

Curriculum Vitae  
**Prof. Rajiv K. Saxena**

*Ph.D. FASc, FNASc, FNA*  
*JC Bose National Research Fellow*  
*Faculty of Life Sciences and Biotechnology &*  
*South Asian University*  
*New Delhi 110021*

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<b><i>Contents</i></b>	<b><i>Page</i></b>
<b><i><u>Summary CV</u></i></b>	<b><i>2</i></b>
<b><i>Career Highlights</i></b>	<b><i>3</i></b>
<b><i>Personal details</i></b>	<b><i>4</i></b>
<b><i>Education</i></b>	<b><i>5</i></b>
<b><i>Experience &amp; Appointments</i></b>	<b><i>5</i></b>
<b><i>Awards / Distinctions / Honors / Memberships</i></b>	<b><i>7</i></b>
<b><i>Students / Teaching</i></b>	<b><i>11</i></b>
<b><i>University Administration</i></b>	<b><i>13</i></b>
<b><i>Contribution to the establishment of SAU</i></b>	<b><i>15</i></b>
<b><i>Research Grants</i></b>	<b><i>18</i></b>
<b><i>Conferences / Workshops organized</i></b>	<b><i>20</i></b>
<b><i>Selected invitations</i></b>	<b><i>20</i></b>
<b><i>Editorial Work</i></b>	<b><i>26</i></b>
<b><i>Patents / Consultancies</i></b>	<b><i>27</i></b>
<b><i>General articles</i></b>	<b><i>27</i></b>
<b><i>Current Research Interests</i></b>	<b><i>28</i></b>
<b><i>Research Publications</i></b>	<b><i>29</i></b>
<b><i>Citation data</i></b>	<b><i>41</i></b>
<b><i>Abstracts and Presentations</i></b>	<b><i>42</i></b>

## **Brief CV**



### **Prof. Rajiv K. Saxena**

*Ph.D., FASc, FNASc, FNA,  
JC Bose National Research Fellow*

*Professor, Faculty of Life Sciences and Biotechnology &  
South Asian University, New Delhi.*

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**Rajiv Krishna Saxena** (born 1951 in Delhi) was selected a National Science Talent Scholar in 1967 and pursued his studies in Delhi University (BSc Hons Chemistry, 1970) and the All India Institute of Medical Sciences, New Delhi (MSc Biochemistry 1973, and PhD 1977). He won numerous awards for brilliant academic performance, including Prof. TR Sheshadri award for topping the university merit list in Chemistry (Hons). He did his postdoctoral research work in the field of Immunology at the National Institutes of Health in USA and returned to India in 1984 to join the National Institute of Immunology as a core scientist. He later moved to the School of Life Sciences (SLS), Jawaharlal Nehru University (JNU) as an Associate Professor. He was appointed Professor (1992), Dean of the School of Life Sciences (2001) and Rector (Pro-vice chancellor / Vice-president) of JNU (2002-2005). In 1995 he was awarded the NII Senior Scientist oration and Gold Medal. Prof. Saxena spent 2 years as a Visiting Professor at the University of Pittsburgh School of Medicine (1990-1992), and was later awarded the prestigious Senior Fellowship of the US National Research Council (NRC) to work at NIOSH, Centre of Disease Control, USA (1998-2000). Later he spent 2 years (2005-2007) as a senior NRC fellow at the US Environmental Protection Agency, North Carolina. Prof. Saxena was elected fellow of Indian Science Academy, Bangalore (1992), National Academy of Science (1996) and the Indian National Science Academy (2002). He was awarded the prestigious JC Bose National Research Fellowship in 2013. He has been the recipient of about 22 national and international research grants and heads an active research group at the Faculty of Life Sciences and Biotechnology (FLSB), SAU. Currently he has focused his research on understanding the interactions of nano-particles with cells and tissues, in delineating the mechanism of erythrocyte loss in a variety of anemic conditions and in understanding the effect of air-borne particulate pollutants on lung immunity and susceptibility to diseases. He has so far published 150 research papers in national and international journals and guided 22 Ph.D. students. As an OSD, Academics and Planning in the South Asian University (SAU) Project Office, (2008-2011) he helped prepare the Rules, Regulations, Academic Structure and Business Plan of SAU till the approval of the documents by the SAARC Summit in Bhutan (2010). He was invited to join the Faculty of Life Sciences and Biotechnology (FLSB) of SAU as a Professor and Dean in June 2011, and was appointed first Vice President (VP) of SAU in Dec. 2011. He gave up the positions of Dean, FLSB and VP, SAU in Feb 2016 and currently serves as a Professor in FLSB, SAU. *Further details:* [www.rajivsaxena.info](http://www.rajivsaxena.info)

## **Career highlights:**

- *National Science Talent Scholar (1967 to 1976)*
- *Throughout university topper, Prof. TR Seshadri Award, several Science exhibition Awards (Delhi University, Chemistry Honors 1967-70)*
- *M.Sc., PhD from AIIMS, New Delhi (Biochemistry / Immunology)*
- *Visiting Fellow / Associate, Post-doctoral work at NIH, USA (6 years)*
- *Visiting Professor / Senior NRC Fellow at many prestigious universities / institutions in USA (total period about 6 years)*
- *Professor at JNU (1991 to 2010), Dean, School of Life Sciences, JNU (2000-2002), Pro-Vice Chancellor, JNU (2002-2005)*
- *OSD / Professor / Dean / Vice President, South Asian University (SAU) (2008 to date), Acting President SAU (March –Oct. 2014). Played a central role in establishing the South Asian University, a collaborative venture of all SAARC Nations*
- *Elected Fellow of all three major National Science Academies of India (INSA, IAS, NAS), awarded prestigious **JC Bose National Research Fellowship***
- *Guided 22 PhD students so far. Active teacher and researcher since 1972*
- *Total experience: Research (45 years), Post-Graduate teaching (30 years), University administration (15 years)*
- *About 150 peer-reviewed research papers in International / National Journals*
- *Twenty two extra-mural research grants from national and international funding agencies.*
- *Professor Emeritus in FLSB, SAU since Feb 2016.*

## Curriculum Vitae

Name : **Rajiv K. Saxena**  
*Ph.D., F.A.Sc., F.N.A.Sc., F.N.A.*  
*JC Bose National Research Fellow*

Current Position : **Professor**  
*Faculty of Life Sciences and Biotechnology, South Asian  
University, Akabar Bhawan, Chanakyapuri,  
New Delhi 110021*

Date of Birth : January 24, 1951 (Male)

Telephone : 24195297 (O), 65028822 (R)  
9910048241 (M)

E. mail : [rksaxena@sau.int](mailto:rksaxena@sau.int)  
[rajivksaxena@hotmail.com](mailto:rajivksaxena@hotmail.com)

Family : Married to Dr. Queen B. Saxena  
One son (Gaurav) and a daughter (Garima)

## ACADEMIC QUALIFICATIONS

<b>Ph.D.</b>	All India Institute of Medical Sciences (Biochemistry Department) New Delhi, (1977)
<b>M.Sc. (Biochemistry)</b>	All India Institute of Medical Sciences (Biochemistry Department) New Delhi, (1973)
<b>B.Sc. (Hons) Chemistry</b>	Delhi University , Delhi (1970). <i>First rank in Delhi University in all three years. Distinction in Physics.</i>
<b>Pre-University</b>	Central Board of Secondary Education, New Delhi (1967) <i>Distinctions in Physics, Chemistry and Mathematics.</i>

## EXPERIENCE AND APPOINTMENTS

Feb 2016 to date	:	<b>Professor Emeritus</b> , FLSB, SAU, New Delhi
Dec. 2011 to Feb 2016	:	<b>Vice President</b> , South Asian University
March 2014 to Oct 2014	:	<b>Acting President</b> , South Asian University
June 2011 to date	:	<b>Dean</b> , Faculty of Life Sciences and Biotechnology <i>South Asian University, New Delhi</i>
Oct 2008 to Dec 2011	:	<b>Officer on Special Duty (Academics &amp; Planning)</b> <i>South Asian University (A SAARC sponsored International University) New Delhi (on deputation from JNU)</i>
Jan 1992 to June 2011	:	<b>Professor</b> , School of Life Sciences Jawaharlal Nehru University (JNU) <i>New Delhi (currently on deputation to SAU)</i>
Sept. 2005 to Sept. 2007	:	<b>Visiting Professor</b> <i>National Research Council (NRC) National Academy of Science of USA US Environmental Protection Agency Research Triangle Park, North Carolina, USA</i>

- July 2002 to June 2005 : **Rector** (*Pro-Vice chancellor / Vice President*)  
*Jawaharlal Nehru University (JNU)*  
*New Delhi*
- Jan 2001 to July 2002 : **Dean**, *School of Life Sciences*  
*Jawaharlal Nehru University*  
*New Delhi 110 067*
- Nov.1999 to Dec. 2000 : **Visiting Professor**  
& April-July 2001  
*National Research Council (NRC)*  
*National Academy of Science, USA*  
*National Institute of Occupational Safety and Health*  
*Center of Disease Control and Prevention (CDC)*  
*Morgantown, WV, USA*
- Jan 1990 to Jan 1992 : **Visiting Professor**  
*Department of Pathology University of Pittsburgh*  
*School of Medicine, Pittsburgh, PA, USA*
- April 1985 to Jan 1990 : **Associate Professor**  
*School of Life Sciences*  
*Jawaharlal Nehru University*  
*New Delhi 110 067*
- Feb 1984 to April 1985 : **Senior Research Officer**  
*National Institute of Immunology*  
*New Delhi.*
- Sept 1981 to Feb 1984 : **Visiting Research Associate**  
*National Institute on Aging,*  
*National Institutes of Health,*  
*USA*
- July 1978 to Sept 1981 : **Visiting Fellow**  
*National Institute on Aging,*  
*National Institutes of Health,*  
*USA*
- May 1976 to June 1978 : **Tutor of Biochemistry**  
*All India Institute of Medical Sciences*  
*New Delhi*
- July 1967 to May 1976 : **National Science Talent Scholar**  
*Obtained B.Sc.(Hons), M.Sc. and Ph.D.*  
*Degrees during this period*

