

Research achievements: Sanjeev Galande (2015 to 2024)

Extent of the contributions:

Out of the publications listed below, the four red colored entries are the most significant recent publications from my group in 2023-24 that have a direct translational/public health impact. Preprint # 2 which will be published shortly reports work done mostly in my lab, with clinical collaborators for obtaining samples from the human trial. This is the most relevant and important translational contribution from my group. Publications #8 and #12 have been conceived and supervised by me along with the collaborator, hence we are co-corresponding authors. The work described in the paper published in Frontiers in Neuroscience (# 8 Mahajan et al., 2023) is done as a collaboration with Dr. Nixon Abraham of IISER Pune. Here, the entire project was conceived by me during the pandemic. Since none of the labs could order any strains of mice from overseas, I thought of generating the line in-house. The entire planning and execution of the knockout strategy was done by me. Dr. Nixon's lab performed the phenotyping of the lab. I supervised the entire project. This is one of the most significant contributions for research on COVID. Another significant paper of this year is the paper published in Journal of Developmental Origins of Health and Disease ((# 12 Khare et al., 2023). This is a result of the long-standing collaboration with the diabetes research unit of KEM hospital, Pune. Dr. Yajnik's group built the cohort and collected the samples while my laboratory performed the cellular and molecular work as well as data analysis. I supervised this part of the project and it was under the Centre of Excellence Program of DBT. The results of this study have profound implications on the strategies towards dietary interventions for the malnourished population in India.

The blue colored entries are the next set of significant recent publications from my laboratory that report fundamental discoveries (Basic science). All other publications wherein I am the corresponding author, the ideas and projects were conceived by me along with the PhD students or postdoctoral fellows. I provided the supervision, contributed to data analysis, wrote/edited the manuscripts and also dealt with the revision process. The funding to support this work was also obtained by me from various agencies.

Certified that I have not received any award for the research work (2015-2024) listed above.



Sanjeev Galande

Research Contributions in past 9 years:

All the awards that I have received are based on the work done prior to 2015. The list of papers published in the past 9 years is given below (in reverse chronological order):

Publications: *Equal contribution #Corresponding author

1. Sharma A., Dsilva G.J., Deshpande G. # and **Galande S.** # 2024. Exploring the Versatility of Zygotic Genome Regulators: A Comparative and Functional Analysis. *Cell Reports* 43(9): 1-15. <https://doi.org/10.1016/j.celrep.2024.114680>.
2. Tripathi S., Gupta E., Naik N., Khare K., Mir R., Desai S., Humane S., Yadav S., Bal M., Saklani A., Patil P., Kamat S., and **Galande S.** # 2024. Statins attenuate Wnt/ β -catenin signaling by targeting SATB family proteins in colorectal cancer. *bioRxiv*. <https://www.biorxiv.org/content/10.1101/2024.08.23.609189v1>
(Under advanced stage of review in a reputed cancer journal)
3. Tripathi S.*, Gupta E.*, **Galande, S.** # 2024. Statins as anti-tumor agents: A paradigm for repurposed drugs. *Cancer Reports* 7:e2078. <https://doi.org/10.1002/cnr2.2078>.
4. Sawant, A.A., Tripathi S., **Galande, S.** and Sudha Rajamani. # 2024. A Prebiotic Genetic Nucleotide as an Early Darwinian Ancestor for Pre-RNA Evolution. *ACS Omega* <https://doi.org/10.1021/acsomega.3c09949>.
5. Dsilva G J and **Galande S.** # 2024. From Sequence to Consequence: Deciphering the Complex cis-regulatory landscape. *J Biosciences* 49:46. DOI: 10.1007/s12038-024-00431-0.
6. Suresh V., Bhattacharya, B., Tshuva, R. Y., Gotthold, M. D., Olender, T., Bose, M., Pradhan, S. J., Zeev, B. B., Smith, R. S., Tole, S., **Galande, S.**, Harwell, C., Baizabal, J. M., Reiner, O. # 2024. PRDM16 co-operates with LHX2 to shape the human brain *Oxford Open Neuroscience* 3:1-16. <https://doi.org/10.1093/oons/kvae001>.
7. Dandia H. Y., Pillai, M. M., Sharma, D., Suvarna, M., Dalal, N., Madhok, A., Ingle, A., Chiplunkar, S. V., **Galande, S.** and Tayalia, P. # 2024. Acellular scaffold-based approach for in situ genetic engineering of host T-cells in solid tumor immunotherapy. *Military Medical Research* 11:3. <https://doi.org/10.1186/s40779-023-00503-6>.
8. Suresh V. *, Muralidharan, B. *, Pradhan, S. J. *, Bose, M., D'Souza, L., Parichha, A., Reddy, P. C., **Galande, S.** # and Tole, S. # 2023. Regulation of chromatin accessibility and gene expression in the developing hippocampal primordium by LIM-HD transcription factor LHX2. *PLoS Genetics* 19(8):e1010874.doi: 10.1371/journal.pgen.1010874.
9. Mahajan S., Sen S., Sunil A., Srikanth P., Marathe S.D, Shaw K., Sahare M., **Galande S.** #, and Abraham N.A. # 2023. Knockout of ACE2 receptors lead to morphological aberrations in rodent olfactory centers and dysfunctions associated with sense of smell. *Frontiers in Neuroscience*, 17:1180868. doi: 10.3389/fnins.2023.1180868

