

## Siddhesh S. Kamat, Ph.D.

Professor (Biology)

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### Educational Qualifications

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| 2007-12 | Ph.D., Department of Chemistry, Texas A&M University (Advisor: Frank M. Raushel)    |
| 2003-07 | B. Tech. (Pharmaceuticals & Fine Chemicals), UDCT Mumbai (Advisor: K. G. Akamanchi) |

### Professional Positions

|                |                                                                                                                    |
|----------------|--------------------------------------------------------------------------------------------------------------------|
| 2025 – present | Professor, Department of Biology, IISER Pune                                                                       |
| 2022 – present | SwarnaJayanti Fellow, IISER Pune, India.                                                                           |
| 2021 – present | Chairperson, National Facility for Gene Function in Health and Disease, IISER Pune, India.                         |
| 2020 – 2025    | Associate Professor, Department of Biology, IISER Pune, India.                                                     |
| 2020 – 2025    | EMBO Young Investigator, IISER Pune, India.                                                                        |
| 2020 – 2024    | Adjunct Faculty, Department of Biological Sciences, TIFR Mumbai, India.                                            |
| 2016 – 2021    | Adjunct Faculty, Department of Chemistry, IISER Pune                                                               |
| 2016 – 2021    | Intermediate Fellow, DBT/Wellcome Trust India Alliance, IISER Pune, India.                                         |
| 2016 – 2019    | Assistant Professor, Department of Biology, IISER Pune, India.                                                     |
| 2013 – 2016    | 9 <sup>th</sup> Irving S. Sigal ACS Postdoctoral Fellow, Scripps Research, CA, USA (Advisor: Benjamin F. Cravatt). |

### Awards/Fellowships/Elected Memberships (since joining IISER Pune)

|      |                                                                     |
|------|---------------------------------------------------------------------|
| 2026 | Fellow, Royal Society of Biology                                    |
| 2025 | Tarun Tejanvit Award, Loksatta (for the year 2024)                  |
| 2024 | Infosys Prize in Life Sciences                                      |
| 2024 | Fellow, Royal Society of Chemistry                                  |
| 2022 | Member, Guha Research Conference                                    |
| 2021 | SwarnaJayanti Fellowship (Life Sciences category)                   |
| 2021 | CDRI Award for Excellence in Drug Research (Life Sciences category) |
| 2020 | EMBO Young Investigator Award                                       |
| 2019 | Merck Young Scientist Award in Biological Sciences                  |
| 2019 | Indian National Science Academy (INSA) Young Scientist Medal        |
| 2019 | UDCT Distinguished Alumni Award – Young Achiever                    |
| 2017 | Early Career Research Award (SERB)                                  |
| 2016 | DBT/Wellcome Trust India Alliance, Intermediate Fellowship          |

### Research Grants (since joining IISER Pune)

|         |                                                                                              |
|---------|----------------------------------------------------------------------------------------------|
| 2026-28 | ANRF Advanced Research Grant (PI, Rs. ~ 90,00,000)                                           |
| 2026-28 | BFI-BIOME research donation (PI, \$175,000)                                                  |
| 2024-27 | Extramural Centre for Advanced Research grant, ICMR (co-PI, Rs. ~ 8,00,00,000 to IISER Pune) |
| 2023-25 | Infectious Biology Special grant, DBT (co-PI, Rs. 2,64,91,600 to IISER Pune)                 |
| 2022-27 | SwarnaJayanti Fellowship, DST-SERB (PI, Rs. 4,98,95,600)                                     |
| 2020-25 | Young Investigator Grant, EMBO (PI, ~ Rs. 45,00,000)                                         |
| 2020-24 | Core Research Grant, DST-SERB (PI, Rs. 60,19,400)                                            |
| 2020-23 | STAG on Medical Biotechnology, DBT (Co-PI, Rs. 34,38,360 to IISER Pune)                      |
| 2017-20 | Early Career Research Award, DST-SERB (PI, Rs. 46,92,671)                                    |
| 2016-21 | Intermediate Fellowship, DBT/Wellcome Trust India Alliance (PI, Rs. 3,51,18,504)             |

### Professional Activities (since joining IISER Pune)

- Editorial Board Member: (i) British Journal of Pharmacology (December 2022 – November 2026), (ii) Journal of Biological Chemistry (July 2023 – June 2028)
- Department of Biotechnology (DBT): (i) Technical Evaluation Committee (TEC) Member on Chronic Disease and Neurobiology (2022 – 2025); (ii) Selection Committee Member of the MK Bhan Research Fellowship (2022 – 2025; 2025 – 2028), (iii) Biotech Cluster Management Committee of Pune Biotech Cluster: Model Organisms to Human Disease (2024 – 2027); (iv) Technical Evaluation Committee (TEC) Member on Cardiovascular Health and Diseases (2025 – 2028).