**AWARDS / DISTINCTIONS / HONORS / MEMBERSHIPS**

- 1 **National Science Talent Scholarship Award** Government of India, 1967.
- 2 **Science Exhibition Award**, for first rank, Delhi University, 1967.
- 3 **Science Exhibition Award**, for first rank, Delhi University, 1968.
- 4 **Science Exhibition Award**, for first rank, Delhi University, 1969.
- 5 **Professor T.R. Seshadri Award**, for first rank, Delhi University, 1970.
- 6 **NIH Visiting Fellowship**, NIA, NIH, USA, July 1978.
- 7 **NIH Visiting Associateship**, NIA, NIH, USA, September 1981.
- 8 Membership, **American Association of Immunology**, April 1982.
- 9 Membership, **New York Academy of Science**, 1983.
- 10 Membership, **American Society of Microbiology**, January 1984.
- 11 Life Membership, **Indian Society of Immunology**, 1984.
- 12 **Consultant to Immunology Section NIH, NIH, Baltimore, Md.** May 15 to July 16, 1987.
- 13 Member, **Research Advisory Panel, National Institute of Immunology**, New Delhi, 1987.
- 14 Member, **Research Advisory Committee, Malaria Research Center**, Delhi, 1987.
- 15 Invited Charter Member, **Society of Natural Immunity (USA)**, 1987.
- 16 **Consultant to Immunology Section**, NIA, NIH, Baltimore, Md., USA, June 23 to July 23, 1989.
- 17 **Visiting Professor**, Department of Pathology, University of Pittsburgh School of Medicine, Pittsburgh, Pa., USA. Two years starting from Jan 1990.
- 18 Elected **Fellow of the Indian Academy of Sciences**, Bangalore, January 1993.
- 19 **Consultant to Immunology Section**, NIA, NIH, Baltimore, MD, USA, 21 May 1993 to 22 June 1993.
- 20 **Member Academic Committee, Naval College of Engineering**, Lonavale, Nominated for a two years term, April 1993.

- 21 **Member, Academic Committee**, Biochemistry Department, Hamdard University, New Delhi, 1993.
- 22 Life Member, **Indian Society of Cell Biology**, 1993.
23. Appointed **Secretary of the 10th International Congress of Immunology**, New Delhi, Dec. 1993.
- 24 Elected **Treasurer, Indian Society of Immunology**, Dec. 1993.
- 25 Invited member, **ICMR Task Force on Parameters related to immune-surveillance in Indian population**, May 1994.
- 26 **Visiting Scientist, NIA, National Institutes of Health**, Baltimore, MD, USA. May-July 1995
27. **Guest Editor** for a special issue of the **Journal of Biosciences** (Indian Academy of Sciences), devoted to Immunology in India (1995 / 1996).
28. Elected **Secretary, Indian Immunology Society**, Dec. 1995.
29. Awarded, **NII Senior Scientist Oration Award** by Indian Immunology Society in its XXII Annual Conference held at JNU, New Delhi, Dec. 15-17, 1995.
30. **Visiting Scientist**, under Indo-US VAP program, Department of Microbiology, Colorado State University, Fort Collins, CO, USA. April / May, 1996.
31. Member **Academic Committee, Military College of Telecommunication and Engineering**, Mhow, Nominated for a two years term. April 1997.
32. Member, **Panel on Molecular Biology and Biotechnology**, University Grants Commission, April 1997.
- 33 Elected **Fellow of the National Academy of Sciences**, Allahabad, July 1997.
- 34 Member, **JNU Planning and Perspective Group**, 1997
- 35 **Visiting Scientist**, under Indo-US VAP program, Department of Microbiology, Colorado State University, Fort Collins, CO, USA. August / Sept. 1997.
- 36 Convener, International **Continuing Education Workshop in Immunology course SLS**, Jawaharlal Nehru University, New Delhi. Oct. 30, to Nov. 1, 1998
- 37 Chairman, **Education Committee** and Member **Program Committee**, 10th International Congress of Immunology, New Delhi Nov. 1998
- 38 Chairman, **Institutional Animals Ethics Committee** for Jawaharlal Nehru University. Feb 1999



- 39 **Senior NRC Award** by the **National Research Council, National Academy of Sciences, USA**, for a period of one year four months to work at the **National Institute of Occupational Safety and Health**, Center of Disease Control and Prevention (CDC), Morgantown, West Virginia, USA. Dec. 1999 – July 2001
- 40 **Appointed Dean**, School of Life Sciences, Jawaharlal Nehru University, New Delhi. Jan 2001 – June 2002.
- 41 **Member, Program Advisory Committee** on Health Sciences, Department of Science and Technology, Govt. of India, New Delhi. 2001 -2004
- 42 **Member, Society for Scientific Values**, Delhi Jan. 2002
- 43 **Member**, ICMR Task Force in Immunology, April 2002
- 44 **Appointed Rector**, JNU, July 2002
- 45 **Elected Fellow** of the **Indian National Science Academy**, Dec. 2002
- 46 **Member** Selection Committee VII (Animal Sciences), Indian National Science Academy, New Delhi. Nov 2003
- 47 **Member**, Advisory Committee, Department of Biotechnology, Calicut University, Kerala, 2003
- 48 **Member**, Advisory Committee, Department of Biotechnology, GJ University, Hisar, 2004
- 49 **Member**, DST Expert Committee on setting up of “Center for Biomedical and Bioseparation Technology” within Vellore Institute of Technology. 2004
- 50 **Member, University Grants Commission (UGC)** committee on Intellectual Property Rights in Indian Universities, UGC, New Delhi 2004
- 51 **Member**, Editorial board, UGC Handbook on Research Output in Indian Universities, UGC, New Delhi 2004
- 52 **Member** Industrial Research and Development Board, Indian Institute of Technology, (IIT), Delhi 2004-5
- 53 **Member**, Higher education panel for collaboration between the University Grants Commission and NASSCOM, Feb 2005
- 54 **Member**, UGC committee for evolving the Intellectual Property Right (IPR) Cells in Indian Universities, Feb. 2005
- 55 **Senior NRC Award** by the **National Research Council, National Academy of Sciences, USA**, for a period of two years to work at the **US Environmental**

- Protection Agency (EPA)**, Research Triangle Park, North Carolina. Sept 2005-August 2007.
- 56 **Visiting scientist, US Environmental Protection Agency (EPA)**, Research Triangle Park, North Carolina. USA, July 9, 2008 to Aug 22, 2008
- 57 Invited to join the new **South Asian University** (*an International University jointly proposed by the SAARC countries - India, Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka*), New Delhi, as **Officer on Special Duty (OSD)** (Academics and Planning). Joined on Deputation from JNU, from Oct 1, 2008
- 58 **Member, Selection Committee** in Biotechnology and Life Sciences, to select Senior Research Fellows and Research Associates, Council of Scientific and Industrial Research(CSIR), New Delhi 2010.
- 59 **Member, Expert Committee** to review and recommend Major Research Project review submitted to the University Grants Commission, New Delhi Dec. 2010
- 60 Member, **National Selection Committee, Fulbright-Nehru** visiting lectureship, United States-India Educational Foundation, Fulbright House, New Delhi. Oct. 2010.
- 61 **Member, UGC Evaluation committee** to Bangalore University for UGC's University with Potential for Excellence programme. Bangalore Aug 24-28, 2011
- 62 **Member:** Planning Commission constituted committee to review the Parliament Act of Nalanda University, Patna. May 2012.
- 63 **President's nominee**, Faculty selection committee for Environmental Sciences, Central University of Jammu, Jammu, 2012
- 64 **Member, UGC Evaluation committee** to evaluate the Department of Microbiology and Cell Biology of the Indian Institute of Sciences, Bangalore, Nov 26-27, 2012
- 65 **Chairman, UGC Expert Committee** to review research center in Nanomaterials at University of Mumbai. Oct 2013
- 66 **Chairman, UGC Expert Committee** to review research center in Biomedical Nanosciences at University of Madras. Oct 2013
- 67 **Chairman, UGC Expert Committee** to review research center in Nanofabrication at University of Calcutta. Oct 2013
- 68 **JC Bose National Research Fellowship Award**, Department of Science and Technology, Government of India, New Delhi. Nov. 2013
- 69 **Membership of the India International Center**, Nov. 2014
- 70 **Member selection committee.** (a) Biju Patnaik Life Time Achievement Award in Science, (b) Samanta Chandrasekhar Award (c) Young Scientist Award, Odisha Bigyan Academy, Bhubaneswar, Dec 13-15, 2014

