

# AMARJIT MISHRA, DVM, MS, Ph.D.

## CONTACT INFORMATION

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Dr. Amarjit Mishra, DVM, MS, Ph.D.

Assistant Professor

Department of Pathobiology

College of Veterinary Medicine

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[Laboratory of Lung Inflammation](#)

## EDUCATION

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**Doctor of Philosophy in Veterinary Biomedical Sciences (Physiology)** 2011  
Oklahoma State University, Stillwater, Oklahoma, USA

**Master's of Animal Biochemistry (MS)** ..... 2005  
Indian Veterinary Research Institute, Bareilly, UP, India

**Bachelor of Veterinary Science and Animal Husbandry (DVM)** ..... 2003  
West Bengal University of Animal & Fishery Sciences, India

## ACADEMIC EMPLOYMENT

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**Assistant Professor** ..... 2017-  
Pathobiology, College of Veterinary Medicine, Auburn University

**Research Fellow** ..... 2016  
Cardiovascular & Pulmonary Branch, NHLBI, NIH, Bethesda

**Postdoctoral Fellow** ..... 2012  
Cardiovascular & Pulmonary Branch, NHLBI, NIH, Bethesda

**Graduate Teaching Associate** ..... 2006  
Physiological Sciences Department, College of Veterinary Medicine,  
Oklahoma State University

## RESEARCH INTERESTS

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- Identification of new pathways that regulate disease pathogenesis in chronic lung disease.
- Biochemical and immunological mechanisms underlying allergen-induced exacerbations of severe asthma.

## TEACHING EXPERIENCE

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**VBMS 7530** ..... **Summer 2018**

Auburn University

**Graduate Teaching Associate** ..... **2006 - 2011**

Department of Physiology

Center for Veterinary Health Sciences

Oklahoma State University, Stillwater, Oklahoma

- Assisted the instructors on record for Veterinary Histology course (*VMED 7123*) for DVM students.
- Assisted the instructor on record for Veterinary Comparative Anatomy course (*VMED 7243*) for DVM students.
- Duties included setting and vetting up the lab, slide conference, X-ray readout, instructing the students, conduct helps sessions and pop quizzes and provide assistance in preparing the instructional materials.
- Participated in marking and moderating assignments and examination scripts, journal-club sessions, training new graduate students in experimental design and interpretation of results.

## AWARDS & HONORS

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- *ATS Abstract Scholarship Award (2017)*, Assembly on Allergy, Immunology & Inflammation Program (AAI), American Thoracic Society International Conference
- *Outstanding Translational Science Award (2015)*, NHLBI Director's Award Winner, National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH)

- *Orloff Science Award* (2015), Division of Intramural Research (DIR), National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH)
- *ATS Abstract Scholarship Award (2013)*, Assembly on Allergy, Immunology & Inflammation Program (AAI), American Thoracic Society International Conference
- The Joe Mack Mason Memorial Scholarship (2011), Office of Veterinary Research & Graduate Education, Center for Veterinary Health Sciences, Oklahoma State University
- Graduate Student travel award (2008), Office of Veterinary Research & Graduate Education, Center for Veterinary Health Sciences, Oklahoma State University
- Young Investigator Award (2008), Society for Experimental Biology and Medicine (SEBM)
- Junior Research Fellowship (2003), Indian Council of Agricultural Research (ICAR), India

## **PROFESSIONAL AFFILIATION & SERVICE**

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### **Grants Service Reviewer**

NIH, Lung Cellular, Molecular, and Immunobiology (LCMI)  
 Study Section, Cardiovascular and Respiratory Sciences ..... 06/18  
 Integrated Review Group, Center for Scientific Review

American Heart Association (AHA), Immunology BSc  
 Fellowship Committee..... 02/18

American Thoracic Society (ATS),  
 Assembly on Allergy, Immunology, & Inflammation..... 05/2018  
 Program (AAI) Planning Committee

### **Editorial Board**

*Associate Editor:* .....2017-  
 BMC Immunology, Plos One



This study will identify functional role of lineage committed DC-progenitors and delineate the mechanisms by which they regulate critical adaptive immune responses in allergic asthma and obesity. This work will further our understanding of regulated hematopoiesis and progenitor proliferation and differentiation and has potential to identify new therapeutic options in the treatment of asthma in obesity.

(Role: *Principle Investigator*)

### **Pending:**

Biomedical Research Grant (BRG)

American Lung Association (ALA)

Total: \$100,000

#### **Critical Role of a Disintegrin and Metalloprotease Enzyme 8 (Adam 8) in Regulating Allergen-Induced Airway Inflammation**

The overall goal of the study is to identify dendritic cell specific role of Adam 8 enzyme in house-dust mite induced experimental murine model of allergic asthma and assess type 2 lung inflammation. This study will determine whether Adam 8 in dendritic cells plays both protective and pathological roles in allergic asthma.

