CURRENT APPOINTMENT (December 2019 – present)

Associate Professor (Biology)
India Alliance Intermediate Fellow & EMBO Young Investigator
Indian Institute of Science Education and Research (IISER) Pune
(Website: http://www.iiserpune.ac.in/~siddhesh)

EDUCATIONAL QUALIFICATIONS

- **Ph.D.** (2012) Department of Chemistry, Texas A&M University, College Station, Texas, USA
- **B. Tech.** (2007) Pharmaceuticals and Fine Chemicals, Institute of Chemical Technology (former UDCT)

PROFESSIONAL POSITIONS

- **Adjunct Faculty**, Department of Biological Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai (May 2020 – present)
- **Joint Faculty Member** (August 2016 – present) Department of Chemistry, IISER Pune
- **Assistant Professor** (August 2016 – November 2019) Department of Biology, IISER Pune
- **Postdoctoral Research Associate** (2013 – 2016) 9th Irving S. Sigal Postdoctoral Fellow, American Chemical Society, The Scripps Research Institute.

AWARDS & HONORS

- CDRI Award for Excellence in Drug Research (Life Sciences category) (2021)
- EMBO Young Investigator Award (2020)
- Merck Young Scientist Award in Biological Sciences (2019)
- Indian National Science Academy (INSA) Young Scientist Medal (2019)
- UAA-ICT Distinguished Alumni Award – Young Achiever (2019)
- DST-SERB India, Early Career Research Award (2017)
- DBT/Wellcome Trust India Alliance, Intermediate Fellowship (2016)

RESEARCH GRANTS

- EMBO Young Investigator Award (2020 – 2024)
- SERB Core Research Grant (2021 – 2023)
- DBT STAG on Medical Biotechnology (2021 – 2023)
- Merck Research Award (2019)
- DBT/Wellcome Trust India Alliance Intermediate Fellowship (2016 – 2021)
- DST-SERB India, Early Career Research Award (2017 - 2020)
- 9th Irving S. Sigal Postdoctoral Fellowship, American Chemical Society (2013 – 2016)

JOURNAL PAPERS:

Work from Independent Lab: IISER Pune (2016 – present) (*denotes corresponding author)

1. Mehdiratta, K., Singh, S., Sharma, S., Bhosale, R. S., Choudhary, R., Masal, D. P., Manocha, A., Dhamale, B. D., Khan, N., Vivekanand, A., Sharma, P., Ikeh, M., Brown A. C., Parish, T., Ojha, A., Michael, J. S., Faruq, M., Medigeshi, G. R., Mohanty, D., Reddy, D. S., Natarajan, V. T., Kamat, S. S.*, Gokhale, R. S.* (2021) Kupyaphores are counter-regulatory zinc homeostatic metallophores required for *Mycobacterium tuberculosis* colonization, ***PNAS*** (*Accepted in Principle*)
2. Mehendale, N., Mallik, R. M., Kamat, S. S.* (2021) Mapping sphingolipid metabolism pathways during phagosomal maturation, ***ACS Chemical Biology*** (*Accepted, In Press*)
3. Bora, P., Manna, S., Nair, M., Sathe, R. R., Singh, S., Adury, V. S. S., Gupta, K., Mukherjee, A., Saini, D. K., Kamat, S. S., Hazra, A. B., Chakrapani, H. (2021) Leveraging an enzyme/artificial substrate system to enhance cellular persulfides and mitigate neuroinflammation, ***Chemical Science*** (*Accepted, Online*)
4. Khandelwal, N., Shaikh, M., Mhetre, A., Singh, S., Sajeevan, T., Joshi, A., Balaji, K. N., Chakrapani, H., Kamat, S. S.* (2021) Fatty acid chain length drives lysophosphatidylserine dependent immunological outputs, ***Cell Chemical Biology*** 28, 1169-1179. *Article featured on August 2021 issue cover of Cell Chemical Biology.*

