

CURRICULUM VITAE

Dr. Vijay Kumar Sonkar, Ph.D.

Assistant Professor

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(DOB: 02/01/1984)

Work experience

Current position: Assistant Professor, Department of Molecular and Human Genetics, Banaras Hindu University, Varanasi, UP, India.

Past position:

- **Postdoctoral Research Fellow (March 2016- Feb 2020):** Department of Internal Medicine, Division of Hematology-Oncology and Blood & Marrow Transplantation University of Iowa, Iowa City, USA.
- **Assistant Professor (Temporary) (Aug 2015-March 2016):** Department of Biochemistry, School of Life Sciences, Central University of Rajasthan, Kishangarh, Rajasthan, India.
- **Demonstrator (Feb 2015-Aug 2015):** Department of Biochemistry, GSVM Medical College, Kanpur, Uttar Pradesh, India.
- **Senior Research Fellow (Nov 2011-Oct 2014):** Thrombosis Research Laboratory, Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.
- **Junior Research Fellow (Nov 2009-Oct 2011):** Thrombosis Research Laboratory, Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.

Academic Credentials

- **PhD (2015):** (Biochemistry) Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi-India. **Title of PhD Thesis:** *Studies on Amyloid Beta-Mediated Activation and Novel Signaling Pathways in Human Platelets.*
- **M.Sc. Biochemistry (2009)–First division with distinction** from Department of Biochemistry, University of Hyderabad, Andhra Pradesh, India.
- **B.Sc. (2007)-** (Chemistry, Botany, Industrial Microbiology)- **First division** from Banaras Hindu University, Varanasi, India.

Area of Research

Current research areas

- To understand the mechanism and pathophysiology of venous thromboembolism (VTE) in various disease models
- To elucidate neutrophil signaling routes in thrombotic and thrombo-inflammatory diseases
- To study the genetic ablation/variation in male infertility

Past research areas

- To understand the mechanism of increased thrombosis in aging
- Role of redox signaling in arterial and venous thrombosis
- Amyloid beta peptide signaling in human platelets
- To study the importance of nanoparticles in cardiovascular diseases

Awards and Achievements

- Received **Young Investigator Travel Award** in ATVB 2018, San Francisco, USA.
- Qualified **Graduate Aptitude Test in Engineering (GATE)-2009** in Life Sciences conducted by IIT Roorkee, Roorkee -247667
- Qualified **Indian Council of Medical Research Junior Research Fellowship Examination (ICMR-JRF) -2009**
- Qualified **UGC- NET FOR LECTURESHIP (NET) June 2013**
- **International Travel Award** from **Department of Biotechnology (DBT)** and **Department of Science and Technology (DST), Govt. of India** for **MiP2013 - 9th MiP Conference, Comparative Mitochondrial Physiology**, University Centre Obergurgl, Austria, September 23-27, 2013
- Research work has been highlighted and published by **Nature India** as *Novel drug target for Alzheimer's identified*(19 February 2014; | doi:10.1038/nindia.2014.25) and **India Medical Times** as *IMS-BHU researchers identify novel drug target for treating Alzheimer's disease* (<http://www.indiamedicaltimes.com/category/research/page/3/>)

