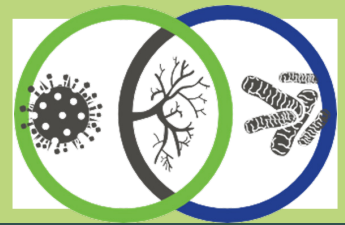


# Oklahoma Center for Respiratory and Infectious Diseases



APRIL 8TH, 2025

8:00AM- 5:30 PM

MEDITATIONS EVENT  
CENTER  
1205 N. COUNTRY CLUB  
RD.  
STILLWATER, OK. 74078

## 12th Annual Research Symposium

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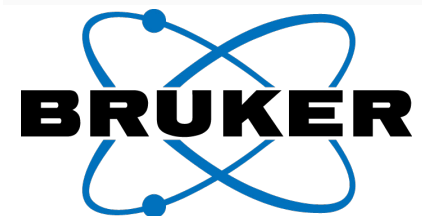
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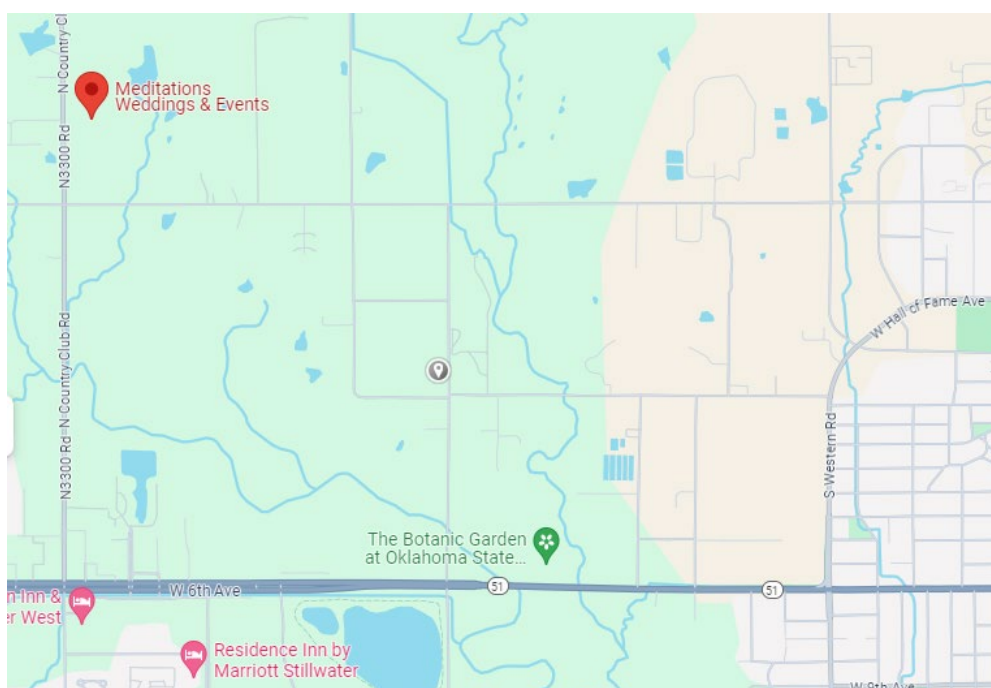
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## VENUE INFORMATION



Meditations is located at: 1205 N Country Club Rd., Stillwater, OK 74075



There is FREE parking located in front of the venue.



## SYMPOSIUM PROGRAM

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**TUESDAY, APRIL 08, 2025**

07:30 - 8:30am *Registration*

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### **Welcome**

*Tom Oomens, Ph.D., OCRID Associate Director and Associate Professor, 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

### **Director's Report**

**Lin Liu, Ph.D., FAPS**, OCRID Director, Regents Professor and Lundberg-Kienlen Endowed Chair, Department of Physiological Sciences, College of Veterinary Medicine, Oklahoma State University

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### **Session I**

*Session Chair: Jordan Metcalf - OCRID Co-Director and Professor, Division of Pulmonary, Critical Care & Sleep Medicine Section, College of Medicine, The University of Oklahoma Health Sciences Center*

