Dr. Sadaf Jahan
Current Designation: *Assistant Professor (College of Applied Medical Sciences)*
Specialty: *Microbiology, Stem Cells and Neuroscience*
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Research Interest: My doctoral research is broadly focused on developing and validating in vitro model systems to study developmental neurotoxicity of environmental chemicals and drugs using chemical induced differentiating neural cells, derived from **human umbilical cord blood stem cells**. The expression profile of early and mature neural specific marker genes involved in the neural development, injury and repair are being looked at for their responsiveness to the experimental exposure of organophosphate pesticides at different points of maturation in cultured human neural stem cells. Besides, the expression and inducibility of signaling pathway(s) involved in induced neuronal differentiation in mesenchymal stem cells derived from human umbilical cord blood have also been investigated.

During my PDF research, I worked on the NCEs via using HPLC and LCMS and find out the applicability of those NCEs as neuroprotective agents by using animal model (Swiss Rat) and cell lines (Primary as well as secondary)

Personal statement: I have expertise in the field of **microbiology,** stem cell biology, molecular neuroscience, toxicology, animal tissue culture, molecular biology, biotechnology, drug discovery and immunology research. My research includes identifying the drug transporters in human as well as rat stems cells, discovering the involved genes in neuronal differentiation cascade pathway and studying the role of transporters in drug discovery. I successfully administered some research projects, collaborated with other lab researchers, and produced the peer-reviewed publications from project. As a result of these previous experiences, I am aware of the importance of frequent publication among research project and of making a realistic research plan, timeline, and budget. Continuing with the interdisciplinary nature of my research interests, I joined **CSIR-Central Drug Research Institute** as "National-Post-Doctoral Fellow" **- Principal Investigator (Young Scientist)**, where my current research is focused on Investigation of uptake and efflux transporters role in first line prescription medicines and potential drug combination and pharmacological effects by experimental therapeutic studies. I also worked as Volunteer Post-Doctoral Fellow with College of Medicine & Health Sciences (Department of Pharmacology), **UAE University,** United Arab Emirates, Al Ain. I have published **22 research papers** in International journals having good impact factors.

Teaching Experiences:

- 31' October 2019 to Presently: **Assistant Professor** (College of Applied Medical Sciences) Medical Laboratories, Majmaah University P.O Box 66, Majmaah 11952 - Kingdom of Saudi Arabia.

- 10' July 2018 to 14' October 2019: **Assistant Professor,** Department of Biological Sciences **(Microbiology),** Chinmaya Degree College, H.N.B. Garhwal University, Haridwar, India

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Research Experience:

1. **March 2016 – March 2018:** Principal Investigator, **National Post-Doctoral Fellow (N-PDF)** through Science and Engineering Research Board **(SERB)** at CSIR-Central Drug Research Institute, Lucknow, India.

2. **Jan 2016- March 2016 : Volunteer Post-Doctoral Fellow** in College of Medicine & Health Sciences (Department of Pharmacology), United Arab Emirates University, Al Ain

3. **October 2012 – September 2015: Senior Research Fellow** at CSIR- Indian Institute of Toxicology Research Lucknow, U.P., India.

4. **October 2010- September 2012: Junior Research Fellow** at CSIR- Indian Institute of Toxicology Research Lucknow, U.P., India.

Training:

Laboratory, where I was working for over seven years, is one among the State of the Art Laboratories focusing on stem cell research in the country. The publication track record of the Laboratory (http://www.ncbi.nlm.nih.gov/pubmed/?term=pant+ab) will tell you that all the fellows working in the Laboratory are receiving extensive hands on training on almost all the tools and techniques used in modern molecular biology studies. As Laboratory focusus on stem cell research, so additionally we have also been trained to isolate, purify, characterize, cultivate the stem cells from human and rodent systems and differentiate them into different lineages under specific growth conditions. At this point of time, I am quite comfortable of independent handling of instruments and protocols to carryout following endpoints under both **in vitro** and **in vivo** experimentations.

In my more than seven years of active research career, I have been making extensive use of most of the tools and techniques required to carry out the molecular and cellular studies using stem cells, primary cultures and immortal cell lines and with biological samples collected from experimental animals. Few such endpoints and techniques are:

⇒ Isolation of hematopoietic stem cells from Human umbilical cord blood by RoboSep^{TM} Stem Cell Technology.
⇒ Isolation, characterization, proliferation and neuronal differentiation of Mesenchymal stem cells derived from Human umbilical cord blood.
⇒ Cytotoxicity/ Biosafety analysis, expression studies (mRNA and protein) for the markers associated with oxidative stress, apoptosis, neurotoxicity, developmental neurotoxicity, up and down stream signaling cascades associated to neurotoxicity and developmental neurotoxicity.
⇒ Immunocytochemical/ Immunohistochemical localization, co-localization of protein markers in cultured cells and isolated brain tissues respectively
⇒ Transcriptional studies were carried out using customized Taqman Law Density Array (TLDA) with genes of our interest
⇒ Translational studies using conventional as well as in-cell western method

