NAME: **DR. GEETHA KUMAR, Ph.D.**

POSITION / TITLE: **PROFESSOR**

DATE OF BIRTH **29/07/1962**

EXPERIENCE:

Professor, School of Biotechnology, Amrita University, Kollam, Kerala 2005 – present

Research Scientist, Ceptry Inc. USA 1996-2005

Research Scientist, Pan Labs 1993-1996

EDUCATION/TRAINING:
**INSTITUTION AND LOCATION DEGREE YEAR FIELD OF STUDY**

Chinoy College, Mumbai B.Sc. 1982 Microbiology

M.S. University, Baroda M.Sc. 1985 Microbiology

University of Tennessee, Ph.D. 1992 Biochemistry & Molecular

Memphis, USA Biology

University of Washington, Postdoc 1994 Pharmacology
Seattle, USA

AREA OF SPECIALIZATION:

Antimicrobial Resistance, Host Pathogen Interactions, Pharmacology, Drug Discovery, Cancer Biology

TEACHING COURSES

Cell Biology

Cancer Biology

Advanced Pharmaceutical Biology

Advanced Discovery Biology

Research Methodology

RESEARCH PROJECTS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of the Project** | **Name of the Funding Agency** | **Status****On-going / Completed** | **Project Grant / Assistance****(Rs.)** | **Duration of the Project** | **Start Year** |
| 1. | Insulin Pump | DST | Completed | 4 crores | 6 years | 2010 |
| 2. | Wound Healing | BMS | Completed | 30 lakhs | 4 years | 2012 |
| 3. | Role of MMPs in Cancer | Amrita University | Completed | 2 crores | 4 years | 2012 |
| 4. | Anacardic Acid and its derivatives as novel template for cancer therapy  | KSCSTE | Completed | 30 lakhs | 3 years | 2014 |
| 5. | Reversal of antibiotic resistance in ESKAPE pathogens such as Pseudomonas aeruginosa | TIGS | On-going | 3.6 crores | 2 years | 2018 |

PEER-REVIEWED PUBLICATIONS:

