CURRICULUM VITAE

Dimple Notani
Genetics and Development
National Centre for Biological Sciences, TIFR
GKVK Campus, Bangalore 560065

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Education:

University of Poona, Pune (India) Ph.D (Biotechnology)	2003-2009
Tamilnadu Agriculture University, Coimbatore (India) M.Sc. (Biotechnology)	2001-2003
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (India) B.Sc. (Agricultural Sciences)	1996-2000

Research Career:

University of California, San Diego (UCSD) (USA) Post-Doctoral Research	2009-2015
Reader "F" (Assistant Professor) National Centre for Biological Sciences Tata Institute of Fundamental Research Bangalore, India	2016-2022
Associate Professor National Centre for Biological Sciences Tata Institute of Fundamental Research Bangalore, India	2022-Current

Awards/Fellowships:

EMBO Global Investigator	2020-2024
Wellcome-IA intermediate Fellowship Alliance between Wellcome Trust, UK and Dept. of Biotechnology, India	2016-2020
Ramalingaswamy Career Development Fellowship Dept. of Biotechnology, India	Declined
Post-Doctoral Fellowship: (Principal Investigator) Department of Defense, Congressionally Directed Medical Research Programs Breast Cancer Research Program (BCRP)(USA)	2011-2014
Senior Research Fellowship	2006-2008

Council of Scientific and Industrial Research
(CSIR), Govt. of India.

Junior Research Fellowship 2003-2006
Council of Scientific and Industrial Research,
(CSIR), Govt. of India.

Junior Research Fellowship for M.Sc. 2001 (Declined)
Indian Council of Agricultural Research
(ICAR), Govt. of India.

Teaching Experience:
National Centre for Biological Sciences: Genetics and Molecular Biology, Cell Biology, Genomics courses

Editorial Engagements:
Advisory member of editorial board of Life Sciences Alliance (LSA), a journal jointly launched by Cold Spring Harbor, EMBO and Rockefeller Press.

Reviewing Editor: "elife"

Reviewer for Journals and funding Agencies:
Journals: Life Science Alliance, Scientific Reports, PLoS Biology, Genome Biology, Nucleic Acid Research, Trends in Genetics
Funding Agencies: Department of Biotechnology, India; SERB-DST, India
Indo-French Centre for the Promotion of Advanced Research (IFCPAR/CEFIPRA)

Funded Proposals:
Wellcome Trust-India Alliance
Dimple Notani (PI)
03/01/2016-2/28/2022
Understanding the enhancer code underlying IFN-g signaling

Department of Biotechnology, India
Dimple Notani (PI)
02/01/2021-01/31/2023
Visualization of enhancer:promoter dynamics in live cells

Department of Science and Technology, SERB, India
Dimple Notani (PI)
02/01/2019-01/31/2022
Identifying transcriptional circuits crucial for cardiac circadian rhythm control

Department of Biotechnology, India
Dimple Notani (Co-PI)
02/01/2019-01/31/2023
Neuronal gene regulation by intracellular calcium signaling and Histone H3K36 methylation

CCMB-Rockefeller Foundation, USA
Dimple Notani (Co-Investigator)

2021-2022
Retrospective and Prospective SARS-CoV2 genome surveillance in India

EMBO Global Investigator
Dimple Notani (PI)
2020-2024

Invited Presentations, Conferences and Workshops:

2023:

- Enhancer pre-seeding under basal signaling. Horizon in Molecular Biology. Max Planck Institute, Gottingen, Germany. 12-14th September. (Upcoming)
- RNA limits the gene regulation. EMBO sectorial meeting on transcription. Copenhagen, Denmark.7th July.
- Ligand driven enhancer condensates. EMBO young Investigator meet. Milan, Italy. 4th May
- Enhancer and RNA regulate genome organization. IISC, Bangalore, 10th Jan

2022:

- Enhancer and RNA regulate genome organization. IISC, Bangalore, 8th Dec
- Understanding the enhancer code in transcription. IICB, Kolkata. 30th Sep.
  Dissecting enhancer hierarchies: One locus at a time. UC Irvine, CA, 18th July.
- Dissecting enhancer hierarchies: One locus at a time. ASBMB meeting, Stowers Medical Research Institute, Kansas, MO, 21-24th July.
- Ligand dependent gene regulation and phase separated condensates on enhancers. Condensates Colloquium. 4th March.