- Anusandhan National Research Foundation (ANRF): Technical Program Committee member for Advanced Research Grant – Interdisciplinary Biological Sciences program (2025 – 2028)
- Member: Research Area Panel - Scientific Advisory Committee (RAP-SAC), NCCS Pune (2023)
- Member, IISER Pune Senate (2025 – present)
- Adhoc Reviewer for Nature, Nature Chemical Biology, Cell Chemical Biology, Cell Metabolism, Nature Communications, JACS, Angewandte Chemie, EMBO J., Cell Reports, ACS Chemical Biology, Disease Models and Mechanisms, Biochemistry.

#### **Research Publications: From IISER Pune (2016 – present)** (\*denotes corresponding author)

1. Srivastava, S., Chandramouli, A., Gupta, P., Manzer, A. R., Choudhary, R., Reddy, D. S., Yazdani, S., **Kamat, S. S.**, Mohanty, D., Nandicoori, V. K., Gokhale, R. S. (2026) Novel routes for bioproduction of delta lactone aroma compounds, **Metabolic Engineering** (Accepted, In Press).
2. Wong, T. Y., Sharma, S., Mehdiratta, K., Bhosale, R. S., Nimmakayala, K., Wilharm, R. K., Chakraborty, A., Orimoyole, M., Liu, Q., **Kamat, S. S.**, Pierre, V. C., Gokhale, R. S., Aldrich, C. C. (2025) Kupyaphores – self assembling diisocyanolipopeptide Zn(II) inophores in Mycobacterium tuberculosis Zn(II)/Cu(I/II) homeostasis and antibacterial effects, **JACS** 147 (44), 40652-40652.
3. Walvekar, A., Pandey, S., **Kamat, S. S.**, Ladher, R. K., Vyas, N. (2025) The patterning and proliferation roles of Shh are partitioned on distinct exosomes, **Developmental Biology**, 528, 239-254.
4. Kagemann, C. H., Babu, S. P., Ezhumalai, K., Chakraborty, A., Raghupathy, K., **Kamat, S. S.**, Viswanathan, V., Huey, S. L., Narasimhan, P. B., Sinha, P., Yu, E. A., Mehta, S., Sarkar, S. (on behalf of the Regional Prospective Observational Research on Tuberculosis India Consortium) (2025) Metabolite dynamics over the course of anti-tuberculosis treatment in individuals with mild and severe tuberculosis, **PLoS Global Public Health** 5 (1), e0004925.
5. Bhosale, R., Chakraborty, A., Wong, T. Y., Masal, D., Choudhary, R., Srivastava, S., Reddy, D. S., Aldrich, C., **Kamat, S. S.**, Mohanty, D., Gokhale, R. S. (2025) Enzymatic pathway for kupyaphore degradation in Mycobacterium tuberculosis: mechanism of metal homeostasis and turnover, **ACS Chemical Biology** 20 (7), 1492-1504.
6. Shanbhag, K., Mhetre, A., Saharan, O., Devarajan, A., Rai, A., Madhusudhan, M. S., Chakrapani, H.\*, **Kamat, S. S.\*** (2025) Chemoproteomics identifies protein ligands for monoacylglycerol lipids, **Communications Chemistry** 8, 197.
7. Garde, S., Selvaraj, H., Chandramouli, A., Reddy, G. S., Bahety, D., Chodiseti, P. K., **Kamat, S. S.**, Reddy, M. (2025) A conserved editing mechanism for the fidelity of bacterial cell wall biosynthesis, **PNAS** 122 (8), e2505676122.
8. Tripathi, S., Gupta, E., Naik, R., Khare, S., Mir, R., **Kamat, S. S.**, Galande, S. (2025) Statins exhibit anti-tumor potential by modulating Wnt/ $\beta$ -catenin signalling in colorectal cancer, **Oncotarget** 16, 562-581.
