration of Glucose Metabolism in A Feline Model
Salpadoru, T.	131	A Novel Non-Catalytic Function of PA2803-Encoded PcrP Redefines the Functional Role of PA2803 Subfamily.
Santos, V.	132	Slug, A Stress-Induced Transcription Factor, Stimulates Herpes Simplex Virus 1 Replication and Transactivates a Cis-Regulatory Module Within the VP16 Promoter
Shatnawi, S.	133	Feline Immunodeficiency Virus (FIV) As A Prototype to Study The Co-Infection of Sars-CoV-2 In HIV/AIDS Patients
Shrestha, R.	134	Identifying The Role of ssRNA Plus dsRNA in Causing Excessive Inflammation By SARS-Cov-2
Surendran, A.	135	Identification And Characterization of Dysregulated Conserved Circular RNAs in Idiopathic Pulmonary Fibrosis
Syed, Z.	136	Ultra-Low Detection of Viral Nucleic Acid Via Visual Colorimetry



Terhuja, M.	137	Use Of Virus-Like Particles and Live-Attenuated Virus as Combined Vaccine to Induce a Focused Immune Response Against Respiratory Syncytial Virus
Villalva, C.	138	Proinflammatory Response in Murine Macrophages Coinfected With SARS-CoV-2 And Klebsiella Pneumoniae
Wang, D.	139	Nanopore Direct RNA Sequencing Reveals Virus-Induced Changes in ^{m6} A Methylation Patterns in Human Cells
Wijesekera, N.	140	Independent Cis Regulatory Modules in The Herpes Simplex Virus-1 Infected Cell Protein 0 (ICP0) Are Transactivated By Glucocorticoid Receptor, Specificity Protein 1, And Krüppel Like Factor 4 (KLF4)
Williams, A.	141	Sex Differences in ILC2 Function In Influenza Result From Imprinted Donor Sex Intrinsic Factors Independent of Host Sex In Competitive Female-Male Bone Marrow Chimeras
Zhang, X.	142	Naturally Occurring Mutations Of SARS-CoV-2 Nsp5 Main Protease Confer Drug Resistance to Nirmatrelvir
Zhang, Y.	143	Manipulation Of PI3K/Akt Pathway and Downstream Host Targets By Pseudomonas Aeruginosa To Promote Invasion.
Zhu, Z.	144	PARP14 Promotes Influenza Viral Replication Through Viral Ribonucleoprotein Nuclear Export
Post-Doctoral Fellows		
El-mayet, F.	145	Specificity protein 1(Sp1) transcriptional factor as a functional partner for glucocorticoid receptors (GR) in the synergistic reactivation of bovine herpesvirus 1 (BoHV-1) from latency.
Subramaniyan, B.	146	An in vitro non-human primate model of the airway epithelium to study SARS-CoV-2 host-virus interactions
Vaddadi, K.	147	Regulation of SARS CoV-2 replication by MicroRNA-7702



Participants

Name	Email Address
1) Abigael Williams	abigael-williams@omrf.org
2) Abigail Lloyd	ablloyd@okstate.edu
3) Adolfo Garcia-Sastre	Adolfo.Garcia-Sastre@mssm.edu
4) Akshaya Surendran	akshaya.surendran@okstate.edu
5) Alexa Beathard	alexa-beathard@ouhsc.edu
6) Andreza Conti Patara	acontip@okstate.edu
7) Asheley Wathen	abwathen@okstate.edu
8) Ashton Self	ashton.self@okstate.edu
9) Audrey Dagnell	audrey.dagnell@okstate.edu
10) Ayesha Nair	ayesha.nair@okstate.edu
11) Bableen Kaur	bableen.kaur@okstate.edu
12) Bart Ford	bart.ford@okstate.edu
13) Bharathiraja Subramaniyan	Bharathiraja-Subramaniyan@ouhsc.edu
14) Brittney Conn	brittney.jackson@okstate.edu
15) Bruce Waldman	bruce.waldman@y7mail.com
16) Carlyn Guthrie	carlyn.guthrie@okstate.edu
17) Chaoqun Huang	chaoqh@okstate.edu
18) Charlie Vermeire	charlie.vermeire@okstate.edu
19) Christina Bourne	cbourne@ou.edu
20) Clinton Jones	clint.jones10@okstate.edu
21) Cody Whitley	cody.whitley@okstate.edu
22) Crystal Villalva	crystal.villalva@okstate.edu
23) Daniel Lin	dingbo.lin@okstate.edu
24) Daniel Lawson	daniel.lawson@okstate.edu
25) David Martin	drdavidemartin@aol.com
26) Debarati Chanda	debarati.chanda@okstate.edu
27) Dongyu Wang	dywang@ou.edu
28) Duraipandy Natarajan	duraipandy.natarajan@okstate.edu
29) Elyse Cronic	elyse.cronic@okstate.edu
30) Emily Falcon	emily-falcon@ouhsc.edu
31) Erika Lutter	erika.lutter@okstate.edu
32) Erin Langford-Loftis	erin.langford-loftis@okstate.edu
33) Fouad Elmayet	fouad.elmayet@okstate.edu
34) Hollis Holcomb	hollis.holcomb@okstate.edu
35) Ionsei Hastings	ionsei.hastings@okstate.edu
36) Jacob Lieberman	jacob.a.lieberman@okstate.edu
37) Jake Patterson	jake.c.patterson@okstate.edu
38) Jay Kolls	jkolls1@tulane.edu
39) Jeeviya Murugesan	jeeviya.murugesan@okstate.edu
40) Jeevotham Senthil Kumar	jeev.senthil_kumar@okstate.edu