- 71 **Convener**, Session on “Science and Technology in SAARC Countries”, **National Science Congress**, Mumbai, Jan 4, 2015.
- 72 **Chairman**, **South Asian Biotechnology Conference**, South Asian University, Feb 12-14, 2015
- 73 **Chairman**, International Workshops on Molecular Biology Techniques and Protein engineering at South Asian University, June 2015.
- 74 **Membership**, **Society of Toxicology**, USA, June, 2015
- 75 **Chairman**, International Workshop on “micro RNA : Novel tool for Diagnostics”; at South Asian University, October 15-16, 2015.
- 76 **Chairman**, **UGC Expert Committee** for mid-term review of the “University Program of Excellence (UPE II)” of Jadavpur University, Kolkata. Nov 24-25, 2015

## STUDENTS AND TEACHING

**Regular classroom teaching:** Basic and Advanced Immunology courses for M.Sc. and M.Phil/Ph.D. students

### *Ph.D. students:*

- |                             |                                                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dr. Apurva Sarin</b>     | (May 1989) <i>Interleukin-2 Induced Activation of MHC Non-restricted Killer Lymphocytes in Rat System</i>                                                  |
| <b>Dr. Uday Kumar</b>       | (May 1990) <i>Characterization of specific antibodies and immune complexes in the sera of tuberculosis patients.</i>                                       |
| <b>Dr. Anila Prabhu</b>     | (Jan. 1993) <i>Modulation of Immune Reactivity of Mycobacterium tuberculosis antigens by chemical and Enzymatic Modifications.</i>                         |
| <b>Dr. Valsala Haridas</b>  | (Feb. 1995) <i>Role of Major Histocompatibility Antigens in Determining the Susceptibility of Tumor Target Cells to Lymphokine Activated Killer Cells.</i> |
| <b>Dr. Niti Puri</b>        | (July 1996) <i>Purification and Characterization of Two Novel Cytokines Released by Activated Mouse Spleen Cells.</i>                                      |
| <b>Dr. B. Chandrasekhar</b> | (Feb. 1998) <i>Homeostatic erythrocyidal mechanisms in primary and secondary lymphoid organs</i>                                                           |

- Dr. Aparna Raval** (June. 1998) *Purification of a novel human cytokine which augments class I MHC expression on tumor cells and comparison of its mechanism of action with gamma interferon*
- Dr. Sohita Dhillon** (April 1999) *Modulation of interleukin-2 activation of natural killer cells by tumor cells and tumor derived factors.*
- Dr. Vidita Choudhry** (Feb. 2001) *Analysis of antigens secreted by M. tuberculosis and their detection in body fluids of tuberculosis patients*
- Dr. S. M. Siddiqui** (Dec. 2001) *Immune response to culture filtrate proteins of some contemporary Indian clinical isolates of M. tuberculosis*
- Dr. Shamik Ghosh** (Nov. 2002) *Modulation of macrophage function due to Mycobacterium tuberculosis infection*
- Dr. Asmita Das** (Nov. 2003) *Modulation of NK activation by interaction with tumor target cells*
- Dr. Tuhina Gupta** (Feb 2006) *Localized immune responses in lungs of mice intratracheally infected with BCG (Bacillus Calmette-Guerin): Modulation by air borne fine particulate matter*
- Dr. Sanjay Khandelwal** (Nov 2007) *Turnover of circulating murine erythrocytes: Role of CD47 and CD147 expression and phosphatidylserine asymmetry in cell membrane*
- Dr. Mandavi Kumari** (April 2011) *Role of lung epithelial cells and alveolar macrophages in eliciting immune response to BCG and LPS and the modulator effect of crystalline silica particles.*
- Dr. Nitin Bharadwaj** (Feb 2013) *Mechanism of modulation of erythropoiesis and erythrocyte turnover in mice in response to oxidative stress induced by the herbicide paraquat.*
- Dr. Sumedha Sachar** (March 2013) *Interaction of Carbon nanotubes and their chemically derived forms with murine erythroid and lymphoid cells in vitro and in vivo.*
- Dr. Anwar Alam** (December 2014) *Modulation of certain parameters of acquired and natural immune system by poly-dispersed single walled carbon nanotubes (Joint supervision)*
- Dr. Srioshi Chaterjee** (August 2016) *Modulation of erythropoietic activity and erythrocyte turnover pattern in mouse anemia induced by exposure to cadmium and anti-erythrocyte auto-antibodies*
- Dr. Zagam A. Rizavi** (April 2016) *Alternative pathways of presentation of antigens from Mycobacterium bovis BCG in professional and non-professional antigen presenting cells and their modulation by carbon nanoparticles (Joint supervision)*
- Ms. Taru Shikha** (Working) *Mechanism of uptake of carbon nanotubes in resting and activated cells.*
- Ms. Deepika Bhardwaj** (Working) *Interactions of nano-particles with germinating plant seeds*

**Ms. Sushree Behera** (Working) *Uptake and modulation of immune cells by nanodiamonds*

**Mr. Babu Mia** (Working) *Mechanism of elimination of erythrocytes in different models of anemia.*

### *M.Phil. students*

**Rajeev Ranjan** (submitted July 2009) *Modulation of turnover kinetics of mouse erythrocytes by some toxic metal ions*

### *M.Sc. dissertations:*

**Mr. Mithilesh Mishra** (1999) *Solid-Phase extraction of urinary proteins for use in Immunodiagnosis of Tuberculosis*

**Mr. Deepak Sharma** (2000) *A study of interactions between tumor cells and erythrocytes*

**Mr. Hemant Agrawal** (2002) *Preparation of molecular probes for TLR-2 and TLR-4 genes and their use in monitoring the expression of these receptors*

**Ms. Sudha Kumari** (2003) *Appearance of T cells bearing receptors for IL-12 and IL-18 during early phase of inflammatory response to Mycobacterium tuberculosis in mouse peritoneal cavity*

**Ms. Shazia Khanam** (2003) *Effect of bacterial lipopolysaccharide on the expression of different toll like receptors on murine peritoneal cells*

**Ms. Kriti Rakesh** (2003) *Modulation of B7.1 and Fas expression on RAW 264.7 mouse macrophage cell line by Residual oil fly ash*

**Mr. Harshvardhan** (2004) *Survival of allogenic and xenogenic erythrocytes in mice*

**Ms. Madhu** (2009) *Standardization for a novel technique to assess tissue repair by using BrdU incorporation in vivo.*

**Mr. Mrinmoy Sarkar** (Bangladesh) (2013) *Studying the morphological changes of murine macrophage cell line in the presence of LPS*

**Ms. Amena Khawari** (Afghanistan) (2013) *Biological effects of acid functionalized single walled carbon nanotubes on RAW cell line and erythrocytes*

**Ms. Esfat M.S. Brishty** (Bangladesh) (2013) *Effect of paraquat mediated oxidative stress on erythrocytes in vitro*

**Mr. Yadav Adhikari** (Nepal) (2014) *Modulation of wound repair in vitro in mammalian cell monolayers by poly-dispersed single walled carbon nanotubes*

**Ms. Deepika Bhardwaj** (2014) *Uptake and localization of poly-dispersed single walled carbon nanotubes in germinating Arabidopsis seeds and the resulting seedlings.*

- Ms. G. Sanjeevani** (Sri-Lanka) (2015) *Uptake of fluorescent tagged acid functionalized single walled carbon nanotubes (FAF-SWCNT ) by resting and activated B and T cells*
- Ms. Aakanksha Ahlawat** (2015) *Effect of acid functionalized single walled carbon nanotubes (AF-SWCNT ) on ionomycin induced degranulation of NK cells*
- Mr. Babu Mia** (Bangladesh) (2016) *In vivo biotinylation of lymphoid populations in mouse bone marrow and spleen*
- Ms. Aditi Dhawan** (2016) *Modulation of endotoxin activation of a macrophage cell line by carbon nano-particles*
- Md. Unuse Ali** (Bangladesh) (2017) *Study of leukocyte turnover in vivo using the DIB technique*
- Mohammad Ahmad** (2017) *Mechanism of toxic effects of BCG on macrophages*

## UNIVERSITY ADMINISTRATIVE EXPERIENCE

- **Warden** of Sutlej Hostel at JNU: May 1988 to Dec. 1989.
- **Chairman**, Admission Committee, School of Life Sciences, JNU, 1994
- **Adviser**, Research Project Cell, Jawaharlal Nehru University, 1997
- **Chairman**, House Allotment Committee (research scientists), 1998
- **Member**, Committee for Planning and Perspective for next 25 years, JNU (1998)
- **Chairman**, Institutional Animal Ethics Committee, JNU (Feb. 1999)
- **Acting Dean**, School of Life Sciences, JNU, April 1, 1999 to June 30, 1999
- **Dean**, School of Life Sciences, JNU. Jan 4, 2001 to Jan 3, 2003
- **Member**, Executive Council, JNU, New Delhi. July 2001
- **Member**, Committee to draft 10<sup>th</sup> Plan document for JNU, Nov. 2001
- **Rector / Pro-Vice chancellor** Jawaharlal Nehru University, July 2002-June 2005
- **Member** Finance Committee, JNU, July 2002
- **In-charge**, UGC “**University with Potential of Excellence (UPOE)**” 300 million Rupees grant to JNU
- **Chairman**, University **Resource Mobilization Committee**, 2003
- **Chairman**, Computational Facilities and Campus Networking Committee, 2003
- **Chairman**, University **Buildings, Works and Infrastructure Committee**, 2003
- **Chairman**, University **Library Advisory committee**, 2003
- **Chairman**, University level **Equipment Advisory Committee**, 2003
- **Chairman**, JNU Convention center committee, 2003
- **Chairman**, JNU Knowledge park committee, 2003

