Peer Reviewed Publications

Manuscripts/Reviews as PI - FAMRI/NIH/COBRE-Pilot Project/ SVM CORP (2012-2014)

1. Sahoo, M.K., Osorio, D., Panday, A., and **Batra, S.** (2015). Microbiology of NF-κB: an update. ***Advances in Immunology.*** - In Preparation.
2. **Batra, S. *et al.*** # (2015). Role of lipid rafts in regulating RIP2/NLRP6 signaling in response to .bacterial pneumonia. Journal of Biological Chemistry. -In preparation. **# PI on the project.**
3. **Batra, S. *et al.*** # (2015). Tyrosine phosphorylation of receptor interacting protein (RIP)2 is critical for inflammasome mediated immune response against pulmonary bacterial challenge. ***Journal of Immunology***. – In preparation. **# PI on the project.**
4. **Batra, S. *et al.*** # (2015). Role of immunoproteasomes during pulmonary bacterial challenge. ***Journal of Biological Chemistry*** – In preparation. **# PI on the project.**
5. **Batra, S.,** Cai, S., and Jeyaseelan S (2015). Intratracheal administration of G-CSF but not LTB_4 is important to rescue IL-17R knockout mice against pulmonary gram-negative bacterial infection. ***Journal of Immunology.*** -In preparation.

Publications from my work conducted in United States (2006-Contd)

1. Liliang, J., **Batra, S.,** and Jeyaseelan S. (2015). NLRP3 Does not Regulate Neutrophil Recruitment but Modulates Neutrophil Function in Peritoneum during Polymicrobial Sepsis. ***Blood.*** (In preparation).
2. Cai, S., **Batra, S.**, Langohr, I., Iwakura, Y. and Jeyaseelan S. (2015). IFN-γ Induction by Neutrophil-derived IL-17A Homodimer Augments Pulmonary Antibacterial Defense . ***Journal of Clinical Investigation.*** **In Review**
3. Cai, S., **Batra, S.**, Piero, F.D. and Jeyaseelan S. (2015). NLRP12 modulates host defence through IL-17A-CXCL1 axis. ***Mucosal Immunology*****. In Revision.**
4. Panday, A., Sahoo, M.K., Osorio, D. and **Batra, S.** (2015). NADPH oxidase: an overview- from structure to innate immunity associated pathologies. ***Cellular & Molecular Immunology.*** **12,** 5-23**.**
5. Liliang, J., **Batra, S.**, and Jeyaseelan S. (2014). Deletion of CXCL1 attenuates neutrophil recruitment and function in mouse Polymicrobial Sepsis. ***Journal of Immunology*****.** 193 (7): 3549-58.
6. Baral, P., **Batra, S.,** Zemans, R.L., Downey, D.P., and Jeyaseelan S. (2014). Divergent functions of Toll-Like Receptors during bacterial lung infections. ***American Journal of Respiratory and Critical Care Medicine.*** **2014 Jul 17. [Epub ahead of print]**
7. Cai, S., **Batra, S.**, Wakamatsu, N. and Jeyaseelan S. (2014). NLRP12 regulates Th17 differentiation in C57Bl/6 mice in response to pulmonary *Klebsiella* infection. ***Journal of Experimental Medicine.*** **In Review.**
8. Cai, S.*, **Batra, S.*,** Wakamatsu, N. and Jeyaseelan S. (2012). NLRC4-mediated production of IL-1β modulates mucosal immunity in the lung against Gram-negative bacterial infection. ***Journal of Immunology*****.** 188(11):5623-35. **[*Shared First Authorship]**
9. **Batra, S.,** Cai, S., Balamayooran, G., Kolls, J. K. and Jeyaseelan S. (2012). Intrapulmonary administration of leukotriene B4 augments neutrophil accumulation and responses in the lung to *Klebsiella* Infection in CXCL1 Knockout Mice. ***Journal of Immunology*****.** 188(7):3458-68.
10. Balamayooran, G., **Batra, S.,** Cai, S., Penn, A. and Jeyaseelan S. (2012). Role of CXCL5 in leukocyte recruitment to the lungs during secondhand smoke exposure. ***American Journal of Respiratory Cell and Molecular Biology.*** PMID: 22362385
11. Balamayooran, G., **Batra, S**., Balamayooran, T., Cai, S. and Jeyaseelan S. (2012). Intrapulmonary G-CSF reverses neutrophil recruitment to the lung and neutrophil release to blood to Gram-negative bacterial infection in MCP-$1^{-/-}$ mice. ***Journal of Immunology.*** 2012 Nov 5. [Epub ahead of print].
12. **Batra, S.[#],** Balamayooran, G., Sahoo M.K. (2011). Nuclear Factor- κB; a key regulator during health & disease of lungs. ***Archivum Immunologiae et Therapiae Experimentalis.*** 2011 Jul 26. [Epub ahead