9. Manna, S., Gupta, S., Bora, P., Chakraborty, A., Kumar, A. T., **Kamat, S. S.\***, Chakrapani, H.\* (2025) Tandem biocatalysis to generate hydrogen sulphide and promote endogenous antioxidant response, **Angewandte Chemie** 64 (24), e202502917.
10. Mondal, A., Nandi, S., Singh, V., Chakraborty, A., Banerjee, I., Sen, S., Gadad, S. S., Roy, S., **Kamat, S. S.**, Das, C. (2025) TCF712 regulates fatty acid elongase HACD3 during lipid-induced stress, **Biochemistry** 64 (8), 1828-1840. *Featured on the April 2025 issue cover of Biochemistry*
11. Chakraborty, A., Devarajan, A., Kumar, K., Rohith, C. S., Madhusudhan, M. S., Ratnaparkhi, G. S., **Kamat, S. S.\*** (2025) Bioinformatics analysis identifies sequence determinants of enzymatic activity for the PHARC associated lipase ABHD12, **Biochemistry** 64 (8), 1852-1863.
12. Chakraborty, A., Punnamraju, P., Sajeevan, T., Kaur, A., Kolthur-Seetharam, U., **Kamat, S. S.\*** (2025) Identification of ABHD6 as a lysophosphatidylserine lipase in the mammalian liver and kidneys, **J. Biological Chemistry** 301 (2), 108157, 1-13.
13. Kapoor, Y., Khurana, H., Chakraborty, A., Dutta, D., Priya, A., Singh, A., **Kamat, S. S.**, Dhar, N., Pucadyil, T. P., Nandicoori, V. K. (2025) Wag31, a membrane tether, is crucial for lipid homeostasis in mycobacteria, **eLife** 14, RP104268.
14. Sarkar, B., Singh, J., Yadav, M., Sharma, P., Sharma, R. D., Singh, S., Chandramouli, A., Mehdiratta, K., Kumar, A., **Kamat, S. S.**, Ghorpade, D. S., Mohanty, D., Kumar, D., Gokhale, R. S. (2025) PPAR-gamma mediated enhanced lipid biogenesis fuels Mycobacterium tuberculosis growth in drug tolerant hepatocyte environment, **eLife** 14, RP103817.
15. Shambhavi, S., Mondal, S., Chakraborty, A., Panda, B. K., Shukla, N., Kumar, S., Kinatukara, P., Pal, B., **Kamat, S. S.**, Sankaranarayanan (2025) Emergence of Dip2 mediated specific DAG-based PKC signalling axis in eukaryotes, **eLife** 14, RP104011.
16. Jog, E., Jainarayanan, A. K., Ferlita, A. L., Chakraborty, A., Dalwai, A., Yahya, S., Shivshankar, A., Choudhary, B. S., Chandramouli, A., Kazi, M., Jain, D., Khapare, N., Akshaya, B., Khan, B. K., Gera, P., Patil, P., Thorat, R., Verma, N., Sehgal, L., Saklani, A., **Kamat, S. S.**, Dalal, S. N., Chaudhary, N. (2025) Inhibiting de novo lipogenesis identifies a therapeutic vulnerability in therapy-resistant colorectal cancer, **Redox Biology** 79, 103458, 1-16.
17. Sinha, A., Saini, K. K., Chandramouli, A., Tripathi, K., Khan, M. A., Satrusal, S. R., Verma, A., Mandal, B., Rai, P., Meena, S., Nengroo, M. A., Singh, M. P., Bhushan, N. S., Vasudevan, M., Singhai, A., Singh, K., Mishra, A. K., **Kamat, S. S.**, Datta, D. (2024) ACSL4 mediated H3K9 and H3K27 hyperacetylation upregulates SNAIL to drive TNBC metastasis, **PNAS** 121 (52), e2408049121.
18. Kumar, K., Pazare, M., Ratnaparkhi, G. S., **Kamat, S. S.\*** (2024) CG17192 is a phospholipase that regulates signalling lipids in the Drosophila gut upon infection, **Biochemistry** 63 (22), 3000-3010.
19. Chandramouli, A., **Kamat, S. S.\*** (2024) A facile LC-MS method for profiling cholesterol and cholesteryl esters in mammalian cells and tissues, **Biochemistry** 63 (18), 2300-2309. *Featured on the September 2024 issue front cover of Biochemistry*