2021:

- Active enhancers directly regulate the TAD insulation. 15th Asian Epigenomics Meeting, Singapore, 24-25th February.
- Ligand induced transcriptional condensates. Montreal Clinical Research Institute, Canada, 15th February.
- Signaling driven enhancer phase separation. Biomolecular Condensates Colloquium. IISER Pune, 7th March.
- Genetic variation in enhancers and human pathologies. AIIMS New Delhi, 21st April.
- Junk to Jewels: The story of dark matter of the genome. Science Setu Program. InStem Bangalore, 17th July.
- Role of transcriptional enhancers and genome organization and gene regulation. Azadi Ka Amrut Mahotsav seminar series. NII New Delhi, 16th September.
- London Cancer Week: Panel Member in economics of cancer treatment. London UK, 17th November.
- Using functional genomics to understand the epigenetic mechanisms of cancer susceptibility, 5th Lung Cancer Workshop, Tata Memorial Hospital Mumbai, 4th December.

2020:

- CRISPR tools for gene regulation. GKVK Bangalore, 20th January.
- Enhancer pre-seeding dictates the transcriptional response and 3D architecture of signaling. Epigenetics webinar series. Queen Mary University, London UK, 4th August.
- Delivered a webinar jointly organized by CARE (a non-profit foundation) and NCBS for school girls from villages in Lucknow and Kanpur UP, 18th February.
- Delivered a talk on “Career in academia for agriculture background students” on the occasion of National Science Day at Tamil Nadu Agricultural University, Coimbatore, 28th February.

2019:

- Role of 8q24 enhancer mutation in prostate cancer. Indian Society of Human Genetics. Kalyani, 30th January-1st February.
- EMBO Global Investigator meeting. Heidelberg, Germany, 10-12th November.
- Ligand dependent gene regulation by ERa -transient enhancers. Mechanisms of Eukaryotic
- Transcription, CSHL, Cold Spring Harbor USA, 28-31st August.
- Ligand dependent gene regulation by ERa -transient enhancers. Regulatory epigenomics: from large data to useful models. EMBO Symposium Chennai, 10-13th March.

2018:

- Transcriptional enhancers and their network in gene regulation. Institute of Bioinformatics and Applied Biotechnology (IBAB) Bangalore, 18th September.
- Role of transcriptional enhancers in gene regulation. Pan-TIFR Biologists Meet, 24-26th April.
- Role of transcriptional enhancers in gene regulation, Aspects of Gene and Cellular Regulation. The Institute of Mathematical Sciences Chennai, 12-13th January.
- Super-Enhancer mediated gene regulatory networks. Transcription, DNA repair and Genome
- Surveillance. Indian Institute of Science Bangalore, 6-10th March.

2017:

- Transcriptional enhancer networks in gene regulation. 3rd Biennial InDRC 2017 Meeting. IISER Bhopal, 6-9th December.
- Role of transcriptional enhancers in gene regulation. 7th Symposium of the DNA Society of India.
- Importance of DNA fingerprinting, cataloguing and utilization of the bioresources of North-East India. IASST Guwahati, 17-18th November.
- Role of transcriptional enhancers in gene regulation: Indo-French Epigenetics meeting, TIFR Mumbai, 14-17th February.

2016:

- Role of enhancer networks in transcription: 11th Asian Epigenomics Meeting, JNCASR Bangalore, 29th Nov-1st October
- Chaired a session "Genetic Architecture of Adaptations" in International symposium on Genetics of Adaptations. NCBS Bangalore, 28th Nov -1st December.

