

CURRICULUM VITAE

SANDEEP KUMAR SINGH (PhD)

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RESEARCH EXPERIENCE/CAREER HISTORY:

Post-Doctoral Scholar

Department of Neurobiology
University of Chicago
Chicago, Illinois, 60637, USA

Aug 2016- Dec 2016

Voluntary Post-Doctoral

Dept. of Biochemistry
Banaras Hindu University, Varanasi, India

May 2015- Aug 2016

PhD Scholar

Dept. of Biochemistry
Banaras Hindu University
Varanasi, India

Sept 2010- May 2015

Senior Research Fellow

NBAIM (ICAR), Mau, U.P., India.

Dec 2009 – Sep 2010

I had worked as Senior Research Fellow at National Bureau of Agriculturally Important Microorganisms (NBAIM) on a Network Project entitled "Application of Microorganisms in Agriculture and Allied Sectors (AMAAS)", sub theme-"Microbial Diversity" with main emphasis on "Diversity analysis of thermophilic fungi".

BCIL Trainee

Auroprobe Laboratory Limited,
Ghaziabad, U.P., India.

Nov 2008 - May 2009

During this period, I had an opportunity to work on some sophisticated instruments such as COBAS AMLICOR, BACTEC- 460 TB SYSTEM etc. I was involved in the molecular diagnosis of infectious and chronic diseases such as Tuberculosis, HCV and HPV etc.

Project Work

Indian Institute of Toxicology Research (C.S.I.R.),
Lucknow, India

May 2007 – Aug 2007

During this short period, I completed a small project on "**Study of cellular and genotoxicity of chromium in *Drosophila melanogaster***". The focus of this project was to evaluate the molecular and cellular effects of chromium using *Drosophila* as an alternate animal model. I was trained on several biochemical assays such as COMET ASSAY, enzyme assays, DNA isolation, gel electrophoresis etc.

EDUCATIOAL QALIFICATIONS:

PhD

Sept 2010 – May 2015

Banaras Hindu University
Varanasi, India

Title: Studies on therapeutic potential of synthetic as well as herbal compounds for Alzheimer's disease using transgenic *Drosophila* model

Advisor: Dr. S. Srikrishna

Master of Science (Biotechnology)

First Div.
(67.8%)

July 2006 – July 2008

C.S.J.M University
Kanpur, India

Bachelor of Science (Biology)

First Div.
(61.50%)

July 2002 – June 2005

University of Lucknow, India

Diploma (Computer Application)

Nov 2005 – April 2006

FPA India

RESEARCH EXPERIENCE AND PRODUCTIVITY:

My research interests involve the role of gut microflora and neuro-inflammation in progression of Alzheimer's disease (AD). My PhD. research project, focused on the study of therapeutic potential of some synthetic as well as herbal compounds against amyloid beta toxicity in AD using drosophila as a transgenic AD model. These studies led to the publication in esteemed peer-reviewed neuroscience journals. I also used some metal chelators (Copper chelator) to prevent copper mediated amyloid beta toxicity in *drosophila* model system.

I was recently employed as a postdoctoral scholar at the University of Chicago. In this new role my work was focus on the role of microbial immune responses in AD pathogenesis. Using a highly collaborative research approach, involving principal investigators from over the USA, I have induced perturbations in the gut microbiome of AD transgenic mice and investigated alterations in innate immunity and amyloidosis. These ongoing studies will significantly impact the research field and continue to explore the largely unknown contribution of commensal microbes in health and disease. I have significant experience in animal work (establishing transgenic *drosophila* lines, handling of transgenic mice model, oral gavage and injection treatments, behavioural testing and analysis, anesthesia, cardiac perfusion) including other laboratory techniques like; Isolation of DNA and RNA, Electrophoresis (SDS-PAGE & Agarose), Western Blotting, Screening of Microbes from Different Samples, PCR/RT-PCR, immunohistochemistry and Immunofluorescence. UV-Vis spectrophotometry, Fluorescence, Confocal and Scanning Electron Microscopy, histology etc. Work conducted during my 3rd year of PhD has been presented at the 13th International Geneva/Springfield Symposium on Advances in Alzheimer Therapy, March 26-29, 2014, Geneva, Switzerland. For presenting my work there I got travel award from Indian Council of medical research (ICMR). Apart from this symposium, I also presented my PhD work in various national and International conferences.

MEMBER IN EDITORIAL BOARD OF SCIENTIFIC JOURNALS:

1. **Editor** in Integrative Neuroscience Research.
2. **Associate Editor of** Journal of Neurological Disorders and Stroke.
3. **Executive Editor** in the International Journal of Ecological Bioscience and Biotechnology.
4. **Editorial Board Member of** Journal of Cytology & Histology.
5. **Editorial Board Member of** Source Journal of Alzheimer`s Disease and Therapy.
6. **Editorial Board Member** of EC Neurology.
7. **Editorial Board Member** of Journal of Genomics Medicine and Pharmacogenomics.
8. **Editorial Board Member** of Biotechnology-An Indian Journal.
9. **Editorial Board Member of IJLSSR** (International Journal of Life Sciences Scientific Research).
10. **Editorial Board Member of** Research & Reviews: Neuroscience Journal.