08:50 - 9:25am **Keynote Address**

**Jennifer A. Philips, MD, Ph.D.** - Theodore and Bertha Bryan Professor and Co-director, Infectious Diseases Division, Departments of Medicine and Molecular Microbiology, Washington University

*Macrophage- T cell Interactions in Immunity to TB*

09:25 - 9:45am **Pilot Project Presentation**

**Yong Cheng, Ph.D.** - Assistant Professor, Department of Biochemistry and Molecular Biology, Ferguson College of Agriculture, Oklahoma State University

*Mycobacterium abscessus Infection in Cystic Fibrosis*

09:45 - 10:05am **Center Investigator Presentation**

**Christina Bourne, Ph.D.** - Associate Professor, Department of Chemistry and Biochemistry, Dodge Family College of Arts and Sciences, The University of Oklahoma

*Leveraging structural insights to innovate therapeutic approaches*

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### **Coffee Break**

**10:05 - 10:30AM**

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### **Session II**

*Session Chair: Karen Wozniak, Ph.D. - Associate Professor, Department of Microbiology and Molecular Genetics, College of Arts and Sciences, Oklahoma State University*

10:30 - 11:05am **Keynote Address**



**Kevin Legge, Ph.D.** - Professor, Department of Pathology, Carver College of Medicine, The University of Iowa

*Use of mucosal administered polyanhydride nanoparticles as a vaccine platform for the induction of immunity and protection against influenza virus*

11:05 - 11:25am **Pilot Project Presentation**

**Xufang Deng, Ph.D.** - Assistant Professor, Department of Physiological Sciences, College of Veterinary Medicine, Oklahoma State University

*Investigating viral persistence and inflammation dynamics in SARS-CoV-2-infected mice*

11:25 - 11:45pm **Center Investigator Presentation**

**Susan Kovats, Ph.D.**, - Professor, Arthritis and Clinical Immunology Research Program, Oklahoma Medical Research Foundation

*Sex differences in pulmonary innate lymphocytes in influenza virus infection*

11:45 - 12:05pm **Center Investigator Presentation**

**Matt Cabeen, Ph.D.** - Associate Professor, Department of Microbiology and Molecular Genetics, College of Arts and Sciences, Oklahoma State University

A “Tctful” question: canonical and alternative regulation of citrate transport in *Pseudomonas aeruginosa*

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**Lunch and Group Photo**

12:05 - 1:45PM

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**Session III**

*Session Chair: Clinton Jones, Ph.D. - Sitlington and Regents Professor, Department of Veterinary Pathobiology, College of Veterinary Medicine, Oklahoma State University*

01:45 - 02:20pm **Keynote Address**

**Jerry Nick, MD** - Professor, Department of Medicine - Division of Pulmonary, Critical Care & Sleep Medicine, National Jewish Health

*Phage Therapy for Nontuberculous Mycobacterial Lung Infections*

02:20 - 2:40pm **Pilot Project Presentation**

**Sunil More, DVM, Ph.D.** - Assistant Professor, Department of Veterinary Pathobiology, College of Veterinary Medicine, Oklahoma State University

*Perils of SARS-CoV-2 and *K. pneumoniae* coinfection*

02:40 - 03:00pm **Center Investigator Presentation**

**Matthew Walters, Ph.D.** - Associate Professor, Department of Internal Medicine, College of Medicine, The University of Oklahoma Health Sciences Center

*Targeting of a cellular deubiquitinase to suppress SARS-CoV-2 replication*

03:00 - 03:10pm **Animal Models Core Report**

**Myron Hinsdale, Ph.D., DVM** - Associate Professor, Department of Physiological Sciences, College of Veterinary Medicine, Oklahoma State University





03:10 - 03:20pm **Immunopathology Core Report**

**Alexandra Ford, Ph.D., DVM** - Clinical Assistant Professor, Department of Veterinary Pathobiology, College of Veterinary Medicine, Oklahoma State University

03:20 - 03:30pm **Molecular Biology Core Report**

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

03:30 - 04:03pm **Flash Talk Session**

\* On name tag indicates flash talk presenter

**UNDERGRADUATE STUDENTS**

1. Brown, Elijah - *Development of a new family of drugs for cystic fibrosis patients with non-tuberculous mycobacterial infection*
2. Meeker, Amber - *Microvesicles Derived from Human Bronchial Epithelial Cells Regulate Macrophage Activation During Mycobacterium abscessus Infection*