41)	Jeffery Ostler	jostler@okstate.edu
42)	Jerry Malayer	jerry.malayer@okstate.edu
43)	Jeyathilakan Narayanaperumal	jeyathilakan.narayanaperumal@okstate.edu
44)	Jordan Metcalf	jordan-metcalf@ouhsc.edu
45)	Josh Ramsey	josh.ramsey@okstate.edu
46)	Joshua Butcher	joshua.butcher@okstate.edu
47)	Justyna Luczal	justyna-luczak@omrf.org
48)	Kainat Ahmed	kainat.ahmed@okstate.edu
49)	Kaitlyn Cotton	kaicott@okstate.edu
50)	Karen Wozniak	karen.wozniak@okstate.edu
51)	Kelly Harrison	hkellys@okstate.edu
52)	Ken Powell	kpowell@aviagen.com
53)	Kevin Harrod	kevinharrod@uabmc.edu
54)	Kishore Vaddadi	kvaddad@okstate.edu
55)	Lariane da Silva Barcelos	ldasilv@okstate.edu
56)	Lin Liu	lin.liu@okstate.edu
57)	Lucila Garcia-Contreras	lucila-garcia-contreras@ouhsc.edu
58)	Mackenzie Hull	kenzie.hull@okstate.edu
59)	Margaret Bourlon	margaret-bourlon@ouhsc.edu
60)	Marianna Patrauchan	m.patrauchan@okstate.edu
61)	Mark Hannah	mark_hannah2002@yahoo.com
62)	Matthew Cabeen	matthew.cabeen@okstate.edu
63)	Matthew Rochowski	mrochow@okstate.edu
64)	Matthew Walters	Matthew-S-Walters@ouhsc.edu
65)	Megan Roach	megan.roach@okstate.edu
66)	Mego Terhuja	mego.terhuja@okstate.edu
67)	Miruthula Tamil Selvan	miruthula.tamil_selvan@okstate.edu
68)	Mohammad Asad	moasad@okstate.edu
69)	Muhammad Zubair Mehboob	mzubair.mehboob@okstate.edu
70)	Myriam Achour	myriam.achour@okstate.edu
71)	Neda Heydarian	n.heydarian@ou.edu
72)	Nicholas Kiger	colekiger@gmail.com
73)	Nishani Wijesekera	nwijese@okstate.edu
74)	Noopur Dasgupta	noopur.dasgupta@okstate.edu
75)	Peter Vitiello	peter-vitiello@ouhsc.edu
76)	Priscilla Chatman	Chatmanpriscilla2@gmail.com
77)	quanjin dang	quanjin.dang@okstate.edu
78)	Rakshya Shrestha	rakshya.shrestha@okstate.edu
79)	Ralph Tripp	ratripp@uga.edu
80)	Rebecca Wilson	rebwils@okstate.edu
81)	Reygan Braga	reygan.e.braga@okstate.edu



82)	Richard Bui	richard-bui@ouhsc.edu
83)	Roshan Ghimire	roshan.ghimire@okstate.edu
84)	Rudra Channappanavar	rchanna@okstate.edu
85)	Sachithra Gunasekara	sachithra.gunasekara@okstate.edu
86)	Shannon Cowan	shannon.r.cowan@okstate.edu
87)	Shoroq Shatnawi	shoroq.shatnawi@okstate.edu
88)	Smita Mohanty	smita.mohanty@okstate.edu
89)	Stephen Kotey	stephen.k.kotey@okstate.edu
90)	Subhas Das	subhas.das@okstate.edu
91)	Sudhakar Jha	sjha@okstate.edu
92)	Sunil More	sunil.more@okstate.edu
93)	Susan Kovats	kovatss@omrf.org
94)	Susan Schroeder	susan.schroeder@ou.edu
95)	Tanisha Goyal	tanisha.goyal@okstate.edu
96)	Tarosha Salpadoru	tarosha.salpadoru@okstate.edu
97)	Theresa Rizzi	theresa.rizzi@okstate.edu
98)	Tom Oomens	oomens@okstate.edu
99)	Vanessa Santos	im.vanessa.santos@gmail.com
100)	Veronique Lacombe	veronique.lacombe@okstate.edu
101)	Wenxin Wu	wenxin-wu@ouhsc.edu
102)	Xia Lei	xia.lei@okstate.edu
103)	Xiang Chi	xchi@okstate.edu
104)	Xiaoming Zhang	xiaoming.zhang@okstate.edu
105)	Xufang Deng	xufang.deng@okstate.edu
106)	Yingxin Zhang	yingxin.zhang@okstate.edu
107)	Yong Cheng	yong.cheng@okstate.edu
108)	Yu Feng	yu.feng@okstate.edu
109)	Yurong Liang	yurongl@okstate.edu
110)	Zhengyu ZHU	zhengyu.zhu@okstate.edu
111)	Zia ul Quasim Syed	zia.syed@okstate.edu