⇒ Cell sorting by RobSep (Electromagnetic separation system) and Influx Model of BD equipped with six way cell sorting
⇒ Handling of software guided imaging systems, data analyzers and primer designing tools, etc.
⇒ Handling on software Rasmol (for Protein Protein interaction study).
⇒ Handling on HPLC
⇒ Handling of microorganisms

Education:

Ph.D. in Biological Sciences (Awarded year 2015) - **CGPA-7.80**

Institution: **CSIR-Indian Institute Of Toxicology Research** , Post Box- 80 Marg, Lucknow, India Thesis Title: Signaling cascade molecules involved in Trans-resveratrol induced neuronal Differentiation in human umbilical cord blood derived mesenchymal stem cells (hUCB-MSCs).

University: **Academy of Scientific & Innovative Research, New Delhi, India**
Mentor: **Dr. AB Pant, Principal Scientist,** In Vitro Toxicology Laboratory, CSIR-IITR Lucknow

Pubmed link: **http://www.ncbi.nlm.nih.gov/pubmed/?term=Pant+AB**

Master of Science in Microbiology (70.6 % Marks)

Gurukula Kangri University, Haridwar, Uttarakhand, India.
(http://www.gkv.ac.in/)

Bachelor of Science (B.Sc) with 69.5 % Marks)

Hemwati Nandan Bahuguna Garhwal University, Uttarakhand, India.
(http://www.hnbgu.ac.in/)

Post Doctoral Research Work:

Title: Investigation of uptake and efflux transporters role in first line prescription medicines and potential drug combination and pharmacological effects by experimental therapeutic studies

Summary: The study of transporters will be helpful for assessment of drug efficacy (Giacomini, Huang et al. 2010) .The yielded results will be helpful in the development of models and streamlined methodologies to address critical drug development and the mandatory role of transporters in pharmacokinetics and pharmacodynamics. Various challenging issues regarding adoption of right drug and limitations in current methodologies will be sort out. Key needs that must be fulfilled by above are following:

- Development of *in vitro* and *in vivo* methods and models to inform clinical studies in order to fully address the impact of combinations of uptake and efflux transporters and their interactions with drug metabolizing enzymes.
- Better tools to improve mechanistic understanding and assessment of intracellular drug and metabolites concentrations; such tools will aid in drug response (both on targets and off targets).
- Development of standardized criteria to better inform *in vitro* and *in vivo* correlation of data.
- An understanding of the functional role of transporters having clinical importance in different organs and tissues.
- A comprehensive understanding of the genetic and other factors that affect the expression and activity of transporters involved in drug dispositions and response.
- Development of noninvasive technologies, including imaging to evaluate the dynamics of tissue distribution of drugs.

Doctoral Research Work:

Title:

Signaling cascade molecules involved in *trans*-Resveratrol induced neuronal differentiation in human umbilical cord blood derived mesenchymal stem cells

I have opted to work with Mesenchymal Stem Cells (MSCs) isolated from human umbilical cord blood and optimized its protective efficiency against neurodegenerative disorders. Here is the summary of the doctoral work followed by the steps used for compile the hypothesis.

1. Investigating the NGF and/ or Resveratrol (RV) induced neuronal differentiation of mesenchymal stem cells derived from umbilical cord blood (hCBMSCs)-

Human umbilical cord blood was employed for the isolation of mesenchymal stem cells, as it is not only a rich source of stem cells, but also a waste material after the birth of a healthy child, further minimum ethical concern is raised against using this material. In general, the final purified cell population achieved was greater than 99% at fifth passage. Following characterization, purified population of MSCs was allowed to proliferate and then to differentiate into neuronal subtypes under the influence of biological safe doses of RV (10 μM) and/ or NGF (50ng/mL). Prior using in the experiments, biological safe doses of the RV was ascertained using standard endpoints of cytotoxicity viz., tetrazolium bromide salt assay (MTT), neutral red uptake (NRU), lactate dehydrogenase (LDH), trypan blue dye exclusion assays and morphological assessment. The expression studies were carried out using selected non-cytotoxic concentration of RV (10 μM) and NGF (50 ng/ml) for 8 days. The cells were allowed to differentiate into neuronal subtypes under the influence of biological safe doses of RV and/or NGF. At various stages of maturity, the cells were examined for the morphological differentiation, up and down stream signaling cascade molecules and stage specific markers involved in neuronal development. The RV induced expression changes could be well correlated with the NGF induced expression of neuronal markers, morphological differentiation and neurite outgrowth in the cells. RV shows additive response to NGF induced differentiation in hCBMSCs for the morphological differentiation, up and down stream signaling cascade molecules and stage specific markers involved in neuronal development. The RV induced expression changes could be well correlated with the NGF induced expression of neuronal markers, morphological differentiation and neurite outgrowth in the cells. RV shows additive response to NGF induced differentiation in hCBMSCs.