- **Chairman**, University animal house development committee, 2003
- **Chairman**, JNU **Intellectual Property Management (IPM)** Committee, 2003
- **Chairman**, Editorial Committee, **Integrated Publication Cell**, JNU, 2003
- **Chairman**, Committee to prepare a **vision document** for academic growth of JNU over next 20 years, 2004
- **Chairman**, NAAC Committee, JNU for NAAC accreditation of the University, 2004
- **Chairman, E. Governance** Committee, JNU for introducing E. Governance in all functions of the University, 2004
- **Officer on Special Duty (OSD) (Academics and planning) South Asian University**, New Delhi. Oct 2008.
- **Member Secretary**, Task Force on Academics, South Asian University, New Delhi, 2008
- **Member Secretary**, Task Force on Infrastructure, South Asian University, New Delhi, 2008
- **Member Secretary**, Task Force on Governance & Legal Affairs, South Asian University, New Delhi, 2009
- **Member Secretary**, Task Force on Business Plan, South Asian University, New Delhi, 2009
- **Member Secretary**, Advisory Committee on Campus Development, South Asian University, New Delhi, 2009
- **Member**, SAU Infrastructure Development Committee, Delhi Government, May 2009
- **Member**, SAU Building Works Committee, Oct 2011
- **Dean**, Faculty of Life Sciences and Technology, South Asian University, Oct 2011 to date
- **Vice President**, South Asian University, New Delhi Dec. 2011 till Feb. 2016
- **Convener**, Expert Committee to frame rules for Assessment and Promotion of faculty members and non-teaching staff of the South Asian University, nominated by the Board of Governors of SAU, Dec. 2012
- **Convener**, Expert Group to frame the proposals for II phase expansion of the South Asian University, Dec. 2012

- **Acting President**, South Asian University, March 1- Nov 2, 2014

## **CONTRIBUTION TO THE ESTABLISHMENT OF THE SOUTH ASIAN UNIVERSITY (SAU):**

Right from the time of inception of SAU, Prof. Saxena has played a central role in preparing detailed conceptual frame-work of the university and its execution over the years.

Prof. Saxena Joined the SAU project office as an **Officer on Special Duty (OSD) – Academics and Planning**, on Oct 1, 2008, and was invited to join the university after the closure of the Project Office in 2011. He serves as a Professor and the first Dean of the Faculty of Life Sciences and Biotechnology of SAU, and was appointed the first Vice President of SAU in Dec 2011. He has been involved as a key person in planning and execution of virtually all SAU activities to date. A brief overview of his contributions to the establishment of SAU is given below:

1. Prof. Saxena joined the SAU project office (SAU-PO) on the request of the then CEO Prof GK Chadha, on Oct 1, 2008. The SAU-PO was given the responsibility of conceiving, finalizing and getting approved from the SAARC mechanisms, all the crucial documents that would form the conceptual and legal frame-work for the operations of the university.
2. He was appointed Member Secretary of all four **Inter-Governmental Task Forces (IGTF)** on (a) Academic structure of SAU, (b) Governance of SAU, (c) Infrastructure of SAU and (d) Business Plan of SAU. Essentially responsible for preparing following documents / concept papers for the establishment of SAU, in consultation with other members of the IGTFs:
  - a. **Academic Structure of SAU:** organized separate meetings of experts for each proposed Faculty at SAU and finalized draft recommendations on the conceptual frame-work about the scope of various Faculties / Departments and the nature of the academic programmes to be offered in each Faculty / Department.
  - b. **Rules and Regulations to govern SAU:** Drafted proposed Rules and Regulations to govern SAU and finalized the draft based upon the feedback from various Member States, while observing the SAARC practice of achieving consensus on all issues.
  - c. **Business Plan for SAU:** Prepared draft budget for the operational expenditure to be incurred by the SAU based upon the projected growth of



faculty and students during the establishment phase (Phase I, first 5 years i.e. 2010 to 2014). Was the key person to negotiate with experts from various SAARC Member States, in the Inter-Governmental Expert Group meeting held in New Delhi (Nov 30 to Dec 2, 2009), the formula determining the financial contributions from SAARC Member States to the operational expenditure of SAU in Phase I.

- d. **Infrastructure planning:** Prepared key papers and documents on the infra-structural requirements for SAU in view of the proposed Academic Structure. Estimated areas required for various Faculties and Departments in consultation with experts and the *capital expenditure* on equipment, research laboratories as well as for furnishing of teaching infrastructure, library, offices, convention centre and sports complex. Prepared the draft Capital Budget estimates for the first phase of the SAU. First Cabinet Note for the approval of operational and Capital funding of SAU was prepared based upon these estimates.
3. Played an active role in the selection of the architects for designing the SAU campus, and lead a team of architects to study various new and reputed universities in China and Singapore to collect ideas on the planning and designing of the SAU campus. These ideas were incorporated in the architectural designing of the SAU campus in Maidangharhi, New Delhi.
4. As the first Dean, planned and established the state of the art training and research laboratories of the Faculty of Life Sciences and Biotechnology (FLSB) in a record time of 1 year. This enabled the university to initiate the flagship programme of MSc (Biotechnology) in the year 2011 and later MPhil/PhD programme in the year 2013.
5. Played a central role in adapting the Akbar Hotel building for use by various academic programmes initiated by the SAU. This included the establishment of SAU Library, class rooms, student hostels, research laboratories and faculty/administrative offices.
6. Prof. Saxena as the Vice President of SAU, has been a member of all statutory bodies of the university since its inception (Academic Council, Executive Council, Finance Committee and Building-Works Committee). He has also been a regular participant in the Governing Board meetings and is generally responsible for presenting and guiding the discussions on various agenda item.
7. Prof. Saxena also was the **Acting President** of SAU from March 1, 2014 to Nov 3, 2014.
8. An inter-governmental Committee with Prof. Saxena as Chairperson has been constituted by the Governing Board of SAU to deliberate on all aspects of SAU's future and plan for the expansion of the university in its second phase. This committee

chaired by Prof. Saxena will play a crucial role in giving future directions to the university. Further the work on SAU's Maidangarhi campus is about to start.

9. While being deeply immersed in the process of SAU establishment since Oct 2008, Prof. Saxena continues to be an active teacher and researcher. Prof. Saxena is an eminent Biologist known nationally and internationally for his research work in the area of Immunology and nano-sciences. He has published more than 140 research papers and has been elected Fellow of all three prestigious Science Academies of India. He was recently conferred the prestigious JC Bose National Research Fellowship by the Department of Science and Technology of Government of India.

## **RESEARCH GRANTS AND EXTERNAL FUNDING**

1. Principal Investigator: **DST** grant on "Establishment and Study of T-helper, T-cytotoxic and Natural Killer Lymphocyte Cell Lines" Rs. 28 Lacs (2.8 million); Jan. 1986 to Dec. 1989.
2. Principal Investigator: **CSIR** grant on "Purification and Characterization of a Natural Killer - Lysis Resistance Factor (NK-LRIF) and Studies on its Role in Modulating Leukocyte and Tumor Cell Membrane Antigens". Rs. 6.5 lacs (0.65 million); Sept. 1989 to Sept. 1992.
3. Principal Investigator: **CSIR** grant on "Properties and Characterization of a non-Interleukin-2 Proliferation Inducing Activity Released by Mouse Spleen Cells Undergoing Mixed Lymphocyte Reaction". Rs. 3.5 Lacs (0.35 million); July 1993 to June 1996. Principal Investigator:
4. **DBT** grant on "Major Histocompatibility Complex I Antigen Expression Augmenting Factor (MEAF), A New Immunomodulatory Cytokine: Purification, Characterization and Sequencing". Rs. 73 Lacs (7.3 Million); Jan. 1994 to Jan. 1997.
5. Principal Investigator: **Indo-US Vaccine Action Program (VAP)** grant on "Bio-chemical and Immunological Characterization of Antigens Secreted by Indian Isolates of Mycobacterium Tuberculosis and Their Derivatives" (With Dr. Ian Orme, University of Colorado, CO, USA, as US counterpart). Under consideration of funding. VAP program is jointly run by DBT in India and NIH in USA. Rs. 30 Lacs, (3 million) ; May 1995 - May 1998.
6. **ICMR task-force project** (Under AIDS Coordinating Unit of ICMR) entitled, "To study normal ranges of the important lymphocyte sub-populations in Indian population", Rs. 10 Lacs (1 million); Feb. 1996 - Feb. 1998.
7. **DST project** entitled, "Role of lymphocytes in erythrocyte destruction", Rs. 14 Lacs (1.4 million); June 1997 to June 2000.

