

Vishnu Dileep, Ph.D.

Assistant Professor

Baylor College of Medicine
One Baylor Plaza, Room N803.03
Houston, TX 77030

vishnu.dileep-at-bcm.edu • www.dileeplab.org

Professional Appointments

Sep 2024 – **Assistant Professor**
Principal Investigator, CPRIT Scholar
Department of Molecular and Human Genetics
Baylor College of Medicine, Houston, TX, USA

Education and Major Research Training

2018 – 2024 **Postdoctoral Fellow**
Massachusetts Institute of Technology, Cambridge, MA, USA
The Picower Institute for Learning and Memory
Advisor: Prof. Li-Huei Tsai
Genome organization in neurodegeneration

2010 – 2017 **Ph.D. in Cell and Molecular Biology**
Florida State University, Tallahassee, FL, USA
Advisor: Prof. David M. Gilbert
Role of 3D genome organization in DNA replication timing

2006 – 2010 **B.Tech in Biotechnology**
Vellore Institute of Technology, Vellore, TN, India

Fellowships, Awards, and Honors

2026 **BCM Junior Faculty Seed Award**

2024 – **CPRIT Recruitment of First-Time, Tenure-Track Faculty Member Award**

2021 – **NIH Pathway to Independence Award (K99/R00, National Institute on Aging)**

2019 – 2021 **Alzheimer's Association Postdoctoral Research Fellowship**

2016 **Nominated for university-wide Outstanding Teaching Assistant Award, FSU**

2015 **Faculty Graduate Publications Award, FSU Biology Dept.**

2015 **Margaret Menzel Alumni Endowed Scholarship, FSU Biology Dept.**

2013 – 2015 **American Heart Association Pre-Doctoral Fellowship**

2009 **International Research Student Fellowship, University of Western Australia**

Publications

Full Bibliography: <https://scholar.google.com/citations?user=250qpw4AAAAJ&hl=en>

† Co-corresponding, * Co-first authorship

1. Penney J, Ralvenius WT, Loon AR, Cerit O, **Dileep V**, Milo M, Woolf H, Tsai LH. iPSC-derived microglia carrying the TREM2 R47H/+ mutation are proinflammatory and promote synapse loss. *Glia* (2024) [[PDF](#)]
2. **Dileep V**†*, Boix CA*, Mathys H, Marco A, Welch GM, Meharena HS, Loon A, Jeloka R, Peng Z, Bennett DA, Kellis M†, Tsai LH†. Neuronal DNA double-strand breaks lead to genome structural variations and 3D genome disruption in neurodegeneration. *Cell* (2023) [[PDF](#)]
3. Xiong X*, James BT*, Boix CA*, Park YP, Galani K, Victor MB, Sun N, Hou L, **Dileep V**, Ho L-L, Mantero J, Ni Scannail A, Mathys H, Bennett DA, Tsai LH†, Kellis M†. Epigenomic dissection of Alzheimer's disease pinpoints causal variants and reveals epigenome erosion. *Cell* (2023) [[PDF](#)]
4. Welch GM, Boix CA, Schmauch E, Davila-Velderrain J, Victor MB, **Dileep V**, Bozzelli PL, Su Q, Cheng JD, Lee A, Leary NS, Pfenning AR, Kellis M, Tsai LH. Neurons burdened by DNA double-strand breaks incite microglia activation through antiviral-like signaling in neurodegeneration. *Science Advances* (2022) [[PDF](#)]
5. Meharena HS, Marco A, **Dileep V**, Lockshin ER, Akatsu GY, Mullahoo J, Watson LA, Ko T, Guerin LN, Abdurrob F, Rengarajan S, Papanastasiou M, Jaffe JD, Tsai LH. Down-syndrome-induced senescence disrupts the nuclear architecture of neural progenitors. *Cell Stem Cell* (2022) [[PDF](#)]
6. Bartlett DA, **Dileep V**, Baslan T, Gilbert DM. Mapping Replication Timing in Single Mammalian Cells. *Current Protocols* (2022) [[PDF](#)]
7. **Dileep V**, Tsai LH. Neuronal enhancers get a break. *Neuron* (2021) (Opinion Article) [[PDF](#)]
8. **Dileep V**, Tsai LH. Three-dimensional chromatin organization in brain function and dysfunction. *Current Opinion in Neurobiology* (2021) (Review Article) [[PDF](#)]
9. Bartlett DA, **Dileep V**, Handa T, Ohkawa Y, Kimura H, Henikoff S, Gilbert DM. High-throughput single-cell epigenomic profiling by targeted insertion of promoters (TIP-seq). *Journal of Cell Biology* (2021) [[PDF](#)]
10. Marco A, Meharena HS, **Dileep V**, Raju RM, Davila-Velderrain J, Zhang AL, Adaikkan C, Young JZ, Gao F, Kellis M, Tsai LH. Mapping the epigenomic and transcriptomic interplay during memory formation and recall in the hippocampal engram ensemble. *Nature Neuroscience* (2020) [[PDF](#)]
11. Zhang J, Lee D, Dhiman V,....., **Dileep V**,....., Gerstein M. An integrative ENCODE resource for cancer genomics. *Nature Communications* (2020) [[PDF](#)]
12. ENCODE Project Consortium, Moore JE, Purcaro MJ, et al. Expanded encyclopaedias of DNA elements in the human and mouse genomes. *Nature* (2020) [[PDF](#)]
13. **Dileep V***, Wilson K*, Marchal C, Lyu X, Zhao PA, Li B, Axel P, Bartlett DA, Qin Z, Robins AJ, Schulz TC, Kulik KJ, Dalton S, Corces VG, Gilbert DM. Rapid Irreversible Transcriptional Reprogramming in Human Stem Cells Accompanied by Discordance between Replication Timing and Chromatin Compartment. *Stem Cell Reports* (2019) [[PDF](#)]
14. Sima J, Chakraborty A, **Dileep V**, Michalski M, Rivera-Mulia JC, Trevilla-Garcia C, Klein KN, Bartlett D, Washburn BK, Paulsen MT, Vera D, Nora EP, Kraft K, Mundlos S, Bruneau BG, Ljungman M, Fraser P, Ay F, Gilbert DM. Identifying cis Elements for Spatiotemporal Control of Mammalian DNA Replication. *Cell* (2019) [[PDF](#)]
15. Dixon J†*, Xu J*, **Dileep V***, Zhan Y*, Song F*, Le VT, Yardimci GG, Chakraborty A, Bann DV, Wang Y, Clark R, Zhang L, Yang H, Liu T, Iyyanki S, An L, Pool C, Sasaki T, Rivera-Mulia JC, ..., Ay F†, Noble WS†, Dekker J†, Gilbert DM†, Yue F†. Integrative detection and analysis of structural variation in cancer genomes. *Nature Genetics* (2018) [[PDF](#)]
16. **Dileep V**, Gilbert DM. Single-cell replication profiling to measure stochastic variation in mammalian replication timing. *Nature Communications* (2018) [[PDF](#)]
17. Foti R, Gnan S, Cornacchia D, **Dileep V**, Bulut-Karslioglu A, Diehl S, Bunes A, Klein FA, Huber W, Johnstone E, Loos R, Bertone P, Gilbert DM, Manke T, Jenuwein T, Buonomo SC. Nuclear Architecture Organized by Rif1 Underpins the Replication-Timing Program. *Molecular Cell* (2016) [[PDF](#)]
18. **Dileep V**, Rivera-Mulia JC, Sima J, Gilbert DM. Large-Scale Chromatin Structure-Function Relationships during the Cell Cycle and Development: Insights from Replication Timing. *Cold Spring Harb Symp Quant Biol* (2015) (Review Article) [[PDF](#)]

