

## Dr. Dhananjay Shukla

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### PROFILE

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- Experience with *in-vivo* development and characterization of mouse and rat models of cardiopulmonary diseases.
- Expertise in molecular biology techniques Immunohistochemistry, immunocytochemistry, Insitu hybridization, FISH, microarray, qRT-PCR, western blotting, ELISA, molecular cloning, PCR, mammalian cell culture, *in-vitro* and *in-vivo* assay of primary cell functions, generation of stable cell lines.
- Highly proficient in conducting experiments on bacterial, mammalian cell culture and animal system.
- Conceptualization of novel projects in both academic and applied areas.

### EDUCATION

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- **Doctor of Philosophy (Biotechnology)** **July 2009**  
*Defence Institute of physiology and Allied Science and Jamia Hamdard University, Delhi*
- **Masters of Science (Biotechnology)** **June 2003**  
*Awadhesh Pratap Singh University, Rewa, Madhya Pradesh*
- **Bachelors of Sciences** **June 1999**  
*Awadhesh Pratap Singh University, Rewa, Madhya Pradesh*

### TEACHING EXPERIENCE

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- **Assistant Professor** **June 2012 – June 2013**  
*Department of Biotechnology  
GITAM Institute of Science, GITAM University, Visakhapatnam, AP, India*
- **Assistant Professor** **April 2012 – June 2012**  
*Department of Biotechnology  
Dr. D.Y. Patil Biotechnology and Bioinformatics Institute, Tathawade, Pune, India*
- **Guest Faculty** **March 2012 - April 2012**  
*Centre for Biotechnology  
Awadhesh Pratap Singh University, Rewa, MP, India*

### RESEARCH EXPERIENCE

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**Postdoctoral Fellow** **September 2010 - February 2012**  
*Lunderberg-Kienlen Lung Biology and Toxicology Laboratory  
Centre for Veterinary Health Sciences, Physiological Sciences Department  
Oklahoma State University, OK, USA*

- Protocol development design and implementation pertaining to pulmonary disease model namely Broncho pulmonary dysplasia, acute respiratory distress syndrome and pulmonary fibrosis in rat and mice model.
- Established protocol for the mice alveolar primary epithelial cell culture, immunohisto and cytochemistry, real time PCR, ELISA and microscopy.
- Cloning and expression of recombinant genes and generation of stable cell lines.
- Genotyping and maintenance of miR-150 knockout mouse colony.
- Training graduate students, NIH summer researcher and under graduate students in the techniques routinely used in the laboratory.
- Writing project proposals for extra and intramural funding.

**Postdoctoral Fellow**

**July 2009 - August 2010**

*Laboratory of Cell Signalling*

*Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad, AP, India*

- Development of biochemical assay to measure Inorganic polyphosphate levels in platelets.
- Differential expression of genes in wild type and Inositol hexakisphosphate kinase (IP6K) knockout mouse embryonic fibroblast by microarray analysis and validation by real time PCR.
- Genotyping and maintenance of IP6K knockout mouse colony.
- Identification of differentially expressed protein in wild type and IP6K knockout animals by two dimensional gel electrophoresis followed by their identification by MALDI TOF.
- Training graduate students, summer researcher and under graduate students in the techniques routinely used in the laboratory.

**Senior Research Fellow**

**September 2006 - June 2009**

*Defence Institute of Physiology and Allied Sciences,*

*Defence Research and Development Organization (DRDO), Delhi, India*

- Identification of proteomic biomarker for the early detection of high altitude pulmonary edema using 2D gel electrophoresis and MALDI TOF in plasma of HAPE patients.
- Confirmation of identified biomarker by western blotting and ELISA.

**Junior Research Fellow**

**September 2004 - August 2006**

*Defence Institute of Physiology and Allied Sciences,*

*Defence Research and Development Organization (DRDO), Delhi, India*

- Global gene expression analysis by microarray during hypoxic adaptation followed by confirmation using real time PCR.
- Establishing animal model to study hypoxia induced pulmonary edema in rats.

**Master's Project**

**January 2003 - August 2003**

Bhabha Atomic Research Centre, Trombay, Mumbai, India

## RESEARCH GRANTS AND FUNDINGS

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- DST Fast-Track Proposal for young investigator “Role of GPNMB in pathogenesis of bronchopulmonary dysplasia” **Role: Principal Investigator. (Awarded)**
- UGC Major Research proposal “Therapeutic approach for Hutchinson Gilford Progeria Syndrome using antioxidant and mitochondrial biogenesis enhancer”. **Role: Principal Investigator. (Awarded)**
- Seed grant proposal entitled “Role of microRNA-150 in the pathogenesis of bronchopulmonary dysplasia” Awarded by research advisory committee, Centre for Veterinary Health Sciences, Oklahoma State University, Oklahoma, USA (2011-2012). **Role: Principal Investigator. (Completed)**