20. Talwadekar, M., Khatri, S., Balaji, C., Chakraborty, A., Basak, N. P., **Kamat, S. S.\***, Kolthur-Seetharam, U.\* (2024) Metabolic transitions regulate global protein fatty acylation, **J. Biological Chemistry** 300 (1), 105563, 1-14.
21. Vaidya, K., Rodrigues, G., Gupta, S., Devarajan, A., Yeolekar, M., Madhusudhan, M. S.\*, **Kamat, S. S.\*** (2025) Identification of sequence determinants for the ABHD14 enzymes, **Proteins: Structure, Function & Bioinformatics** 93 (1), 255-266.
22. Sen, D., Maniyadath, B., Khatri, S., Chakraborty, A., Mehendale, N., Chowdhury, S., Nadagouda, S., Kaur, A., **Kamat, S. S.**, Kolthur-Seetharam, U. (2023) Interplay between CTCF and feed-fast cycles rewires hepatic transcription and metabolism, **iScience** 26 (7), 107128.
23. Kumari, P., Kaul, G., Kumar, A., Akhil, A., Shukla, M., Sharma, S., **Kamat, S. S.\***, Chopra, S.\*, Chakrapani, H.\* (2023) Heterocyclic diaryliodonium-based inhibitors of Carbapenem-resistant *Acinetobacter baumannii* (CRAB), **Microbiology Spectrum** 11 (2), e04773-22.
24. Mehdiratta, K., Nain, S., Sharma, M., Singh, S., Srivastva, S., Dhamale, B. D., Mohanty, D., **Kamat, S. S.**, Natarajan, V. T., Sharma, R., Gokhale, R. S. (2023) Respiratory quinone switch from menaquinone to polyketide quinone during the development cycle in *Streptomyces* sp. MNU77, **Microbiology Spectrum** 11 (1), e02597-22.
25. Mondal, S., Kinatukara, P., Singh, S., Shambhavi, S., Patil, G. S., Dubey, N., Singh, S. M., Pal, B., Shekar, P. C., **Kamat, S. S.**, Sankaranarayanan, R. (2022) Dip2 is a unique regulator of diacylglycerol lipid homeostasis in eukaryotes, **eLife** 11, e77665.
26. Rajendran, A., Soory, A., Khandelwal, N., Ratnaparkhi, G. S., **Kamat, S. S.\*** (2022) A multi-omics analysis reveals that the lysine deacetylase ABHD14B influences glucose metabolism in mammals, **J. Biological Chemistry** 298 (7), 102128, 1-14.
27. Kumar, S., Khan, M. Z., Khandelwal, N., Chongtham, C., Singha, B., Dabla, A., Behera, D., Singh, A., Gopal, B., Arimbasseri, G. A., **Kamat, S. S.**, Nandicoori, V. K. (2022) *Mycobacterium tuberculosis* transcription factor, EmbR, regulates the expression of key virulence factors that aid in ex vivo and in vivo survival, **mBio** 13 (3), e03836-21.
28. 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.\* (2022) Kupyaphores are zinc homeostatic metallophores required for colonization of *Mycobacterium tuberculosis*, **PNAS** 119(8), e2110293119.
29. Mehendale, N., Mallik, R. M., **Kamat, S. S.\*** (2021) Mapping sphingolipid metabolism pathways during phagosomal maturation, **ACS Chemical Biology** 16(12), 2757-2765. *Featured on the December 2021 issue front cover of ACS Chemical Biology*
30. Singh, S., **Kamat, S. S.\*** (2021) The loss of enzymatic activity of the PHARC associated lipase ABHD12 results in increased phagocytosis that causes neuroinflammation, **European Journal of Neuroscience** 54(10), 7442-7457.
31. 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** 12, 12939-12949.
32. 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. *Featured on August 2021 issue front cover of Cell Chemical Biology*
33. 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.
34. 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.
35. 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.
36. 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.
37. 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.
38. 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. *Featured in Future of Biochemistry – Asia Pacific issue*
39. 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.
40. 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.
41. 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.

42. 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.
43. 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 Amyotrophic Lateral Sclerosis, *Disease Models & Mechanisms* 12, dmm.033803, 1-15. *Featured on February 2019 issue front cover of Disease Models & Mechanisms*
44. 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.
45. 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. *Featured on the November 2018 issue front cover of JBC*
46. 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. *Featured on the August 2018 issue front cover of ACS Chemical Biology*
47. 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.

