K. Kemparaju, Ph.D.
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Our lab is working extensively on **snake venom pharmacodynamics,** and **platelet biology.**

In snake venoms, we pursue understanding the mechanism of viper bites induced sustained tissue decay (with a special emphasis on the role of innate immune cells, the neutrophils and NETosis), venom-induced methemoglobinemia due to oxidative stress and hypoxia, venom neutralization strategies by anti-venom and small molecules-such as melatonin, venom variability due to geographic distribution of snake species, and characterization of molecules of therapeutic importance.

In platelets, we work on understanding the different mechanisms of platelet death and survival strategies during various clinical and pathological conditions, especially, the heme mediated signaling events and the cross-talks among the death and survival pathways.

The novelty of our work: Our lab has made four landmark discoveries in snake venom pharmacodynamics. NETosis as a key mechanism during viper bites induced sustained tissue decay and DNase as a proposed therapeutic agent. DNase as toxicity enhancing factor (**Nature communications**). Venom induced hypoxia due to methemoglobinemia and its management by clinically approved drug (Melatonin) as a first-aid and auxiliary therapy against systemic toxicity (**J of Pineal Research**). Venom hyaluronidase as 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 worldwide public press note from its office. The same has been featured in **National Geographic,** and as well as in several daily News Journals.

Important publications;

- J Pineal Res. 2020 Jun 29. https://pubmed.ncbi.nlm.nih.gov/32597503/
- Haematologica 2020 Nov 28. https://pubmed.ncbi.nlm.nih.gov/31780630/
- Free Radic Biol Med. 2019 Jan; 130:196-205. https://pubmed.ncbi.nlm.nih.gov/30391673/
- ACS Chem Biol. 2018 Aug 17; 13(8):1996-2002. https://pubmed.ncbi.nlm.nih.gov/29869870/
- Nat Commun. 2018 Jun 13; 9(1):2303 https://pubmed.ncbi.nlm.nih.gov/29899327/
- Trends Biotechnology 2016 Nov; 34(11):850852 https://pubmed.ncbi.nlm.nih.gov/27600001/
- Nat Commun. 2016 Apr 19; 7:11361. https://pubmed.ncbi.nlm.nih.gov/27093631/
- Biochim Biophys Acta. 2015 Dec; 1850(12):2393-409. https://pubmed.ncbi.nlm.nih.gov/26391844/
- J Pineal Res. 2015 Sep; 59(2):240-54. https://pubmed.ncbi.nlm.nih.gov/26103459/
- J Pineal Res. 2014 Apr; 56(3):295-312. https://pubmed.ncbi.nlm.nih.gov/24499241/

Brief CV

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

Current Position: **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 Innate Immune Cells, Thrombosis and Hemostasis, Extracellular Matrix, and Platelet biology.

Publications: Over 110 research articles **(For details, refer Pub med & Google Scholar)**
Book Chapters: 02

Citation Index: h-index: 37 i-10 index: 75

Citations: Over 4200 as of August 2020.

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).

Achievements:

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 as 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 snake 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.

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 invited/plenary/keynote speaker, and Chaired Scientific sessions in several symposia, and academic programs conducted by different Universities and Research organizations.

Speaker at Premier places:

- 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.