of print] . PMID: 21786215 **[# Corresponding Author][Listed in Top 20 articles published in this domain since its publication: Report by BIOMEDLIB].**

13. Balamayooran, T., **Batra, S.,** Balamayooran, G., Cai, S., Kobayashi, K.S., Flavell, R.A. and Jeyaseelan S. (2011) Receptor-interacting protein 2 controls pulmonary host defense to *Escherichia coli* infection via the regulation of interleukin-17A. ***Infection and Immunity.*** 79(11), 4588-4599. **[SPOT LIGHT IN Infection & Immunity, (IAI5641-11)] . doi:10.1128/IAI.05641-11**
14. Balamayooran, G., **Batra, S.,** Balamayooran, T., Cai, S. and Jeyaseelan S. (2010). Mice lacking MCP-1 show impaired neutrophil-mediated host defense in the lung against *E. coli*. ***Infection and Immunity.*** **79(7),** 2567-77.
15. Cai , S., **Batra, S.**, Sergio A. Lira, Jay K. Kolls and Jeyaseelan S. (2010). CXCL1 induced by IL-17 regulates NF-κB, MAP Kinases, CXCL2 and CXCL5 in the lungs during *Klebsiella* pneumonia. ***Journal of Immunology.*** 2010, doi:10.4049/jimmunol.0903843
16. **Batra, S.,** Ravi P. S., Khandala, P.K. and Srivastava, S.K. (2010). Benzyl isothiocyanate –mediated inhibition of histone deacetylase leads to NF-κB turnoff in human pancreatic carcinoma cells. ***Molecular Cancer Therapeutics.*** 1535-7163.MCT-09-1146; Published OnlineFirst May 18, 2010. **[Featured IN NUTRITION FRONTIERS, Volume 1, Issue 4, An NSRG, NCI, NIH Publication.]**
17. Ravi P.S., **Batra, S.,** Brown T.L. and Srivastava, S.K. (2010)**.** Mutation in K-Ras gene is associated with resistance to TRAIL-induced apoptosis in pancreatic and lung cancer cell lines. ***Cancer Chemotherapy and Pharmacology.*** DOI: 10.1007/s00280-010-1463-1
18. Wood, K.L., Nunley, D.R., Bruce, S.M., Harman,A.P., Huang, Q., Shamo, E.N., Philips, G.S., Baran, C., **Batra, S.**, Marsh, C.B. and Doseff, A.I. (2010). The Role of heat shock protein 27 in bronchiolitis obliterans syndrome after lung transplantation. ***Journal of Heart and Lung Transplantation.*** DOI: 10.1016/j.healun.2010.03.004.
19. Wood, K.L., Voss, O.H., Huang, Q., Parihar, A., Mehta, N., **Batra, S.**, Porcu, P. and Doseff, A.I. (2010). The small heat shock protein 27 is a key regulator of CD8+CD57+ lymphocyte survival. ***Journal of Immunology*** . doi:10.4049/jimmunol.0902953. **[Featured IN THIS ISSUE of *Journal of Immunology* , 184, 5421-5422].**
20. Ravi P.S., **Batra, S.**, and Srivastava, S.K. (2009). Activation of ATM/Chk1 by curcumin causes cell cycle arrest and apoptosis in human pancreatic cancer cells. ***British Journal of Cancer.*** 100, 1425-1433.
21. Ravi P.S., Zhang, R., **Batra, S.**, Shi, Y and Srivastava, S.K. (2009). Benzyl isothiocyanate mediated generation of reactive oxygen species causes cell cycle arrest and induces apoptosis via activation of MAPK in human pancreatic cancer cells ***Carcinogenesis.*** doi:10.1093/carcin/bgp157, June 23.
22. Balamayooran, G., **Batra, S.**, Fessler, M.B., Happel, K.H. and Jeeyaseelan, S. (2009). Mechanisms of neutrophil accumulation in the lungs against bacteria. (Translational Review). ***American Journal of Respiratory Cell and Molecular Biology.*** doi:10.1165/rcmb.2009-0047TR, September 8.
23. Cai , S., **Batra, S.**, Shen, L., Wakamatsu, N., and Jeyaseelan S. (2009). Both TRIF-dependent and independent signaling contribute to survival and bacterial clearance in pulmonary *Klebsiella* infection. ***Journal of Immunology***. October 21, 2009, doi:10.4049/jimmunol.0901033.
24. Nicholas, C.*, **Batra, S.** *, Vargo, M.A. *, Voss, O.H., Gavrilin, M.A., Wewers, M.D., Guttridge, D., Grotewold, E., and Doseff, A.I. (2007). Apigenin blocks lipopolysaccharide-induced lethality in vivo and proinflammatory cytokines expression by inactivating NF-κB through the suppression of p65 phosphorylation . ***Journal of Immunology.*** 179 (10), 7121-7127. **[*Contributed equally]**
25. Voss, O.H. *, **Batra, S**. *, Kolattukudy, S.J., and Doseff, A.I. (2007). Binding of caspase-3 prodomain to heat shock protein 27 regulates monocyte apoptosis by inhibiting caspase-3 proteolytic activation. ***Journal of Biological Chemistry.*** 282 (34), 25088-25099. **[*Contributed equally]**

