

Balvinder Singh, M.D., Ph.D.

3600 Forbes Avenue
Pittsburgh, Pennsylvania, USA 15213
singhb4@upmc.edu
singh.balvi@gmail.com
1.530.410.4759

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Resident (PGY-3), Internal Medicine

Internal Medicine Residency
American Board of Internal Medicine (ABIM) Research Pathway – Cardiology Fellowship
Department of Medicine
University of Pittsburgh Medical Center and the University of Pittsburgh
Pittsburgh, Pennsylvania, USA

Education

B.S., Microbiology, with Honors
University of California, San Diego, Revelle College, La Jolla, California, USA
09/2007 – 06-2011

M.D., University of Minnesota Medical School, Minneapolis, Minnesota, USA
06/2012 – 05/2021

Ph.D., Neuroscience, University of Minnesota Medical School, Minneapolis, Minnesota, USA
06/2012 – 06/2019

Internal Medicine Residency, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA
06/2021 – Present (expected graduation 05/2024)

Certification and Licensure

Graduate Medical Trainee, Internal Medicine
Commonwealth of Pennsylvania
2021 – Present

Professional Memberships and Activities

Society for Neuroscience
Student Member
2016 – 2021

Congress of Neurological Surgeons
Student Member
2020 – 2021

American Neurological Association
Student Member
2020 – 2021

American Academy of Neurology
Student Member
2020 – 2021

American Medical Association
Student Member
2019 – Present

American College of Physicians
Resident Member
Pennsylvania Chapter 2021 – Present

American College of Cardiology
Resident Member 2022 – Present

Educational Activities

Graduate Teaching Assistant Spring 2017
Course on Neurodegenerative Diseases
Department of Neuroscience
University of Minnesota, Twin Cities
Minneapolis, Minnesota, USA

Honors and Awards

“Most Clinically Applicable Proposal”, Quality Improvement Project April 2014
Essentials of Clinical Medicine
University of Minnesota Medical School
Minneapolis, Minnesota, USA

1st Place, University of Minnesota Global Health Case Competition February 2015
University of Minnesota Center for Global Health and Social Responsibility
Minneapolis, Minnesota, USA

1st Place, Emory University International Case Competition March 2015
Emory University, Global Health Institute
Atlanta, Georgia, USA

3rd Place, Wallin Neuroscience Discovery Day Poster Presentation May 2017
University of Minnesota Medical School
Minneapolis, Minnesota, USA

Roth-Steer Award for Research in Alzheimer’s Disease May 2018
University of Minnesota Medical School
Minneapolis, Minnesota, USA

The Stark Award for Advanced Scholarship June 2018
University of Minnesota Graduate School
Minneapolis, Minnesota, USA

Publications

Original Peer Reviewed Articles

Michaelson JJ, Shi Y, Gujral M, Zheng H, Malhotra D, Jin X, Jian M, Liu G, Greer D, Bhandari A, Wu W, Corominas R, Peoples Á, Koren A, Gore A, Kang S, Lin GN, Estabillo J, Gadowski T, **Singh B**, Zhang K, Akshoomoff N, Corsello C, McCarroll S, Iakoucheva LM, Li Y, Wang J, Sebat J (2012). Whole-Genome Sequencing in Autism Identifies Hot Spots for De Novo Germline Mutation. Cell 151:1431–1442. doi: [10.1016/j.cell.2012.11.019](https://doi.org/10.1016/j.cell.2012.11.019)

Teravskis PJ, Covelo A, Miller EC, **Singh B**, Martell-Martínez HA, Benneyworth MA, Gallardo C, Oxnard BR, Araque A, Lee MK, Liao D (2018). A53T Mutant Alpha-Synuclein Induces Tau-Dependent Postsynaptic Impairment Independently of Neurodegenerative Changes. *The Journal of Neuroscience* 38:9754–9767. doi: [10.1523/JNEUROSCI.0344-18.2018](https://doi.org/10.1523/JNEUROSCI.0344-18.2018)

Singh B, Covelo A, Martell-Martínez HA, Nanclares C, Sherman MA, Okematti E, Meints J, Teravskis PJ, Gallardo C, Savonenko AV, Benneyworth MA, Lesné SE, Liao D, Araque A, Lee MK (2019). Tau is required for progressive synaptic and memory deficits in a transgenic mouse model of α -synucleinopathy. *Acta Neuropathol.* doi: [10.1007/s00401-019-02032-w](https://doi.org/10.1007/s00401-019-02032-w)

