Dr. Pradeep Kumar Singh, Ph.D.

Name : Pradeep Kumar Singh

Designation : Associate Professor

Department : JBS Haldane Center for Molecular Medicine

(JOINED THE UNIVERSITY IN 2024)

Contact : +9152266859 (M)

Email : pradeep.singh@silicon.ac.in

RESEARCH INTERESTS

Neurodegenerative diseases, protein aggregation, blood-brain barrier impairment, dementia, monoclonal antibody-based therapy, coagulopathy and cerebrovascular dysfunction, stroke, hemorrhage, biomarkers, biosensors, and amyloid-biomaterials

Academic Qualifications

Ph. D. (Biotechnology), Indian Institute of Technology Bombay (IITB), Mumbai

M. Sc. (Molecular Biology and Biotechnology), Tezpur Central University, Assam

B.Sc. (Life Sciences), Lucknow University, Lucknow

Teaching Experience/Industrial Experience/Research Experience

- ✓4 years as a Research Associate Scientist in Neurobiology and Genetics Laboratory at Rockefeller University, New York, USA
- ✓5 years as a Postdoctoral Associate in Neurobiology and Genetics Laboratory at Rockefeller University, New York, USA
- ✓ 4 years teaching in the Neurobiology and Genetics Laboratory at Rockefeller University, New York, USA

PUBLICATIONS

JOURNAL& CONFERENCES

Dr. Pradeep Singh has published 40 research papers in prestigious international journals, focusing on Alzheimer's disease, blood-brain barrier damage, Parkinson's disease, protein aggregation, and the development of amyloid-based functional biomaterials, biosensors, and biomarkers.

SELECTED RECENT PUBLICATIONS

1. P.K. Singh, E. Nicoloso Simoes Pires, Z. L. Chen, D. Torrente, M. Calvano, A. Sharma, S. Strickland, and E. H. Norris. Lecanemab blocks the effect of Aβ/fibrinogen on blood clot structure and synapse toxicity in organotypic culture. Proceedings of the National Academy of Sciences, USA, 2024, 121, e231445012.
2. Z.L. Chen1, P. K. Singh1, Marissa Calvano, E. H. Norris, and S. Strickland. A possible mechanism for the enhanced toxicity of beta-amyloid protofibrils in Alzheimer's disease. Proceedings of the National Academy of Sciences, USA, 2023, 120: e2309389120. (1shared first authors).
3. Z.L. Chen, P. K. Singh, K. Horn, Keith R. McCrae, S. Strickland, and E. H. Norris. Anti-HK antibody inhibits thrombotic and inflammatory pathways of the contact system by blocking PK and FXI activation in vivo. Blood Advances, 2023, 7:1156-1167.
4. Z. L. Chen, P.K. Singh, K. Horn, S. Strickland, and E. H. Norris. Anti-HK antibody reveals critical roles of a 20-residue HK domain in Aβ-induced plasma contact system activation. Blood Advances, 2022, 610, 3090-3101.
5. P.K. Singh, Z.L. Chen, D. Ghosh, S. Strickland, E.H. Norris. Increased plasma bradykinin level is associated with cognitive impairment in Alzheimer's patients. Neurobiology of Disease, 2020, 139, 104833.
6. P.K. Singh, Z.L. Chen, S. Strickland, E.H. Norris. Increased contact system activation in mild cognitive impairment patients with impaired short-term memory. Journal of Alzheimer's Disease, 2020, 77, 59-65.
7. Z.L. Chen, P.K. Singh, J. Wong, K. Horn, S. Strickland, E.H. Norris. An antibody against HK blocks Alzheimer's disease peptide beta-amyloid-induced bradykinin release in human plasma. Proceedings of the National Academy of Sciences, USA, 2019, 116, 22921-22923.
8. G. Suidan1, P.K. Singh1, S. Patel-Hett, Z.L. Chen, D. Volfson, H. Yamomoto-Imoto, E.H. Norris, R. Bell, S. Strickland. Abnormal clotting of the intrinsic/contact pathway in Alzheimer's disease patients is related to cognitive ability. Blood Advances, 2018, 2, 954-963. (1shared first authors).
9. P.K. Singh, M. Kawasaki, H. Berk-Rauch, G. Nishida, T. Yamasaki, M. Foley, E.H. Norris, S. Strickland, K. Aso, H.J. Ahn. Aminopyrimidine class aggregation inhibitor effectively blocks Aβ-fibrinogen interaction and Aβ-induced contact system activation. Biochemistry, 2018, 57, 1399-1409.
10. Z.L Chen, A.S Revenko, P.K. Singh, A.R. MacLeod, E.H. Norris, S. Strickland. Depletion of coagulation factor XII ameliorates brain pathology and cognitive impairment in Alzheimer's disease mice. Blood, 2017, 129, 2547-2556.

ANY OTHER

ACHIEVMENTS AND AWARDS

- Daniel T. O'Connor Memorial Early Career Researchers Travel Award (To attend 21st International Symposium on Chromaffin Cell Biology, Hamburg Germany, 2022).
- Award for Excellence in PhD Thesis Work by IIT Bombay (2015).
- International travel award from IRCC, IIT Bombay (To attend the 5th European Molecular Biology Organization Meeting, Amsterdam, Netherlands, 2013).