Publications from my work conducted in United States as a Visiting Scientist (2002-2003)

26. Huang, W., **Batra, S**., Korrapati, S., Mishra, V., and Mehta, K.D. (2006). Selective repression of low-density lipoprotein receptor expression by SP600125: coupling of histone H3-ser10 phosphorylation and Sp1 occupancy**.** ***Molecular and Cellular Biology***. 26(4): 1307-1317.
27. Huang, W., **Batra, S.**, Atkins, B.A., Mishra, V., and Mehta, K.D. (2005). Increases in intracellular calcium dephosphorylate histone H3 at Serine 10 in human hepatoma cells: potential role of protein phosphatase 2A-protein kinase CII complex. ***Journal of Cellular Physiology***. 205(1): 37-46.
28. Huang, W., Mishra, V., **Batra, S.**, Dillon I., and Mehta, K.D. (2005). Phorbol ester promotes histone H3-Ser10 phosphorylation at low density lipoprotein receptor promoter in a protein kinase C-dependent manner in human hepatoma HepG2 cells. ***Journal of Lipid Researc.*** **45:** 1519-1527.

Publications from my work conducted in India as Incharge-Dept. of Biochem., KSCH (1993-2006)

29. Chandra, J., Jain, V., Narayan, S., Sharma, S., Singh, V., **Batra, S**. and Dutta, A.K. (2006). Tremors and thrombocytosis during treatment of megaloblastic anaemia. ***Annals of Tropical Pediatrics.*** 26(2), 101-105.
30. Ojha, R.K., Singh, S.K., **Batra, S.**, Sreenivas, V. and Puliyel, J.M. (2006). Lactate: creatinine ratio in babies with thin meconium staining of amniotic fluid. ***BMC Pediatrics.*** 6(13), 1-9.
31. Arora, P., Kumar, V., **Batra, S.** (2002). Vitamin A status in children with asthma. ***Pediatric Allergy and Immunology.*** **13:** 223-226.
32. Chandra, J., Jain, V., Narayan, S., Sharma, S., Singh, V., Kapoor, A.K., **Batra, S.** (2002). Folate and cobalamin deficiency in megaloblastic anemia in children. ***Indian Pediatrics.*** **39:** 453-457.
33. Dubey, N.K., Dey, P.K., Saxena, S., **Batra, S.**, Khapekar, P., Gupta, A**.** (2001). Serum nitrite and urinary nitrite excretion in nephrotic syndrome. ***Indian Pediatrics.*** **38(9):** 1025-1029.
34. **Batra, S[#].**, Kumar, R., Seema, A.K., Kapoor, A.K., Ray, G.N. (2000). Alterations in antioxidant status during neonatal sepsis. ***Annals of Tropical Pediatrics.*** **20:** 27-33. **[[#] Corresponding Author]**
35. Ray, G.N., Aneja, S., Jain, M., **Batra, S[#].** (2000). Status of free radicals in childhood meningitis ***Annals of Tropical Pediatrics.*** **20:** 115-120. **[[#] Corresponding Author]**
36. Ray, G.N., **Batra, S.**, Shukla, N.K., Deo, S., Raina, V., Ashok, S., Husain, S.A. (2000). Lipid peroxidation, free radical production and antioxidant status in Breast Cancer. ***Breast Cancer Research and Treatment.*** **1586**: 1-10.