<u>Student mentoring:</u>

Post-Doctoral Scholars: Ananya Sadhu (2016-2017)

Graduate Students: (Kaivalya Walavalkar (2016-2021), Currently pursuing post-doctoral research at University of Zurich, Switzerland (*Awarded EMBO Post-doctoral Fellowship*), Deepanshu Soota (2016-writing thesis), Bharath Saravanan (2017-2023), Umer Farooq (2016-2023), Zubairul Islam (2018-Present), Rajat Mann (2018-Present), Sweety Meel (2018-Present), Sudha Swaminathan (2020-Present), Arif Nazir (2021-Present), Nidharsahn R (2021-Present)

MSc Project Dissertation (6 Months): (Abhinav Banerjee, 2020), (Nidharshan R, 2020), Vaishali Muralidharan (2019), Mousumi Mitra (2016), Ayush Semwal (2017)

I have a strong commitment to mentoring the students. Since the past 4 years, my lab has been receiving the best poster award at the NCBS Annual talks. Additionally, my students have been invited to deliver

talks at the national and international levels. At the 15th Asian Epigenomics Meeting, held in Singapore (24-25th February, 2021), Kaivalya received the "Outstanding research award".

Institutional Activities:

2016-2021 Faculty Advisory Committee, Next Generation Sequencing facility, Bangalore Life Science Cluster (BLiSC), Bangalore

2021-present Chair: Faculty Advisory Committee, Next Generation Sequencing facility, Bangalore Life Science Cluster (BLiSC), Bangalore

2019-Present Member, Institutional Administrative Committee, National Centre for Biological Sciences, TIFR

2021-Present Member, Campus Housing Committee, National Centre for Biological Sciences, TIFR

2019-Present Internal screening committee member, Institutional Stem Cell Ethics Committee, National Centre for Biological Sciences, TIFR

2019-Present External screening committee member, Institutional Stem Cell Ethics Committee, Institute for Stem Cell Science and Regenerative Medicine, Bangalore,

2021- Present Member, Campus Safety Committee, National Centre for Biological Sciences, TIFR

2016-Present Chair: Hostel Warden, National Centre for Biological Sciences, TIFR

2016-Present Member, Promotion committee for several staff members, National Centre for Biological Sciences, TIFR

2021-Present: Member, Facility In-charge Committee, Bangalore Life Science Cluster (BLiSC), Bangalore

2021-Present: Member, Facility Coordination Committee, Bangalore Life Science Cluster (BLiSC), Bangalore

Publications 2016 onwards (Independent PI Role) (***** denotes corresponding author):

1. Mann R, **Notani D***. Transcription factor condensates and signaling driven transcription. **Nucleus**. 2023 Dec;14(1):2205758. doi: 10.1080/19491034.2023.2205758.

2. Soota D, Saravanan B, Mann R, Kharbanda T, **Notani D***. RNA binding limits the ligand induced transcriptional potential of estrogen receptor-alpha (ERα). bioRxiv 2023.08.10.552751

3. Majumdar S, Bammidi LS, Naik HC, Baro AR, Kalita A, Sundarraj N, Bariha GS, **Notani D**, Gayen S*****. Deletion of Xist upstream sequences alters TAD interactions and leads to defects in Xist coating and expression. bioRxiv 2023.08.14.553118

4. Kumar V, Kathirvel K, Vadnala RN, Mishra S, Shelar B, Marate S, CP L, K SD, Bhardwaj M, Pandit A, Mayor S. Ramakrishnan U. **Notani D***. Genomic surveillance reveals circulation of multiple variants and lineages of SARS-CoV-2 during COVID-19 pandemic in Indian city of Bengaluru. bioRxiv. 2023:2023-03.

