K. Kemparaju, M.Sc., PhD., FNASc.
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Dept. of Studies in Biochemistry
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My lab focuses on snake venom pharmacodynamics, neutrophils, and platelet biology.

In snake venoms, the emphasis is on understanding the mechanism of viper bites, induced sustained tissue decay, venom-induced oxidative stress and hypoxia, venom neutralization strategies by anti-venom and small molecules, venom variability due to geographic distribution of snake species, and characterization of molecules of therapeutic importance.

In platelets, understanding the crosstalk between the mechanisms that favor platelet death and survival during various clinical conditions, especially the heme-mediated signaling events and the cross-talks among the death and survival pathways.

Novelty of our work: My lab has made many landmark discoveries in snake venom pharmacology. NETosis is a key mechanism during viper bite-induced sustained tissue decay, and DNase is a proposed therapeutic agent. DNase as a toxicity-enhancing factor (Nature Communications). Venom-induced hypoxia due to methemoglobinemia and its management by a clinically approved drug (Melatonin) as an auxiliary therapy against systemic toxicity (Journal of Pineal Research). Venom hyaluronidase is a toxicity (both local and systemic) potentiating factor (Biochimie).

Recognition: Nature Publishing Group has given wider publicity to the work published in Nature Communications by releasing a public press note from its office. The same got featured in the daily NEWS journals of many countries. Excitingly, it also featured in National Geographic.

Important publications.

- British Journal of Pharmacology, 2025 Nov 19. doi: 10.1111/bph.70202
- J Pineal Research 2020 Oct; 69(3): e12676.
- Haematologica. 2019 Nov 28:
- Free Radic Biol Med. 2019 Jan; 130:196-205
- ACS Chem Biol. 2018 Aug 17;13(8):1996-2002
- Nat Commun. 2018 Jun 13;9(1):2303.
- Trends Biotechnology 2016 Nov;34(11):850-852
- Nat Commun. 2016 Apr 19; 7:11361.

- Biochim Biophys Acta. 2015 Dec;1850(12):2393-409.
- J Pineal Res. 2015 Sep;59(2):240-54.
- J Pineal Res. 2014 Apr;56(3):295-312.

Short CV

Name: **Dr. K. Kemparaju, M.Sc., Ph.D., FNASc.**

Current Position: Senior Professor of Biochemistry
DOS in Biochemistry, University of Mysore, Mysore.

Qualification: MSc (Biochemistry), DOS in Biochemistry, University of Mysore, 1987.
PhD (Biochemistry), DOS in Biochemistry, University of Mysore, 1996.
PhD Student (Biochemistry), Indian Institute of Science, 1987 to 1988.
Post-doctoral Fellow, Albert Einstein College of Medicine, USA (2003).

Research Area: Venom pharmacodynamics, including the effect on Immune cells, Thrombosis and Hemostasis, Extracellular matrix, and Platelet biology.

Publications: Total = Over 108
Papers in National journals: 02
Papers in international journals: Over 103
Book Chapters: 03

Citation Index: h-index: 48 i-10 index: 102

Citations: Over 7830 as of 2025

Fellowships: Shastri Indo-Canadian fellowship, 2020.
Elected Fellow, National Academy of Sciences (Allahabad), 2023.
SBC(I) 93rd, M Shadaksharaswamy Endowment Lecture Award, 2024.
Associate Editor, PLoS Neglected Tropical Diseases.

Acad. Affiliations: Member BOE, BOS, & BOA (Biochemistry) of several Universities of Karnataka.
Expert evaluator of scientific projects and Ph.D. thesis (From both India & Overseas).

Recognition:

1. Research findings are published in reputed journals like Nature Communications, Journal of Pineal Research, Trends in

Biotech, ACS Chemical Biology, Free Radical Biology and Medicine, Hematologica, BBA, BBRC, Scientific Reports, Biochimie, Current Topics in Med. Chem.

2. Our work on venom hyaluronidase is considered one of the landmark discoveries in Toxinology (Published in Toxicon Special issue, 62, 2013).
3. Discovered NETosis as the key mechanism of *Echis carinatus* venom-induced sustained tissue destruction at the bite site.
4. Introduced the concept of methemoglobinemia and hypoxia in cobra venom toxicity.
5. Discovered the role of venom DNase in venom toxicity.
6. Developed a mouse tail model to assay venom-induced sustained tissue destruction.
7. Demonstrated the therapeutic potential of DNase to treat local tissue destruction.

Guest Editor: **Current Topics in Medicinal Chemistry**, **Special issue 2011** (Benthem Publishers)

Citations in: Nature Reviews Immunology, Nature Reviews in Cancer**,** Pharmacological Reviews, Medicinal Research Reviews, Annual Review of Entomology, Biotechnology Advances, Expert Opinion on Biological Therapy, Journal of Biological Chemistry, Annals of New York Academy of Sciences, Current Molecular Medicine, Frontiers in Immunology.

Speaker: Over 50 events as plenary/invited/keynote speaker and Chaired Scientific sessions in several symposia and academic programs conducted by different Universities and Research organizations.

Speaker at Premier places:

- M. Shadakshara Swamy lecture award, 93rd SBC (I), Baroda, 2024.
- Invited speaker, Annual Talk, 2024, NCBS, Bangalore.
- Plenary lecture at 85th Annual meeting of SBC (I), 2016.
- Dept. of Biochemistry, I I Sc, Bangalore.
- Dept. of Ecological Sciences, I I Sc, Bangalore.
- Dept. of Chemical Ecology, NCBS, Bangalore.
- CFTRI, Mysore.
- Banaras Hindu University, Varanasi.
- Manipal Academy of Higher Education, Manipal.
- BITS PILANI, Goa.

Ph. D. Students: Guided: 18
Currently working: 05

Projects: Principal investigator: DST, UGC, DBT, IOE-UOM, VGST, and UGC-SAP-funded projects.

External Reviewer: The Lancet, The British Journal of Pharmacology**,** Current Medicinal Chemistry, Current Topics in Medicinal Chemistry, Biochimie, Gene, Comparative Biochemistry and Physiology, Basic and Clinical Pharmacology and Toxicology, Molecular and Cellular Biochemistry, Toxicon, Indian Journal of Biochemistry and Biophysics, Indian Journal of Medical Sciences, and Indian Journal of Experimental Biology.

Membership: Life Member, SBC, India.
Life Member, Indian Science Congress.
Life Member, The Indian Society for Atherosclerosis Research.