8. **WHO Grant**, Development of an immunodiagnostic test for tuberculosis based upon detection of secretory antigens of M. tuberculosis, Jan. 1998. Rs. 10 Lacs (1 million); Jan 1998 to Jan 2000.
9. **Potts Memorial Foundation (USA)** Grant on a urine antigen detection assay for tuberculosis. US \$ 18,000; Jan. 1998 to Dec 2000.
10. **CSIR** Grant on “Modulation of Natural Killer Cell activation by Tumor Cells and Tumor derived Products”. Rs. 10 Lacs (1 million); Jan . 1999 to Jan. . 2002.
11. **DST project** entitled, "Mechanism and patho-physiological relevance of cell mediated lysis of erythrocytes", Rs. 16 Lacs (1.6 million); Sept. 2001 to Sept. 2004
12. **UGC project** entitled, "Tuberculosis antigen detection in urine; role of antibody affinity in sensitivity of the assay", Rs. 7.0 Lacs (0.7 million), July 2001 – June 2003.
13. **UGC University of Excellence** project “Modulation of toll like receptor (TLR) expression on leukocytes involved with localized innate and adaptive immune response in lungs, and its functional implications”, Rs. 15 Lacs (1.5 million). March 2002 to March 2007
14. **CDC**, (Center of Disease Control and Prevention, USA) Research Contract on “Innate local immunity in lungs and its modulation by air-borne particulate. US \$ 25,000; April . 2002 to Oct. 2002
15. **ICMR project** entitled, "Influence of diesel exhaust particulate material on disease susceptibility and local immune responses in lungs", Rs. 30 Lacs (3 million). Feb 2003-Feb. 2006
16. **ICMR project** entitled, “Response to PAMPs and Cytokines in Silica Exposure: Relation to the Development of Silico-tuberculosis” Rs. 30 Lacs (3 million), June 2007 – June 2010
17. **DST project** entitled, “To explore the relationship between the age of erythrocytes in blood circulation and their susceptibility to stress and anemia inducing agents” Rs. 35 Lacs (3.5 million). April 2009-March 2012
18. **DST Nano Science Mission project** entitled, “Interactions of carbon nano-particles and their chemically modified forms with cells and organs in vitro and in vivo” Rs. 1.35 Crore (13.5 million), April 2009 to March 2012
19. **South Asian University** intramural project “Interactions of poly-dispersed carbon Nanotubes with immune system: Modulation of T cell and NK cell activation process by carbon nanotubes” US\$ 45,000, Jan 2012 to Jan 2016
20. **DST project** entitled, “Modulation of erythroid line of differentiation and erythrocyte turnover in mouse model of autoimmune hemolytic anemia” Rs. 4 million 2013-2016

21. **JC Bose National Research Fellowship Award** from DST. Travel and research contingency. Rs. 63 Lacs. 2013-2018.
22. **DST Nano Science Mission project** entitled “Uptake and effects of control and target directed carbon nanoparticles by differentiating and matured subpopulations of leukocytes in resting and activated states.”, About Rs. 21 million. Sanctioned March 2015. To run from 2015 to 2018.

### **International / National Meetings / Workshops / Conferences organized**

1. Convener, **Indo-French Workshop on Recent Advances in Immunodiagnostic Techniques**. National institute of Immunology, New Delhi. Dec. 2-21, 1985. 50 participants
2. Organizing secretary, **22nd Annual meeting of the Indian Immunology Society**, at School of Life Sciences, Jawaharlal Nehru University New Delhi, Dec.15-17, 1995. 300 participants
3. Convener, **International Continuing Education Workshop in Immunology**, School of Life Sciences, JNU, New Delhi 30 Oct. to 1 Nov. 1998. 150 participants
4. Chairman, **South Asian Biotechnology Conference**, organized by the Faculty of Life Sciences and Biotechnology, South Asian University, New Delhi. Feb, 12-14, 2015 (150 participants including 30 from SAARC countries other than India.
5. Chairman, **International Workshop on “Recombinant DNA Technology”** - coordinated by Dr. Ritu Gaur and Dr. Senthil Kumar Venugopal (July 6-10, 2015)
6. Chairman, **International Workshop on "Protein Expression and Purification Techniques"** - coordinated by Dr. Rinkoo Devi Gupta and Dr. Ananda Mustafiz ( July 13-17, 2015)
7. Chairman, **International Workshop on “microRNAs: Novel tools for Diagnostics”** - coordinated by Dr. Ritu Gaur & Dr. Senthil Kumar Venugopal (October 15-16, 2015)
8. Chairman, **International Workshop on “Gene Expression Analysis by Real Time PCR”** - coordinated by Dr. Rinkoo Devi Gupta & Dr. Ananda Mustafiz (December 9-11, 2015)
9. Chairman, **International Workshop on “Mammalian Cell Culture Techniques and Cytotoxicity Assays”** - coordinated by Dr. Ravi Shankar Akundi & Dr. Yubaraj Pokharel (December 14-16, 2015)

## **SELECTED INVITATIONS/WORKSHOPS/SEMINARS/ GUEST LECTURES**

1. Invited speaker, **4th International Workshop on Natural Killer Cells, Queen's University, Kingston, Canada, July 3-6, 1986.**
2. Invited speaker, **Symposium on Immunology and Genetics of Natural Resistance to Malignancies, 6th International Congress of Immunology, Toronto, Canada, 8 July 1986.**
3. Invited Talk, Lymphocyte Culture, **7th National Congress of Parasitology, Ravishankar University, Raipur. Dec. 26-28, 1986.**
4. Expert Invitee, **National Workshop on Traditional Medicine and Immunology, Organized by the Technology Mission of Govt. of India, Ahmedabad. Sept. 16-18, 1988.**
6. Invited Faculty for Lecture and Demonstration, **Indo-US Workshop on Cell Mediated Immunity in Relation to Tropical Diseases, Central Drug Research Institute, Lucknow, Oct.10-14, 1988.**
7. Invited speaker, **DST National Seminar on Thrust Areas in Life Sciences (Review and Update), Department of science and Technology, Govt. of India, Lucknow, Dec.6-8, 1988.**
8. Invited Talk, Role of MHC Antigen in NK Cell Mediated Target Lysis, **Indo-French Colloquium on "Recent Advances in Life Sciences and Vaccinology" NII, New Delhi, Feb. 5-10, 1989.**
9. Guest Lecture, Natural Killer - Lysis Resistance Inducing Factor : Current Status. **Pittsburgh Cancer Center, Pittsburgh, March, 1989.**
10. Invitation for participation, **Sixth International NK Workshop, Goslar, West Germany, July 26-29, 1989.**
11. Invited Faculty, **International Union of Immunological Societies - World Health Organization Advanced Course in Immunology, All India Institute of Medical Sciences, New Delhi. Nov. 1989.**
12. Invited Speaker, **XIII All India Cell Biology Conference and Cell Biology Symposia, Center of Cellular and Molecular Biology, Hyderabad. Dec.27-2, 1989.**
13. Invited Talk, Regulation of tumor MHC class I antigen expression by a protein factor released by mitogen activated lymphocytes. **National Cancer Institute, NIH, USA. Dec. 1991.**

- 14 Invited Talk, Modulation of membrane expression of MHC class I antigens on tumor cells by a spleen derived factor. **National Institute of Aging, NIH, USA.** Dec. 1991.
- 15 Invited faculty, delivered two lectures on "Cells in Immune response" and "Histocompatibility antigens and transplantation immunology", in **Refresher course in Biochemistry with special emphasis on Immunology, Center for Professional Development in Higher Education, University of Delhi**, Sept. 1992.
- 16 Invited Speaker, Evidence for a novel human cytokine that augments the expression of MHC I antigens on tumor cells, **Brainstorming session on Molecular Immunology, University of Delhi South Campus**, Jan. 1993.
- 17 Invited as an **Expert Member, "10th Group Monitoring Workshop on DST funded Young Scientists Projects"**, held at **S.V. University, Tirupati**, April 9-10, 1993.
- 18 Invited for a research presentation **Mid year meeting of the Indian Academy of Sciences**", **I.I.Sc. Bangalore**, July, 1993.
- 19 **Invited Faculty in IUIS-AIIMS Advanced Immunology Course.** Talk on Natural Killer Cells. **AIIMS, New Delhi**, Oct. 1993.
- 20 **Invited speaker, Workshop on Flowcytometry, Department of Biotechnology, AIIMS, New Delhi**, Oct. 1993.
- 21 **Invited speaker, Indo-French symposium on Trends in Cancer Research**, organized by Cancer Research Institute, Bombay. Talk entitled "Role of major histocompatibility complex antigens in regulating tumor cell susceptibility to lysis by cytotoxic effector cells. **Lonavla Dec. 8-13, 1993.**
- 22 **Invited speaker, 20th Annual Conference of Indian Immunology Society, Bhopal.** Talk on "Evidence for two novel cytokine activities released by activated rodent spleen cells and human PBLs. **Bhopal, Dec. 1993.**
- 23 **Invited Speaker, DST sponsored W/S on "Techniques in Flowcytometry".** Talk on "Flowcytometry: an irreplaceable research tool with Immunologists". **CRC, Bombay, June 1994.**
- 25 **Invited Faculty, CME Course in "Advances in Immunology"**, Delivered lectures on Natural Killer Cells, Cytokines and cytokine receptors and Immune-tolerance. **Defense Research and Development Establishment, Gwalior Dec. 3-5, 1994.**
- 26 **Invite Faculty, UGC refresher course in Immunology, Department of Zoology, Meerut University.** Jan 28, 1995.