10. Gungi, A., Saha, S., Pal, M. and **Galande, S.** [#], 2023. H4K20me1 plays a dual role in transcriptional regulation of regeneration and axis patterning in Hydra. *Life Science Alliance*, 6(5).
11. Chee, J.M., Lanoue, L., Clary, D., Higgins, K., Bower, L., Flenniken, A., Guo, R., Adams, D.J., Bosch, F., Braun, R.E., Brown, S.D., H.-J. Genie Chin, Dickinson, M.E., Hsu C.-W., Dobbie M., Gao X., **Galande S.**, Grobler A., Heaney J.D., Herault Y., de Angelis M.H., Mammano F., Nutter L.M.J., Parkinson H., Qin C., Shiroishi T., Sedlacek R., Seong J.-K., Xu Y., The International Mouse Phenotyping Consortium, Brooks B., McKerlie C., Lloyd K.C.K., Westerberg H. and Moshiri A. 2023. Genome-wide screening reveals the genetic basis of mammalian embryonic eye development. *BMC Biology*, 21(1), pp.1-15.
12. O'Rourke, M.B., Januszewski, A.S., Sullivan, D.R., Lengyel, I., Stewart, A.J., Arya, S., Ma, R.C., **Galande, S.**, Hardikar, A.A., Joglekar, M.V. and Keech, A.C., Jenkins A.J., Molloy M. P., 2023. Optimised plasma sample preparation and LC-MS analysis to support large-scale proteomic analysis of clinical trial specimens: Application to the Fenofibrate Intervention and Event Lowering in Diabetes (FIELD) trial. *PROTEOMICS–Clinical Applications*, 17(3), p.2200106.
13. Khare, S.P. ^{*}, Madhok, A. ^{*}, Patta, I., Sukla, K.K., Wagh, V.V., Kunte, P.S., Raut, D., Bhat, D., Kumaran, K., Fall, C. and Tatu, U., Chandak G.R., Yajnik C. S. [#], **Galande, S.** [#] 2023. Differential expression of genes influencing mitotic processes in cord blood mononuclear cells after a pre-conceptional micronutrient-based randomised controlled trial: Pune Rural Intervention in Young Adolescents (PRIYA). *Journal of Developmental Origins of Health and Disease*, 14: 437–448. doi: 10.1017/S204017442200068X
14. Higgins, K., Moore, B.A., Berberovic, Z., Adissu, H.A., Eskandarian, M., Flenniken, A.M., Shao, A., Imai, D.M., Clary, D., Lanoue, L. and Newbigging, S., Nutter L.M.J., Adams D.J., Bosch F., Braun R.E, Brown S.D.M., Dickinson M.E., Dobbie M., Flicek P., Gao X., **Galande S.**, Grobler A., Heaney J.D., Herault Y., de Angelis M.H., Chin H.-J. G., Mammano F., Qin C., Shiroishi T, Sedlacek R., Seong J.-K., Xu Y., The IMPC Consortium, Lloyd K.C.K., McKerlie C., and Moshiri A. 2022. Analysis of genome-wide knockout mouse database identifies candidate ciliopathy genes. *Scientific Reports*, 12(1), p.20791.
15. Shetty A^{*}, Tripathi SK^{*}, Junttila S^{*}, Buchacher T^{*}, Biradar R, Bhosale SD, Envall T, Laiho A, Moulder R, Rasool O, **Galande S**, Elo LL[#], and Lahesmaa R[#]. (2022) A systematic comparison of FOSL1, FOSL2 and BATF-mediated transcriptional regulation during early human Th17 differentiation *Nucleic Acids Res* 50:4938–4958, PMID: 35511484.
16. Pradhan SJ, Reddy PC, Smutny M, Sharma A, Sako K, Oak MS, Shah R, Pal M, Deshpande O, Dsilva G, Tang Y, Mishra R, Deshpande G, Giraldez AJ, Sonawane M, Heisenberg CP[#], **Galande S**[#]. (2021) Satb2 acts as a gatekeeper for major developmental transitions during early vertebrate embryogenesis. *Nat Commun*. 12:6094. doi: 10.1038/s41467-021-26234-7. PMID: 34667153
17. Pandit P, **Galande S**[#], Iris F. (2021) Maternal malnutrition and anaemia in India: dysregulations leading to the 'thin-fat' phenotype in newborns. *J Nutr Sci*. 10:e91. doi: 10.1017/jns.2021.83. eCollection 2021. PMID: 34733503