Publications

- Kumar R, **Sonkar VK**, Swamy J, Ahmed A, Sharathkumar AA, Pierce GL, Dayal S. DNase 1 Protects From Increased Thrombin Generation and Venous Thrombosis During Aging: Cross-Sectional Study in Mice and Humans. **J Am Heart Assoc.** **2022 Jan 13**; PubMed PMID: 35023342. **(I.F-5.501)**
- Kulkarni PP, Ekhlak M, **Sonkar VK**, Dash D. Mitochondrial ATP generation in stimulated platelets is essential for granule secretion but dispensable for aggregation and procoagulant activity. **Haematologica.** **2021 Dec 23**; PubMed PMID: 34937318. **(I.F- 9.941)**
- Kulkarni PP, **Sonkar VK**, Gautam D, Dash D. AMPK inhibition protects against arterial thrombosis while sparing hemostasis through differential modulation of platelet responses. **Thromb Res.** **2020 Dec**; PubMed PMID: 32890901. **(I.F- 3.944)**
- Gu SX, **Sonkar VK**, Katare PB, Kumar R, Kruger WD, Arning E, Bottiglieri T, Lentz SR, Dayal S. Memantine Protects From Exacerbation of Ischemic Stroke and Blood Brain Barrier Disruption in Mild But Not Severe Hyperhomocysteinemia. **J Am Heart Assoc.** **2020 Feb**; PubMed PMID: 32067580. **(I.F-5.501)**
- **Sonkar VK**, Kumar R, Jensen M, Wagner BA, Sharathkumar AA, Miller FJ Jr, Fasano M, Lentz SR, Buettner GR, Dayal S. Nox2 NADPH oxidase is dispensable for platelet activation or arterial thrombosis in mice. **Blood Adv.** **2019 Apr**; PubMed PMID: 30995985. **(I.F- 6.686)**
- Kulkarni PP, Tiwari A, Singh N, Gautam D, **Sonkar VK**, Agarwal V, Dash D. Aerobic glycolysis fuels platelet activation: small-molecule modulators of platelet metabolism as anti-thrombotic agents. **Haematologica.** **2019 Apr**; PubMed PMID: 30381300. **(I.F- 9.941)**
- Urak KT, Blanco GN, Shubham S, Lin LH, Dassie JP, Thiel WH, Chen Y, **Sonkar VK**, Lei B, Murthy S, Gutierrez WR, Wilson ME, Stiber JA, Klesney-Tait J, Dayal S, Miller FJ Jr, Giangrande PH. RNA inhibitors of nuclear

proteins responsible for multiple organ dysfunction syndrome. **Nat Commun.** 2019 Jan; PubMed PMID: 30631065. (I.F- 12.121)

- Nayak MK, Dhanesha N, Doddapattar P, Rodriguez O, **Sonkar VK**, Dayal S, Chauhan AK. Dichloroacetate, an inhibitor of pyruvate dehydrogenase kinases, inhibits platelet aggregation and arterial thrombosis. **Blood Adv.** 2018 Aug; PubMed PMID: 30108111. (I.F- 6.686)
- **Sonkar VK**, Lentz SR, Dayal S. "Class III PI3K Positively Regulates Platelet Activation and Thrombosis via PI(3)P-Directed Function of NADPH Oxidase". **Arterioscler Thromb Vasc Biol.** 2018 Mar; PubMed PMID: 29467222. (I.F- 8.311)
- Herrera A, Kulhankova K, **Sonkar VK**, Dayal S, Klingelhutz AJ, Salgado-Pabón W, Schlievert PM. Staphylococcal -Toxin Modulates Human Aortic Endothelial Cell and Platelet Function through Sphingomyelinase and Biofilm Ligase Activities. **MBio.** 2017 Mar 21;8(2); PMID: 28325766. (I.F- 7.867)
- **Sonkar VK**, Kulkarni PP, Chaurasia SN, Dash A, Jauhari A, Parmar D, Yadav S, Dash D. Plasma Fibrinogen Is a Natural Deterrent to Amyloid Beta-induced Platelet Activation and Neuronal Toxicity. **Molecular Medicine**, 2016;22:224-232; PMID: 27262026. (I.F- 6.354)
- **Sonkar VK**, Kulkarni PP, Dash D. Amyloid β - peptide stimulates platelet activation through RhoA-dependent modulation of actomyosin organization. **FASEB J** 2014;28(4):1819-29. PMID: 24421399. (I.F- 5.191)
- Mallick RL, Kumari S, Singh N, **Sonkar VK**, Dash D. Prion protein fragment (106-126) induces prothrombotic state by raising platelet intracellular calcium and microparticles release. **Cell Calcium** 57 (2015) 300–311; PMID: 25749016. (I.F- 6.817)
- Singh SK, Singh MK, Kulkarni PP, **Sonkar VK**, Grácio JJA, Dash D. Amine-modified graphene: Thrombo-protective safer alternative to graphene oxide for biomedical applications. **ACS Nano** 2012;6(3):2731-2740;_PMID: 22376049. (I.F- 15.881)