5. Singh AK, Walavalkar K, Tavernari D, Ciriello G, **Notani D**, Sabarinathan R*****. Cis-regulatory effect of HPV integration is constrained by host chromatin architecture in cervical cancers. bioRxiv. 2022:2022-11.

6. Venkatesan V et al., Editing the core region in HPFH deletions alters fetal and adult globin expression for treatment of β-hemoglobinopathies. **Mol Ther Nucleic Acids.** 2023. 26;32:671-688. doi: 10.1016/j.omtn.2023.04.024.

7. Islam Z, Saravanan B, Walavalkar K, Farooq U, Singh AK, Radhakrishnan S, Thakur J, Pandit A, Henikoff S, **Notani D***. Active enhancers strengthen insulation by RNA-mediated CTCF binding at chromatin domain boundaries. **Genome Research**. 2023 Jan;33(1):1-17. doi: 10.1101/gr.276643.122.

8. Farooq U, **Notani D***. Transcriptional regulation of INK4/ARF locus by cis and trans mechanisms. **Front Cell Dev Biol**. 2022 Sep 9;10:948351. doi: 10.3389/fcell.2022.948351.

9. **Notani D***. First glimpse of enhancers in gene regulation. **Nat Rev Genet**. 2022 Apr 27. DOI: 10.1038/s41576-022-00492-7.

10. Farooq U, **Notani D***. Optimized protocol to create deletion in adherent cell lines using CRISPR/Cas9 system. **STAR Protocols**. 2021;2(4):100857. DOI: 10.1016/j.xpro.2021.100857

11. Blobel GA*, Higgs DR*, Mitchell JA*, **Notani D***, Young RA*. Testing the super-enhancer concept. **Nat Rev Genet**. 2021;22(12):749-755. DOI: 10.1038/s41576-021-00398-w

12. Farooq U, Saravanan B, Islam Z, Walavalkar K, Singh AK, Jayani RS, Meel S, Swaminathan S, **Notani D***. An inter-dependent network of functional enhancers regulates transcription and EZH2 loading at INK4a/ARF locus. **Cell Reports**. 2021. 34(12):108898 DOI: 10.1016/j.celrep.2021.108898

13. Mitra R, Richhariya S, Jayakumar S, Notani D, Hasan G*. IP3/Ca2+ signals regulate larval to pupal transition under nutrient stress through the H3K36 methyltransferase dSET2. **Development**. 2021 148 (11). DOI: 10.1242/dev.199018

14. Walavalkar K, Saravanan B, Singh AK, Jayani RS, Nair A, Farooq U, Islam Z, Soota D, Mann R, Shivaprasad PV, Freedman ML, Sabarinathan R, Haiman CA, **Notani D***. A rare variant of African ancestry activates 8q24 lncRNA hub by modulating cancer associated enhancer. **Nature Communications**. 2020.11(1):3598. DOI: 10.1038/s41467-020-17325-y

15. Walavalkar K, **Notani D***. Beyond the coding genome: Non-coding mutations and cancer. **Frontiers in Bioscience, Landmark**. 2020. 25:1825-1835. DOI: 10.2741/4879

16. Saravanan B, Soota D, Islam Z, Majumdar S, Mann R, Meel S, Farooq U, Walavalkar K, Gayen S, Singh AK, Hannenhalli S, **Notani D***. Ligand dependent gene regulation by transient ERα clustered enhancers. **PLoS Genetics**. 2020 Jan 6;16(1):e1008516. DOI: 10.1371/journal.pgen.1008516

17. Rodrigues C, Pattabiraman C, Vijaykumar A, Arora R, Narayana SM, Kumar RV, **Notani D**, Varga-Weisz P, Krishna S*. A SUV39H1-low chromatin state characterises and promotes migratory properties of cervical cancer cells. **Exp Cell Res**. 2019.15;378(2):206-216. DOI: 10.1016/j.yexcr.2019.02.010

