

Shanjana Awasthi, Ph.D.

Associate Professor
Department of Pharmaceutical Sciences
College of Pharmacy
University of Oklahoma Health Sciences Center
University of Oklahoma

Contact Information:

E-mail: Shanjana-Awasthi@ouhsc.edu

Phone: 405-271-6593 Extn: 47332

Fax: 405-271-7505

Office: Rm 324, College of Pharmacy Building, University of Oklahoma, Oklahoma City, OK 73117

Education:

1988: B.S., Chemistry, Zoology, Botany, University of Garhwal, India

1990: M.S., Biosciences, Indian Institute of Technology (IIT), India

1995: Ph.D., Microbiology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, India

1996–2000: Postdoctoral, Pulmonary Biology, Department of Physiology, University of Texas Health Sciences Center at San Antonio (UTHSCSA), TX

2000-2002: Postdoctoral, Molecular Immunology, Feinstein Institute for Medical Research, NY

2005-2006: Categorical Certificate in Clinical Laboratory Sciences with specialization in Microbiology, UTHSCSA, TX

Academic Appointments:

2002-2005: Instructor, Microbiology & Immunology (2002-2003) and Pathology (2003-2005), UTHSCSA, TX

2005- 2006: Research Assistant Professor, Pathology, UTHSCSA, TX

2006-2009: Research Assistant Professor, Pharmaceutical Sciences, OUHSC, OK

2009-2013: Assistant Professor (tenure-track), Pharmaceutical Sciences, OUHSC, OK

2011-2013: Adjunct Assistant Professor, Microbiology and Immunology, OUHSC, OK

2011-present: Associate Member, Stephenson Cancer Center, OUHSC, OK

2013-present: Adjunct Associate Professor, Microbiology and Immunology, OUHSC, OK

2013-2015: Associate Professor (tenure-track), Pharmaceutical Sciences, OUHSC, OK

2015-present: Associate Professor (tenured), Pharmaceutical Sciences, OUHSC, OK

Awards and Honors:

1979-1982: Uttar Pradesh State Board Scholarship, India

1985-1990: National Scholarship for academic achievements, India

1986-1988: Gold Medal for academic achievements in the University, India

1991-1995: Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Research Fellowship during Ph.D.

1993: Abstract selected for best paper award competition at Indian Association of Medical Microbiologists, Calcutta, India

2001: Travel Award, Society for Leukocyte Biology, USA

2008: Travel Award, American Association of Immunologists, USA

2010: Nominated by the University of Oklahoma for PEW Charitable Trusts Scholars Program in the Biomedical Sciences

2010: Travel Award, American Association of Immunologists, USA.

2014: Award for the issuance of a US Patent (US 8623832, Jan 2014) at the Faculty Awards, OUHSC, OK
2016: Invited showcase presentation entitled "Novel peptide-based therapeutic" at the Defense Innovation Technology Acceleration Challenges, TX

Other Experience and Professional Memberships:

2001-2002: Consulting Scientist, Ingenuity Biosystems
2007-present: Certification in Clinical Microbiology, American Society for Clinical Pathology
2009-2012: Member of the Clinical and Laboratory Standards Institute's Document development committee on "Performance of Single Cell Immune Response Assay"
Current membership American Thoracic Society (ATS), American Association of Immunologists, American Society for Clinical Pathology
2013/2014: Mentoring program, ATS Assembly on Microbiology, Tuberculosis and Pulmonary infections (MTPI)
2013-present: ATS-MTPI Assembly Web Committee and Early Career Working Group member
2014-present: ATS-MTPI Webinar Coordinator
2012: Facilitator for a Thematic Poster session: "New concepts in the alveolar surfactant structure and function", ATS 2012 International Conference, CA.
2015: Co-Chair of session "Treatment of respiratory infections", ATS 2015 International Conference, Denver, CO
2016: Co-Chair of session "Cellular/molecular mechanisms and translational aspects of respiratory tract infections", ATS 2016 International Conference, CA
2008-2010: Grant Reviewer, City University of New York Research Grant Program.
2011: Grant reviewer, Graduate Women in Science
2011: Grant reviewer, Special emphasis panel ZAI1 QV-I-M1, NIAID Investigator Initiated Program Project
2012: Grant reviewer, Biotechnology and Biological Sciences Research Council, UK
2013/2014: Department of Veteran Affairs (VA) Merit Review Panel, Infectious Diseases
2014: Ad-hoc reviewer, NIH-Lung Cellular, Molecular and Immunobiology study section
2014-2018: Appointed to serve on the VA Joint Biomedical Laboratory Research and Development (BLR&D) and Clinical Science Research and Development (CSR&D) Services Scientific Merit Review Board as a member of the Panel for Infectious Diseases-B
2016/2017: Grant reviewer, Swiss National Science Foundation, Switzerland
2016: Grant reviewer, NIAID ZAI1-SM-M-M1, Partnerships for the development of host-targeted therapeutics to limit antimicrobial resistance (R01)
2016: Grant reviewer, NIAID ZAI1-LAR-I-M1, Asthma and Allergic Diseases Cooperative Research Centers (U19)
2016/2017: Grant Reviewer, Peer Reviewed Medical Research Program, Department of Defense Congressionally Directed Medical Research Programs