#### Book Chapters, Reviews, News, Editorials: From IISER Pune (2016 – present) (\*denotes corresponding author)

1. Thoughts for the future (2025) *Nature Chemical Biology* 21, 6-15. (Question: What do you think are the most exciting frontiers or the most needed developments in your main field of research?)
2. Chakraborty, A., **Kamat, S. S.\*** (2024) Lysophosphatidylserine: a signaling lipid with implications in human diseases, *Chemical Reviews* 124 (9), 5470 – 5504. *Featured on May 2024 issue front cover of Chemical Reviews*
3. Saharan, O., **Kamat, S. S.\*** (2023) Mapping lipid pathways during phagocytosis, *Biochemical Society Transactions* 51 (3), 1279 – 1287. *Featured on June 2023 issue front cover of Biochemical Society Transactions*
4. Shanbhag, K., Sharma, K., **Kamat, S. S.\*** (2023) Photoreactive bioorthogonal lipid probes and their applications in mammalian biology, *RSC Chemical Biology* 4, 37 – 46. *Featured on January 2023 issue front cover of RSC Chemical Biology*
5. Saharan, O., Mehendale, N., **Kamat, S. S.\*** (2022) Phagocytosis: A (Sphingo)Lipid Story, *Current Research in Chemical Biology* 2, article: 10030.
6. Voices of Chemical Biology (2021) *Nature Chemical Biology* 17, 1-4. (Question: What is the most exciting frontier area in chemical biology and what key technology is needed to advance knowledge and applications in this area?)
7. Voices of Chemical Biology (2020) *Nature Chemical Biology* 16, 598-599. (Question: What was the most exciting research achievement or technology innovation in chemical biology in the last five years?)
8. Shanbhag, K., Mhetre, A., Khandelwal, N., **Kamat, S. S.\*** (2020) The Lysophosphatidylserines – an emerging class of signaling lysophospholipid, *J. Membrane Biology* 253, 381-397.
9. **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.
10. **Kamat, S. S.\*** (2019) Understanding the role of molecular motors in living cells: an odyssey from physics to biology, *Current Science* 116, 14-16.
11. 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.

#### Preprints:

1. Ullmann, S., Ehrnstrom, B., Stenvick, J., Pinto, S., Subbannayya, Y., Boyarchuk, V., Mestvedt, I. B., Dhaware, M., **Kamat, S. S.**, Ryan, L., Vagle, H., Dahl, T. B., Halvorsen, B. E., Damas, J. K., Espevik, T., Yurchenko, M. (2025) SLAMF1-peptide mediated epigenetic priming reprograms innate immune responses in sepsis [**bioRxiv**: <https://doi.org/10.64898/2025.12.29.696918>]
2. Agrawal, S., Chandramouli, A., Ganie, H. A., Mohela, K., Puthlath, I. R., Mony, B., Jenal, U., **Kamat, S. S.**, Hallez, R., Radhakrishnan, S. K. (2025) A metabolic hierarchy directs cell cycle transition and morphogenesis [**bioRxiv**: <https://doi.org/10.64898/2025.12.20.695365>]
3. Gupta, S., **Kamat, S. S.\*** (2025) Biochemical characterization of ABHD14A, an outlying member of the metabolic serine hydrolase family [bioRxiv: <https://doi.org/10.1101/2025.11.28.691245>]
4. Thakral, P., Chakrapani, H.\*, **Kamat, S. S.\*** (2025) Synthesis of lysophosphatidylglycerol, a bioactive lipid [**ChemRxiv**: <https://doi.org/10.26434/chemrxiv-2025-89b6h>]
5. Tripathy, S., Mahapatra, A., Saharan, O., Chatterjee, H., Sengupta, N., **Kamat, S. S.**, Nair, S., Mallik, R. M. (2025) Selective targeting of kinesin on lipid droplets in the liver reduces serum lipids [**bioRxiv**: <https://doi.org/10.1101/2025.11.17.688766>]

6. Agrawal, U., Nataraj, P., Chandramouli, A., Krishnan, S., **Kamat, S. S.**, Urulangodi, M., Thakur, P. (2025) Integrative lipidomics of brain and plasma uncovers sex-specific metabolic signatures in Parkinson's disease [**bioRxiv**: <https://doi.org/10.1101/2025.10.02.679990>]
7. Dahiya, P., Bisht, M. K., Saha, A., Chandramouli, A., **Kamat, S. S.**, Nandicoori, V., Ghosh, S., Mukhopadhyay, S. (2025) PE11 promotes intracellular persistence of Mycobacterium tuberculosis by inhibiting autophagy and lysosomal biogenesis by targeting the FLCN-lactate-TFEB signaling axis [**bioRxiv**: <https://doi.org/10.1101/2025.07.31.668032>]
8. Shetty, S. R., Chakraborty, A., Dongre, S., **Kamat, S. S.**, Sonawane, M. (2025) Developing epidermis acquires nutrients from the external milieu by mTOR-dependent micropinocytosis [**bioRxiv**: <https://doi.org/10.1101/2025.03.18.644068>]
9. Teli, A., Iyer, R., Shanbhag, K., Gawarguru, R., Gayan, S., Shaikh, S., Tamhankar, A., **Kamat, S. S.**, Dey, T. (2024) Breast cancer spheroids prefer activated macrophages as an accomplice: An *in vitro* study [**bioRxiv**: <https://doi.org/10.1101/2024.09.24.614655>]

#### Selected Publications from Postdoc and Ph.D. (2007 – 2016)

1. **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.
2. **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.
3. **Kamat, S. S.**, Williams, H. J., Raushel, F. M. (2011) Intermediates in the transformation of phosphonates to phosphate by bacteria, *Nature* 480, 570-73.
4. **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.
5. **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.