HONORS AND AWARDS:

1. **2006:** Certificate of merit of Academic Honour Society in Botany.
2. **2006:** Certificate of merit of Academic Honour Society in Chemistry
3. **2008:** Selected for Biotech Industrial Training Programme through an interview conducted Allover India sponsored by Department of Biotechnology (DBT),
4. **2011:** Graduate Aptitude Test in Engineering by IIT Madras, India.
5. **2012:** Senior Research Fellowship by Indian Council of Medical Research, Govt. of India.
6. **2014:** Received **International travel award** from Indian Council of Medical Research (ICMR, New Delhi), India for attending **13th International Geneva/Springfield Symposium on Advances in Alzheimer Therapy, March 26-29, 2014, Geneva, Switzerland.**

MEMBERSHIP OF PROFESSIONAL SOCIETIES:

1. **2011:** Member, INDIAN ACADEMY OF NEUROSCIENCES.
2. **2011:** Member of ALZHEIMER`S AND RELATED DISORDERS SOCIETY OF INDIA.
3. **2012:** Member of American Academy of Neurology.
4. **2013:** Member of International Society of Neurochemistry.
5. **2013:** Member of American Society of Neurochemistry.

CONFERENCES/SYMPOSIA/WORKSHOPS/TRAININGS:

1. IBRO-APRC School of Neuroscience “Molecular Advancement in Neurobiology” organized by DBT-BHU Interdisciplinary School of Life Sciences, Banaras Hindu University, Varanasi, India, dated 5-20 Sept 2013.
2. 13th International Geneva/Springfield Symposium on Advances in Alzheimer`s Therapy, March 26-29, 2014, Geneva, Switzerland.
Sandeep Kumar Singh and Saripella Srikrishna

Poster: Neuroprotective role of a novel flavonoid derivative 2-(4-benzyloxyphenyl)-3-hydroxy-chromen-4-one in transgenic AD model of *Drosophila*.

3. IBRO-APRC Associate School of Neuroscience, organized by Brain Research Centre, Department of Zoology, BHU, Varanasi, dated 19-23 Oct 2013.
4. Advanced School on Axonal Transport and Neurodegenerative disorder (ATND 2013) organized by International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Colaba, Mumbai dated 13-26 Jan 2013.
5. XXX Annual Conference of Indian Academy of Neurosciences and International Symposium on Translational Neuroscience: Unravelling Mysteries of Brain in Health and Disease, 27-30 Oct, 2012, Amritsar, India.
Sandeep Kumar Singh, Priti Sinha, P. Nagarajuna Reddy, Lallan Mishra and Saripella Srikrishna
Poster: Neuroprotective role of a novel Copper chelator (Amidoamine derivative) against A β ₄₂ induced Neurotoxicity in *Drosophila* model of Alzheimer's disease".
6. Workshop on Technical Communication for Research Scholars organized by Institute of Agricultural Sciences, Banaras Hindu University from 5-11 May, 2012.
7. International Conference on Advances in Biological Sciences (ICABS), 15-17 March, 2012. Kannur, Kerala, India.
Sandeep Kumar Singh and Saripella Srikrishna
Poster: Orally administrated 2-(4-benzyloxyphenyl)-3-hydroxy-chromen-4-one rescues the eye phenotype in a transgenic *Drosophila* model of Alzheimer's disease.
8. Science Academies' Lecture Workshop; Molecular Spectroscopy: Theory, Instrumentation and Application. 2-3 March, 2012.
9. LATEX training programme, 13-18 February, 2012 organized by D.S.T. –Centre for Interdisciplinary Mathematics Sciences (CIMS), Banaras Hindu University, Varanasi, India.
10. A training programme on LATEX: The documentation Software, 26-28 September, 2011 organized by Centre for Bioinformatics, School of Biotechnology, Faculty of Science, Banaras Hindu University, Varanasi, India.
11. Brain Storming Meeting on Advances in Neuroendocrinology, Feb 14-15, 2011, BHU, Varanasi.
12. National Seminar on "Environmental Management: Present & Future and Prospective".

ABSTRACT IN CONFERENCES:

1. **Singh S.K.**, A. Rai, A.K. Srivastava, S. Kumar and D.K. Arora. "Diversity Analysis and Characterization of Thermophilic Fungi from Two Hot springs, Manikaran and Rohatangpas (Himanchal Pradesh)". In: International Conference on Aquatic Microbiology (Status, Challenges and Opportunities), Sept 2-4, 2010.