Published abstracts

- **Sonkar VK**, Kumar R, Sean Gu, Doddapattar P, Lentz SR, Dayal S. Genetic Deficiency in Nox2-containing NADPH Oxidase Decreases Susceptibility to Venous Thrombosis in Mice. **ATVB** 2018
- M Nayak, N Dhanesha, **Sonkar VK**, S Dayal, A Chauhan. Pyruvate Dehydrogenase Kinase Modulates Platelet Function and Thrombosis. **Blood** 2017, 130,2389-2389.
- Deficiency of Cystathionine beta Synthase Alters Blood Brain Barrier Integrity and Exacerbates Cerebral Ischemia Reperfusion Injury in Mice. SX Gu, **Sonkar VK**, WD Kruger, T Bottiglieri, SR Lentz, S Dayal. **ATVB** 2017, 37, A146-A146.
- **Sonkar VK**, Melissa J Jensen, Steven R. Lentz and Sanjana Dayal “The NADPH Oxidase Catalytic Subunit Nox2 Displays Differential Roles in Arterial Vs. Venous Thrombosis”. American Society of Hematology, **Blood** 2016 128:4907
- PP Kulkarni, SK Singh, MK Singh, **VK Sonkar**, JJA Grácio, D Dash. Non-thrombotic and haemocompatible amine-modified graphene is a safer alternative to graphene oxide for biomedical use. **FASEB J** 2012, 26,681.18.

Invited lectures, oral/poster presentation

- Delivered an invited guest lecture on “**Mouse models of thrombosis and ischemic stroke**” at the Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.
- **Oral** presentation at **Neurocon-2015**: International Conference on “Development, Degeneration and Regeneration of Neurons: Neurochemistry to Clinical Neurology” from 7-10 January 2015 held at Haldia, **Kolkata**.
- Attended and presented **poster** entitled as “*Platelets, amyloid beta and mitochondrial respiration*” at **MiP2013 - 9th MiP Conference, Comparative Mitochondrial Physiology**, University Centre Obergurgl, Innsbruck, **Austria** from September 23-27, 2013.
- Attended and presented **poster** entitled as ***amyloid beta peptide A β ₍₂₅₋₃₅₎ induces platelets activation*** at “International Conference on Neurodegenerative and neurodevelopment disorders: Translational Aspects-**Neurocon 2013**” organized by Department of Biochemistry, IPGMER-IICB, **Kolkata**, India from 17th to 20th Jan. 2013.

Workshops and training

- Attended workshop on “**Proteomics, Biomarkers and Diagnostics**” organized by Regional Centre for Biotechnology, **Gurgaon**, India, from 21-25 October 2013.
- Attended “**79th International O2k-Workshop on Fluorometry and High-Resolution Respirometry**” at Obergurgl, Tirol, Innsbruck, **Austria** from September 19-23, 2013.
- Pre-Conference Workshop of “**Neurocon 2013**” organized by Department of Biochemistry, IPGMER-IICB, **Kolkata** India from 13th to 17th Jan. 2013.
- **Advanced Course on Flow Cytometric Analysis of Apoptosis**” organized by Central Drug Research Institute (CDRI) and Becton Dickinson (BD) India Pvt., Ltd., **Lucknow**, India from **19th to 22nd Sept. 2011**.
- “**Basic course on Flow cytometry (BD FACSCalibur)**” organized by BD Biosciences, **Gurgaon**, India from 1st to 3rd Dec 2010.

(Dr. Vijay Kumar Sonkar, Ph.D.)