19. **Dileep V**, Ay F, Sima J, Vera DL, Noble WS, Gilbert DM. Topologically-associating domains and their long-range contacts are established during early G1 coincident with the establishment of the replication timing program. *Genome Research* (2015) [[PDF](#)]
20. Pope BD*, Ryba T*, **Dileep V**, Yue F, Wu W, Denas O, Vera DL, Wang Y, Hansen RS, Canfield TK, Thurman RE, Cheng Y, Gülsoy G, Dennis JH, Snyder MP, Stamatoyannopoulos JA, Taylor J, Hardison RC, Kahveci T, Ren B, Gilbert DM. Topologically associating domains are stable units of replication-timing regulation. *Nature* (2014) [[PDF](#)]
21. Takebayashi S, Lei I, Ryba T, Sasaki T, **Dileep V**, Battaglia D, Gao X, Fang P, Fan Y, Esteban MA, Tang J, Crabtree GR, Wang Z, Gilbert DM. Murine esBAF chromatin remodeling complex subunits BAF250a and Brg1 are necessary to maintain and reprogram pluripotency-specific replication timing of select replication domains. *Epigenetics & Chromatin* (2013) [[PDF](#)]
22. **Dileep V**, Didier R, Gilbert DM. Genome-wide analysis of replication timing in mammalian cells: troubleshooting problems encountered when comparing different cell types. *Methods* (2012) [[PDF](#)]
23. Cornacchia D, **Dileep V**, Quivy JP, Foti R, Tili F, Santarella-Mellwig R, Antony C, Almouzni G, Gilbert DM, Buonomo SB. Mouse Rif1 is a key regulator of the replication-timing programme in mammalian cells. *EMBO Journal* (2012) [[PDF](#)]
24. Takebayashi S, **Dileep V**, Ryba T, Dennis JH, Gilbert DM. Chromatin-interaction compartment switch at developmentally regulated chromosomal domains reveals an unusual principle of chromatin folding. *PNAS* (2012) [[PDF](#)]
25. **Dileep V**. The place and function of non-coding DNA in the evolution of variability. *Hypothesis* (2009) (Opinion Article) [[PDF](#)]