5. Kumar, K., Mhetre, A., Ratnaparkhi, G. S., Kamat, S. S.* (2021) A superfamily-wide activity atlas of serine hydrolases in *Drosophila melanogaster*, ***Biochemistry*** 60 (16), 1312-1324.
6. Kinatukara, P., Subramaniyan, P. S., Patil, G. S., Shambhavi, S., Singh, S., Mhetre, A., Madduri, M. K., Soundararajan, A., Patel, K. D., Shekar, P. C., Kamat, S. S., Kumar, S., Sankaranarayanan, R. (2020) Peri-natal growth retardation rate and fat mass accumulation in mice lacking Dip2A is dependent on the dietary composition, ***Transgenic Research*** 29, 553-562.
7. Lote-Oke, R., Pawar, J., Kulkarni, S., Sanas, P., Kajale, N., Gondhalekar, K., Khadilkar, V., Kamat, S. S., Khadilkar, A. (2020) A LC-MS method for 25-hydroxy-vitamin D3 measurements from dried blood spots for an epidemiological survey in India, ***Scientific Reports*** 10, 19873.
8. Singh, S., Joshi, A., Kamat, S. S.* (2020) Mapping the neuroanatomy of ABHD16A-ABHD12 & lysophosphatidylserines provides new insights into the pathophysiology of the human neurological disorder PHARC, ***Biochemistry*** 59 (24), 2299-2311.
9. Chattopadhyay, T., Maniyadath, B., Bagul, H. P., Chakraborty, A., Shukla, N., Budnar, S., Rajendran, A., Shukla, A., Kamat, S. S., Kolthur-Seetharam, U. (2020) Spatiotemporal gating of SIRT1 functions by O-GlcNAcylation is essential for liver metabolic switching and prevents hyperglycemia, ***PNAS*** 117, 6890-6900.
10. Rajendran, A., Vaidya, K., Mendoza, J., Bridwell-Rabb, J., Kamat, S. S.* (2020) Functional annotation of ABHD14B, an orphan serine hydrolase enzyme, ***Biochemistry*** 59 (2), 183-196. *Article featured in Future of Biochemistry – Asia Pacific issue*
11. Kumar, M., Ojha, S., Rai, P., Joshi, A., Kamat, S. S.*, Mallik, R. M.* (2019) Insulin activates intracellular transport of lipid droplets to release triglycerides from the liver, ***J. Cell Biology*** 218, 3697-3713.
12. Kulkarni, A., Soni, I., Kelkar D. S., Dharmaraja, A. T., Sankar, R. K., Beniwal, G., Rajendran, A., Tamhankar, S., Chopra, S.*, Kamat, S. S.*, Chakrapani, H.* (2019) Chemoproteomics of an indole-based quinone-epoxide identifies druggable vulnerabilities in Vancomycin-resistant *Staphylococcus aureus*, ***J. Medicinal Chemistry*** 62, 6785-6795.
13. Malik, S. A., Acharya, J., Mehendale, N., Kamat, S. S., Ghaskadbi, S. (2019) Pterostilbene reverses palmitic acid mediated insulin resistance in HepG2 cells by reducing oxidative stress and triglyceride accumulation, ***Free Radical Research*** 53, 815-827.
14. Kelkar, D. S., Ravikumar, G., Mehendale, N., Singh, S., Joshi, A., Sharma, A. K., Mhetre, A., Rajendan, A., Chakrapani, H., Kamat, S. S.* (2019) A chemical genetic screen identifies ABHD12 as an oxidized phosphatidylserine lipase, ***Nature Chemical Biology*** 15, 169-178.
15. Chaplot, K., Pimpale, L., Ramalingam, B., Deivasigamani, S., Kamat, S. S., Ratnaparkhi, G. S. (2019) SOD1 activity thresholds and TOR signaling modulate VAP(P58S) aggregation via ROS-induced proteasomal degradation in a *Drosophila* model of Amylotrophic Lateral Sclerosis, ***Disease Models & Mechanisms*** 12, dmm.033803, 1-15. *Article featured on February 2019 issue cover of Disease Models & Mechanisms*
16. Abhyankar, V., Kaduskar, B., Kamat, S. S., Deobagkar, D., Ratnaparkhi, G. S. (2018) *Drosophila* DNA/RNA methyltransferase contributes to robust host defense in ageing animals by regulating sphingolipid metabolism, ***J. Experimental Biology***, 221 (22), 1-10.
17. Joshi, A., Shaikh, M., Singh, S., Rajendran, A., Mhetre, A., Kamat, S. S.* (2018) Biochemical characterization of the PHARC associated serine hydrolase ABHD12 reveals its preference for long chain lipids, ***J. Biological Chemistry***, 293, 16953-16963. *Article featured on the 2nd November issue cover of JBC*
18. Pathak, D., Mehendale, N., Singh, S., Mallik, R. M., Kamat, S. S.* (2018) Lipidomics suggests a new role for ceramide synthase in phagocytosis, ***ACS Chemical Biology***, 13, 2280-2287. *Article featured on the August 2018 issue cover of ACS Chemical Biology*
19. Rai, P., Kumar, M., Sharma, G., Barak, P., Das, S., Kamat, S. S., Mallik, R. M. (2017) Kinesin-dependent mechanism for controlling triglyceride secretion from the liver, ***PNAS***, 114, 12958-12963.