27. **Invited Speaker**, meeting on "**Teaching of Microbiology**", by Association of Microbiologists of India, University of Delhi, South Campus, 20 September, 1995.
28. **NII Senior Scientist Award Oration**, "Missing of Self by Heterogeneous NK cells", XXII Annual Conference of the Indian Immunology Society, SLS, JNU, New Delhi, December, 1995.
29. **Invited speaker**, Molecular Immunology Forum, IMTECH Chandigarh. 2 Feb 1996
30. **Invited Faculty**, in DBT sponsored Workshop on "Cytokine profile in human health and Disease". Lecture on Cytokine Receptors. April 12, 1996.
31. **Invited speaker**, Flowcytometry users group meeting, "Fas mediated lysis by young and old lymphocytes" CCMB, Hyderabad, 12 Dec. 1996
32. **Invited speaker**, "Differential induction of cytotoxic cells killing through Fas mechanism, in mitogen activated young and old mouse spleen cells". 23rd Annual Conference of the Indian Immunology Society, Andhra University, Vishakapatnam 13-15 Dec. 1996
33. **Invited speaker, Indo-French symposium on Immunomodulation**, at National Institute of Immunology, New Delhi. Talk entitled "NK cell modulation by tumor" Dec. 2-6, 1997.
34. **Invited speaker**, DST, ICMR, EC, Indo-UK, Workshop on Tuberculosis. Tuberculosis Research Institute, Chennai. 3-5 Feb. 1998
35. **Invited speaker**, DBT Expert group meeting on Tuberculosis
36. **Invited Speaker**, Workshop on Mycobacterial Genome, Bio-informatics Center, JNU. August 25, 1998
37. **Invited faculty**, talk on NK cells and their receptors. International CE Workshop in Immunology, JNU, 30 Oct to 1 Nov. 1998.
38. **Co-Chairman, and invited speaker**, Workshop on NK cells, 10<sup>th</sup> International Congress of Immunology, New Delhi 1-6 Nov. 1998.
39. **Invited Course Faculty**. IUIS sponsored Immunology Update Course. Talk on "Antigen perception by T and B cells". International Congress of Veterinary Immunology, Punjab Agricultural University, Ludhiana, Nov. 8, 1998
40. **Invited Speaker**, Institute Rotary Cancer Hospital, AIIMS, to deliver a talk on "NK cells and cancer". 2 Aug. 1999
41. **Invited Speaker**, Workshop on Intercellular Pathogens, **International Training and research in Emerging Infectious Diseases**. School of Life Sciences, JNU, Dec 6-10, 1999.

42. **Invited Speaker**, 27<sup>th</sup> Annual meeting of the Indian Immunology Society. Agra, 11-13 Dec. 2000
43. **Invited Speaker**. Molecular Immunology Forum meeting, SGPI Medical Institute, Lucknow. Feb. 2001.
44. **Invited Speaker**, 28<sup>th</sup> Annual meeting of the Indian Immunology Society. AIIMS, New Delhi Oct 4-6, 2001
45. **Invited talk**, Immunology and Biotechnology, DST, Health Sciences PAC meeting, Darjeeling. Nov. 2001
46. **Invited talk**, International Symposium on Recent Trends in Cancer Research, School of Life Sciences, JNU, New Delhi. March 12-14, 2002
47. **Invited participant**, Conference on “Oxygen and Nitrogen radicals: Cell injury and disease”, NIOSH, CDC, Morgantown, West Virginia, USA. June, 2002
48. **Invited Panel discussant**, Session on ROS/RNS and gene expression in cancer and fibro-proliferative diseases, at the 3<sup>rd</sup> International Conference on Oxygen/Nitrogen radicals: Cell injury and disease, organized by NIOSH, CDC at Morgantown, WV, USA 1-5 June 2002
49. **Key note address**, Indian Scientific Translators Association on International translator’s Day celebration, 1 Sept. 2003.
50. **Guest Speaker**, Forum for Literary Translations. School of Language, literature and Culture, JNU, New Delhi. 10 Nov. 2003
51. **Key-note address**, Higher Education :Alternatives Available” in Association of Indian Universities Round Table meeting of Vice Chancellors, Kurakshetra University, Kurakshetra (21-22 May 2004).
52. **Invited Speaker**: 4<sup>th</sup> AIU Standing Committee Meeting, and the Round Table Meeting of Vice Chancellors on “Financing of Higher Education”. Sri Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. June 3-5, 2004.
53. **Chairman**, Session on “Use of Edusat Satellite in Higher Education”, in Edusat conference organized by ISRO and AIU. Bangalore, 23 July 2004.
54. **Invited speaker**, AIU All India Vice Chancellor’s Conference, University of West Bengal, Siliguri.
55. **Invited expert** in Life Sciences and Biotechnology, **Kathmandu University, Kathmandu** April 20-21, 2005
56. **Invited expert** in Life Sciences and Biotechnology, **Aassam University, Silcher, May 13,14, 2005**



57. **Invited speaker**, North Zone Vice-Chancellor's Conference. Talk entitled "Managing University Autonomy: A financial Perspective. MD University Rohtak, June 8-10, 2005
58. **Invited speaker**, during the Duke University Visiting Pulmonary Scholar program. Talk entitled "Accumulation and clearance of Diesel Exhaust Particles from lung epithelial cells, Durham, NC, USA. Nov 1, 2006
59. **Invited Work-in-progress Talk** "Uptake of nano-sized carbonaceous particles by lung epithelial cells and attendant toxicity responses" US Environmental protection agency. Research Triangle Park, North Carolina, USA. Feb 20, 2007
60. **Invited speaker**. 5<sup>th</sup> US Environmental Protection agency -German Science Foundation – Rochester Workshop on particle toxicity. Montreat, North Carolina, USA 16-18 May 2007
61. **Invited speaker**. Symposium on "Advancing Nanotechnology and Its Implications in Biological Sciences, School of Life Sciences, JNU, New Delhi December 14, 2007
62. **Plenary Talk**. "Nano-particles and their interaction with lung epithelial cells", during the 34<sup>th</sup> Annual conference of the Indian Immunology Society, National AIDS Research Institute, Pune. Dec. 16-18, 2007.
63. **Invited speaker**, "Role of phosphatidyl serine externalization in destruction of aging and stress damaged erythrocytes in vivo", Molecular Immunology Forum annual meeting, IMTECH, Chandigarh, March 14-16, 2008
64. **Invited speaker** "Deposition and clearance of diesel exhaust particles from normotensive and spontaneously hypertensive rats" US Environmental protection agency. Research Triangle Park, North Carolina, USA. August 21, 2008.
65. **Invited Speaker** "Interactions of Nanoparticles with lung cells", Department of Environmental Sciences, Delhi University, 16 Sept, 2008
66. **Invited Speaker** "Nano-particles and their interactions with cells in culture" BARC Life Sciences Symposium, Dec. 2008, BARC, Mumbai
67. **Valedictory Talk** "Darwinian Evolution and the fate of Humanity" at National University of Educational Planning and Administration, New Delhi, March 27, 2009
68. **Invited speaker** in workshop entitled "Issues of risk in the regulation of nanotechnology". Talk "Environmental health and safety issues: nature, extent and uncertainties", Jointly held by Tata Energy Research Institute, New Delhi, Jan. 8, 2010

69. **Valedictory Talk** “Evolution of human mind and the fate of human race” at Confluence-2010, Science Forum, Hindu College, Delhi University, Feb 10, 2010
70. **Session Chairman**, Conference on “Issues of Capabilities and Governance in Nanotechnology Development”, Session “Addressing Risks of Nanotechnology”, Jointly organized by the Tata Energy Research Institute (TERI), New Delhi and International Research Development Center (IDRC), Canada. April 22-23, 2010, New Delhi.
71. **Invited Speaker**, (Interactions of Nano-particles with Biological systems), Department of Zoology, Punjab University, Chandigarh May 28, 2011
72. **Invited falcitation talk**: in “Symposium on Molecular Genetics and Immunology Journey through decades” SLS, JNU, Sept. 1, 2011
73. **Invited speaker**, (Interactions of Nano-particles with Biological systems), Shenzhen University, China, Oct. 21, 2011
74. **Invited speaker**, (FICCI Higher Education Summit 2012), FICCI Hall, Nov 5-6, 2012
75. **Invited participant**: Presented paper entitled “Suppression of murine T-helper and T-cytotoxic immune response by poly-dispersed single-walled carbon nanotubes”. 10th International Conference on New Trends in Immunosuppression & Immunotherapy Barcelona, Spain from March 11-12, 2013
76. **Invited talk**: Interactions of nano-particles with biological systems, J. Bioscines Editorial group mini-symposium, Bangalore, July 13, 2013
77. **Chairman**, panel discussion: Session on Open Data & Innovation in Education and Research, Indian National Science Academy, New Delhi, April 19, 2014
78. **Inaugural talk**: “Interactions of nano-particles with biological systems” Tribhuvan University and Kathmandu University, sponsored by the Indian Embassy Nepal and BP Koirala Nepal India Foundation, April 23-24, 2014
79. **Invited Speaker**: “Bringing Global Education to South Asia”, National Defense College, New Delhi, July 9, 2014
80. **Invited Selection committee member** for science awards by Odisha Government: (a) Biju Patnaik Award for Life-Time Achievement in Scientific Research , (b) Samanta Chandrasekhara Awards, and (c) Orissa Young Scientists Awards. Odisha Academy of Sciences, Bhubaneswar, Dec 13-15, 2014
81. **Invited Speaker**, Talk entitled “Need for a forum for biologist and biotechnologists in South Asia”, Session on “Science and Technology in SAARC Countries”, 102<sup>nd</sup> Indian National Science Congress, Mumbai University, Mumbai, 3-7 Jan. 2015

82. **Invited Speaker**, Talk entitled “Interactions of carbon nanotubes with cells of the erythroid lineage in mouse”, South Asian Biotechnology Conference 2015, South Asian University, Feb 12-14, 2015, South Asian University, New Delhi.
83. **Invited Speaker**, Talk entitled “Erythrocyte turnover and erythropoietic patterns in anemia”, Bio-Epoch Conference, School of Biotechnology, Jawaharlal Nehru University, New Delhi. April 10, 2015
84. **Inaugural Talk**, “Interactions of nanoparticles with biological systems”. Academic Staff College, Jawaharlal Nehru University, New Delhi. July 20, 2015
85. **Plenary Talk**. “Erythrocyte turnover and erythropoietic patterns in different models of anemia”, during the South Asian Biotechnology Conference 2016, Dhaka University, Dhaka. Feb. 5-6, 2016.
86. **Invited Talk**: Interactions of nano-particles with the immune system, NanoBio Interface-2016, JNU, New Delhi. March 18-20, 2016
87. **Invited Talk**: Nanoparticles and the Immune System. Trends in Biomedical Research, National Institute of Immunology, New Delhi, Oct 4, 2016