2. Investigating the involved signaling cascades and their association with stage specific neuronal differentiation of hCBMSCs receiving RV and/ or NGF exposure-

Functional interaction of the RV with NGF was also studied by comparing the data of exposure groups i.e., cells exposed to RV and/or NGF. The signaling receptor specific transcriptional inhibitors (molecule specific siRNA) and translational inhibitors (pharmacological inhibitors) were employed to identify the RV induced triggering of specific signalizing pathways involved in neuronal differentiation of hCBMSCs. The data revealed that RV induces neuronal differentiation involving the cAMP/PKAdependent pathway, which leads to GSK3-beta phosphorylation and thus activate beta-catenin by its ubiquitination. This beta-catenin interact with ERK and phosphorylate it. Phosphorylated ERK induce the activity of transcription factor CREB, this nuclear transcription factor is responsible for neuronal differentiation.

CREB gets phosphorylated via ERK1/2 and p38 MAP kinases dependent pathways. These findings also indicate that the changes are largely mediated through adenylate cyclase receptor, as confirmed by the elevated levels of cAMP and intracellular calcium [Ca^{2+}]i. The ERK1/2 and p38 have been found to play a key role in RV induced neuronal differentiation in hCBMSCs. Though, the physiological dynamics were different in NGF and RV induced neuronal differentiation of hCBMSCs. RV has been shown somewhat similar magnitude of neuronal differentiation as detected in NGF (at both morphological and physiological levels). However, RV was found to have a supportive role in enhancing the differentiation potential of NGF in hCBMSCs. The specific inhibitors of Erk1/2, p38, MAP kinase and calcium significantly reduce the magnitude of RV induced differentiation of hCBMSCs. RV was found to have a supportive role to enhance the differentiation potential of NGF in hCBMSCs via induction of cAMP and [Ca2+]i levels.

3. Investigating the neuroprotective/ restorative potential of RV in hCBMSC derived neuronal cells receiving a toxic insult to Monocrotophos (MCP), a known neurotoxicant organophosphate pesticide -

The neuroprotective potential of RV (10 μM) has also been investigated during neuronal differentiation of hCBMSCs when cells are co-exposed with MCP (100 μM) for 24 h. MCP is known to induce neurotoxic responses via Reactive Oxygen Species (ROS) mediated oxidative stress, apoptosis and subsequent cytotoxic cell death.

Hence, the investigation was primarily focused on antioxidant and anti-apoptotic activities of the RV. When cells were co-exposed with RV+MCP (10 μM+100 μM), a reduction in ROS level, lipid peroxidation in the cells and restoration of the glutathione levels and mitochondrial membrane potential was seen in a significant manner. Restoration of markers, such as cytochrome c, Bax, Bcl-2 and caspase-3 in co-exposed hCBMSCs also confirms the effectiveness of the RV against MCP-induced mitochondriamediated apoptosis. The data, generated so far, demonstrated the protective/ restorative potential of the RV against MCP-induced neuronal damages in hCBMSCs derived neuronal cells by restoring the oxidative stress-mediated apoptosis and cytotoxicity.

From all the above studies, it was suggested that RV can be used as modulator for restoration of neurogenesis. The acquired knowledge from the present study is perhaps first hand information on the signaling pathway(s) involved and their association with the stage specific markers in RV mediated neuronal differentiation of hCBMSCs. The study improves our understanding of cellular and molecular events involved in neuronal differentiation, which might be useful for evolving novel and specific therapeutic strategies against neurodegenerative disorders.

List of Publication:

- **S Jahan,** D Kumar, S Singh, A Srivastava, V Kumar, A Pandey CS Rajpurohit, AR Purohit, VK Khanna, AB Pant. Resveratrol Prevents the Cellular Damages Induced by Monocrotophos via PI3K Signaling Pathway in Human Cord Blood Mesenchymal Stem Cells. **Molecular Neurobiology 2018. (Impact Factor- 6.2)**

- **S Jahan,** S Singh, A Srivastava, V Kumar, D Kumar, A Pandey CS Rajpurohit, AR Purohit, VK Khanna, AB Pant.PKA-GSK3β and β-Catenin Signaling Play a Critical Role in Trans-Resveratrol Mediated Neuronal Differentiation in Human Cord Blood Stem Cells. **Molecular Neurobiology 2017. (Impact Factor-6.2)**