Selected publications from Ph.D. and Postdoc:

20. Ogura, Y., Parsons, W. H., Kamat, S. S., Cravatt, B. F. (2016) A calcium-dependent acyltransferase that produces N-acyl phosphatidylethanolamines. ***Nature Chemical Biology*** 12, 669-671.
21. Parsons, W. H., Kolar, M. J., Kamat, S. S., Cognetta, A. B. III, Hulce, J. J., Saez, E., Kahn, B., Saghatelian, A. S., Cravatt, B. F. (2016) AIG1 and ADTRP are atypical membrane hydrolase that degrade bioactive FAHFAs, ***Nature Chemical Biology*** 12, 367-372.

22. Kamat, S. S., Camara, K., Parsons, W. H., Chen, D. H., Dix, M. M., Bird, T. D., Howell, A. R., Cravatt, B. F. (2015) Immunomodulatory lysophosphatidylserines are regulated by ABHD16A and ABHD12 interplay, ***Nature Chemical Biology*** 11,164-171.
23. Kamat, S. S., Burgos, E. S., Raushel, F. M. (2013) Potent inhibition of the C-P lyase nucleosidase PhnI by immucillinA-triphosphate, ***Biochemistry*** 52, 7366-7368.
24. Kamat, S. S., Williams, H. J., Dangott L. J., Chakrabarti, M., Raushel, F. M. (2013) The catalytic mechanism for the aerobic formation of methane by bacteria, ***Nature*** 497, 132-36.
25. Kamat, S. S., Williams, H. J., Raushel, F. M. (2011) Intermediates in the transformation of phosphonates to phosphate by bacteria, ***Nature*** 480, 570-73.
26. Kamat, S. S., Fan, H., Sauder, J. M., Burley, S. K., Shoichet, B. K., Sali, A., Raushel, F. M. (2011) Enzymatic deamination of the epigenetic base N-6-methyladenine, ***JACS*** 133, 2080-83.
27. Kamat, S. S., Bagaria, A., Kumaran, D., Holmes-Hampton, G. P., Fan, H., Sali, A., Sauder, J. M., Burley, S. K., Lindahl, P. A., Swaminathan, S., Raushel, F. M. (2011) Catalytic mechanism and three-dimensional structure of adenine deaminase, ***Biochemistry*** 50, 1917-27.

BOOK CHAPTERS/REVIEWS/NEWS ARTICLES from IISER Pune (2016 – present) (*denotes corresponding author)

1. Shanbhag, K., Mhetre, A., Khandelwal, N., Kamat, S. S.* (2020) The Lysophosphatidylserines – an emerging class of signaling lysophospholipid, ***J. Membrane Biology*** 253, 381-397.
2. Kamat, S. S.*, Singh, S. S., Rajendran, A., Gama, S., Zechel, D. L. (2020) Enzymatic strategies for the catabolism of organophosphates, ***Comprehensive Natural Products III: Chemistry & Biology***: Vol 4: Enzymes and Enzyme Mechanisms, Chapter 16, 399-429.
3. Kamat, S. S.* (2019) Understanding the role of molecular motors in living cells: an odyssey from physics to biology, ***Current Science*** 116, 14-16.
4. Ulrich, E., Kamat, S. S.*, Hove-Jensen, B.*, Zechel, D. L.* (2018) Methylphosphonic acid biosynthesis and catabolism in pelagic bacteria, ***Methods in Enzymology*** Vol. 605, 351-426.

