

CURRICULUM VITAE



NAME Prof. Ganesh Nagaraju

FATHER'S NAME Nagaraju

DATE OF BIRTH 30th April 1973

CURRENT ADDRESS Professor
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Marital status Married

Nationality Indian

Academic Qualifications

Examination	University/Institution	Class obtained	Year of obtaining the degree
B.Sc	University of Mysore	First	1994
M.Sc	University of Mysore	First	1996
Ph.D	Dept. of Biochemistry Indian Institute of Science	Best thesis award (Prof. K.V. Giri medal)	2003
Postdoctoral Research (4 yrs)	Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, USA		2003 October- 2007 October

Academic Appointments

Year		Designation
From	To	
2007	2010	Lecturer
2010	2016	Assistant Professor
2016	2020	Associate Professor
2020	To date	Professor

Awards/Honors

1. Har Gobind Khorana Endowment Lecture (2023)
2. Fellow of the Indian Academy of Sciences (FASc) (2023)
3. Sir J.C. Bose Fellowship (2021)
4. Fellow of the Indian National Science Academy (FNA) (2021)
5. Sreenivasaya Memorial Award from SBC(I) (2020)
6. Recipient of exceptional faculty funds from DBT-IISc partnership program (2019)
7. Shanti Swarup Bhatnagar Prize in Biological Sciences (2018)
8. Fellow of the National Academy of Sciences, India (FNASc) (2018)
9. Secretary, Society of Biological Chemists (SBC), India (2017)
10. Sir C.V. Raman Young Scientist award from Government of Karnataka (2015)
11. National Bioscience Award for Career Development from DBT, India (2015)
12. B.M. Birla Science Prize in Biology (2012)
13. Lady Tata Memorial Trust, UK, international award for Leukemia research (2009)
14. Prof. K.V. Giri memorial award for best Ph.D thesis of the Department of Biochemistry, Indian Institute of Science, Bangalore (2003)

Publications

1. Dixit, S., Bhattacharya, D., Saxena, S., Sahoo, S., Nagraj, T., Chittela, R., Somyajit, K., and **Nagaraju, G.** (2024). RTEL1 helicase counteracts excessive homologous recombination to safeguard replicating genomes. *Cell Reports* 43:114594.
2. Bhattacharya, D., Sahoo, S., Nagraj, T., Dixit, S., Dwivedi, H., and **Nagaraju, G.** (2022). RAD51 paralogs: Expanding roles in replication stress responses and repair. *Curr. Opin. Pharmacol.* 67:102313.
3. Anand, K., Tripathi, A., Shukla, K., Malhotra, N., Jamithireddy, AK., Jha, RK., Chaudhury, SN., Rajmani, RS., Ramesh, A., Nagaraja, V., Gopal, B., **Nagaraju, G.**, Narain Seshayee, AS., and Singh, A. (2021). *Mycobacterium tuberculosis* SufR responds to nitric oxide via its 4Fe-4S cluster and regulates Fe-S cluster biogenesis for persistence in mice. *Redox Biol.* 46:102062.
4. Nath, S., and **Nagaraju, G.** (2020). FANCI helicase promotes DNA end resection by facilitating CtIP recruitment to DNA double-strand breaks. *PLoS Genetics* 16(4): e1008701.
5. Saxena, S., Dixit, S., Somyajit, K., and **Nagaraju, G.** (2019). ATR signaling uncouples the role of RAD51 paralogs in Homologous Recombination and replication stress response. *Cell Reports* 29:551-559.
6. Saha, T., Shukla, K., Thakur, R.S., Desingu, D., and **Nagaraju, G.** (2019). *Mycobacterium tuberculosis* UvrD1 and UvrD2 helicases unwind G-quadruplex DNA. *FEBS J* 286: 2062-2086.
7. Saxena, S., Somyajit, K., and **Nagaraju, G.** (2018). XRCC2 regulates replication fork progression during dNTP alterations. *Cell Reports* 25:3273-3282.
8. Singh, A., Vijayan, M., and **Nagaraju, G.** (2018) RecG_{wed}: A probable novel regulator in the resolution of branched DNA structures in mycobacteria. *IUBMB Life* 70:786-794.
9. Mishra, A., Saxena, S., Kaushal, A., and **Nagaraju, G.** (2018). RAD51C/XRCC3 facilitates mitochondrial DNA replication and maintains integrity of the mitochondrial genome. *Mol. Cell. Biol.* 38:1-18.
10. Shukla, K., Thakur, R.S., Ganguli, D., Rao, D.N., and **Nagaraju, G.** (2017). *Escherichia coli* and *Neisseria gonorrhoeae* UvrD helicase unwinds G4 DNA structures. *Biochem. J.* 474:3579-97.