37. Dubey, N.K., Yadav, P., Dutta, A.K., Kumar,V., Ray, G.N., **Batra, S.** (2000). Free oxygen radicals in acute renal failure. ***Indian Pediatrics.*** **37:** 153-158.
38. Dutta, A.K., Aggarwal, A., Kapoor, A.K., Ray, G.N., **Batra, S.** (2000). Seroepidemiology of Hepatitis A in children in Delhi. ***Indian Journal of Pediatrics.*** **67(2):** 77-79.
39. Jain, M., Aneja, S., Mehta, G., Ray, G.N., **Batra, S.**, Randhava, V.S. (2000). CSF interleukin-1 beta, tumor necrosis factor alpha and free radical's production in relation to clinical outcome in acute bacterial meningitis. ***Indian Pediatrics.*** 37(6): 608-614.
40. Seema, Kumar, R., Mandal, R.N., Tandon, A., Randhawa, V.S., Mehta, G., **Batra, S.**, Ray, G.N., Kapoor, A.K. (1999). Serum TNF-alpha and free radical scavengers in neonatal septicemia. ***Indian Journal of Pediatrics.*** **66(4):** 511-516.
41. Singh, S.K., Dua, T., Tandon, A., Kumari, S., Ray, G.N., **Batra, S.** (1999). Status of lipid peroxidation and antioxidant enzymes in Hypoxic- Ischemic Encephalopathy. ***Indian Pediatrics.*** **36:** 561-566.

42. Ray, G.N., **Batra, S.**, Kumar, A., Husain, S.A. (1999). Free radical production and antioxidant status in Breast Cancer. ***Toxicology and Environmental Health.*** 231-237.
43. Ray, G.N., Kumar, V., Kapoor, A.K., Dutta, A.K., **Batra, S.** (1999). Status of antioxidants and other biochemical abnormalities in children with Dengue fever. ***Journal of Tropical Pediatrics.*** **45:** 4-7.
44. **Batra, S[#].**, Ray, G.N., Singh, S.K., Kumari, S., Ravi, R.N.M., Tandon, A. (1998). Respiratory diseases in children are associated in serum free radical scavenging activity. ***Medical Science Research.*** **26(5):** 357- 359. **[[#]Corresponding Author]**
45. **Batra, S[#].**, Ray G.N., Dutta, A.K. (1998). Free radical production during perinatal birth asphyxia. ***Medical Science Research.*** **26(5):** 323- 325. **[[#]Corresponding Author]**
46. Ray, G.N., Husain, S.A., Dutta, A.K., **Batra, S.** (1998). Lipid peroxidation and antioxidant status in asphyxiated neonates. ***Medical Science Research.*** **26(3):** 2001-2002. **[[#] Corresponding Author]**
47. Nangia, S., Saili, A., Dutta, A.K., **Batra, S.**, Ray, G.N. (1998). Free oxygen radical as predictors of neonatal outcome following perinatal asphyxia. ***Indian Journal of Pediatrics.*** **65:** 419-427.
48. Singh, S.K., Tandon, A., Kumari, .S. Ravi, R.N.M., Ray, G.N., **Batra, S.** (1998). Changes in antioxidant enzymes and lipid peroxidation in hyaline membrane disease. ***Indian Journal of Pediatrics.*** **65:** 609-615.