(Role: *Principle Investigator*)

### **Completed Research Support**

CVHS, OSU FY2007-2010 Student Seed Grant, Research Advisory Committee, Center for Veterinary Health Sciences, Oklahoma State University

Novel functions of P2X7Receptor in Acute Respiratory Distress Syndrome (ARDS) patients

Principal Investigator: Lin Liu, PhD.

Associate Investigator: **Amarjit Mishra**, DVM, MS, Ph.D.

Funded: \$3000/year (2007-10)

## **PUBLICATIONS** (Published in peer-reviewed journals as of April 2018)

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1. **Mishra, A.** Metabolic Plasticity in Dendritic cell Responses: Implication in allergic asthma. *Journal of Immunology Research*, Volume 2017 (2017). [[Article ID 5134760](#)]
2. **Mishra, A.**, Yao, X., Saxena, A., Mushaben, EM, Kaler, M., Cuento, RA., Barochia, A V., Dagur, PK., McCoy, JP., Keeran, KJ., Nugent, GZ., Jeffries, KR., Qu, X., Yu, ZX., and Levine, SJ. LDL-receptor related protein-1 Attenuates House Dust Mite-Induced Eosinophilic Airway Inflammation by Suppressing Dendritic Cell-mediated Adaptive Immune Responses. *Journal of Allergy and Clinical Immunology*. 2017 Dec 20. Pii: S0091-6749 (17) 32923-8
3. Huang, C., Xiao, X., Yang, Ye., **Mishra, A.**, Liang, Y., Zeng, X., Yang, X., Xu, D., Blackburn, MR., Henke, CA., and Liu, L. MicroRNA-101 attenuates pulmonary fibrosis by inhibiting fibroblast proliferation and activation. *Journal of Biological Chemistry*. 2017; Oct 6; 292 (40):16420-39.
4. **Mishra, A.**, Guo, Y., Zhang, L., More, S., Weng, T., Chintagari, NR., Huang, C., Liang, Y., Pushparaj, S., Gou, D., Breshears, M., and Liu, L. A critical role for P2X<sub>7</sub> receptor-induced VCAM-1 shedding and neutrophil infiltration during acute lung injury. *Journal of Immunology*. 2016; 197(7):2828-37.
5. **Mishra, A.**, Brown, AL., Yao, X., Yang, S., Park, SJ., Liu, C., Dagur, PK., McCoy, JP., Keeran, KJ., Nugent, GZ., Jeffries, KR., Qu, X., Yu, ZX., Levine, SJ and Chung, JH. Dendritic cells induce Th2-mediated airway inflammatory responses to house dust mite via DNA-dependent protein kinase. *Nature Communications*. 2015; 6:6224.
6. Guo, Y., **Mishra, A.**, Howland, E., Zhao, C., Shukla, D., Weng, T., Liu, L. Platelet-derived Wnt antagonist Dickkopf-1 is implicated in ICAM-1/VCAM-1-mediated neutrophilic acute lung inflammation. *Blood*. 2015 Nov 5; 126(19): 2220-9.

7. Zhang, H., Guo, Y., **Mishra, A.**, Gou, D., Chintagari, NR and Liu, L. MicroRNA-206 regulates surfactant secretion by targeting VAMP-2. *FEBS Letter*. 2015; 589(1): 172-6.
8. Guo, Y., **Mishra, A.**, Weng, T., Chintagari, NR., Wang, Y., Zhao, C., Huang, C and Liu, L. Wnt3a mitigates acute lung injury by reducing P2X7 receptor-mediated alveolar epithelial type I cell death. *Cell Death Disease*. 2014; 5:e1286.
9. **Mishra, A\***, Fredriksson, K\*, Lam, JK\*, Mushaben, EM\*, Cuento, RA., Meyer, KS., Yao, X., Keeran, KJ., Nugent, GZ., Qu, X., Yu, ZX., Yang, Y., Raghavachari, N., Dagur, PK., McCoy, JP and Levine, SJ. The very low density lipoprotein receptor attenuates house dust mite-induced airway inflammation by suppressing dendritic cell-mediated adaptive immune responses. *Journal of Immunology*. 2014; 192(10):4497-509. (\*contributed equally as co-first author).
10. **Mishra, A.**, Yao, X and Levine, SJ. From bedside to bench to clinic trials: identifying new treatments for severe asthma. *Disease Model & Mechanisms*. 2013; 6(4):877-88.
11. **Mishra, A.** New insights of P2X7 receptor signaling pathway in alveolar functions. *Journal of Biomedical Sciences*. 2013; 20:26.
12. Wang, P., Howard, MD., Zhang, H., Chintagari, NR., Bell, A., Jin, N., **Mishra, A** and Liu, L. Characterization of VAMP-2 in the lung: implication in lung surfactant secretion. *Cell Biology International*. 2012; 36(9): 785-91.
13. Weng, T., **Mishra, A.**, Guo, Y., Wang, Y., Su, L., Huang, C., Zhao, C., Xiao, X and Liu, L. Regulation of lung surfactant secretion by microRNA-150. *Biochemistry Biophysical Research Communications*. 2012; 422 (4): 586-9.
14. **Mishra, A.**, Chintagari, NR., Guo, Y., Weng, T., Su, L and Liu, L. Purinergic P2X7 receptor regulates lung surfactant secretion in a paracrine manner. *Journal of Cell Sciences*. 2011; 124(Pt 4): 657-68.