INVITED TALKS SINCE JOINING IISER PUNE (**denotes virtual talk)

1. "***FATTY ACID CHAIN LENGTH DRIVES LYSOPHOSPHATIDYLSERINE DEPENDENT IMMUNOLOGICAL OUTPUTS***": (i) Regional Centre for Biotechnology (RCB), Contemporary Webinar Series**, August 2021; (ii) Annual Talks, TIFR Mumbai**, January 2021.

2. "***A CHEMICAL BIOLOGY APPROACH TOWARDS UNDERSTANDING A HUMAN NEUROLOGICAL DISORDER***": (i) EMBO Young Investigator's Meeting**, July 2021; (ii) TIFR Hyderabad**, February 2021; (iii) CCMB Biologue, CCMB** October 2020; (iv) NCBS, February 2019.

3. "***ENZYME FUNCTION ANNOTATION USING AN INTEGRATED CHEMICAL PROTEOMICS AND METABOLOMICS APPROACH***": (i) International Symposium on Cell Surface Macromolecules, IISER Pune, February 2020; (ii) International Chemical Biology Society, 8th Annual meeting, IICT Hyderabad, November 2019; (iii) Advances in Mass Spectrometry Symposium, IISER Tirupati, November 2019; (iv) EMBO Young Investigator's Meeting, EMBO, Heidelberg, Germany October 2019; (v) Indo-UK Chemical Biology Symposium, University of Glasgow, July 2019; (vi) 10th Annual Proteomics Society of India Meeting, NCCS Pune, December 2018; (vii) Indo-US workshop on "Understanding cell biology through proteomics and metabolomics", NCCS Pune, December 2018; (viii) National Chemical Laboratory, Pune, Proteomics Day, March 2018.

4. "***A LIPID SIGNALING PATHWAY THAT CONTROLS IMMUNE CELL EXTRAVASATION IN A HUMAN NEUROLOGICAL DISEASE***", (i) iCeMS-NCBS India Alliance meeting, NCBS Bangalore, February 2017; (ii) Omics to Structural Basis of Disease, Department of Biochemistry, MSU Baroda, October 2016

TEACHING

4 credit courses on “Advanced Biochemistry” and “Biology and Disease” to undergraduate and graduate students

CURRENT LAB MEMBERS

1. Dr. Amol Mhetre, Postdoctoral Fellow
2. Dr. Neha Khandelwal, Postdoctoral Fellow
3. Abinaya R., Ph.D. student, IISER Biology
4. Neelay Mehendale, Ph.D. student, IISER Biology
5. Minhaj Shaikh, Ph.D. student, IISER Chemistry
6. Kaveri Vaidya, Int. Ph.D. student, IISER Biology
7. Kundan Kumar, Int. Ph.D. student, IISER Biology
8. Karthik Shanbhag, Int. Ph.D. student, IISER Biology
9. Arnab Chakraborty, Ph.D. student, IISER Biology
10. Sonali Gupta, Int. Ph.D. student, IISER Biology
11. Ojal Saharan, Int. Ph.D. student, IISER Biology
12. Aakash Chandramouli, Ph.D. student, IISER Biology
13. Anisha Rai, BS-MS student, IISER Pune
14. Rohith C.S., BS-MS student, IISER Pune

LAB ALUMNI

1. Dr. Shubham Singh (Int. Ph.D. student); Currently: Postdoctoral Researcher, Harvard Medical School.
2. Alaumy Joshi (Project Assistant); Currently: Ph.D. student, Texas A&M University, USA.
3. Dr. Dhanashree Kelkar (Postdoctoral Fellow); Currently: Freelance Proteomics consultant.
4. Ines Leleu (MS thesis student, Raman-Charpak Fellow), Currently: Ph.D. student, Pasteur Institute, France.
5. Theja Sajeevan (MS thesis student); Currently: Project Assistant IISER Pune.

SOCIETY MEMBERSHIPS

1. European Molecular Biology Organization (EMBO)
2. International Chemical Biology Society (ICBS)
3. Young Scientist Member, Indian National Science Academy
4. UDCT Alumni Association
5. American Chemical Society
6. Phi Lambda Upsilon (PLU), Chemistry Honor Society, Texas A&M University