- **S Jahan,** D Kumar, A Kumar, CS Rajpurohit, S Singh, A Srivastava, A Pandey. Neurotorphic factor mediated neuronal differentiation of human cord blood mesenchymal stem cells and their applicability to assess the developmental neurotoxicity. **Biochemical and Biophysical Research Communications 2017. (Impact Factor-2.4)**

- **S Jahan,** D Kumar, S Chaturvedi, M Rashid, M Wahajuddin, Y A Khan, S N. Goyal, C. R. Patil, R Mohanraj, S Ojha. Targeting Inflammasomes by Natural Products: A Novel Therapeutic and Mechanistic Approach for Inflammatory Diseases. **Current Medicinal**

Chemistry 2017. (Impact Factor-3.4)

- M Rashid, SK Singh, Y Malik, **S Jahan,** S Chaturvedi, I Taneja, KS Raju, Z Nasim, JR Gayen, M Wahajuddin, Development and validation of UPLC MS/MS assay for quantification of cladrin: Absolute bioavailability and dose proportionality study in rats. **Journal of Pharmaceutical and Biomedical Analysis 2018. (Impact Factor- 3.2)**

- Ruby Bansal1,†, Brashket Seth2,†, Shashikant Tiwari2,†, **Sadaf Jahan2**,†, A.B. Pant2,†, R.K. Chaturvedi2,†, Pradeep Kumar1, K.C. Gupta1,3,* Hexadecylated linear PEI self assembled nanostructures as efficient vectors for neuronal gene delivery. **Drug Delivery and Translational Research, 2018 (Impact Factor- 3.0)**

- V Kumar, A Pandey, **S Jahan,** RK Shukla, D Kumar, A Srivastava, S Singh, C. Rajpurohit, S Yadav, VK Khanna, AB Pant.Differential response of Trans-Resveratrol on the proliferationand neurogenesis in cultured neural progenitor cells. **Scientific Reports 2016. (Impact Factor-4.8)**

- Deepti Chopra, Lipika Ray, Ashish Dwivedi, Shashi Kant Tiwari, Jyoti Singh, Krishna P.Singh, Hari Narayan Kushwaha, **Sadaf Jahan,** Ankita Pandey, Shailendra K. Gupta, Rajnish Kumar Chaturvedi, Aditya Bhushan Pant, Ratan Singh Ray, Kailash Chand Gupta. Photoprotective efficiency of PLGA-curcumin nanoparticles versus curcumin through the involvement of ERK/AKT pathway under ambient UV-R exposure in HaCaT cell line. **Biomaterials 2016. (Impact Factor-8.4)**

- Srivastava A, V. Kumar, A. Pandey, **S. Jahan,** D. Kumar, C. S. Rajpurohit, S. Singh, V. K. Khanna and A. B. Pant. Adoptive Autophagy Activation: a much needed remedy against chemical induced Neurotoxicity/ Developmental Neurotoxicity. **Molecular Neurobiology. 2016. (Impact Factor-6.2)**

- V Kumar, AK Gupta, VK Tripathi, **S Jahan,** VK Khanna and AB Pant. Molecular switching mechanism of TrkA/p75NTR signaling in MCP induced neurotoxicity in rat brain neuronal stem cell. **Scientific Report 2015 (Impact Factor-4.8)**

- Kumar V, **Jahan S,** Singh S, Khanna V, Pant AB. Progress toward the development of in vitro model system for chemical-induced developmental neurotoxicity: potential applicability of stem cells. **Archives of Toxicology 2014. (Impact Factor-5.9)**

- Kumar V, Tripathi V, **Jahan S,** Agrawal M, Pandey A, Khanna V, Pant AB: Lead Intoxication Synergies of the Ethanol-Induced Toxic Responses in Neuronal Cells—PC12. **Molecular Neurobiology 2014. (Impact Factor- 6.2)**

- MP Kashyap, V Kumar, AK Singh, VK Tripathi, **S Jahan,** A Pandey, Ritesh Kumar Srivastava, VK Khanna, AB Pant. Differentiating neurons derived from human umbilical cord blood stem cells work as a test system for developmental neurotoxicity. **Molecular Neurobiology. 2013. (Impact Factor- 6.2)**

- Tripathi VK, Kumar V, Singh AK, Kashyap MP, **Jahan S,** Pandey A, Alam S, Khan F, Khanna

VK, Yadav S: Monocrotophos Induces the Expression and Activity of Xenobiotic Metabolizing Enzymes in Pre- Sensitized Cultured Human Brain Cells. **PloS One 2014 (Impact factor-2.8)**