18. Jayani RS, Singh A, **Notani D***. Isolation of Nuclear RNA-Associated Protein Complexes. **Methods Mol Biol**. 2017;1543:187-193. DOI: 10.1007/978-1-4939-6716-2_9

19. Li W, **Notani D**, Rosenfeld MG. Enhancers as non-coding RNA transcription units: recent insights and future perspectives. **Nat Rev Genet.** 2016. (4):207-23. DOI: 10.1038/nrg.2016.4

Previous Publications:

20. Han Y, Rand KA, Hazelett DJ, Ingles SA et al. Prostate Cancer Susceptibility in Men of African Ancestry at 8q24. **J Natl Cancer Inst**. 2016 Jan 27;108(7). DOI: 10.1093/jnci/djv431

21. Telese F, Ma Q, Perez PM, **Notani D**, Oh S, Li W, Comoletti D, Ohgi KA, Taylor H, Rosenfeld MG. LRP8-Reelin-Regulated Neuronal Enhancer Signature Underlying Learning and Memory Formation. **Neuron**. 2015 May 6;86(3):696-710. DOI: 10.1016/j.neuron.2015.03.033

22. Li W, Lam MT, **Notani D**. Enhancer RNAs. **Cell Cycle**. 2014;13(20):3151-2. DOI: 10.4161/15384101.2014.962860

23. Skowronska-Krawczyk D, Ma Q, Schwartz M, Scully K, Li W, Liu Z, Taylor H, Tollkuhn J, Ohgi KA, **Notani D**, Kohwi Y, Kohwi-Shigematsu T and Rosenfeld MG. Required enhancer-matrin-3 network interactions for a homeodomain transcription program. **Nature**. 2014. 514(7521):257-61. DOI: 10.1038/nature13573

24. Li W[#], **Notani D[#]**, Ma Q, Tanasa B, Nunez E, Chen AY, Merkurjev D, Zhang J, Ohgi K, Song X, Oh S, Kim H-S, Glass CK, and Rosenfeld MG*. Functional roles of enhancer RNAs for oestrogen-dependent transcriptional activation. **Nature**. 2013. 498(7455):516-20. DOI: 10.1038/nature12210 **(# these authors contributed equally to this work)**

- **Comment In:** Redmond AM, Carroll JS. Enhancer-derived RNAs: 'spicing up' transcription programs. **EMBO J**. 2013. 32(15):2096-8. DOI: 10.1038/emboj.2013.151

- **Research Highlight**: Carlos A Melo, Nicolas Léveillé, and Reuven Agami. eRNAs reach the heart of transcription. **Cell Research**. 2013. DOI: 10.1038/cr.2013.97

  Recommended by Faculty of 1000 Biology.

25. Dunkel Y, Ong A, **Notani D**, Mittal Y, Lam M, Mi X, Ghosh P. STAT3 protein up-regulates Gα-interacting vesicle-associated protein (GIV)/Girdin expression, and GIV enhances STAT3 activation in a positive feedback loop during wound healing and tumor invasion/metastasis. **J Biol Chem**. 2012. 287(50):41667-83. DOI: 10.1074/jbc.M112.390781

26. **Notani D**, Ramanujam PL, Kumar PP, Gottimukkala KP, Kumar-Sinha C, Galande S. N-terminal PDZ-like domain of chromatin organizer SATB1 contributes towards its function as transcription regulator. **J Biosci**. 2011. 36(3):461-9. DOI: 10.1007/s12038-011-9091-4

27. Harismendy O[#], **Notani D[#],** Song X, Rahim NG, Tanasa B, Heintzman N, Ren B, Fu XD, Topol EJ, Rosenfeld MG, Frazer KA. 9p21 DNA variants associated with coronary artery disease impair interferon-γ signaling response. **Nature**. 2011. 470(7333):264-8. DOI: 10.1038/nature09753 **([#] These authors contributed equally to this work)**

  Recommended by Faculty of 1000 Biology.