#### Invited Talks since joining IISER Pune (\*\*denotes virtual talk)

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|------|----------------------------------------------------------------------------------------------------------------|
| 2025 | International Chemical Biology & Molecular Imaging Conference, Shiv Nadar Institute of Eminence, India.        |
| 2025 | Institute Colloquium, IGIB New Delhi, India.                                                                   |
| 2025 | Society of Mitochondrial Research and Medicine, Manipal, India.                                                |
| 2025 | Infosys Prize Lecture, CCMB Hyderabad, India.                                                                  |
| 2025 | Institute Colloquium, TIFR Mumbai, India.                                                                      |
| 2025 | EMBO Sectoral Meeting for Indian YIP & GIN members, IIT Mandi, India.                                          |
| 2025 | Departmental Colloquium, School of Bioscience and Bioengineering, IIT Mandi, India.                            |
| 2025 | Workshop on Research Methods in Big Data Analytics for Healthcare: From Basics to Applications, ICMR, India**. |
| 2025 | Recent Trends in Biology, SPPU, Pune, India.                                                                   |
| 2025 | Mentor Talk, 17 <sup>th</sup> Young Investigator's Meeting, IndiaBioscience, Agra, India.                      |
| 2025 | Workshop on Stable-Isotope and Metabolomics-based Methods for Nutrition & Metabolism, TIFR Hyderabad, India.   |
| 2025 | Global Summit on Metabolomics and Lipidomics, IIT Mumbai, India.                                               |
| 2025 | SBCI Mumbai Chapter Annual Meeting, NMIMS Mumbai, India.                                                       |
| 2025 | Infosys Prize Symposium, Edition IV, Taj West End Bangalore, India.                                            |
| 2024 | Infosys Award Function for the International Olympiad Medalists, HBCSE Mumbai, India.                          |
| 2024 | ChemCareers iRISE, IISER Pune, India.                                                                          |
| 2024 | Proteomics Society of India 16 <sup>th</sup> Annual Meeting, NCL Pune, India.                                  |
| 2024 | EMBO 60 <sup>th</sup> Anniversary Meeting, EMBO Heidelberg, Germany.                                           |
| 2024 | NIBMG Colloquium Talks, NIBMG Kalyani, Kolkata, India.                                                         |
| 2024 | Metabolomics in Drug Discovery Symposium, NIPER-A, Ahmedabad, India.                                           |
| 2024 | Nencki Conference for Life Sciences – Focus on Lipid Metabolism, Warsaw, Poland.                               |
| 2024 | EMBO Sectoral meeting in Metabolism and Lipid Biology, Warsaw, Poland.                                         |
| 2024 | EMBO Global Investigator's Meeting, NTU Singapore City, Singapore.                                             |
| 2024 | Annual YIN PhD Course, EMBO Heidelberg, Germany.                                                               |
| 2024 | ARUMDA Annual Meeting, TIFR Hyderabad, India.                                                                  |
| 2024 | EMBO YIP: Global Network, Borderless Science, Impactful Research: IndiaBioscience Webinar**                    |
| 2024 | Cutting Edge Lecture Series, ACTREC, Navi Mumbai, India.                                                       |
| 2024 | Bioconclave, Department of Biology, IISER Pune, India.                                                         |
| 2023 | NIUS Chemistry Camp, HBCSE, Mumbai, India.                                                                     |
| 2023 | Chemsymphoria, Chemistry IISER Pune, Pune, India.                                                              |
| 2023 | Winter Symposium, BSBE IIT Kanpur, Kanpur, India.                                                              |
| 2023 | Proteomics Society of India 15 <sup>th</sup> Annual Meeting**, NIPGR, New Delhi, India.                        |

