

**HEAD OF THE DEPARTMENT:** Dona Sinha, Ph.D  
Senior Scientific Officer (SSO-I Grade)

### EXTRAMURAL PROJECTS

PI/Mentor	Project Title	Funding Agency
Dr. Dona Sinha	Arsenic in groundwater, alterations in redox homeostasis and risk of carcinogenesis: A field study in West Bengal	Indian Council of Medical Research, New Delhi
	Modulation of NRF2 mediated redox homeostasis by green and black tea polyphenols in arsenic-induced oxidative stress	WOS-A scheme, Dept. of Science and Technology, New Delhi
	Redox regulation of nuclear factor erythroid-245 (NF-E2) related factor Nrf2 in lung cancer by green and black tea polyphenols: Implication in cancer therapeutics	Indian Council of Medical Research, New Delhi
	Exploration of the role of diallyl disulphide on EMT in A549 lung cancer cells	SERB, Dept. of Science and Technology, New Delhi

### INTRAMURAL PROJECT

PI	Project Title	Funding Agency
Dr. Dona Sinha	Impact of low level arsenic on airways of exposed population: study on cell survival and proliferative signaling pathway	Ministry of Health and Family Welfare, Govt. of India

### SELECTIVE PUBLICATIONS

1. Sinha D\*, Biswas J, Nabavi SM, Bishayee A. Tea phytochemicals for breast cancer prevention and intervention: From bench to bedside and beyond. **Semin Cancer Biol.** **2017; 46:33-54**
2. Prasad P and Sinha D\*. Low-level arsenic causes chronic inflammation and suppresses expression of phagocytic receptors. **Environ Sci Pollut Res.** **2017; 24(12):11708-11721.**
3. Sinha D\*, Sarkar N, Biswas J, Bishayee A. Resveratrol for breast cancer prevention and therapy: Preclinical evidence and molecular mechanisms. **Semin Cancer Biol.** **2016; 40-41:209-232.**
4. Prasad P, Mukherjee M, Saha H, Sinha D \*. Sputum Cytological Changes in Rural Women of West Bengal Chronically Exposed to Low Level Groundwater Arsenic Contamination. **Biomark J.** 2016. 2 (1):1-11
5. Dutta K, Prasad P, Sinha D \*. Chronic low level arsenic exposure evokes inflammatory responses and DNA damage. **Int J Hyg Environ Health.** 2015; 218(6):564-74.
6. Sinha D and Ray MR. Health effects of indoor air pollution due to cooking with biomass fuel. Eds Roberts SM, Kehrer JP, Klotz L-O in Studies on Experimental Toxicology and Pharmacology; Part of the series Oxidative Stress in Applied Basic Research and Clinical Practice, **Springer, 2015**, pp 267-302.
7. Mukherjee B, Bindhani B, Saha H, Sinha D\*, Ray MR. Platelet hyperactivity, neurobehavioral symptoms and depression among Indian women chronically exposed to low level of arsenic. **Neurotoxicol** **2014**, 45:159-67.