28. Lakshminarayana Reddy CN, Vyjayanti VN, **Notani D**, Galande S and Kotamraju S. Down-regulation of the global regulator SATB1 by statins in COLO205 colon cancer cells. **Molecular Medicine Reports**. 2010. 3(5)857-861. DOI: 10.3892/mmr.2010.338

29. Vempati RK, Jayani RS, **Notani D**, Sengupta A, Galande S, Haldar D. p300 mediated acetylation of histone H3 lysine 56 functions in DNA damage response in mammals. **J Biol Chem**. 2010. 285(37):28553-64. DOI: 10.1074/jbc.M110.149393

30. **Notani D**, Limaye AS, Kumar PP, Galande S. Phosphorylation-Dependent regulation of SATB1, the higher-order chromatin organizer and global gene regulator. **Methods Mol Biol**. 2010. 647:317-35. DOI: 10.1007/978-1-60761-738-9_20

31. Ahlfors H, Limaye A, Elo LL, Tuomela S, Burute M, Gottimukkala K, **Notani D**, Rasool O, Galande S, Lahesmaa R. SATB1 dictates expression of multiple genes including IL-5 involved in human T helper cell differentiation. **Blood**. 2010.116(9):1443-53. DOI: 10.1182/blood-2009-11-252205

32. **Notani D**, Gottimukkala KP, Jayani RS, Limaye A, Damle MV, Mehta S, Purbey PK, Joseph J and Galande S. Global regulator SATB1 recruits β-catenin and mediates Wnt/β-catenin response. **PLoS Biol**. 2010. 8(1):e1000296. DOI: 10.1371/journal.pbio.1000296

- **Synopsis:** Sedwick, C. SATB1 makes a splash in T cell Wnt signaling. **PLoS Biol.** 2010. e1000295. doi:10.1371/journal.pbio.1000295. DOI: 10.1371/journal.pbio.1000295

33. Purbey PK, Singh S, **Notani D**, Kumar PP, Limaye AS, Galande S. Acetylation-dependent interaction of SATB1 and CtBP1 mediates transcriptional repression by SATB1. **Mol. Cell. Biol**. 2009. 29:1321-37. DOI: 10.1128/MCB.00822-08

34. Galande S, Purbey PK, **Notani D**, and Kumar PP. The third dimension of gene regulation: Organization of dynamic chromatin loopscape by SATB1. **Curr. Opin. Genet. Dev**. 2007. 17: 408-417. DOI: 10.1016/j.gde.2007.08.003

35. Kumar PP, Mehta S, Purbey PK, **Notani D**, Jayani RS, Purohit HJ, Raje DV, Ravi DS, Bhonde RR, Mitra D, and Galande S. SATB1-Binding Sequences and Alu-Like Motifs Define a Unique Chromatin Context in the Vicinity of Human Immunodeficiency Virus Type 1 Integration Sites. **J Virol**. 2007. 81:5617-5627. DOI: 10.1128/JVI.01405-06

36. Kumar PP, Bischof O, Purbey PK, **Notani D**, Urlaub U, Dejean A, and Galande S. Functional interaction between PML and SATB1 regulated chromatin loop architecture and transcription of the MHC class I locus. **Nat. Cell Biol**. 2007. 9: 45-56. DOI: 10.1038/ncb1516

37. Kumar PP, Purbey PK, Sinha CK, **Notani D**, Limaye A, Jayani RS, and Galande S. Phosphorylation of SATB1, a global gene regulator, acts as a molecular switch regulating its transcriptional activity *in vivo*. **Mol Cell**. 2006. 22:231-243. DOI: 10.1016/j.molcel.2006.03.010

Book Chapter:

38. Purbey PK, Limaye A, **Notani D**, and Galande S. Regulation of higher order chromatin organization and function by SATB1. 2009, p 61-92; in '**Chromosome to Genome**', published by the International Publishing House, New Delhi.