**GRADUATE STUDENTS**

3. Kotey, Stephen - *The Role of Host Long Noncoding RNA Mir155HG in Cellular Response to Mycobacterium tuberculosis Infection in Macrophages*
4. Liang, Xueying - *Design of quinoline SARS-CoV-2 papain-like protease inhibitors as oral antiviral drug candidates*
5. Nanjegowdu Basavaraju, Patil - *Characterizing the Lung IgA Response in Mice Vaccinated with an Intranasal Live-attenuated Respiratory Syncytial Virus*
6. Shrestha, Rakshaya - *Differential TLR-ERK1/2 activity promotes viral ssRNA and dsRNA mimic-induced dysregulated immunity in macrophages*
7. Soriano, Adam - *ZC3H7A is A Novel Anti-Fibrotic Gene*
8. Surendran, Akshaya - *Silencing of Circular RNA COL1A1 Alleviates Bleomycin-Induced Pulmonary Fibrosis in Mice*
9. Varghese, Elizabeth - *Identification of PARP4 as a Novel Regulator of SARS-CoV-2 Infection*
10. Batra, Yashi - *Understanding the Citrate uptake pathway in Pseudomonas aeruginosa*

**POST-DOCTORAL FELLOWS**

11. Roe, Mandi - *Age-dependent differences in monocyte adaptation and viral response in a human lung model*

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**Refreshments and Poster Session**

4:03 - 5:15PM

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**Award Presentation**

5:15 - 5:30PM

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**Symposium Reception**

5:30 - 7:30PM



## KEYNOTE SPEAKER SELECTION AND ABSTRACT SCREENING COMMITTEE

- Tom Oomens - Chair OSU College of Veterinary Medicine
- Avishek Mitra OSU College of Arts and Science
- Ciaran Shaughnessy OSU College of Arts and Science
- Yong Cheng OSU Ferguson College of Agriculture
- Daniel Lin OSU College of Education and Human Sciences
- Xufang Deng OSU College of Veterinary Medicine
- Matt Walters OU-Health Sciences Center
- Susan Schroeder OU College of Arts and Science
- Rakhi Rajan OU College of Arts and Science



## ABSTRACT LIST

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### Undergraduate Students

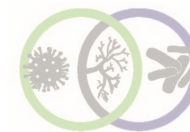
101. Beets, Carsten
  - › *Exploring the Interplay of diabetes and influenza infection: The role of the Insulin receptor substrate*
102. Blackburn, Adriaana
  - › *Hijacking a Pseudomonas aeruginosa Weapon of Self-Destruction as a Potential Therapeutic Tool*
103. Brown, J. Elijah
  - › *Development of a new family of drugs for cystic fibrosis patients with non-tuberculous mycobacterial infection*
104. Kittle, Zach
  - › *SARS-COV-2 Infection induces alterations of cardio-respiratory glucose metabolism*
105. Marcum, Elixiva
  - › *Microbial Competition in the Cystic Fibrosis Lung.*
106. Meeker, Amber C.
  - › *Microvesicles Derived from Human Bronchial Epithelial Cells Regulate Macrophage Activation During Mycobacterium abscessus Infection*
107. Morgan, Olivia
  - › *PtsN regulates the type 3 secretion system in Pseudomonas aeruginosa*