11. Nath, S., Somyajit, K., Mishra, A., Scully, R., and **Nagaraju, G.** (2017). FANCI helicase controls the balance between short- and long-tract gene conversions between sister chromatids. *Nucleic Acids Res.* 45:8886-00.
12. Somyajit, K., Banik, B., Saxena, S., Chakravarty, A.R., and **Nagaraju, G.** (2016). Trans-dichlorooxovanadium (IV) complex as a novel photoinducible DNA interstrand cross-linker for cancer therapy. *Carcinogenesis* 37:145-156.
13. Somyajit, K., Saxena, S., Babu, S., Mishra, A., and **Nagaraju, G.** (2015). Mammalian RAD51 paralogs protect nascent DNA at stalled forks and mediate replication restart. *Nucleic Acids Res.* 43:9835-55.
14. Thakur, R.S., Basavaraju, S., Khanduja, J.S., Muniyappa, K., and **Nagaraju, G.** (2015). *Mycobacterium tuberculosis* RecG but not RuvAB or RecA is efficient at remodeling the stalled replication forks: Implications for multiple mechanisms of replication restart in mycobacteria. *J. Biol. Chem.* 290:24119-39.
15. Naveenkumar, S. K., Thushara, R.M., Sundaram, M.S., Hemshekar, M., Paul, M., Thirunavukkarasu, C., Basappa, **Nagaraju, G.**, Raghavan, S.C., Girish, K.S., Kemparaju, K. and Rangappa, K.S. (2015). Unconjugated Bilirubin exerts Pro-Apoptotic Effect on Platelets via p38-MAPK activation. *Scientific Reports* 5:15045.
16. Paul, M., Hemshekhar, M., Thushara, R.M., Sundaram, M.S., NaveenKumar, S.K., Naveen, S., Devaraja, S., Somyajit, K., West, R., BasappaNayaka, S.C., Zakai, U.I., **Nagaraju, G.**, Rangappa, K.S., Kemparaju, K., and Girish, K.S. (2015). Methotrexate Promotes Platelet Apoptosis via JNK-Mediated Mitochondrial Damage: Alleviation by N-Acetylcysteine and N-Acetylcysteine Amide. *PLoS One* 10: e0127558.
17. Somyajit, K., Mishra, A., Jameei, A., and **Nagaraju, G.** (2015). Enhanced non-homologous end joining contributes toward synthetic lethality of pathological RAD51C mutants with poly (ADP-ribose) polymerase (PARP). *Carcinogenesis* 36:13-24.
18. Thakur, R.S., Desingu, A., Basavaraju, S., Subramanya, S., Rao, D.N., and **Nagaraju, G.** (2014). *Mycobacterium tuberculosis* DinG is a structure specific helicase that unwinds G4DNA: implications for targeting G4 DNA as a novel therapeutic approach. *J. Biol. Chem.* 289: 25112-36.