1. Sasidharakurup, H, **Kumar, G**, Nair, B, Diwakar, S, (2021). Mathematical modeling of SARS-CoV-2 infection network with cytokine storm, oxidative stress, thrombosis, insulin resistance and nitric oxide pathways. **International Journal of Integrative Biology**. (In Press)
2. Moni, M., Madathil, T., Sathyapalan, D., Menon, V., Gutjahr, G., Edathadathil, F., Sureshkumar, D., Prasanna, P., Jose, S., Jerome, R., Krishnan, A., PIllai, I., **Kumar, G.B.**, Nair, BG, Jayant, A. (2021). A Feasibility Trial to Evaluate the Composite Efficacy of Inhaled Nitric Oxide in the Treatment of Covid 19 Pneumonia: Impact on Viral Load and Clinical Outcomes. ***medRxiv***. (In Press)
3. Shaji, S.K., Drishya, G., Sunilkumar, D., Pandurangan, N., **Kumar, G.B.** and Nair, B.G., (2021). Nuclear factor-κB plays an important role in Tamarixetin-mediated inhibition of matrix metalloproteinase-9 expression. **European Journal of Pharmacology**, 893: 173808.
4. Menon, N.D., Kumar, M.S., Satheesh Babu, T.G., Bose, S., Vijayakumar, G., Baswe, M., Chatterjee, M., D’Silva, J.R., Shetty, K., Haripriyan, J., Kumar, A., Nair, S., Somanath, P., Nair, B., Nizet V. and **Kumar, G.B.** (2021). A Novel N4-Like Bacteriophage Isolated from a Wastewater Source in South India with Activity against Several Multidrug-Resistant Clinical Pseudomonas aeruginosa Isolates. **Msphere**, 6(1): e01215-20.
5. Drishya, G., Nambiar, J., Shaji, S.K., Vanuopadath, M., Achuthan, A., Kumar, A., Alias, A., Sherif, A., Joseph, C., Divya, P. and Kumar, D.S., Nair, B, **Kumar, G.B**. (2020). RECK and TIMP-2 mediate inhibition of MMP-2 and MMP-9 by Annona muricata. **Journal of Biosciences**, 45(1):1-11.
6. Sunilkumar D, Drishya G, Chandrasekharan A, Shaji SK, Bose C, Jossart J, Perry JJ, Mishra N, **Kumar GB**, Nair BG. (2020) Oxyresveratrol drives caspase-independent apoptosis-like cell death in MDA-MB-231 breast cancer cells through the induction of ROS. **Biochemical Pharmacology**. 1;173:113724.
7. **Kumar GB**, Nair BG, Perry JJ, Martin DB. (2019) Recent insights into natural product inhibitors of matrix metalloproteinases. **MedChemComm**,10(12):2024-37.
8. Shaji SK, Sunilkumar D, Mahalakshmi NV, **Kumar GB**, Nair BG. (2019) Analysis of microarray data for identification of key microRNA signatures in glioblastoma multiforme. **Oncology letters**, 1;18(2):1938-48.
9. Haripriyan J, Omanakuttan A, Menon ND, Vanuopadath M, Nair SS, Corriden R, Nair BG, Nizet V. and **Kumar GB**. (2018) Clove Bud Oil Modulates Pathogenicity Phenotypes of the Opportunistic Human Pathogen Pseudomonas aeruginosa. **Scientific reports**, *8*(1), 3437.
10. Nambiar J, Vijayakumar G, Drishya G, Shaji SK, Pandurangan N, **Kumar GB** and Nair BG. (2018) (I-3, II-3)-Biacacetin-mediated cell death involves mitochondria. **Molecular and cellular biochemistry**, 1-12.
11. Kumar DS, Bose C, Shaji SK, Pandurangan N, **Kumar GB**, Banerji A & Nair BG. (2017) Coconut shell derived bioactive compound oxyresveratrol mediates regulation of matrix metalloproteinase 9. **International Journal of Pharma and Bio Sciences**, 8(1), 202-210.
12. Nambiar, J., Bose, C., Venugopal, M., Banerji, A., Patel, T.B., **Kumar, G.B**., Nair, B.G. (2016) Anacardic acid inhibits gelatinases through the regulation of Spry2, MMP-14, EMMPRIN and RECK **Experimental Cell Research**, 349 (1), 139-151.
13. Omanakuttan, A., Bose, C., Pandurangan, N., **Kumar, G.B**., Banerji, A., Nair, B.G. (2016) Nitric Oxide and ERK mediates regulation of cellular processes by Ecdysterone. **Experimental Cell Research**, 346 (2), 167-175.
14. Jayalekshmi, H., Omanakuttan, A., Pandurangan, N., Vargis, V.S., Maneesh, M., Nair, B.G. and **Kumar, G.B**., (2016) Clove bud oil reduces kynurenine and inhibits pqs A gene expression in P. aeruginosa. **Applied Microbiology and Biotechnology**, *100*(8), 3681-3692.
15. Hollands, A., Corriden, R., Gysler, G., Dahesh, S., Olson, J., Ali, S.R., Kunkel, M.T., Lin, A.E., Forli, S., Newton, A.C., **Kumar, G.B**., Nair, B.G., Perry, J.J.P., Nizet, V. (2016) Natural product anacardic acid from cashew nut shells stimulates neutrophil extracellular trap production and bactericidal activity **Journal of Biological Chemistry**, 291 (27), 13964-13973.
16. Kalyanavenkataraman, S., Nanjan, P., Banerji, A., Nair, B.G., **Kumar, G.B**. (2016) Discovery of arjunolic acid as a novel non-zinc binding carbonic anhydrase II inhibitor **Bioorganic Chemistry**, 66, 72-79.
17. Jayalekshmi, H., Harikrishnan, C., Sali, S., Kaushik, N., Victus, N.M.G., Anoop, R., Sarath, T.M., Athira, O., **Kumar, G.B**., Nair, B. (2016) Cmbinatorial effect of D-aminoacids and tetracycline against pseudomonas aeruginosa biofilm **International Journal of Pharmacy and Pharmaceutical Sciences**, 8 (11), 216-220.
18. Nambiar J, **Kumar GB**, Sanjana SR, Gorantla JN, Lankalapalli RS and Nair BG (2015) A novel2-alkoxy-3, 5-dihydroxypyridine mediated regulation of gelatinases. **Int. J. Pharm. Bio. Sci.,** 6(2): (B) 1435 – 1444.
19. [Omanakuttan A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Omanakuttan%20A%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Nambiar J](http://www.ncbi.nlm.nih.gov/pubmed/?term=Nambiar%20J%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Harris RM](http://www.ncbi.nlm.nih.gov/pubmed/?term=Harris%20RM%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Bose C](http://www.ncbi.nlm.nih.gov/pubmed/?term=Bose%20C%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Pandurangan N](http://www.ncbi.nlm.nih.gov/pubmed/?term=Pandurangan%20N%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Varghese RK](http://www.ncbi.nlm.nih.gov/pubmed/?term=Varghese%20RK%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [**Kumar GB**](http://www.ncbi.nlm.nih.gov/pubmed/?term=Kumar%20GB%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Tainer JA](http://www.ncbi.nlm.nih.gov/pubmed/?term=Tainer%20JA%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Banerji A](http://www.ncbi.nlm.nih.gov/pubmed/?term=Banerji%20A%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Perry JJ](http://www.ncbi.nlm.nih.gov/pubmed/?term=Perry%20JJ%5BAuthor%5D&cauthor=true&cauthor_uid=22745359), [Nair BG](http://www.ncbi.nlm.nih.gov/pubmed/?term=Nair%20BG%5BAuthor%5D&cauthor=true&cauthor_uid=22745359). (2012) Anacardic acid inhibits the catalytic activity of matrix metalloproteinase-2 and matrix metalloproteinase-9.[**Mol Pharmacol.**](http://www.ncbi.nlm.nih.gov/pubmed/22745359)**,** 82(4):614-22.
20. Nadler LS, **Kumar G**, Nathanson NM. (2001) Identification of a basolateral sorting signal for the M3 muscarinic acetylcholine receptor in Madin-Darby canine kidney cells. ***J Biol Chem.,*** 276(13):10539-47***.***
21. Nadler LS, **Kumar G**, Hinds TR, Migeon JC, Nathanson NM. (1999) Asymmetric distribution of muscarinic acetylcholine receptors in Madin-Darby canine kidney cells*.* ***Am J Physiol.***, 277(6 Pt 1):C1220-8***.***
22. **Kumar G**, Black PN. (1993) Bacterial long-chain fatty acid transport. Identification of amino acid residues within the outer membrane protein FadL required for activity. ***J Biol Chem.,*** 268(21):15469-76***.***
23. **Kumar G**, Black PN. (1991) Linker mutagenesis of a bacterial fatty acid transport protein. Identification of domains with functional importance. **J Biol Chem**., 266(2):1348-53.
24. Chinchar V.G., Turner L.A., **Kumar G**. (1989) Hemin and cyclic AMP stimulate message dependent

translation in lysates from Friend erythroleukemia cells. **Exp Hematol**., 7(5):405-10.