

GYAN PRAKASH MISHRA

I have completed my PhD and worked in the area of computational biology. During my PhD I have studied the role of co-repressor protein NCoR1 in epigenetic regulation of gene expression controlling immune responses in dendritic cells, BedSect tool development, SARS-CoV-2 genome study and various other collaborative projects on genomics.



EDUCATION

- 2017
|
2022
- **Doctor of Philosophy(PhD)**
Institute of Life Sciences, Department of Biotechnology and School of Biotechnology, KIIT University
📍 Bhubaneswar, India

2013
|
2015

 - **M.S (Pharmacoinformatics)**
National Institute of Pharmaceutical Education and Research (NIPER)
📍 Kolkata, India

2009
|
2013

 - **Bachelor of Pharmacy (B.Pharm)**
Manipal College of Pharmaceutical Sciences, MAHE 📍 Manipal, India

RESEARCH EXPERIENCE

- 2015
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2017
- **Junior Research Fellow**
DST INDO-SWISS Project
Immunogenomics and Systems Biology Lab, Institute of Life Sciences
📍 Bhubaneswar, India

BIOINFORMATICS TOOL

- **BedSect (<https://imsgsb.org/bedsect/>)**
 - An integrated web server application to perform intersection, visualization and functional annotation of genomic regions from multiple datasets.
 - This tool is being widely used worldwide by the researchers working in the area of genomics (Link)
- 📍 Online

CONTACT

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🆔 0000-0002-8975-0371
🔖 Google Scholar

Strong writing and oral communication skill.

Team player
(Believe in collaborative work for common goal)

*This resume was made with the R package **pagedown**.*

Last updated on 2023-03-10.



TECHNICAL SKILLS

- **Bash, Perl, R and Python**
- **Next generation sequencing data analysis**
 - **RNA-seq :**
Differential gene expression (e.g DESeq2, edgeR)
Feature selection (PCA)
 - **ChIP-seq (ATAC-seq, H3K27ac, RNA-pol II) :**
Normalization, peak calling (HOMER, MACS2)
Differential enrichment analysis (DiffBind)
Annotation (ChipSeeker), Visualization (IGV, deeptool),
Motif identification (HOMER, MEME)
 - **Multi-omics data integration**
 - **Gene co-expression network analysis**
 - **Gene set enrichment analysis**
 - **RNA-editing analysis**
- **R skills :**
 - **Data wrangling :** dplyr, tidyr, purrr, tibble.
 - **Data visualization :** ggplot2, complexheatmap etc.
 - **Statistical analysis :**
 - parametric and non-parametric test
 - Fisher and Hypergeometric test
 - **Clustering using different methods**
(e.g correlation, euclidean distance etc.)
 - **Principal component analysis :** prcomp
 - **R markdown**
 - **Shiny app**
- **Git version control**
- **HPC using SGE scripting. GNU Parallel, Conda**
- **Workflow management : snakemake**
- **Basic understanding of wet lab technique such as**
 - ChIP
 - RT-qPCR, Western
 - Flow cytometry
- **Understanding of**
 - Immunology
 - Transcriptional regulation of gene expression
 - Epigenetics



HONORS AND AWARDS

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|------|--|----------|
| 2013 | <ul style="list-style-type: none"> ● Graduate Pharmacy Aptitude Test (GPAT)
National Level Entrance Examination for entry into M. Pharma Programme | 📍 India |
| 2013 | <ul style="list-style-type: none"> ● NIPER Joint Entrance Exam (NIPER-JEE)
Scholarship to study M.S (Pharm) at NIPER, Kolkata | 📍 India |
| 2015 | <ul style="list-style-type: none"> ● Introduction to R (edX 1.1)
DataCamp (Certificate) | 📍 Online |

- 2017 ● **Bioinformatics National Certification (DBT-BINC) fellowship**
5 year fellowship from Department of Biotechnology, Govt. of India to pursue PhD degree 📍 India
- 2019 ● **Nextgen Genomics, Biology, Bioinformatics and Technologies Conference (NGBT) Travel award**
SciGenom Research Foundation (SGRF) 📍 Mumbai, India
- 2019 ● **Outstanding poster presentation**
EMBOPress- molecular Systems biology @ NGBT-2019 📍 Mumbai, India
- 2019 ● **Travel grant and Oral presentation at EAPS**
EMBL Australia Postgraduate Symposium (EAPS) 📍 Melbourne, Australia








[SELECTED PUBLICATIONS] (* FOR EQUAL CONTRIBUTION)