#### **EDITORIAL / REVIEW WORK:**

1. Reviewer of grants from DST, DBT, ICMR, DAE, Indo-French Center, Wellcome Trust, UK
2. Reviewer of manuscripts in the field of Immunology from several Indian and international journals like **J. Immunology** (USA), **Natural Immunity** (USA), **J. Immunopharmacology** (USA), **International J. Tuberculosis and chest diseases** (USA), **IJBB**, **IJEB**, **IJMR**, **J. Biosciences**. **BBRC** (USA), **Experimental Lung Research** (UK)
3. Member of the **Editorial Board of "Natural Immunity"**, official journal of the Society of Natural Immunity, USA. (1994)
4. **Guest Editor** for a special issue of the **Journal of Biosciences** (Indian Academy of Sciences, Bangalore), devoted to Immunology in India (January 1997 issue).
5. Editor, **Bulletin of the Indian Immunology Society**, the official publication of the Indian Immunology Society, 1996, 1997.
6. Member, **NICHD**, **NIH** research sub-committee for grant reviews. NIH, Bethesda, MD, USA, March 2000.
7. Member Editorial board. **Journal of Biosciences**, Indian Academy of Sciences. Bangalore. April 2001

8. **Guest Editor** for a special issue of the **Journal of Biosciences** (Indian Academy of Sciences, Bangalore), as Proceedings of the 3<sup>rd</sup> International Conference on Oxygen/Nitrogen radicals: Cell injury and disease, held at Morgantown, West Virginia, June 1-5, 2002
9. **Member, Editorial board**, UGC Handbook on Research Output in Indian Universities, UGC, New Delhi 2004
10. **Editor**, "SAU Connect" (The quarterly News Letter of the South Asian University). Oct 2009
11. **Member, International Advisory Committee**, Tribhuvan University Journal of Microbiology, Tribhuvan University, Kathmandu.

## PATENTS & CONSULTANCIES

1. A system for the detection of mycobacterium tuberculosis antigens Application no. 1312/DEL/98 (NRDC) Filed 15-May-98
2. Prepared on contract (along with five other colleagues of SLS) an advisory document on setting up a Biotechnology Park at Kochi, Karela. **Consultancy from Tata Housing Development Co.**
3. Saxena, **R.K.**, Gilmour, M.I. and Hays, M.D. (2009) Measurement of carbonaceous particles in biological samples. United States Patent and Trademark Office (USPTO) Application #: 20090061473, Weblink: <http://www.freshpatents.com/-dt20090305ptan20090061473.php>

## GENERAL ARTICLES

- 1 **Saxena, R.K. (1996)**. Research Funding in India. Some thoughts, some pipe dreams. Bulletin of the Indian Immunology Society, Sept. 1996 issue.
- 2 **Saxena, R.K. (1997)**. Preface on research and teaching in Immunology in India, for Immunology Special issue. J. Biosciences, Jan. 1997 issue.
- 3 **Saxena, R.K. (1997)**. Biomedical Research Funding in India: Time to wake up. (Editorial) National Medical Journal of India, 10, 105-106.
- 4 **Saxena, R. K. (1997)**. Funding Higher Education: Urgent need for alternatives. JNU News, 15, 16-17.

- 5 **Saxena, R.K. (1998)** Continuing education in immunology. *Immunology Today*. 1998 19(10):437
- 6 **Saxena, R.K. (2003)** Scientific Translations: New opportunities in the era of globalization. *Journal of Indian Scientific Translators Association* 29, 35-38.
- 7 **Saxena, R.K. (2006)** Spiritual Tradition and Scientific Innovation in India, book chapter in *Science and Spirituality in India*, M. Paranjape (Ed). Publishers Samvad India, New Delhi
- 8 **Saxena, R.K. (2009)** The Concept of Samskaras and Modern Biology. In “Samskrta, Samskruti and Samskara”, Shashiprabha Kumar (Ed). Vidyanidhi Prakashan (New Delhi), pp85-90.

### **CURRENT RESEARCH INTERESTS (May 2015):**

- A. *Immunology: Antigen presentation by lung epithelial cells, modulation by nanoparticles*
- B. *Erythrocyte homeostasis: Erythrocyte turnover, erythrocyidal mechanisms in different types of anemia*
- C. *Interactions of nanoparticles with cells and tissues. Tracking of poly-dispersed carbon nanotubes in vivo.*

### **RESEARCH PUBLICATIONS:**

- 1 **Saxena, R.K. and Talwar, G.P. (1974).** A new in vitro method for assay of biological activity of growth hormone. *Acta. Endocrinol.* 76, 248-259.
- 2 **Talwar, G.P., Pandian, M.R., Kumar, N., Hanjan, S.N.S., Saxena, R.K., Krishnaraj, R. and Gupta, S.L. (1975).** Mechanism of action of pituitary Growth Hormone. *Recent Prog. Horm. Res.* 31, 141-174.
- 3 **Talwar, G.P., Hanjan, S.N.S., Kidwai, Z., Gupta, P.D., Mehrotra, N.N., Saxena, R.K. and Bhattarai, Q.B. (1975).** Growth hormone action on *Excerpta Medica International Congress Series No. 381, Excerpta Medica, Amsterdam, pp.104-115.*

- 4 **Talwar, G.P., Hanjan, S.N.S., Saxena, R.K., Pandian, M.R., Gupta, P.D. and Bhattarai, Q.B. (1975).** Regulation of Immune response by hormones In: Regulation of Growth and Differentiated Functions in Eukaryotic Cells (ed. G.P. Talwar). Raven Press, pp.271-281.
- 5 **Saxena, R.K. and Talwar, G.P. (1977).** An anterior pituitary factor stimulates thymidine incorporation in isolated thymocytes. **Nature** (London), 268, 57-58.
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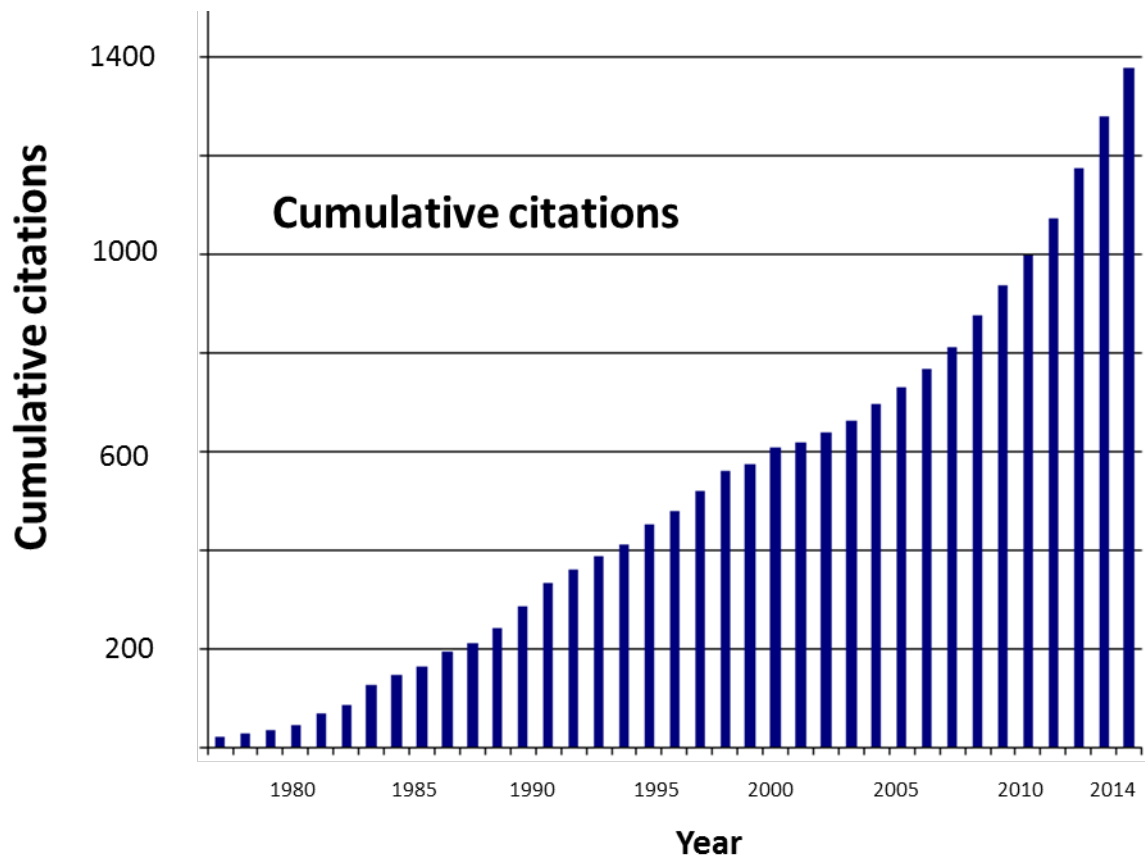
***Total Citations till April 2014: 1467***