- VK Tripathi, V Kumar, AK Singh, **S Jahan,** VK Khanna, S Yadav, M Lohani, AB Pant. Inducibility of xenobiotic metabolizing cytochrome P450s in cultured human neuronal and glial cells. **PLoS One. 2014. (Impact Factor-2.8)**

- AK Singh, MP Kashyap,V Kumar, VK Tripathi, DK Yadav, F Khan, S Jahan, VK Khanna, S Yadav, AB Pant. 3-Methylcholanthrene Induces Neurotoxicity in Developing Neurons Derived from Human CD34+Thy1+Stem Cells by Activation of Aryl Hydrocarbon Receptor. **Neuromolecular Medicine.2013**;15(3):570-92. **(Impact Factor- 3.2)**

- MP Kashyap, AK Singh, V Kumar, **S Jahan,** S Yadav, VK Khanna, AB Pant. Pkb/Akt1 mediates Wnt/GSK3β/β-catenin signaling induced apoptosis in human cord blood stem cells exposed to organophosphate pesticide- monocrotophos. **Stem Cells and Development**. 2013 Jan 15;22(2):224-38. **(Impact Factor-3.5)**

- Tripathi VK, Kumar V, Singh AK, Kashyap MP, **Jahan S,** Kumar D, Lohani M (2013). Differences in the expression and sensitivity of cultured rat brain neuronal and glial cells towards the monocrotophos. **Toxicology International.** 2013; 20(2):177-85.

- Kumar V, Gupta AK, Tripathi VK, **Jahan S,** Kuddus M, Pant AB. Monocrotophos induces apoptosis/ neuronal injury in primary cultures of rat neuronal stem cells by targeting TrkA pathways. **Journal of Neurochemistry.** 2013; 125 (Suppl. 1). **(Impact Factor-4.2)**

- Tripathi VK, Kumar V, Singh AK, **Jahan S,** Yadav S, Lohani M, Pant AB. Xenobiotic metabolizing capabilities of cultured brain neuronal and glial cells; linearity analysis between rat and human. **Journal of Neurochemistry.** 2013; 125 (Suppl. 1). **(Impact factor-4.0)**

- M. A. Siddiqui, J. Ahmad, N. N. Farshori, Q. Saquib, **S. Jahan**, M. P. Kashyap, M. Ahamed, J. Musarrat, A. A. Al-Khedhairy. Rotenone-induced oxidative stress and apoptosis in human liver HepG2 cells. **Molecular and Cellular Biochemistry. (Impact Factor-2.6)**

- Siddiqui MA, Kumar V, Kashyap MP, Agarwal M, Singh AK, Khanna VK, Al- Khedhairy AA, Musarrat J, Pant AB, **Jahan S.** Short-term exposure of 4-hydroxynonenal induces mitochondria-mediated apoptosis in PC12 cells. **Human & Experimental Toxicology.** 2012 Apr;31(4):336-45. **(Impact Factor-1.8)**

- AK Singh, MP Kashyap, **S Jahan**,V Kumar, S Yadav, VK Khanna, AB Pant. Human hematopoietic stem cell-derived developing neuronal cells have the expression of xenobiotic metabolizing cytochrome P450s. **Toxicological Sciences.** 2012 Oct;129(2):392-410. **(Impact Factor-4.08)**

Participation in Symposia/Conferences/Workshop:

1. Oral presentation in UGC SAP (DRS-II), DST (SERB) & CSIR sponsered National Seminar on Biotechnology Research in India- Current Status and future prospects, Jamia Hamdard, New Delhi, India on 26-27 March, 2019 (**Published Abstract Title:** Neuronal cells derived from human umbilical cord blood derived mesenchymal stem cells: tool to cure neuro degenerative disorders)

2. Oral Presentation in XV Annual Meeting of the **Society for Free Radical Research** in **Bhabha Atomic Research Centre (BARC)**, India on 09-12 January 2017, Multipurpose Hall, Training School Hostel, Anushakti Nagar, Mumbai-400094, India. (**Published Abstract Title:** "Resveratrol ameliorates Monocrotophos induced cellular damage in Human Cord Blood Mesenchymal stem cells derived neuronal cells)

3. Attended the **7th International Genetic Disorders Conference & UAE International Genetic Prevention Award 2016** in Dubai, United Arab Emirates on 9-10 November 2018.