Research Support:

Current:

- 2017-2022: 1R01HL136325-01A1, "Surfactant protein-A regions as TLR4-immunomodulators", Role: PI
- 2013-present: University of Oklahoma Growth Fund, "Immunomodulation by a TLR4-interacting Surfactant protein-A peptide", Role: PI

Past:

- 2013-2017: 1P20GM103648-01, NIH-NIGMS-COBRE, "Control of Lung inflammation by a TLR4-interacting SP-A-derived peptide (Project #3)", Role: PL
- 2013-2014: P20GM103640-01, NIH-NIGMS-COBRE, "Structure-function relation of a TLR4-interacting Surfactant protein-A-derived peptide", Role: Pilot Project Investigator
- 2011-2016: 1R01 HL104286-01A1, NIH-NHLBI, "Biological evaluation of liposome-encapsulated hemoglobin", Role: Collaborator

- 2011-2013: American Heart Association Grant-in-Aid, "Modulation of host defense by SPA-TLR4 interaction", Role: PI
- 2010-2012: 1R21 DE020928-01, NIH-NIDCR, "Host immune response to *Enterococcus faecalis* biofilms", Role: Investigator
- 2007-2010: Oklahoma Center for Advancement of Science and Technology, "Evaluation of a Vaccine for *Coccidioides* in a Mouse Model", Role: PI
- 2008-2010: College of Pharmacy seed grant, OUHSC, "Interaction between Baboon Lung Surfactant Protein-A and Toll-like Receptor 4", Role: PI
- 2007-2010: Cellphire, LLC-Rockville, MD, "Evaluation of freeze-dried platelets in a rabbit model", Role: Co-Investigator
- 2007-2008: Presbyterian Health Foundation, "Immune functions of dendritic cells, TLR, and collectins in preterm baboon lung", Role: PI
- 2004-2007: American Lung Association, "Role of dendritic cells and pathogen-pattern recognition receptors in preterm baboon lung", Role: PI
- 2003-2004: San Antonio Area Foundation, "Development of dendritic cell-based vaccine against *Coccidioides immitis*", Role: PI
- 2002-2003: Southwest Center for Occupational and Environmental Health, "Health effects of environmental exposure to *Stachybotrys chartarum* in mice", Role: PI

Selected Publications:

1. Awasthi S. Intranasal Antifungal Vaccination Using DNA-Transfected Dendritic Cells. *Methods in molecular biology* (Clifton, N.J.). 2017; 1625:75-83. PubMed [journal] PMID: 28584984.
2. Yadav VR, Rao G, Houson H, Hedrick A, Awasthi S, Roberts PR, Awasthi V. Nanovesicular liposome-encapsulated hemoglobin (LEH) prevents multi-organinjuries in a rat model of hemorrhagic shock. *European journal of pharmaceutical sciences : official journal of the European Federation for Pharmaceutical Sciences*. 2016; 93:97-106. NIHMSID: NIHMS810622 PubMed [journal] PMID: 27503458, PMCID: PMC5035221.
3. Rao G, Yadav VR, Awasthi S, Roberts PR, Awasthi V. Effect of liposome-encapsulated hemoglobin resuscitation on proteostasis in small intestinal epithelium after hemorrhagic shock. *American journal of physiology. Gastrointestinal and liver physiology*. 2016; 311(1):G180-91. PubMed [journal] PMID: 27288424, PMCID: PMC4967179.
4. Ramani V, Awasthi S. Toll-like receptor 4-interacting SPA4 peptide suppresses the NLRP3 inflammasome in response to LPS and ATP stimuli. *Journal of leukocyte biology*. 2015; 98(6):1037-48. PubMed [journal] PMID: 26254306, PMCID: PMC4661043.
5. Vilekar P, Rao G, Awasthi S, Awasthi V. Diphenyldifluoroketone EF24 Suppresses Pro-inflammatory Interleukin-1 receptor 1 and Toll-like Receptor 4 in lipopolysaccharide-stimulated dendritic cells. *Journal of inflammation* (London, England). 2015; 12:55. PubMed [journal] PMID: 26401121, PMCID: PMC4580149.
6. Awasthi S, Anbanandam A, Rodgers KK. Structure of a TLR4-interacting SPA4 peptide. *RSC advances*. 2015; 5(35):27431-27438. NIHMSID: NIHMS673414 PubMed [journal] PMID: 25870755, PMCID: PMC4392768.
7. Yadav VR, Vilekar P, Awasthi S, Awasthi V. Hemorrhage-induced interleukin-1 receptor pathway in lung is suppressed by 3,5-bis(2-fluorobenzylidene)-4-piperidone in a rat model of hypovolemic shock. *Artificial organs*. 2014; 38(8):675-83. NIHMSID: NIHMS570406 PubMed [journal] PMID: 24749913, PMCID: PMC4146623.