Tipton PW, Kenney-Jung D, Rush BK, Middlebrooks EH, Nascene D, **Singh B**, Holtan, S, Ayala, E, Broderick, DF, Lund T, Wszolek ZK. (2021). Treatment of CSF1R-Related Leukoencephalopathy: Breaking New Ground. *Mov Disord.* doi: [10.1002/mds.28734](https://doi.org/10.1002/mds.28734)

Vermilyea SC, Christensen A, Meints J, **Singh B**, Martell-Martínez H, Karim Md R, Lee, MK (2022). Loss of tau expression attenuates neurodegeneration associated with α -synucleinopathy. *Translational Neurodegeneration* 11, 34. doi: [10.1186/s40035-022-00309-x](https://doi.org/10.1186/s40035-022-00309-x)

Essien UR*, **Singh B***, Swabe G, Johnson AE, Eberly LA, Wadhwa RK, Breathett K, Vaduganathan M, Magnani JW. Association of Prescription Co-payment With Adherence to Glucagon-Like Peptide-1 Receptor Agonist and Sodium-Glucose Cotransporter-2 Inhibitor Therapies in Patients With Heart Failure and Diabetes. *JAMA Network Open.* 2023;6(6):e2316290. doi:[10.1001/jamanetworkopen.2023.16290](https://doi.org/10.1001/jamanetworkopen.2023.16290)
Co-first authors

Original Reviewed Publications

Tipton PW, Kenney-Jung D, Rush BK, Middlebrooks EH, Nascene D, **Singh B**, Holtan S, Ayala E, Broderick DF, Lund T, Wszolek ZK (2022). Reply to “Prophylactic Allogeneic Hematopoietic Stem Cell Therapy for CSF1R-Related Leukoencephalopathy”. *Mov Disord.* doi: [10.1002/mds.29018](https://doi.org/10.1002/mds.29018)

Book Chapters

Sterk B, **Singh B**, Darrow, DA. (2022). Chapter 33: Invasive Neuromodulation for Spinal Cord Injury. In: Fenoy AJ, Matis G, Majumdar P, Ozturk S (Eds). *The Handbook of Neuromodulation* (pp 571-88). Nova Science Publishers. doi: [10.52305/SIKB6743](https://doi.org/10.52305/SIKB6743)

Published Abstracts and Presentations

Selected and Invited Presentations

α -Synuclein-dependent cognitive impairment and the landscape of neurodegenerative disease training and research

Neuroscience Speaker Series
Carleton College
Northfield, Minnesota, USA, April 2018

Pathological role of tau in α -synuclein-dependent synaptic and memory deficits

Wallin Neuroscience Discovery Day
University of Minnesota Medical School
Minneapolis, Minnesota, USA, May 2019

Neurological manifestations in COVID-19 and potential mechanisms

COVID-19 Center for Immunology Working Group
University of Minnesota Medical School
Minneapolis, Minnesota, USA, May 2020

Association Of Copayment Level And Glucagon-like Peptide-1 Receptor Agonist And Sodium-glucose Cotransporter 2 Inhibitor Adherence In Diabetes And Heart Failure. Essien UR & **Singh B** et al.
American Heart Association Epidemiology, Prevention, Lifestyle and Cardiometabolic Health Conference.
Boston, Massachusetts, USA, February 2023

Local/Regional Meetings

α -Synuclein-dependent cognitive dysfunction
Graduate Program in Neuroscience Colloquium
University of Minnesota Medical School
Minneapolis, Minnesota, USA, May 2017

α -Synuclein-dependent cognitive dysfunction
Institute for Translational Neuroscience Seminar Series
University of Minnesota Medical School
Minneapolis, Minnesota, USA, March 2018

Pathological role of tau in α -synuclein dependent synaptic and memory deficits
Graduate Program in Neuroscience Colloquium
University of Minnesota Medical School
Minneapolis, Minnesota, USA, May 2018

Investigating the mechanisms underlying synaptic and cognitive deficits in α -synucleinopathies
Graduate Program in Neuroscience Thesis Defense
University of Minnesota Medical School
Minneapolis, Minnesota, USA, June 2019

ACEi and ARB in coronaviruses and COVID-19: basic science, rationale, and clinical trials
Medicine-Pharmacy COVID-19 Interdisciplinary Journal Club
University of Minnesota Medical School
Minneapolis, Minnesota, USA, April 2020