4. Paper presented in **3rd Stem Cells Conference (IV IPLASS MEETING), Stem Cell Basic Research,** Translational and Clinical Application at KSAU- Conventional Center, Ministry of National Guard –**Health Affairs, Riyadh, Saudi Arabia** between 19 - 21 September 2016. (**Published Abstract Title: S Jahan,** D Kumar, AB Pant, M Wahajuddin. Human cord blood mesenchymal stem cell derived neuronal cells: tool to study the chemical induced neurotoxicity and neuroprotection)

5. Paper presented in **3rd AIST International Imaging Workshop & PIKNIKH Series VIII** "Bio-imaging with Beauty: Teachings, Tools and Technologies" **January 18-23, 2016** at National Institute of Advanced Industrial Science and Technology (AIST), 1-1-1 **Higashi, Tsukuba, Japan.** (**Published Abstract Title:** Human stem cells derived 3D neuron niche: a tool to decipher chemical induced developmental neurotoxicity)

6. Paper Presented in **International Symposium on Translational Neuroscience and XXXII Annual Conference of the Indian Academy of Neurosciences**, November 1-3, 2014 at NIMHANS Convention Centre. **National Institute of Mental Health and Neurosciences.** Institute of Bengaluru, India. (**Published Abstract Title:** 3methylcholanthrene induced toxicity in neurons)

7. Paper Presented in International Symposium on **Translational Neuroscience and XXXII Annual Conference of the Indian Academy of Neurosciences,** November 1-3, 2014 at NIMHANS Convention Centre. National Institute of Mental Health and Neurosciences. Institute of Bengaluru. (**Published Abstract Title:** S Singh, **S Jahan,** V Kumar, D Kumar,

VK Khanna, AB Pant. Toxicological consequences and metabolism of 4-hydroxynonetol in PC12 cells)

8. Paper presented in International Symposium on Translational Neuroscience and XXXII **Annual Conference of the Indian Academy of Neurosciences,** November 1-3, 2014 at NIMHANS Convention Centre. National Institute of Mental Health and Neurosciences. Institute of Bengaluru. (**Published Abstract Title:** A Pandey, **S Jahan,** V Kumar, C Singh Rajpurohit, VK Khanna, AB Pant. Monocrotophos induced apoptosis in hematopoietic stem cells derived neuronal cells)

9. Paper Presented in **XII Annual Conference of the Society for Free Radical Research, (SFRR)** India and Symposium on Current Trends in Environmental Toxicology, during January 30 to February 01, 2013 at CSIR-Indian Institute of Toxicology Research, Lucknow. (**Published Abstract Title: S Jahan**, V Kumar, AK Singh, S Yadav, VK Khanna, AB Pant. Trans-Resveratrol protects the ischemic injuries in PC12 cells.)

10. Paper presented in International Symposium on Translational Neuroscience and XXXII **Annual Conference of the Indian Academy of Neurosciences,** November 1-3, 2014 at NIMHANS Convention Centre. National Institute of Mental Health and Neurosciences. Institute of Bengaluru. (**Published Abstract Title:** A Srivastava, V Kumar, **S Jahan,** D Kumar, C Singh Rajpurohit, VK Khanna, AB Pant. Resveratrol induces neuronal differentiation in PC12 cells via ERK1/2 and P38 signaling)

11. Oral Presentation in **4th international conference on Stem Cells and Cancers (ICSCC-2013):** Proliferation, Differentiation and apoptosis during 19-22 October 2013 Haffkine Institute, Parel, Mumbai, India.(**Published Abstract Title: S Jahan**, V. Kumar, D. Kumar, VK Khanna, S. Yadav and AB Pant. Signaling cascade molecules in Neuronal Differentiation of Human Cord Blood Mesenchymal Stem Cells).

12. **S Jahan**, V Kumar, D. Kumar, VK Khanna, S. Yadav and AB Pant. Potential of Resveratrol to induce neuronal differentiation in human umbilical cord blood derived mesenchymal stem cells. **Oral Presentation** in XXXIII Annual Conference of the Society of Toxicology, (STOX) India for **Synergy of Toxicology Research in SAARC Countries & National Symposia** "Phyto-remedial approaches against environmental pollutants for human and animal health", during 23-25 October, 2013 at U.P. Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya, Mathura.

13. V Kumar, VK Tripathi, **S Jahan,** AK Singh, S Yadav, VK Khanna, AB Pant. Biphasic responses for oxidative stress and apoptosis markers in lead intoxicated PC12 cells receiving variable doses of ethanol. **Paper Presented** in **XII Annual Conference of the Society for Free Radical Research, (SFRR) India** and Symposium on Current Trends in Environmental Toxicology, during January 30 to Feb 01, 2013 at CSIR-Indian Institute of Toxicology Research.

14. VK Tripathi, V Kumar, AK Singh, **S Jahan,** S Yadav, VK Khanna, AB Pant. Expression of selected cytochrome P450s Vs ROS mediated apoptosis in cultured human neuronal cells exposed to organophosphate pesticide - monocrotophos. **Paper Presented** in **XII Annual Conference of the Society for Free Radical Research, (SFRR) India** and Symposium on Current Trends in Environmental Toxicology, during January 30 to February 01, 2013 at CSIR-Indian Institute of Toxicology Research, Lucknow.