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***\*i10 Index = 38***

*\*Google Scholar Data*



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*(Source: Google Scholar)*

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99. **Lalitha, P.V., Biswas, S., Pillai, C.R. and Saxena, R.K. (2008)** Expression, purification and characterization of a recombinant malaria vaccine based on apical membrane antigen-1 ectodomain from Indian *P. falciparum* alleles. Indo-US Conference on Translational Medicine and Infectious Diseases, National Institute of Immunology, New Delhi, 17-20 November, 2008
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101. **Saxena, R.K. (2009)** “Interaction of carbon Nano-particles with nucleated and non-nucleated cells and the attendant toxic effects” in International Symposium on Environmental Pollution, Ecology and Human Health, Sri Venkateswara University, (July 25-27, 2009), Tirupati
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105. **Saxena, R.K. (2010)** Environmental health and safety issues: nature, extent and uncertainties, in workshop entitled “Issues of risk in the regulation of nanotechnology”. Tata Energy Research Institute, Jan. 8, 2010, New Delhi
106. **Alam, A., Puri, N. and Saxena, R.K. (2011)** Suppression of allo-immune cytotoxic T cell response by poly-dispersed single walled carbon nanotubes , National Symposium on Microwave Field Measurement, Biological Effects and Application in Nano-Science, School of Environmental Sciences, JNU, March 4-5, 2011, New Delhi
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109. **Kumari, M., Rizvi, Z.A., Puri, N. and Saxena, R.K. (2011)** Pathways of antigen or Carbon nanotubes uptake & antigen presentation in murine lung epithelial cells. Biospark 2100, SLS, JNU, New Delhi (**Award winning poster**)
110. **Saxena, R.K. (2011)** Interactions of carbon nano-particles and their chemically modified forms with cells and organs in vitro and in vivo. National Review Meeting of Nanoscience and Nanotechnology (IIT Delhi, Feb 25-27, 2011)
111. **Kumari, M. and Saxena, R.K. (2011)** Presentation of BCG antigens by mouse lung epithelial cells to sensitized T helper cells and its modulation by acid functionalized single walled carbon nano-tubes. National Review Meeting of Nanoscience and Nanotechnology (IIT Delhi, Feb 25-27, 2011) (**Award winning poster**)
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115. **Bhardwaj N. and Saxena R. K. (2011)** “Induction of transient anemia and alterations in turnover of young and old erythrocytes in mice treated with the herbicide Paraquat”, XXXI Annual Conference of the Society of Toxicology, (STOX) India and international Symposium on Current Trends in Environmental Technology, The IIS University, Jaipur, Dec. 22–24, 2011.
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118. **Sachar S and Saxena RK (2012)** Evidence for a direct interaction between poly-dispersed single-wall carbon nanotubes and murine erythrocytes resulting in *in vitro* and *in vivo* cytotoxicity. Society of Toxicology 51st Annual Meeting, Moscone Convention Center, San Francisco. March 11-15, 2012
119. **Bhardwaj N. and Saxena R. K. (2012)** Symposium on Stress Adaptive Response and Genome Integrity (SARGI)”, BARC, Mumbai October 17-19, 2012
120. **Bhardwaj N. and Saxena R. K. (2012)** Paraquat inhibits the erythroid differentiation and induced apoptosis in bone marrow of mice. 3rd International Conference on Stem Cells and Cancer (ICSCC-2012): Proliferation, Differentiation and Apoptosis. Ram Manohar Lohia Hospital, New Delhi, Oct 27-30, 2-12
121. **Sachar S, Kumari M and Saxena RK (2012)** Enhanced toxicity of functionalized single walled carbon nanotubes on murine lung cells. 82nd Annual Session of NASI and National Symposium on “Nano-science & Technology for Mankind, BHU, Varanasi, Nov 29 – Dec 1, 2012.
122. **Alam A, Sachar S, Puri N and Saxena RK (2012)** Down regulation of allogenic Cytotoxic T Lymphocytes responses by poly dispersed single walled Carbon

- Nanotubes. 82nd Annual Session of NASI and National Symposium on “Nanoscience & Technology for Mankind, BHU, Varanasi, Nov 29 – Dec 1, 2012.
123. **Rizvi, Z.A., Puri, N. and Saxena, R.K. (2013)** Expression of CD1d molecule on mouse type I lung airway epithelial cells and its up-regulation by BCG antigens. Biospark conference, School of Life Sciences, JNU, Feb 15-16, 2013
  124. **Bhardwaj N. and Saxena R. K. (2013)** Modulation of erythrocyte turnover and erythropoietic responses in mouse bone marrow and spleen by the herbicide paraquat mediated oxidative stress. 12th Annual meeting of the Society for Free Radical Research , CSIR-Indian Institute of Toxicology Research, Lucknow, Jan 30-Feb 01, 2013.
  125. **Saxena R. K., Alam A., Kumari M, Sumedha S, and Puri N. (2013)** Suppression of murine T-helper and T-cytotoxic immune response by poly-dispersed single-walled carbon nanotubes. 10<sup>th</sup> International Conference on New Trends in Immunosuppression & Immunotherapy Barcelona, Spain from March 11-12, 2013.
  126. **Alam, A., Puri, N. and Saxena, R.K. (2013)** Poly-Dispersed Single Walled Carbon Nanotubes Down Regulate Allogenic Cytotoxic T Lymphocytes Responses In Vitro and In Vivo. XIII international Congress of Toxicology, Seoul, South Korea June 3 to July 4, 2013
  127. **Rizvi, Z.A., Puri, N. and Saxena, R.K. (2013)** Up-regulation of CD1d mediated lipid antigen presentation pathway in lung epithelial cells exposed to Mycobacterium bovis (BCG) 40<sup>th</sup> Annual Meeting of the Indian Immunology Society, UCMS, Delhi Nov. 15-17, 2013
  128. **Rizvi, Z.A., Puri, N. and Saxena, R.K. (2013)** Mycobacterium bovis (BCG) infection of the lung epithelial cells up-regulates the expression of key antigen presentation markers involved in the Cross presentation pathway. World Conference on Infectious disease (Sponsors: WHO, ICMR, DST), Chennai, Chennai Trade Convention Center, Dec 18-22, 2013.
  129. **Alam, A., Puri, N. and Saxena, R.K. (2013)** Suppression of acquired and natural immune system by poly dispersed single walled Carbon Nanotubes. 40<sup>th</sup> Annual Meeting of the Indian Immunology Society, UCMS, Delhi Nov. 15-17, 2013
  130. **Alam, A., Puri, N. and Saxena, R.K. (2014)** Polydispersed single walled carbon nanoparticles interact with and modulate adaptive and innate immune responses. BioSpark Conference, School of Life Sciences, JNU, New Delhi. March 22-23, 2014
  131. **Rizvi, Z.A., Puri, N. and Saxena, R.K. (2014)** Inhibition of CD1d and Cross-presentation pathways of antigen presentation by acid functionalized single-walled carbon nanotubes (AF-SWCNTs) in professional and non-professional antigen

presenting cells. Seventh International Congress of Nanotoxicology, Antalya, Turkey, April 23-26, 2014

132. **Saxena R. K., Rizvi, Z.A., Alam A., Kumari M and Puri N. (2014)** Modulation of antigen presentation and T cell responses by poly-dispersed single walled carbon nanotubes. European Society of Toxicology In Vitro 2014 International Conference, Egmond aan Zee, The Netherlands. June 10-13, 2014
133. **Rizvi, Z.A., Puri N. and Saxena R. K. (2014)** Inhibition of CD1d pathway of antigen presentation by acid functionalized single-walled carbon nanotubes (AF-SWCNTs) in professional and non-professional antigen presenting cells. 50th Congress of the European societies of Toxicology, Edinburgh, Scotland, September 7-10, 2014
134. **Bhardwaj N. and Saxena R. K. (2014)** Modulation of erythropoiesis and erythrocytes turnover in mice in response to Acid Functionalized Single Walled Carbon Nanotubes (AF-SWCNTs) treatments. 50th Congress of the European societies of Toxicology, Edinburgh, Scotland, September 7-10, 2014
135. **Dutt, T.S. and Saxena, R.K. (2015)** Enhanced uptake of acid functionalized carbon nanotubes (AF-SWCNTs) by mouse T-cells activated by T cell superantigen Staphylococcal Enterotoxin-B (SEB). South Asian Biotechnology Conference, Feb 12-14, 2015, South Asian University, New Delhi
136. **Chaterjee, S. and Saxena, R.K. (2015)** Modulation of erythrocyte turnover in blood circulation and bone marrow erythropoietic activity in mice exposed to cadmium in drinking water. South Asian Biotechnology Conference, Feb 12-14, 2015, South Asian University, New Delhi
137. **Rizvi, Z.A., Puri N. and Saxena R. K. (2015)** Exposure to poly-dispersed single walled carbon nanotubes (AF-SWCNTs) causes inhibition of CD1d mediated lipid antigen presentation pathway in professional and non-professional antigen presenting cells (APCs). South Asian Biotechnology Conference, Feb 12-14, 2015, South Asian University, New Delhi
138. **Bhardwaj, D., Mustafiz, A. and Saxena, R.K. (2015)** Effect of Acid functionalized single walled carbon nanotubes (AF-SWCNTs) on the germination of *Arabidopsis thaliana*. South Asian Biotechnology Conference, Feb 12-14, 2015, South Asian University, New Delhi
139. **Rizvi, Z.A., Puri N. and Saxena R. K. (2015)** CD1d mediated lipid antigen presentation by murine lung epithelial cells and its up-regulation during *Mycobacterium bovis* (BCG) infection. The 4th NIF Winter School on Advanced Immunology. 18 -23 January, 2015. Singapore
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