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20. Sharma A, Mir R, **Galande S[#]**. (2021) Epigenetic Regulation of the Wnt/ β -Catenin Signaling Pathway in Cancer. *Front Genet.* 12:681053. doi: 10.3389/fgene.2021.681053. eCollection 2021. PMID: 34552611
21. Madhok A, Bhat SA, Philip CS, Sureshababu SK, Chiplunkar S[#], **Galande S[#]**. (2021) Transcriptome Signature of V γ 9V δ 2 T Cells Treated With Phosphoantigens and Notch Inhibitor Reveals Interplay Between TCR and Notch Signaling Pathways. *Front Immunol.* 12:660361. doi: 10.3389/fimmu.2021.660361. eCollection 2021. PMID: 34526984.
22. Shah R, Sharma A*, Kelkar A*, Sengupta K, and **Galande S[#]**. 2021. A novel cis regulatory element regulates human XIST in CTCF-dependent manner. *Mol Cell Biol*, 41(8):e0038220. doi: 10.1128/MCB.00382-20DOI: <https://doi.org/10.1128/MCB.00382-20>.
23. Pillai, A.*, Gungi, A.*, Reddy P.C.[#] and **Galande, S.[#]**, 2021. Epigenetic regulation in Hydra: conserved and divergent roles. *Frontiers in Cell and Developmental Biology*, 9, p.1155.
24. Ramanujam, P. L. *, Mehrotra, S. *, Kumar, R. P., Verma, S., Deshpande, G., Mishra, R. K. #, & **Galande, S[#]** (2021). Global chromatin organizer SATB1 acts as a context-dependent regulator of the Wnt/Wg target genes. *Scientific Reports*, 11(1), 3385. doi: 10.1038/s41598-021-81324-2.
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27. Mehrotra S[#], Bansal P, Oli N, Jayarajan S and **Galande S**. (2020) Defective Proventriculus regulates cell specification in the gastric region of *Drosophila* intestine. *Frontiers in Physiology* Jul 14;11:711. doi: 10.3389/fphys.2020.00711. eCollection 2020. PMID: 32760283.
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