15. AK Singh, V Kumar, VK Tripathi, **S Jahan,** S Yadav, VK Khanna, AB Pant. Involvement of mitochondrial caspases in monocrotophos induced ROS production and subsequent apoptotic events in PC12 cells. **Paper Presented** in **XII Annual Conference of the Society for Free Radical Research, (SFRR)** India and Symposium on Current Trends in Environmental Toxicology, during January 30 to February 01, 2013 at CSIR-Indian Institute of Toxicology Research, Lucknow.

16. V Kumar, AK Gupta, VK Tripathi, **S Jahan,** M Kuddus and AB Pant (2013). Monocrotophos induces apoptosis/ neuronal Injury in primary cultures of rat neuronal stem cells by targeting Trk-A pathways. **Paper Presented** in **24th Biennial Meeting of International Society for Neurochemistry jointly American Society for Neurochemistry (ISN-ASN),** during April 16-24, 2013 at **Cancun, Mexico.**

17. AK Singh, V Kumar, VK Tripathi, S Jahan, D Kumar, VK Khanna, AB Pant. Aryl Hydrocarbon Receptor play a key role in 3-Methylcholanthrene induces neurotoxicity in developing neurons derived from human CD34+Thy1+ Stem Cells. **Paper Presented** in at XXXI Annual Meeting of **Indian Academy of Neurosciences (IAN)** & Conference on **Emerging Trends and Challenges in Neuroscience,** 25th – 27th Oct, 2013 at Allahabad University, Allahabad.

18. D Kumar, V Kumar, VK Tripathi, S Jahan, AB Pant. Toxicological consequences and metabolism of 4-hydroxynonenal in PC 12 cells. Presented in XXXIII Annual Conference of the Society of Toxicology, (STOX) India for Synergy Of Toxicology Research In SAARC Countries & National Symposia "Phyto-remedial approaches against environmental pollutants for human and animal health", during 23-25 October, 2013 at U.P. Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya, Mathura.

19. AK Singh, **S Jahan,** VK Tripathi, V Kumar, S Yadav, VK Khanna, AB Pant. Human stem cell derived developing neuronal cells show metabolic activation against rifampin. **Oral presentation delivered** at 32nd Annual Conference of Society of Toxicology (STOX), India and International Symposium on New Paradigms in Toxicology (NPT-2012) organized at CSIR-Indian Institute of Toxicology Research (IITR), Lucknow, India during December 05-07, 2012.

20. AK Singh, **S Jahan,** VK Tripathi, V Kumar, S Yadav, VK Khanna, AB Pant. Human stem cell

derived deloping neuronal cells show metabolic activation against rifampin. **Paper Presented** in **XXXII Annual Conference of the Society of Toxicology, (STOX)** India and International Symposium on New Frontiers in Toxicology, during December 05-07, 2012 at CSIR-Indian Institute of Toxicology Research, Lucknow, India.

21. V Kumar, A K Gupta, VK Tripathi, **S Jahan,** M Kuddus and AB Pant. Tyrosine kinase- A plays a key role in MCP-induced apoptosis and neuronal injury in rat neuronal stem cells. Presented **in XXXII Annual Conference of the Society of Toxicology, (STOX)** India and International Symposium on New Frontiers in Toxicology, during December 05-07, 2012 at **CSIR-Indian Institute of Toxicology Research,** Lucknow. India

22. AK Singh, VK Tripathi, **S Jahan,** VK Khanna, S Yadav and AB Pant. Expression and inducibility of xenobiotic metabolizing cytochrome P450s in developing neurons derived from human cord blood stem cells. **11th Biennial Meeting of Asia Pacific Society for Neurochemistry (APSN)** jointly with 55th Annual Meeting of Japan Society for Neurochemistry (JSN) during September 29 to October 2, 2012 at **Kobe, Japan.**

23. AK Singh, MP Kashyap, **S Jahan,** VK Khanna, S Yadav and AB Pant. 3- methylcholanthrene induces the expression of cytochrome P450s and apoptosis differentiating neuronal cells derived from cord blood CD34+ stem cells. 35th Annual Meeting of the **Japan Neuroscience Society (JNS)** during September 18 to 21, 2012 at **Nagoya, Japan.**

24. V Kumar, VK Tripathi, **S Jahan,** AB Pant. Resveratrol induces neuronal differentiation in PC12 cells via ERK1/2 and p38 signaling. **Paper Presented** in XXXI Annual Meeting of Academy of Environmental Biology and Symposium on 'Sustainable Development: Environment and Socio - Economic Challenges' during October 14-16, 2011 at Bundelkhand University, Jhansi.