15. Chintagari, NR., **Mishra, A.**, Su, L., Wang, Y., Ayalew, S., Hartson, SD and Liu, L. Vacuolar ATPase regulates surfactant secretion in rat alveolar type II cells by modulating lamellar body calcium. *PLoS One*. 2010; 5(2): e9228
16. Zhang, H., **Mishra, A.**, Chintagari, NR., Gou, D and Liu, L. Micro-RNA-375 inhibits lung surfactant secretion by altering cytoskeleton reorganization. *IUBMB Life*. 2010; 62(1):78-83.
17. Gou, D., **Mishra, A.**, Weng, T., Su, L., Chintagari, NR., Wang, Z., Zhang, H., Gao, L., Wang, P., Stricker, HM and Liu, L. Annexin A2 interactions with Rab14 in alveolar type II cells. *Journal of Biological Chemistry*. 2008; 283(19): 13156-64.

**Complete List of Published Work in [My NCBI Bibliography](#)**

## **ABSTRACT PRESENTATIONS**

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1. Amarjit Mishra, Xianglan Yao, Pradeep Dagur, J. Philip McCoy, Karen J. Keeran Gayle Z. Nugent, Xuan Qu, Zu-Xi Yu, Jay H. Chung and Stewart J. Levine. (2013). The DNA-dependent Protein Kinase Inhibitor, NU-7441, Attenuates the Induction of Experimental House Dust Mite-induced Asthma in Mice. American Thoracic Society Meeting, Philadelphia, Pennsylvania ([Web Link](#)).
2. Yujie Guo., Amarjit Mishra, Emily Howland, Chunling Zhao, and Lin Liu,. (2012). Activation Of Wnt/Beta-Catenin Signaling In Alveolar Epithelial Cells Attenuates VCAM-1/ICAM-1-Mediated Neutrophils Infiltration In Acute Lung Injury; *American Journal of Respiratory and Critical Care Medicine* Volume 185. pp. A5545,. American Thoracic Society Meeting, San Francisco, California. ([Web Link](#))
3. Mishra, A., Guo, Y., Weng,T., Breshears, M. and Liu, L.(2011). P2X7 receptor regulates VCAM-1 dependent neutrophil recruitment during acute lung injury. 22<sup>nd</sup> Annual Research Symposium, Oklahoma State University, Oklahoma.([Web Link](#))



4. Mishra,A., Weng,T., Breshears,M., and Liu, L.(2010). P2X<sub>7</sub> receptor plays a crucial role in LPS-mediated acute lung injury. Selected for presentation in “Highlights: Graduate Students Research in pathology”, ASIP, FASEB meeting, Anaheim, California. ([Web Link](#))
5. Weng, T., Mishra, A., Guo, Y., Wang, Y., Su, L. and Liu, L. (2010). MicroRNA-150 regulates surfactant secretion via P2X<sub>7</sub> Receptors. FASEB meeting, Anaheim, California. ([Web Link](#))
6. Mishra, A., Chintagari, N.R., Guo, Y., Weng, T., and Liu, L. (2009). Decisive coupling in surfactant regulation and AEC communication: P2X<sub>7</sub>R as a dyad player. Phi Zeta Research Day, CVHS, Oklahoma State University, Oklahoma.
7. Guo, Y., Mishra A., Weng, T., Wang,Y., Gou, D., and Liu, L.(2009). Prolonged activation of P2X<sub>7</sub> receptor leads to alveolar epithelial type-I cell death by suppressing Wnt / beta-catenin pathway. FASEB meeting, New Orleans, Louisiana. ([Web Link](#))
8. Mishra, A., Chintagari, N.R., and Liu, L. (2008). Purinergic P2X<sub>7</sub> receptor a pivotal role in surfactant regulation. FASEB meeting, San Diego, California. ([Web Link](#))
9. Mishra, A., Chintagari, N.R., Wang, Y., Bhaskaran, M., and Liu, L. (2008). ATI interacts with ATII via P2X<sub>7</sub>R activation and paracrine ATP release: New insights in surfactant regulation and ATI-ATII communications. Phi Zeta Research Day, CVHS, Oklahoma State University, Oklahoma.