<u>Publications from my work conducted in India as a Research Fellow for my Ph.D. (1987-1993)</u>

49. **Batra, S.**, Singh, S.P., Fatma, N., Sharma, S., Chatterjee, R.K., Srivastava, V.M.L. (1994). Effect of 2,2'-dicarbomethoxylamino-5,5'-dibenzimidazolyl ketone on antioxidant defences of A*canthocheilonema viteae* and its laboratory host *Mastomys natalensis* : (Pt) Effect of C.D.R.I. based compounds. Proceedings of CSIR Golden Jubliee Symposium on Tropical Diseases. ***Molecular Biology and Control Strategies.*** 29-33.
50. **Batra, S.**, Srivastava, J.K., Gupta, S., Katiyar, J.C., Srivastava, V.M.L**.** (1993). Role of reactive oxygen intermediates in expulsion of *Nippostrongylus brasiliensis* from rat. ***Parasitology.*** **106:** 185-192
51. **Batra, S.**, Singh, S.P., Fatma, N., Chatterjee, R.K., Srivastava, V.M.L. (1992). Effect of 2, 2'-dicarbomethoxylamino-5, 5'- dibenzimidazolyl Ketone on antioxidant defences of *Acanthocheilonema viteae* and its laboratory host *Mastomys natalensis* . ***Biochemical Pharmacology.*** **44:** 727-731.
52. **Batra, S.**, Chatterjee, R.K., Srivastava, V.M.L. (1992). Antioxidant system of *Litomosoides carinii* and *Setaria cervi:* effect of a microfilaricidal agent. ***Veterinary Parasitology.*** **143:** 93-103.
53. Singh, S.P., **Batra, S.**, Gupta, S., Katiyar, J.C., Srivastava, V.M.L**.** (1992). Effect of *Ancylostoma ceylanicum* infection on antioxidant system in hamster tissues. ***Medical Science Research.*** **20:** 605-608.
54. Srivastava, J.K., **Batra, S.**, Gupta, S., Katiyar, J.C., Srivastava, V.M.L. (1992). Effect of anthelmentics on the antioxidant system of *Nippostrongylus brasiliensis.* ***Biochemical Pharmacology.*** **43(2):** 289-293.
55. **Batra, S.**, Chatterjee, R.K., Srivastava, V.M.L. (1990). Antioxidant enzymes in *Acanthocheilonema viteae* and effect of antifilarial agents. ***Biochemical Pharmacology.*** **40(10):** 2363-2369.
56. **Batra, S.**, Singh, S.P., Gupta, S., Katiyar, J.C., Srivastava, V.M.L. (1990). Reactive oxygen intermediates metabolizing enzymes in *Ancylostoma ceylanicum* and *Nippostrongylus brasiliensis* . ***Free Radical Biology and Medicine.*** **8:** 271-274.

57. Jain, M.K., **Batra, S.**, Gupta, S., Katiyar, J.C., Srivastava, V.M.L. (1989). Impact of *Cysticercus fasciolaris* infection on reactive oxygen intermediates metabolizing enzymes in rat liver. ***Medical Science Research.*** **17:** 1051-1053.
58. Singh, S.P., **Batra, S.**, Gupta, S., Katiyar, J.C., Srivastava, V.M.L. (1989). Effect of *Ancylostoma ceylanicum* infection in hamsters on enzymes that metabolize reactive oxygen intermediates. ***Medical Science Research.*** **17:** 493-495.
59. **Batra, S.**, Singh, S.P., Srivastava, V.M.L., Chatterjee, R.K. (1989). Xanthine oxidase, superoxide dismutase, catalase and lipid peroxidation in *Mastomys natalensis*: Effect of *Dipetalonema viteae* infection. ***Indian Journal of Experimental Biology.*** **27:** 1067-1070.
60. Singh, S.P., **Batra, S.**, Gupta, S., Katiyar, J.C., Srivastava, V.M.L. (1989). Leucine amino peptidase in host tissues during *Ancylostoma ceylanicum* and *Dipetalonema viteae* infection. ***Indian Journal of Parasitology.*** **13(2):** 187-190.