Podium Presentations

Invited Presentation

May 2026	Department of Neurobiology and Anatomy Seminar Series McGovern Medical School, UTHealth Houston , Houston, TX, USA
Feb 2026	Gulf Coast Consortia Aging & Geroscience Symposium , Houston, TX, USA
Feb 2026	Gulf Coast Consortia on Mental Health Research , Houston, TX, USA
Nov 2025	Dept. of Integrative Physiology Seminar Series, Baylor College of Medicine , Houston, TX, USA
Nov 2025	Molecular Pharmacology and Experimental Therapeutics Seminar Series Mayo Clinic , Rochester, MN, USA
Oct 2025	Center for Neuroregeneration Lecture Series Houston Methodist , Houston, TX, USA
June 2025	Mitchell Center for Neurodegenerative Diseases Seminar Series University of Texas Medical Branch , Galveston, TX, USA
Mar 2024	Gordon Conference on DNA Damage, Mutation and Cancer Ventura, CA, USA

Other Presentations

May 2022	CSHL Conference on Genome Organization & Nuclear Function Cold Spring Harbor, NY, USA
Feb 2016	Department of Biological Science Colloquium , FSU, Tallahassee, FL
Aug 2014	CSHL Conference on Dynamic Organization of Nuclear Function Cold Spring Harbor, NY, USA
Sep 2012	CSHL Conference on Dynamic Organization of Nuclear Function Cold Spring Harbor, NY, USA

Selected Poster Presentations

Nov 2023	American Society of Human Genetics Annual Meeting Washington, DC, USA
Jun 2022	Cold Spring Harbor 86th Symposium: Genome Stability & Integrity Cold Spring Harbor, NY, USA
Jul 2021	Alzheimer's Association International Conference , Denver, CO, USA

Education Activity (Past 5 Years)

Feb 2025 –	Co-Director, Method & Logic in Genetics & Genomics (GS-GG-6204) at BCM
May 2025 –	Biology & Mechanisms of Age-Related Disease (GS-CC-6304) at BCM
Apr 2025 – Jun 2025	Genetics & Genomics Journal Club at BCM (04/01/2025, 06/11/2025)
Nov 2024 –	Biology of Aging Lecture (GS-CC-6103) at BCM
Apr 2021 – May 2023	Guest lecturer for the Neuroepigenetics section in the Molecular Cellular Neuroscience Core II - 7.68J/9.013J course at MIT

Mentorship and Outreach (Past 5 Years)

2024 –	Mentorship of two technicians, one postdoc, five graduate rotation students, two undergraduate researchers, and two high-school student researchers at Dileep lab, BCM.
2021 – 2023	Mentorship of one student with the Undergraduate Research Opportunities Program at MIT (UROP) . UROP gives undergraduate students the opportunity to collaborate on and contribute to hands-on research across MIT.
2019 – 2024	Mentorship of two technical associates to study the role of DNA double-strand breaks in neurodegeneration.
Jun 2021 – Aug 2021	Mentorship of one student with the MIT Summer Research Program (MSRP) .

Other Academic Services and Professional Activities (Past 5 Years)

2026	Invited panelist – NIA K99 Investigators Meeting
2026	Ad-hoc peer reviewer for Agence Nationale de la Recherche (French National Agency for Research)
2026	Poster presentation judge – 8th Annual Symposium on Aging Research (BCM)
2025 –	Genetics & Genomics Admissions Committee member, BCM
2025 –	Thesis Advisory Committee member for doctoral students – Hengxi (Miko) Liu, Cancer and Cell Biology, Hyun Kyoung Lee Lab, BCM – Yifan Chen, MD-PhD Candidate, Ryan Dhindsa Lab, BCM
2019 –	Ad-hoc peer reviewer for the following journals: Cell Press (Trends in Genetics, Cell Reports); Nature Portfolio (Signal Transduction and Targeted Therapy, Cell Discovery, Nature Communications Biology); Nucleic Acid Research, eLife, PLOS Computational Biology; Genome Research
2023 –	Review editor , Frontiers in Genetics, Epigenomics, and Epigenetics section.
2023 – 2024	Member of the American Society for Human Genetics (ASHG).
2021 – 2023	Guest editor for Frontiers in Cell and Developmental Biology, Special issue on Deregulations in Chromatin Topology, Transcription, and Epigenetics.

2020

MIT Venture Exploration Program. A 6-week training program offered by MIT to develop a business model for a research-derived product or service.

Research Support

- Jul 2026 – Jul 2027

BCM Junior Faculty Seed Award
(PI: Vishnu Dileep)
- Apr 2026 – Apr 2029

The Whitehall Foundation Research Grant
(PI: Vishnu Dileep)
- Oct 2024 – Oct 2029

CPRIT Recruitment of First-Time, Tenure-Track Faculty Member Award
(PI: Vishnu Dileep)
- Jul 2021 – Jun 2027

NIH Pathway to Independence Award (National Institute on Aging)
(PI: Vishnu Dileep)
- Apr 2019 – Mar 2021

Alzheimer’s Association Research Fellowship (PI: Vishnu Dileep)
(Completed)
- Jul 2013 – Jun 2015

American Heart Association Pre-doctoral Fellowship (PI: Vishnu Dileep)
(Completed)