8. Gupta P, Sinha D, Bandopadhyay R. Isolation and screening of marine microalgae *Chlorella* sp. \_pr1 for anticancer activity. **Int J Pharmacy Pharmaceutical Sci** **2014**, 6(10):517-519.
9. Ghosh S, Balakrishnan K, Mukhopadhyay K, Sambandam S, Puttaswamy N, Chakraborty M, Ghosh P, Ray MR, Sinha D, Pyne S. Addressing disease burdens attributable to ambient and household air pollution in India: A review to scope future research priorities for carcinogenicity of air toxics. **J Ind Soc Agri Stat** **2014**; 68(3):391-405.
10. Nanda DP, Dutta K, Ganguly KK, Hajra S, Mondal SS, Biswas J, Sinha D \*. MMP-9 as a potential biomarker for carcinoma of oral cavity: a study in eastern India. **Neoplasma** **2014**, 6 (6): 747-757.
11. Das D, Bindhani B, Mukherjee M, Saha H, Biswas P, Dutta K, Prasad P, Sinha D \*, Ray MR. Chronic low level arsenic exposure reduces lung function in male population without skin lesions. **Int J Pub Health** **2014**, 59(4):655-663.
12. Sinha D \*, Mukherjee B, Bindhani B, Dutta K, Saha H, Prasad P, Ray MR. Chronic low level arsenic exposure inflicts pulmonary and systemic inflammation. **J Cancer Sci Ther** **2014**, 6(3): 62-69.
13. Sinha D \*, Dutta K, Ganguly KK, Biswas J, Bishayee A. A novel synthetic oleanane triterpenoid suppresses adhesion, migration and invasion of highly metastatic melanoma cells by modulating gelatinase signaling axis. **Mol Carcinog.** **2015** ;54(8):654-67.
14. Pyne S, Biswas J, Sinha D. A new systems approach to combat arsenic induced carcinogenesis. **South Asian J Cancer** **2013**; 2(2):82.
15. Sinha D\*, Biswas J, Bishayee A. Nrf2-mediated redox signaling in arsenic carcinogenesis: a review. **Arch Toxicol** **2013**; 87(2):383-96
16. Sinha D\*, Biswas J, Sung B, Aggarwal BB, Bishayee A. Chemopreventive and chemotherapeutic potential of curcumin in breast cancer. **Curr Drug Targets.** **2012**; 13(14):1799-819.
17. Roy M, Sinha D, Mukherjee S, Biswas J. Curcumin prevents DNA damage and enhances the repair potential in a chronically arsenic exposed human population in West Bengal, India. **Eur J Cancer Prev** **2011**, 20(2): 123-131.
18. Sinha D and Roy M. Antagonistic role of tea against sodium arsenite induced oxidative DNA damage and repair inhibition in Swiss albino mice. **J Environ Pathol Toxicol Oncol** **2011**, 30(4):311-22.
19. Roy S, Mukherjee S, Sinha D, Roy M. Indian spice curcumin may be an effective strategy to combat the genotoxicity of arsenic in Swiss albino mice. **Asian Pac J Cancer Prev** **2010**, 11:239-246.
20. Biswas J, Sinha D, Mukherjee S, Roy S, Siddiqi M, Roy M. Curcumin protects DNA damage in a chronically arsenic exposed population of West Bengal. **Hum Exp Toxicol** **2010**, 29(6): 513-524.
21. Sinha D, Roy S, Roy M. Antioxidant potential of tea reduces arsenite induced oxidative stress in Swiss albino mice. **Food Chem Toxicol** **2010**, 48: 1032-1039.
22. Sinha D, Mukherjee S, Roy S, Bhattacharya RK, Roy M. Modulation of arsenic induced genotoxicity by curcumin in human lymphocytes. **J Env Chem Ecotoxicol** **2009**, Vol. 1(1) pp. 001-011.
23. Sinha D, Dey S, Bhattacharya RK, Roy M. In vitro mitigation of arsenic toxicity by tea polyphenols in human lymphocytes, **J Env Pathol Toxicol Oncol** **2007**, 26(3): 207-220.
24. Roy M, Sinha D, Mukherjee S, Paul S, Bhattacharya RK. Protective effect of dietary phytochemicals against arsenite induced genotoxicity in mammalian V79 cells. **Ind J Exp Biol** **2008**, 46: 690-697.
25. Sinha D, Roy M, Siddiqi M, Bhattacharya R.K. Modulation of Arsenic induced DNA damage by tea as assessed by single cell gel electrophoresis, **Int J Cancer Prev** **2005**, 2(2): 145-154.
26. Sinha D, Siddiqi M, Bhattacharya RK, Roy M. Amelioration of Sodium Arsenite induced clastogenicity by tea extracts in Chinese hamster V-79 cells, **Env Pathol Toxicol Oncol** **2005**, 24(2): 129-139.

27. Sinha D, Siddiqi M, Roy M, Bhattacharya RK. Arsenic induced micronuclei formation in mammalian cells and its counteraction by tea. **Env Pathol Toxicol Oncol** 2005, 24(1): 43-54.
28. Sinha D, Roy M, Dey S, Siddiqi M., Bhattacharya RK. Modulation of arsenic induced cytotoxicity by tea. **Asian Pac J Cancer Prev** 2003, 4(3): 233-238.
29. Roy M, Chakraborty S, Sinha D, Bhattacharya RK & Siddiqi M. Anticlastogenic, antigenotoxic and apoptotic activity of epigallocatechin gallate, a green tea polyphenol. **Mutat Res** 2003, 523-524: 33-41.

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## **ACADEMIC ACTIVITIES**

**Registered Ph.D Students: 4**

**Post Doctoral Fellow: 1**

**Short term UG/PG projects: 35**

### **Integrative course work taught to Ph. D students:**

- Cell structure and function and nuclear changes during carcinogenesis
- Nrf2, the redox transcription factor
- Cancer chemoprevention
- Epithelial Mesenchymal Transition
- Cell cycle

### **PATIENT CARE SERVICE:**

Pulmonary function test performed for CNCI hospital patients