Presentations at National & International Meetings

Presentations from the work as PI - COBRE Pilot Project/NIH R15/ FAMRI/CORP (2012-Contd)

2014 **J.O. Ellison, Batra, S.[#],** Cai, S., Baral, P., Penn, A. and Jeyaseelan, S. NLRP12 mediated regulation of inflammatory responses in the lungs during Cigarette smoke exposure **Phi Zeta Research Emphasis Day. Sept 24, 2014. LSU School of Veterinary Medicine. Baton Rouge. [#] PI on the project.**

2014 **S. Batra [#],** Cai, S., Baral, P., Penn, A. and Jeyaseelan, S. NLRP10 regulates second-hand smoke inflammatory responses in C57Bl/6 mice. **FAMRI Symposium May 5-7, Miami, Florida. [#] PI on the project.**

2014 **S. Batra.** [#] Lipid rafts influence NLR mediated immune responses against bacterial infections. **Invited Speaker** at 'The 2014 Innate Immunity **Summit**' **London, UK, November 2014**. **[#] PI on the project.**

2013 W.J. Kuhs, J. Liliang, S. Jeyaseelan, and **S. Batra[#]**. Lipid rafts influence the formation of immunoproteasomes via RIP2/NLR pathway against *Klebsiella pneumoniae*. **2013 SE Regional IDeA Meeting , Little Rock, Arkansas. [Highlighted Speaker]; [#] PI on the project.**

2013 S. Khiste, **S. Batra,** S., Jeyaseelan, and R. Uppu. Utake, internalization and quantification of LHRH tagged GOLD coated superparamagnetic iron oxide nanoparticles in cancerous MCF-7 cells. **Phi Zeta Research Emphasis Day. Sept 25, 2013. LSU School of Veterinary Medicine. Baton Rouge.**

2013 W.J. Kuhs, S. Jeyaseelan, X. Li and **S. Batra [#]**. Role of immunoproteasomes in RIP2/NLR mediated signaling in response to *Klebsiella pneumoniae.* **Phi Zeta Research Emphasis Day. Sept 25, 2013. LSU School of Veterinary Medicine. Baton Rouge. [#] PI on the project.**

2013 J. Irons, S. Cai, S. Jeyaseelan and **S. Batra [#]**. Lipid Rafts/caveolae play critical roles in regulating inflammasome mediated inflammatory responses against *Klebsiella pneumoniae.* **American Thoracic Society Meeting, Philadelphia. [Oral Presentation], [#] PI on the project.**

2013 **S. Batra [#],** J. Irons, S. Cai, and S. Jeyaseelan. Post-translational modification of receptor interacting protein (RIP2) is important for regulating cytokines/chemokines expression in response to *Klebsiella pneumoniae.* **American Thoracic Society Meeting, Philadelphia. [Oral Presentation], [#] PI on the project.**

2012 J. Irons, S. Cai, T. Balamayooran, S. Jeyaseelan and **S. Batra[#].** Receptor interacting protein (RIP)2 mediated signaling in response to pulmonary *Klebsiella* infection. **Tuskegee Phi Zeta Research Emphasis Day. [Awarded Second Place]. [#] PI on the project.**

2012 J. Irons, S. Cai, S. Jeyaseelan and **S. Batra[#].** Tyrosine phosphorylation of receptor interacting protein (RIP)2 is important for regulating immune responses against pulmonary *Klebsiella* infection. **Merial-NIH National Veterinary Scholars Symposium.Colorado. [#] PI on the project.**