19. Banik, B., Somyajit, K., **Nagaraju, G.**, and Chakravarty, A.R. (2014). Oxovanadium (IV) catecholates of terpyridine bases for cellular imaging and photocytotoxicity in red light. *RSC Advances* 75: 40120-31.
20. Oxovanadium(iv) complexes of curcumin for cellular imaging and mitochondria targeted photocytotoxicity. Banik, B., Somyajit, K., **Nagaraju, G.**, and Chakravarty, A.R. (2014). *Dalton Trans.* 43: 13358-69.
21. Banik, B., Somyajit, K., Hussain, A., **Nagaraju, G.**, and Chakravarty, A.R. (2014). Carbohydrate-appended photocytotoxic (imidazophenanthroline) oxovanadium (IV) complexes for cellular targeting and imaging. *Dalton Trans.* 43:1321-31.
22. Somyajit, K., Basavaraju, S., Scully, R. and **Nagaraju, G.** (2013). ATM- and ATR-mediated phosphorylation of XRCC3 regulates DNA double strand break-induced checkpoint activation and repair. *Mol. Cell. Biol.* 33:1830-44.
23. Thakur, R.S, Basavaraju, S., Somyajit, K., Subramanya, S., Muniyappa, K. and **Nagaraju, G.** (2013). Evidence for the role of *Mycobacterium tuberculosis* RecG helicase in DNA repair and recombination. *FEBS J.* 280:1841-60.
24. Hussain, A., Somyajit, K., Banik, B., Banerjee, S., **Nagaraju, G.**, and Chakravarty, A.R. (2013). Enhancing the photocytotoxic potential of curcumin on terpyridyl lanthanide (iii) complex formation. *Dalton Trans.* 42(1):182-95.
25. Balaji, B., Somyajit, K., Banik, B., **Nagaraju, G.**, and Chakravarty, A.R. (2013). Photoactivated DNA cleavage and anticancer activity of oxovanadium (IV) complexes of curcumin. *Inorganica Chimica Acta* 400: 142–150.
26. Banik, B., Somyajit, K., Koley, D., **Nagaraju, G.**, and Chakravarty, A.R. (2012). Cellular uptake and remarkable photocytotoxicity of pyrenylter pyridine oxovanadium (IV) complexes of dipyrrophenazine bases. *Inorganica Chimica Acta* 393: 284–293.
27. Somyajit, K., Subramanya, S., and **Nagaraju, G.** (2012). Distinct roles of FANCO/RAD51C in DNA damage signaling and repair: Implications for Fanconi anemia and breast cancer susceptibility. *J. Biol. Chem.* 287: 3366-3380.
28. Nagaraj, N. S., and **Nagaraju, G.** (2011). RAD51 as a potential biomarker and therapeutic target for pancreatic cancer. *BBA Reviews on Cancer* 1816: 209-218.

29. Somyajit, K., Subramanya, S., and **Nagaraju, G.** (2010). *RAD51C*: a novel cancer susceptibility gene is linked to Fanconi anemia and breast cancer. *Carcinogenesis* 31: 2031-2038.
30. **Nagaraju, G.**, Hartlerode, A., Kwok, A., Chandramouly, G., and Scully, R. (2009). XRCC2 and XRCC3 regulate the balance between short- and long-tract gene conversion between sister chromatids. *Mol. Cell. Biol.* 29:4283-4294.
31. Xie, A., Hartlerode, A., Stucki, M., Odate, S., Puget, N., **Nagaraju, G.**, Yan, C., Alt, F.W., Chen, J., Jackson, S.P., and Scully, R. (2007). Distinct Roles of Chromatin-Associated Proteins MDC1 and 53BP1 in Mammalian Double-Strand Break Repair. *Mol. Cell* 28:1045-1057.
32. **Nagaraju, G.**, and Scully, R. (2007). Minding the gap: The underground functions of BRCA1 and BRCA2 at stalled replication forks. *DNA Repair* 6: 1018-1031.
33. **Nagaraju, G.**, Odate, S., Xie, A., and Scully, R. (2006). Differential Regulation of Short- and Long-Tract Gene Conversion between Sister Chromatids by Rad51C. *Mol. Cell. Biol.* 26: 8075-8086.
34. Scully, R., Xie, A., **Nagaraju, G.** (2004). Molecular functions of BRCA1 in the DNA damage response. *Cancer Biol Ther.* 6: 521-527.
35. **N. Ganesh** and K. Muniyappa. (2003). *Mycobacterium smegmatis* RecA protein is structurally similar to but functionally distinct from *Mycobacterium tuberculosis* RecA. *PROTEINS* 53: 6-17.
36. **N. Ganesh** and K. Muniyappa. (2003). Characterization of DNA strand transfer promoted by *Mycobacterium smegmatis* RecA reveals functional diversity with *Mycobacterium tuberculosis* RecA. *Biochemistry* 42:7216-7225.
37. S. Datta, R. Krishna, **N. Ganesh**, Nagasuma R. Chandra, K.Muniyappa and M. Vijayan. (2003). Crystal structures of *Mycobacterium smegmatis* RecA and its nucleotide complexes. *J. Bacterial.* 185: 4280-4284.
38. K. Muniyappa, **N. Ganesh**, N. Guhan, Pawan Singh, G. P. Manjunath, S. Datta, Nagasuma R.Chandra and M. Vijayan. (2003). Homologous recombination in mycobacteria. *CURRENT SCIENCE* 86: 141-148.