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### Graduate Students

108. Bhowmik, Niladri
  - › *Secondary Metabolite-Mediated Interactions Between Achromobacter dolens and Pseudomonas aeruginosa in a Cystic Fibrosis Environment*
109. Dang, Quanjin
  - › *Alveolar Epithelial Type II Cell-specific Loss of GPX4 Worsens Bleomycin-Induced Lung Injury*
110. Galie, Walter
  - › *Visualizing Oxysterol-binding Protein Ligand-Triggered Structural Signals*
111. Ghimire, Roshan
  - › *Critical role of myeloid cell TRAF6 signaling in coronavirus-induced antiviral and inflammatory responses.*
112. Guthrie, Carlyn
  - › *The Role of Long Non-coding RNA on cGAS Activity in Mycobacterium tuberculosis Infections*
113. Haque, Nazmul
  - › *Identification and Validation of Dysregulated Circular RNAs in Mycobacteria-infected Macrophages*
114. Jhandai, Prince
  - › *RHPN1-AS1: A novel antiviral lncRNA against influenza A virus*
115. Kaufman, Charles
  - › *Evaluating Mast Cell Activation in Post-COVID Syndrome*
116. Kotey, Stephen
  - › *The Role of Host Long Noncoding RNA Mir155HG in Cellular Response to Mycobacterium tuberculosis Infection in Macrophages*
117. Liang, Xueying
  - › *Design of quinoline SARS-CoV-2 papain-like protease inhibitors as oral antiviral drug candidates*
118. Merideth, Madison
  - › *GPCR-mediated pathways of CFTR activation in model airway cell lines*





119. Mohammad, Kashif Gulam
  - › *SARS-CoV-2, trophoblast cells and placental development*
120. Muthiah, Dharanya
  - › *Sex-Based Differences in Post-COVID-19 Pulmonary Injury in a Mouse Model*
121. Nagdev, Pavan
  - › *Identification of Components from Senna Leaf as Potential Inhibitors against Mycobacterium tuberculosis*
122. Nair, Ayesha
  - › *The Role of Differentially-regulated Genes in the Outcome of Murine Phagocyte-cryptococcal Interaction*
123. Nanjegowdu, Patil Basavaraju
  - › *Characterizing the Lung IgA Response in Mice Vaccinated with an Intranasal Live-attenuated Respiratory Syncytial Virus*
124. Reichert, Madeline
  - › *The Nasal Commensal Dolosigranulum pigrum has a Diverse Range of Biosynthetic Gene Clusters and Variable Inhibitory Activity against Common Nasal Pathobionts across Strains*
125. Santhosh, Keerthana
  - › *PARP16: A Novel Target in the Host Response to Mycobacterium abscessus*
126. Shrestha, Rakshya
  - › *Differential TLR-ERK1/2 activity promotes viral ssRNA and dsRNA mimic-induced dysregulated immunity in macrophages.*
127. Soriano, Adam
  - › *ZC3H7A is A Novel Anti-Fibrotic Gene*
128. Surendran, Akshaya
  - › *Silencing of Circular RNA COL1A1 Alleviates Bleomycin-Induced Pulmonary Fibrosis in Mice*
129. Varghese, Elizabeth
  - › *Identification of PARP4 as a Novel Regulator of SARS-CoV-2 Infection*
130. Whitley, Cody
  - › *IFN-I independent antiviral role of blocking Nox signaling during coronavirus infections*
131. Xia, Songpei
  - › *Aerosolizable poly (Sulfo Betaine) Microparticles for Immunoglobulin G Pulmonary Delivery*
132. Zhang, Qianru
  - › *Identification of naturally occurring drug-resistant mutations of SARS-CoV-2 papain-like protease*
133. Batra, Yashi
  - › *Understanding the Citrate uptake pathway in Pseudomonas aeruginosa*

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### Post-Doctoral Fellows

134. Roe, Mandi M.
  - › *Age-dependent differences in monocyte adaptation and viral response in a human lung model*

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### Other

135. Beathard, Alexa
  - › *Murine Passive Inhalation Methodology for Tuberculosis Treatment with OHet72 Nanosuspensions*
136. Li, Cloris
  - › *Iron-regulated Cell Cycle Genes, CDC20 and CCNB1, play a role in Lung Fibroblasts' Function*
137. Schroeder, Susan J.
  - › *Advances in Nanopore Direct RNA Sequencing Technology to Probe Epitranscriptomic Effects of Cigarette Smoke Extracts on Influenza Infections*



138 Kishore Vaddadi

‣ *Tankyrases Positively Regulates Influenza A Virus Replication via Type I Interferon Response*

139. Wu, Wenxin

‣ *Cytochrome P450 Family 1 Subfamily B Member 1 is Induced by CS, and Decreases Survival in CS-exposed, Influenza-Infected Mice.*