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| 2023 | EMBO Day, Academia Sinica, Taipei, Taiwan.                                                                      |
| 2023 | EMBO Day, National Cheng Kung University, Tainan, Taiwan.                                                       |
| 2023 | Institute Invited Lecture, InStem Bangalore, India.                                                             |
| 2023 | EMBO Young Investigator's Annual Meeting, Milan, Italy.                                                         |
| 2023 | Student Invited Talk, DBS TIFR Mumbai, India.                                                                   |
| 2023 | Redox Biology of Health and Disease, IISER Pune, India.                                                         |
| 2023 | ARUMDA Annual Meeting**, TIFR-Hyderabad, India.                                                                 |
| 2023 | Mitometab meeting, 42 <sup>nd</sup> Mahabaleshwar seminar series, IISER Pune, Pune, India.                      |
| 2023 | MBU50 meeting, IISC Bangalore, India.                                                                           |
| 2022 | Annual Meeting, Society of Biological Chemists of India, Kolkata, India.                                        |
| 2022 | NII Seminar Series, NII, New Delhi, India                                                                       |
| 2022 | FEBS Advanced Course: 360° Lysosome Meeting, Kusadasi-Izmir, Turkey.                                            |
| 2022 | Asian Chemical Biology Initiative (ABCI) Annual Meeting, IISER Pune, India                                      |
| 2022 | Cell Biology Lecture Series, NCCS Pune, India.                                                                  |
| 2022 | EMBO Young Investigator's Annual Meeting, Heidelberg, Germany.                                                  |
| 2022 | EMBO-India Investigators Network (IIN)**, India.                                                                |
| 2022 | Guha Research Conference, Bhimtal-Nainital, Uttarakhand, India.                                                 |
| 2022 | 10 <sup>th</sup> International Singapore Lipid Symposium (ISLS)**, National University of Singapore, Singapore. |
| 2022 | Mumbai Chapter Webinar**, Society of Biological Chemists of India, BARC Mumbai, India.                          |
| 2021 | Annual Meeting**, Society of Biological Chemists of India, Amity University, Haryana, India.                    |
| 2021 | OMICS 2021**, Proteomics Society of India Annual Meeting, CCMB Hyderabad, India.                                |
| 2021 | Contemporary Webinar Series**, Regional Centre for Biotechnology (RCB), Faridabad, NCR, India.                  |
| 2021 | Annual Talks**, Department of Biological Sciences, TIFR Mumbai, India.                                          |
| 2021 | CDRI Award Ceremony, CDRI, Lucknow, Uttar Pradesh, India.                                                       |
| 2021 | Young Investigator's Meeting**, EMBO, Heidelberg, Germany.                                                      |
| 2021 | Annual Talks**, Department of Biological Sciences, TIFR Hyderabad, India.                                       |
| 2020 | CCMB Biologue**, CCMB Hyderabad, India.                                                                         |
| 2020 | The Cancer Genome Atlas Conference**, Center of Translational Cancer Research, Pune, India.                     |
| 2020 | International Symposium on Cell Surface Macromolecules, IISER Pune, India.                                      |
| 2019 | International Chemical Biology Society, 8 <sup>th</sup> Annual meeting, IICT Hyderabad, India.                  |
| 2019 | Young Investigator's Meeting, EMBO, Heidelberg, Germany.                                                        |
| 2019 | Advances in Mass Spectrometry Symposium, IISER Tirupati, India.                                                 |
| 2019 | Indo-UK Chemical Biology Symposium, University of Glasgow, Scotland.                                            |
| 2018 | Proteomics Society of India 10 <sup>th</sup> Annual meeting, NCCS, Pune, India.                                 |
| 2018 | Indo-US Symposium on Understanding Biology by Proteomics & Metabolomics, NCCS, Pune, India.                     |
| 2018 | Proteomics Day, CSIR-NCL Pune, India.                                                                           |
| 2017 | iCeMS-NCBS India Alliance Symposium, NCBS Bangalore, India.                                                     |
| 2016 | Omics to Structural Basis of Disease National Symposium, MSU Baroda, India.                                     |

### **Conferences/Meetings Organizations: From IISER Pune (2016 – present)**

1. EMBO Young Investigator Network Ph.D. Course, IISc Bangalore (March 2026)
2. 1-day symposium on "Proteins: Structure, Function & Beyond" at IISER Pune (December 2025).
3. EMBO Sectoral Meeting for Indian EMBO YIP/GIN members, IIT Mandi (April 2025)
4. EMBO Young Investigator Network Ph.D. Course, IISER Pune (February 2025)
5. Lab Leadership Course, EMBO Solutions, IISER Pune (October 2024)
6. 43<sup>rd</sup> Annual conference of The Indian Association for Cancer Research, IISER Pune (January 2024)
7. Macromolecular Assemblies (structure, function and evolution), IISER Pune (August 2023)
8. EMBO India Delegation, various parts of India, including IISER Pune (March 2023)
9. IISER Pune – Weizmann Institute of Science: Conference on Chemical Biology, IISER Pune (December 2018)
10. 10<sup>th</sup> Annual Proteomics Society of India meeting, NCCS Pune (December 2018).