## AWARDS

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- *Postdoctoral Fellowship* Awarded by Department of Biotechnology for the year 2009 – 2010.
- *Senior Research fellowship* Awarded by University Grant commission for the year 2006 – 2009.
- *Junior Research Fellowship* Awarded by University Grant Commission for the year 2004 - 2006.
- *Junior Research Fellowship* Awarded by Indian Council of Medical Research for the year 2004.
- Qualified *National Eligibility Test (CSIR-NET)* for Lecturership conducted by Council of Scientific and Industrial Research in year 2004.
- Qualified *Graduate Aptitude Test in Engineering (GATE)* conducted by Indian Institute of Technology in year 2004.

## PROFESSIONAL AFFILIATIONS

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Indian Immunological Society

Life Member

## PROFESSIONAL TRAININGS

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- Participated in CME cum workshop on “Modern recording techniques in physiology and pharmacology” on February 2007 at Vallabhshai Patel Chest Institute, University of Delhi, India.
- Microarray Training at Genotypic Technologies Bangalore, India on August 2007.

## PUBLICATIONS

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1. Somadri G, **Dhananjay S**, Suman Komjeti, Jothi L, Manorama R, Satish K, Rashna Bhandari. Inositol hexakisphosphate kinase 1 maintains hemostasis in mice by regulating platelet polyphosphate level. *Blood* 122; (2013) 1478-1486. Impact Factor(IF) : **9.06** Citation: **1**
2. Mrinalini S, Pauline T, **Dhananjay S**, Rajkumar T, Saurabh S, Anju B. Effect of subchronic hypobaric hypoxia on oxidative stress in rat heart. *Applied Biochemistry and Biotechnology* 169; (2013) 2405-2419. IF: **1.89** Citation: **0**
3. Saurabh S, **Dhananjay S**, Anju B. Augmentation of aerobic respiration and mitochondrial biogenesis in skeletal muscles by hypoxic preconditioning with cobalt chloride. *Toxicology and Applied Pharmacology* 264; (2012) 324-334. IF: **3.97** Citations: **3**

4. **Dhananjay S**, Yasmin A, Iti G, Narendra KS, Saurabh S, Vineeta KM, Kalpana B. Identification of Haptoglobin and Apolipoprotein A-1 as biomarkers of high altitude pulmonary edema. **Functional and Integrative Genomics** 11; (2011) 407-417. (Equal Authorship)  
IF: 3.29 Citations: 7
5. **Dhananjay S**, Saurabh S, Jayamurthy P, Kalpana Shrivastava, Shirish Shukla, Mrinalini S, Swatantra KJ, Anju B. Hypoxic preconditioning with cobalt ameliorates hypobaric hypoxia induced pulmonary edema in rat. **European Journal of Pharmacology** 656; (2011) 101-109.  
IF:2.59 Citations: 12
6. Pauline T, Anju B, Mrinalini S, **Dhananjay S**, Saurabh S. Preconditioning effect of Cobalt chloride supplementation on hypoxia induced oxidative stress in male albino rats. **Biomedicine and Preventive Nutrition** 1; (2011) 84-90.
7. Mrinalini S, **Dhananjay S**, Thomas P. Saurabh S, Anju B. Hypoxic preconditioning facilitates acclimatization to hypobaric hypoxia in rat heart. **Journal of Pharmacy and Pharmacology** 62; (2010) 1729-39. IF: 2.03 Citations: 4
8. Saurabh S, **Dhananjay S**, Shashank S, Yasmin AK, Mrinalini S, Anju B, Sairam M, Swatantra KJ. Hypoxic preconditioning by cobalt chloride enhances endurance performance and protects skeletal muscles from exercise induced oxidative damage in rats. **Acta Physiologica** 200; (2010) 249-263. IF: 4.38 Citations: 10
9. Himadri P, Sarada SKS, Chitaranjan M, **Dhananjay S**. Role of oxidative stress and inflammation in hypoxia induced cerebral edema: a molecular approach. **High Altitude Medicine and Biology** 11; (2010) 231-244. IF: 2.12 Citations: 15
10. **Dhananjay S**, Saurabh S, Jayamurthy P, Sairam M, Mrinalini S, Swatantra KJ, Anju B, Ilavazhagan G. Hypoxic preconditioning with cobalt attenuates hypobaric hypoxia induced oxidative damage in rat lung. **High Altitude Medicine and Biology** 10; (2009) 57-69.  
IF: 2.12 Citations: 21
11. Nadeem K, **Dhananjay S**, Anju B, Sairam M, Ilavazhagan G. Immunogenicity and protective efficacy of GroEL (hsp 60) of *Streptococcus pneumoniae* against lethal infection in mice. **FEMS Immunology and Medical Microbiology** 56; (2009) 56-62. IF: 2.44 Citations: 16
12. Kalpana S, **Dhananjay S**, Anju B, Lily G, Sairam M. Cobalt chloride attenuates hypobaric hypoxia induced vascular leakage in rat brain: Molecular mechanism of action of cobalt chloride. **Toxicology and Applied Pharmacology** 231; (2008) 354-363. IF: 3.97 Citations: 18
13. Kalpana S, **Dhananjay S**, Anju B, Ilavazhagan G, Sairam M, and Banerjee PK; Neuroprotective effect of cobalt chloride on hypobaric hypoxia induced oxidative stress. **Neurochemistry International** 52; (2008) 368-375. IF: 2.65 Citations: 33
14. Jayamurthy P, Geetha S, **Dhananjay S**, Himani J, Harinath K, Rajesh K, Sawhney RC. Modulatory effects of seabuckthorn (Hippophae rhamnoides L) in hypobaric hypoxia induced cerebral vascular injury. **Brain Research Bulletin** 77; (2008) 246-252. IF: 2.93 Citations: 25
15. Jayamurthy P, Geetha S, **Dhananjay S**, Harinath K, Ratan K, Sawhney RC, Arumughan C. Modulation of hypoxia induced pulmonary vascular leakage in rats by Seabuckthorn (Hippophae rhamnoides L.). **Evidence Based Complementary and Alternative Medicine** 8; (2009) 1-13. IF: 1.72 Citations: 6
16. Nadeem K, Anju B, **Dhananjay S**, Piyush P, Sarada SKS, Sairam M, Pratul KB. Immunogenicity and protective efficacy of Dnaj of *Streptococcus pneumoniae* in mice. **Vaccine** 24; (2006) 6225-6231. IF: 3.49 Citations: 23