8. Vilekar P, King C, Lagisetty P, Awasthi V, Awasthi S. Antibacterial activity of synthetic curcumin derivatives: 3,5-bis(benzylidene)-4-piperidone (EF24) and EF24-dimer linked via diethylenetriaminepentacetic acid (EF2DTPA). *Applied biochemistry and biotechnology*. 2014; 172(7):3363-73. PubMed [journal] PMID: 24532443.
9. Peptide compositions that bind TLR-4 Awasthi S. The Board of Regents of the University of Oklahoma, assignee. United States of America US 8,623,832. My Bibliography [patent].
10. Awasthi S. Toll-like receptor-4 modulation for cancer immunotherapy. *Frontiers in immunology*. 2014; 5:328. PubMed [journal] PMID: 25120541, PMCID: PMC4110442.
11. Ramani V, Madhusoodhanan R, Kosanke S, Awasthi S. A TLR4-interacting SPA4 peptide inhibits LPS-induced lung inflammation. *Innate immunity*. 2013; 19(6):596-610. PubMed [journal] PMID: 23475791.
12. TLR4-interacting SPA4 peptide induces localization of bacterial particles in acidic compartments for lysis but inhibits cytokine response Ramani V, Awasthi S. American Association of Pharmaceutical Scientists; 2013; San Antonio, TX. My Bibliography [presentation].
13. TLR4-interacting SPA4 peptide induces phagocytic uptake of Gram-negative bacteria. Singh B, King C, Shankar N, Awasthi S. American Association of Pharmaceutical Scientists; 2013; San Antonio, TX. My Bibliography [presentation].
14. Suppression of lipopolysaccharide (LPS)-induced lung inflammation by a TLR4-interacting SP-A-derived peptide. Ramani V, Awasthi S. American Thoracic Society; 2013; Philadelphia, PA. My Bibliography [presentation].
15. Langer M, Duggan ES, Booth JL, Patel VI, Zander RA, Silasi-Mansat R, Ramani V, Veres TZ, Prenzler F, Sewald K, Williams DM, Coggeshall KM, Awasthi S, Lupu F, Burian D, Ballard JD, Braun A, Metcalf JP. *Bacillus anthracis* lethal toxin reduces human alveolar epithelial barrier function. *Infection and immunity*. 2012; 80(12):4374-87. PubMed [journal] PMID: 23027535, PMCID: PMC3497415.
16. Moriasi C, Subramaniam D, Awasthi S, Ramalingam S, Anant S. Prevention of colitis-associated cancer: natural compounds that target the IL-6 soluble receptor. *Anti-cancer agents in medicinal chemistry*. 2012; 12(10):1221-38. NIHMSID: NIHMS640876 PubMed [journal] PMID: 22583410, PMCID: PMC4239476.
17. Daw K, Baghdayan AS, Awasthi S, Shankar N. Biofilm and planktonic *Enterococcus faecalis* elicit different responses from host phagocytes in vitro. *FEMS immunology and medical microbiology*. 2012; 65(2):270-82. NIHMSID: NIHMS358626 PubMed [journal] PMID: 22333034, PMCID: PMC3366019.
18. Vilekar P, Awasthi S, Natarajan A, Anant S, Awasthi V. EF24 suppresses maturation and inflammatory response in dendritic cells. *International immunology*. 2012; 24(7):455-64. PubMed [journal] PMID: 22378503, PMCID: PMC3385421.
19. Chandrakesan P, Ahmed I, Chinthalapally A, Singh P, Awasthi S, Anant S, Umar S. Distinct compartmentalization of NF- κ B activity in crypt and crypt-denuded lamina propria precedes and accompanies hyperplasia and/or colitis following bacterial infection. *Infection and immunity*. 2012; 80(2):753-67. PubMed [journal] PMID: 22144489, PMCID: PMC3264290.
20. Awasthi S, Singh B, Welliver RC, Dietert RR. Lung dendritic cell developmental programming, environmental stimuli, and asthma in early periods of life. *Journal of allergy*. 2012; 2012:176468. PubMed [journal] PMID: 23209481, PMCID: PMC3503332.