### **Current Lab Members**

1. Dr. Kavita Sharma, Postdoctoral Research Associate, IISER Chemistry
2. Dr. Jyotsna Singh, ANRF Postdoctoral Fellow, IISER Biology
3. Dr. Preeti John, Postdoctoral Research Associate, IISER Biology
4. Sonali Gupta, Int. Ph.D. student, IISER Biology (*PMRF Fellow*)
5. Ojal Saharan, Int. Ph.D. student, IISER Biology (*PMRF Fellow*)
6. Aakash Chandramouli, Ph.D. student, IISER Biology
7. Pooja Thakral, Ph.D. student, IISER Chemistry (joint with Harinath Chakrapani)

8. Abhishek Kumar, Ph.D. student, IISER Chemistry (joint with Harinath Chakrapani)
9. Neeraj Kumar Yadav, Ph.D. student, IISER Biology
10. Adithya Kallathu, Int. Ph.D. student, IISER Biology
11. Shrutika Raje, Ph.D. student, IISER Biology
12. Tathagata Pal, Ph.D. student, IISER Biology
13. Sansthita Pramanik, MS Thesis Student
14. Mahamaya Dhaware, Project Fellow (SRF)

### Alumni

1. Ines Leleu (Raman Charpak Fellow, MS Thesis, August 2018 – October 2018)
2. Sharvari Tamhankar (Project Student, January 2018 – August 2018)
3. Alaumy Joshi (Research Fellow, November 2016 – August 2019)
4. Dhanashree Kelkar, Ph.D. (Postdoc, January 2017 – January 2020)
5. Theja Sajeevan (MS Thesis Student, January 2019 – June 2020)
6. Shubham Singh, Ph.D. (Doctoral Student, August 2016 – July 2021)
7. Neelay Mehendale, Ph.D. (Doctoral Student, August 2016 – October 2021)
8. Minhaj Shaikh, Ph.D. (Doctoral Student, January 2017 – October 2021)
9. Neha Khandelwal, Ph.D. (Postdoc, April 2018 – November 2021)
10. Amol Mhetre, Ph.D. (Postdoc, August 2017 – February 2022)
11. Abinaya Rajendran, Ph.D. (Doctoral Student, August 2016 – June 2022)
12. Anisha Rai (MS Thesis Student, January 2022 – May 2023)
13. Prajwal Punnamraju (MS Thesis Student, May 2022 – May 2023)
14. Rohith C. S. (MS Thesis Student, January 2022 – May 2023)
15. Mihika Yeolekar (Research Intern, June 2022 – May 2023)
16. Kaveri Vaidya, Ph.D. (Doctoral Student & Research Associate, August 2017 – April 2024)
17. Chaitanya Katkar (MS Thesis Student, January 2023 – May 2024)
18. Sreedev H (MS Thesis Student, January 2023 – May 2024)
19. Archit Devarajan (Intern, July 2023 – June 2024)
20. Kundan Kumar, Ph.D. (Doctoral Student, August 2019 – December 2024)
21. Karthik Shanbhag, Ph.D. (Doctoral Student, August 2018 – January 2025)
22. Arnab Chakraborty, Ph.D. (Doctoral Student, August 2019 – April 2025)
23. Pushti Gandhi (MS Thesis Student, May 2025 – November 2025)
24. Manish Deshmukh (MS Thesis Student, May 2024 – December 2025)

### Teaching Experience (since joining IISER Pune)

- Advanced Biochemistry I (Course coordinator) (August Semester 2017-2025: 4 credit)
- Biology and Disease (Course instructor) (January Semester 2017-19: 3 credit) (January Semester 2020-24: 4 credit)
- 1<sup>st</sup> year Biology Practical Lab (Course Instructor) (August Semester 2020-21; January Semester 2024-25: 4 credit)

### Science Outreach Activities: From IISER Pune (2016 – present)

1. Mentor, National Initiative for Undergraduate Sciences, Homi Bhabha Center for Science Education, Mumbai
2. Consultant, iGEM Synthetic Biology, iGEM Grand Jamboree
3. Volunteer, SERB Karyashala Workshop for Hands-on training in biological mass spectrometry
4. Coordinator, EMBO Young Investigator Network Ph.D. Course for Southeast Asia
5. Mentor, India Bioscience Young Investigator Forum