2. Rai A., **S.K.Singh**, A.K. Srivastava, S. Kumar and D.K. Arora. "Diversity Analysis and Characterization of Halotolerant Fungi from Goa Mangroves Ecosystem". In: International Conference on Aquatic Microbiology (Status, Challenges and Opportunities), Sep 2-4, 2010.
3. Srivastava V., S. Rao, **S.K.Singh**, A.K. Srivastava, K.K. Meena and D.K. Arora "Identification of Differentially Expressed gene through SSH in Halotolerant and Halophilic Fungi ". In: International Conference on Aquatic Microbiology (Status, Challenges and Opportunities), Sep 2-4, 2010.
4. Amarish Kumar Yadav, Saurabh Srivastav, **Sandeep Kumar Singh**, Alpana K. Gupta and S. Srikrishna. "Orally Administered 5-Bromo-3-Hydroxy-3-(2-Oxo-2-Phenylethyl)-Indol-2-One Alleviates Early Pupal Lethality in Scribble Knockdown Drosophila Cancer Model". In: XXXVIII All India Cell Biology Conference and International Symposium on Cellular Response to Drugs, Dec 10-12, 2014.

PEER-REVIEWED PUBLICATIONS:

1. **Singh, S. K.**, Sinha, P., Mishra, L., & Srikrishna, S. (2013). Neuroprotective Role of a Novel Copper Chelator against A β ₄₂ Induced Neurotoxicity. *International Journal of Alzheimer's disease*.
2. **Singh, S. K.**, Gaur, R., Kumar, A., Fatima, R., Mishra, L., & Srikrishna, S. (2014). The flavonoid derivative 2-(4' benzyloxyphenyl)-3-hydroxy-chromen-4-one protects against A β ₄₂-induced neurodegeneration in transgenic drosophila: insights from in silico and in vivo studies. *Neurotoxicity research*, 26 (4), 331-350.
3. **Singh, S. K.**, Srivastav, S., Yadav, A. K., Srikrishna, S., & Perry, G. (2016). Overview of Alzheimer's disease and Some Therapeutic Approaches Targeting A β by Using Several Synthetic and Herbal Compounds (Review). *Oxidative Medicine and Cellular Longevity*. 2016; 2016:7361613. doi:10.1155/2016/7361613.
4. **Singh S. K.**, Barreto G. E., Aliev G. and Echeverria V. (2016). Ginkgo biloba as an alternative medicine in the treatment of anxiety in dementia and other psychiatric disorders. (Review). *Current Drug Metabolism*, 17.
5. **Singh, S. K.** (2016). Different Therapeutic Approaches Against Alzheimer's disease and Usefulness of Drosophila as AD Model. *EC Neurology* 3.2, 2016. 332-344.
6. **Singh, S. K.**, Srivastav, S., Yadav, A. K., Srikrishna, S. (2017). Knockdown of APPL mimics transgenic A β induced neurodegenerative phenotypes in *Drosophila*. *Neuroscience Letters*, 648, 8-13.
7. Srivastav, S., **Singh, S. K.**, Yadav, A. K., & Srikrishna, S. (2015). Folic acid supplementation rescues anomalies associated with knockdown of parkin in dopaminergic and serotonergic neurons in Drosophila model of Parkinson's disease. *Biochemical and biophysical research communications*, 460(3), 780-785.
8. Srivastav, S., **Singh, S. K.**, Yadav, A. K., & Srikrishna, S. (2015). Folic Acid Supplementation Ameliorates Oxidative Stress, Metabolic Functions and Developmental Anomalies in a Novel Fly Model of Parkinson's Disease. *Neurochemical Research*, 40(7), 1350-1359.

9. Sharma N , Nautiyal SC, Kumari S, Kumari K, Singh V , Kumar K , **Singh SK**, Singh RK (2013) High resolution melt curve analysis—an innovative approach for molecular diagnosis. *Webmed Central BIOTECHNOLOGY* 2013; 4(3):WMC003998.
10. Kumar, A., Srivastava, S., Tripathi, S., **Singh, S. K.**, Srikrishna, S., & Sharma, A. (2016). Molecular insight into amyloid oligomer destabilizing mechanism of flavonoid derivative 2-(4' benzyloxyphenyl)-3-hydroxy-chromen-4-one through docking and molecular dynamics simulations. *Journal of Biomolecular Structure and Dynamics*, 34(6), 1252-1263.
11. Rai, A., Kumari, N., Srivastava, A. K., **Singh, S. K.**, Srikrishna, S., & Mishra, L. (2016). Rhodamine hydrazone as OFF–ON–OFF type selective sequential sensor of Al³⁺ and N³⁻ ions. *Journal of Photochemistry and Photobiology A: Chemistry*, 319, 78-86.

BOOK CHAPTER:

1. **Singh SK**, Srikrishna S, Castellani RJ, Perry G. Antioxidants in the prevention and treatment of Alzheimer's disease. In: Nutritional Antioxidant Therapies: treatments and perspectives, Part 3: Nutritional antioxidants in health and disease. *Springer-Verlag (Germany) (in print) 2015*.
2. **Singh S**, Castellani RJ, Perry G. Oxidative stress and Alzheimer's disease. In: Inflammation, Aging and Oxidative Stress, Bondy SC, Campbell A, eds., **Springer**.

PERSONAL DETAILS:

Date of Birth: May 12, 1983

Sex: Male

Nationality: Indian

Marital Status: Married

Language known: Hindi, English.

REFERENCES:

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