39. S. Datta, **N. Ganesh**, Nagasuma R. Chandra, K. Muniyappa and M. Vijayan. (2003). Structural studies on MtRecA-nucleotide complexes: Insights into DNA and nucleotide binding and the structural signature of NTP recognition. *PROTEINS* 50: 474- 485.
40. R. Venkatesh*, **N. Ganesh***, N. Guhan*, M. Sreedhar Reddy*, T. Chandrasekar and K. Muniyappa. (2002). RecX protein abrogates ATP hydrolysis and strand exchange promoted by RecA: Insights into negative regulation of homologous recombination. *Proc. Natl. Acad. Sci. USA* 99:12091-12096 *Contributed equally
41. S. Datta, Prabhu. M. M, Vaze. M. B, **Ganesh. N.**, Chandra. N. R., Muniyappa. K. and Vijayan. M. (2000). Crystal Structure of *Mycobacterium tuberculosis* RecA and its complex with ADP- AIF 4: implications for decreased ATPase activity and molecular aggregation. *Nucleic Acids Res.* 28, 4964- 4973.
42. Muniyappa, K., Vaze. M. B., **Ganesh. N.**, Reddy. M. S., Guhan. N., Venkatesh. R. (2000). Comparative genomics of *Mycobacterium tuberculosis* and *Escherichia coli* for recombination (*rec*) genes. *Microbiology* 146, 2093- 2095.

No. of Ph.Ds awarded: 9

No. of Ph.D students currently working: 6

Membership of Societies/Professional Bodies

1. Member, Society of Biological Chemists (India)
2. Member, Indian Association for Cancer Research
3. Member, Indian Society of Cell Biology

Invited talks at conferences/symposium

1. Chromosome stability International conference, JNCASR (2024)
2. Keynote speaker at 6th Annual BioGroup, IIT Gandhinagar (2024)
3. EMBO International conference on “Evolution and diversity of the DNA damage response”, Lonavala (2024)
4. BioAnveshana, University of Hyderabad (2024)
5. 89th Annual meeting of the Indian Academy of Sciences, BITS-Goa (2023)
6. Keynote lecture at National symposium on “Recent Discoveries in Biochemistry and Food Science”, Tumkur University (2023)
7. Interdisciplinary approaches on dynamics of bioscience research, Coimbatore (2023)
8. Interdisciplinary approach to biological sciences (IABS), Kolkata (2023)
9. 45th All India Cell Biology conference, BHU (2023)