25. V Kumar, **S Jahan**, VK Tripathi, VK Khanna, S Yadav, AB Pant. Trans- resveratrol potentiates the neuronal differentiation in PC12 cells through the activation of ERK1/2 and p38 pathways. **Poster Presented** in XXXI Annual Conference of the Society of Toxicology, (STOX) India and Symposium on Current Trends in Environmental Toxicology, during December 22-24, 2011 at IIS University, Jaipur.

26. S Jahan, V Kumar, AK Singh, VK Khanna, S Yadav, AB Pant. Signaling cascade of MAP kinase family induces neuronal differentiation in mesenchymal stem cells derived from human umbilical cord blood. **Poster Presented** in XXXI Annual Conference of the Society of Toxicology, (STOX) India and Symposium on Current Trends in Environmental Toxicology, during December 22-24, 2011 at IIS University, Jaipur. India.

27. V Kumar, VK Tripathi, M Agrawal, **S Jahan,** AB Pant. Resveratrol induce neuronal differentiation in PC12 cells through ERK and P38 Pathway in XXX Annual Conference of

Society of Toxicology (STOX), India and International Symposium on "Strategies for safety study requirements for herbal formulation" during December 9-11, 2010 **at Jamia Hamdard, New Delhi.**

28. AK Singh, MP Kashyap, **S Jahan,** VK Verma, S Yadav and AB Pant. Brain Cytochrome P450 in differentiating Neuronal Cells Derived from Umbilical Cord blood Stem Cells. Poster presentation in Annual meeting of STOX held at **Jamia Hamdard,** New Delhi, during December 9-11, 2010.

Award / Honors:

- National Post-Doctoral Fellowship (N-PDF) 2016 from Science and Engineering Research Board **(SERB),** Department of Science & Technology (**DST**), Government of India.
- **National Level Exam qualified** (Dec, 2009) in Life Sciences: **UGC CSIR NET-JRF**, bearing Roll No- 321642.

Professional Membership:

- International placenta stem cell society (IPLASS)
- Life member of The Indian Science Congress Association
- International Society for Neurochemistry (ISN) & American Society for Neurochemistry
- Life Member of Indian Academy of Neuroscience (IAN), India
- Life Member of Society of Toxicology (STOX), India
- Life Member of Society of Free Radical Research (SFRR), India

Reviewer of Journals:

- International placenta stem cell society (IPLASS)
- Oxidative Medicine and Cellular Longevity
- Scientific Reports
- PLoS One
- Toxicology International

Skills and Expertise:

- **Primary Cell Culture:** Isolation of Human stem cells from Human Umbilical Cord Blood, Isolation of neural cells from rat pups
- **Cell line maintenance:** PC12 Cells, SH-SY-5Y Cells, Hakat Cells, Wharten's jelly derived mesenchymal stem cells
- **Immunological techniques:** Flow cytometery, cytotoxic T cell assay, ELISA, lymphocyte proliferation assay, estimation of various cytokines, western immunoblotting, dot blot, raising antibodies, purification of antibodies and adaptive transfer in mice, hamster and baboon.
- **Molecular Biology**: Cloning, Real time PCR, Western Blotting, Isolation of genomic DNA, plasmid isolation, isolation of RNA, cDNA preparation, cDNA library preparation, RNA Sequencing, Primer designing, Polymerase Chain Reaction (PCR), Electrophoresis (Agarose, SDS-PAGE) etc
- **Microscopy:** fluorescence and light microscopy.
- **Animal handling**: Mice, Swiss Rat
- **Apoptosis: -** FITC and Annexin–V binding assay, Estimation of reactive oxygen species and phagocytosis assay
- **HPLC and LC**-MS
- **Computer skills:** Flow-cytometry data analysis using Flow-Jo software, FCAP array software, MS office, MS excel, Endnote referencing, MS DOS, Paint, Adobe Photoshop, Graph pad and IPA software etc.

Link to web page My Researcher ID and /or MyCitation (Google Scholar):

Google Scholar Link: https://scholar.google.co.in/citations?user=Mn4rv3AAAAAJ&hl=en

Sadaf Jahan - Google Scholar Citations

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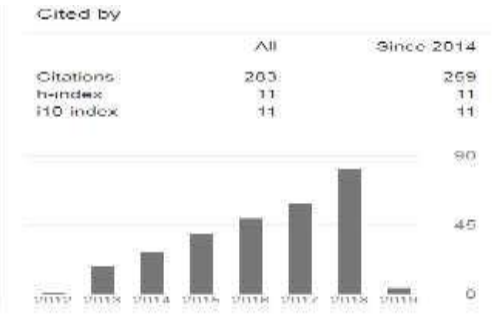
Stem cells Neuroscience D...



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