Grand Rounds Presentations

Pathological role of tau in α -synuclein-dependent synaptic and memory deficits
Department of Neurology, Grand Rounds
University of Minnesota Medical School
Minneapolis, Minnesota, USA, May 2019

Hydroxychloroquine and COVID-19: a review, update, and future directions(?)
Department of Medicine, COVID-19 Grand Rounds
University of Minnesota Medical School
Minneapolis, Minnesota, USA, April 2020

Poster Presentations

National/International Meetings

Gallardo C, Covelo A, **Singh B**, Martell-Martínez HA, Benneyworth MA, Araque A, Lee, MK. *Pathogenic α -synuclein mediates Parkinson's disease-related synaptic dysfunction and cognitive decline.*
Neuroscience (Society for Neuroscience)
San Diego, California, USA, November 2016

Singh B, Covelo A, Teravskis PJ, Benneyworth MA, Martell-Martínez HA, Liao D, Araque A, Lee MK. *Pathological role of tau in α -synuclein dependent synaptic and memory deficits*
Keystone Symposia on Neurodegenerative Diseases
Keystone, Colorado, USA, June 2018

Singh B, Covelo A, Teravskis PJ, Benneyworth MA, Martell-Martínez HA, Liao D, Araque A, Lee MK. *Interplay between tau and α -synuclein in the synucleinopathies*
The 14th Internal Conference on Alzheimer's and Parkinson's Diseases
Lisbon, Portugal, March 2019

Singh B, Holtan S, Lund T, Kenney-Jung D. *Early Experience With Hematopoietic Stem Cell Transplant For Adult Onset Leukoencephalopathy With Axonal Spheroids And Pigmented Glia*
American Neurological Association Conference
Virtual Meeting, October 2020

Local/Regional Meetings

Singh B, Chamberland C, Thompson D, Gursahaney D, Donaldson, M. *Assessing mental health in caretakers of children with Down syndrome*
Essentials of Clinical Medicine, Quality Improvement Poster Session
University of Minnesota Medical School
Minneapolis, Minnesota, USA, April 2014

Singh B, Miller E, Teravskis PJ, Liao D, Lee MK. *Pathogenic interactions of α -synuclein and tau in Parkinson's disease-related synaptic function*
Biomedical Discovery Research Day
University of Minnesota Medical School
Minneapolis, Minnesota, USA, July 2016

Singh B, Miller E, Teravskis PJ, Liao D, Lee MK. *Pathogenic interactions of α -synuclein and tau in Parkinson's disease-related synaptic function*
Wallin Neuroscience Discovery Day
University of Minnesota Medical School
Minneapolis, Minnesota, USA, May 2017

Singh B, Covelo A, Teravskis PJ, Benneyworth MA, Martell-Martínez HA, Araque A, Liao D, Lee MK. *Pathological role of tau in α -synuclein dependent synaptic and memory deficits*
VA Research Symposium
VA Medical Center
Minneapolis, Minnesota, USA, May 2018

Other Scholarly Products

Singh B, Thomas A, Aquino M. Pediatric skull fractures. American Society of Emergency Radiology Core Curriculum. <https://www.aser.org/core-curriculum/>
June 2020

Singh B, Thomas A, Aquino M. Pediatric intracranial hemorrhages. American Society of Emergency Radiology Core Curriculum. <https://www.aser.org/core-curriculum/>
June 2020

Singh B, Thomas A, Aquino M. Pediatric parenchymal contusions. American Society of Emergency Radiology Core Curriculum. <https://www.aser.org/core-curriculum/>
June 2020

I Look Like A Cardiologist. 2022.

Section editor, *Electrophysiology, University of Pittsburgh Medical Center Cardiology Handbook for Residents*, 2nd Edition. 2022

Social Media

Website: www.balvindarsingh.com

Twitter: [@balvindarsingh](https://twitter.com/balvindarsingh)

[Google Scholar](#)

Other Creative Products

[The Spoken](#), interview and article 2015

[Gear Junkie](#), interview and article 2015

[Delta of Spirit](#), film 2019

Official selection for 2022 Tous En Selle Bicycle Film Festival, Paris, France

Official selection for 2019 Banff Mountain Film and Book Festival, Banff, Canada

Professional Community Activities

North Star Grand Prix (North Star Bicycle Festival) 2015 – 2017

Media, marketing, community outreach

NorthStar Development Cycling 2016 – 2021

Sikh Society of Minnesota 2020 – 2021

Catholic Charities of St. Paul and Minneapolis 2020 – 2021