- 17.17. Badri NP, Sarma HD, **Dhananjay S** and Kaushal PM. Low dose radiation induced modification of ROS and apoptosis in thymocytes of whole body irradiated mice. *International Journal of Low Radiation* 2; (2006) 111-118. IF: 0 Citations: 11

#### ABSTRACT PRESENTATIONS

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- **Dhananjay S**, Kalpana S, Saurabh S, Anju B, Sairam M, Ilavazhagan G, Banerjee PK. Administration of cobalt chloride prevents high altitude pulmonary damage in rats. 4<sup>th</sup> congress of Federation of Indian Physiological Societies (FIPS) Jan 11-13 2007, Delhi, India.
- Jayamurthy P, **Dhananjay S**, Geetha S, Ratan K, Sawhney RC. Acute hypoxia induced VEGF causes vascular permeability in rats. *Indian Journal of Clinical Biochemistry*. 22; 2007, 443 (Suppl).

#### PLATFORM/POSTER PRESENTATIONS

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1. “8<sup>th</sup> National Conference on Biodiversity Conservation, Biotechnology and Environmental Management and Research” Department of Biotechnology and Botany, Govt. New Science College, Rewa, MP, March 16-17, 2013. **Invited Lecture.**
2. “XXXIII All India Cell Biology Conference”, School of Life Sciences, University of Hyderabad, India, December 10-13, 2009.
3. “2<sup>nd</sup> Indian Peptide Symposium”, National Institute of Immunology, New Delhi, India, February 26-27, 2009.
4. *International symposium on “Novel strategies for targeted prevention and treatment of cancer”*, School of Life Sciences, Jawaharlal Nehru University, New Delhi, India, December 19-20, 2008.
5. “4<sup>th</sup> Congress of Federation of Indian Physiological Societies”, Defence Institute of Physiology and Allied Sciences (DIPAS), Delhi, India, January 11-13, 2007. **Poster presentation.**
6. “33<sup>rd</sup> annual conference of Indian Immunological Society (IMMCON)”, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi, India, January 28-31, 2007.
7. *International Conference on “Cardiopulmonary regulation in health and disease: molecular and systemic integration”*, Vallabhbai Patel Chest Institute, University of Delhi, India, February 22-24, 2007. **Platform presentation.**
8. “34<sup>th</sup> Annual Conference of Association of Clinical Biochemists of India (ACBICON)”, New Delhi, India December 17-20, 2007. **Poster Presentation.**
9. “51<sup>st</sup> Annual conference of the Association of Physiologists and Pharmacologists of India (APPICON 2005)”, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondichery, India, December 12-15, 2005. **Platform presentation.**

## **REFERENCES**

### **1. Dr. Anju Bansal**

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National Institute for Interdisciplinary Science and Technology (CSIR)  
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