10. IACR conference, Mumbai (2023)
11. Chromatin, RNA and Genome, IISc (2023)
12. Emerging Trends in Biological Sciences, JSS Science and Technology University, Trendys workshop, Mysore (2023)
13. 91st Annual meeting of SBC(I), Kolkata (2022)
14. Chromosome Stability International conference, Kerala (2022)
15. Advances in Cell and Molecular Biology, Academy Lecture Workshop at MSRIT, Bangalore (2022)
16. Chromosome Stability International conference, Kerala (2022)
17. Regional Centre for Biotechnology Contemporary Webinar Series (2022)
18. National Symposium on “Molecular Biology of the Cell”, University of Mysore (2022)
19. Chemical Biology Society annual symposium (2021)
20. Dept. of Biology Webinar series, IISER Tirupati (2021)
21. 89th Annual meeting of SBC(I), Manipal (2020)
22. Advances in Mitochondrial Medicine and Translational Research, Manipal (2020)
23. Indian Science Congress, GKVK, Bangalore (2020)
24. National Research Scholars, ACTREC, Mumbai (2019)
25. Life Science Symposium, DAE-BRNS (2019)
26. Research Conclave, IIT Guwahati (2019)
27. Biological Transactions: From Molecules to Organisms, IISc, Bangalore (2019)
28. Division of Biological Sciences Annual symposium, IISER Kolkata (2019)
29. Society of Biological Chemists, Manipal (2018)
30. Chromosome Stability International conference, JNCASR, Bangalore (2018)
31. Indo-US conference on Transcription, Chromatin Structure, DNA Repair and Genome Instability (2018)
32. Chromatin Structure and Dynamics International conference, Hyderabad (2018)
33. An Interdisciplinary Approach to Biological Sciences, Kolkata (2018)
34. International symposium on Theranostics in Health and Disease, VIT (2017)
35. Indo-French conference on Recent Advances in Genome Integrity and Plasticity, Bangalore (2017)
36. PAN-IIT, Goa (2017)
37. Chromosome Stability International conference, Kerala (2016)

Service in administrative positions within IISc

1. Convener, Divisional FACS facility (2016 - 2023)
2. Secretary, Institutional Biosafety Committee (2016 – 2022)
3. Secretary, Society of Biological Chemists, India (2016-2019)
4. Honorary warden (2010-2019)
5. Co-Chair, Council of wardens committee (2018-2019)
6. Biological Sciences Building, IISc committee member (2013-2021)

Other professional service within and outside IISc

1. Member, ASPIRE Life Sciences Research Committee (2023-2026)
2. Senate member, NIPER-Hajipur (2023-2026)
3. External member, Dept. of Biochemistry, BoS/Council, University of Hyderabad (2023-2025)
4. Member, IIT Indore BSBE Dept. Review Committee (2023)
5. Co-organizer of NASI Bangalore chapter organized one day symposium at University of Mysore
6. Member, IISc students travel awards committee (2023-present)
7. Member, Scientific Advisory Council (SAC), RGCB (2022-present)
8. Member, Advisory committee, VGST, Karnataka (2022)
9. Secretary, Biochemical Society. Dept. of Biochemistry, IISc, Bangalore (2022-Present)
10. Convener, selection committee for the Indian Academy of Sciences-SRFP (2021)
11. Selection committee member for SSB award for Biological Sciences (2021)
12. Selection committee member for the DBT-RA (2018-Present)
13. Selection committee member for the DBT-National Bioscience award, IYBA and Tata innovation fellowship (2019-2020)
14. Organizer of Flowcytometer workshop sponsored by SERB under Accelerate Vigyan Scheme (2021)
15. Member, Board of studies, Dept. of studies in Genetics and Genomics, University of Mysore (2019- present)
16. Member, Board of studies, NIMHANS, Bangalore (2020- present)
17. Member, Vision Group of Science and Technology (VGST), Govt. of Karnataka (2015- Present)
18. Member, Biological Sciences building maintenance committee (2013 – 2021)
19. Member, Senate Library committee (2018 – Present)
20. Member, Senate Curriculum Committee for UG Program (2019 – Present)
21. Member, Department Curriculum Committee
22. Member, Department Centenary celebration committee
23. Senate representative for comprehensive exams for numerous students
24. Reviewer of papers submitted to Nat. Comm., Cell Rep., Cancer Res., Oncogene, NAR, MCB, JBC, FEBS and J. Bac., journals
25. Reviewer of national and international grant proposals
26. Reviewer of Ph. D and Master's thesis from various institutions and universities
27. Participating in GATE national exam