- 2022 ● **Epigenomics of conventional type-I dendritic cells depicted preferential control of TLR9 versus TLR3 response by NCoR1 through differential IRF3 activation**
Cellular and Molecular Life Sciences 79, 429 (2022). doi: 10.1007/s00018-022-04424-w
Mishra GP*, Jha A*, Ahad A, Sen K, Sen A, Podder S, et al.
- 2022 ● **Spatio-temporal dynamics of intra-host variability in SARS-CoV-2 genomes.**
Nucleic Acids Research. 2022;50:1551–61. doi: 10.1093/nar/gkab1297
Pathak AK*, **Mishra GP***, Uppili B, Walia S, Fatihi S, Abbas T, et al.
- 2022 ● **NCoR1 and SMRT fine-tune inflammatory versus tolerogenic balance in dendritic cells by differentially regulating STAT3 signaling.**
Frontiers in Immunology 2022 Dec. doi: 10.3389/fimmu.2022.9107056
Jha A*, Ahad A*, **Mishra GP***, Sen K, Smita S, Minz AP, et al.
- 2020 ● **BedSect: An Integrated Web Server Application to Perform Intersection, Visualization, and Functional Annotation of Genomic Regions From Multiple Datasets.**
Frontiers in Genetics. 2020;11:3. doi: 10.3389/fgene.2020.00003
Mishra GP*, Ghosh A*, Jha A, Raghav SK.
- 2020 ● **NCoR1 fine-tunes type-I IFN response in cDC1 dendritic cells by directly regulating Myd88-IRF7 axis under TLR9.**
European Journal of Immunology. 2020;50:1959–75. doi: 10.1002/eji.202048566
Ahad A, Smita S*, **Mishra GP***, Biswas VK*, Sen K, Gupta B, et al.
- 2020 ● **Identification and Characterization of Circular Intronic RNAs Derived from Insulin Gene**
International Journal of Molecular Sciences. 2020;21:4302. doi: 10.3390/ijms21124302
Das D, Das A, Sahu M, Mishra SS, Khan S, Bejugam PR, Rout PK, Das A, Bano S, **Mishra GP** et al.
- 2019 ● **NCoR1: Putting the Brakes on the Dendritic Cell Immune Tolerance.**
iScience. 2019;19:996–1011. doi: 10.1016/j.isci.2019.08.024
Ahad A, Stevanin M, Smita S, **Mishra GP**, Gupta D, Waszak S, et al.

- 2018 ● **EumicrobeDBLite: a lightweight genomic resource and analytic platform for draft oomycete genomes.**
Molecular Plant Pathology. 2018;19:227–37. doi: 10.1111/mpp.12505
 Panda A, Sen D, Ghosh A, Gupta A, C. MM, **Mishra GP**, et al.

CONFERENCES/WORKSHOPS

- 2018 ● **Big Data in Biomedicine**
 EMBO Courses and Workshops (Poster Presentation)  New Delhi, India
- 2018 ● **Workshop on “Analysis of Genome Scale Data from Bulk and Single-Cell Sequencing”**
 NIBMG and EMBL-EBI  Kalyani, Kolkata
- 2019 ● **9th International Meeting NextGen Genomics, Biology, Bioinformatics and Technologies (NGBT)**
 Sci Genome research foundation Conference (Poster Presentation)  Mumbai, India
- 2019 ● **EMBL Australia Postgraduate Symposium (EAPS)**
 Oral presentation  Melbourne, Australia
- 2021 ● **47th Annual Conference of the Indian Immunological Society**
 Online


GITHUB PROJECTS

- 2021 ● **R code used in the NCoR1-TLR9-TLR3 Project.**
 github link : <https://github.com/sraghav-lab/NCoR1-and-SMRT-Project>
- 2021 ● **R code used in the NCoR1-SMRT-TLR9 Project.**
 github link : <https://github.com/sraghav-lab/NCoR1-TLR9-TLR3-Project>
- 2019 ● **BedSect Project.**
 github link : <https://github.com/sraghav-lab/Bedsect>

TEACHING EXPERIENCE

- 2017 ● **PhD course work.**
 Basics of NGS Data analysis (RNA-seq and ChIP-seq)  Bhubaneswar, India

MEDIA COVERAGE

- 2022 ● **Our paper “Spatio-temporal dynamics of intra-host variability in SARS-CoV-2 genomes” covered in the [Vigyan Prasar](#), [DECCAN HERALD](#), [ThePrint](#), [ANI](#) and several other print media.**
 India

VOLUNTEERING

- 2012 ● **Editor of College Magazine**
 Worked as an editor of college magazine (Manipal University)  Manipal

2019

- **eLife Ambassador**
Volunteered for [anti-bullying initiative](#) of eLife Ambassador program 📍 Online
- **Participates in online bioinformatics forum**
[BioStars](#) 📍 online
- **Helped in testing of quality control of the tool**
[ALPS](#) 📍 online



ACADEMIC REFERENCES

- **Dr. Sunil Kumar Raghav (PhD Supervisor)**
Scientist-F
[Immunogenomics and Systems Biology Group](#)
[Institute of Life Sciences](#)
[Department of Biotechnology, Govt. of India](#)
Email: sunilraghav@ils.res.in
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- **Dr. Bhawna Gupta (PhD Co-supervisor)**
Assistant Professor
[School of Biotechnology](#)
[Kalinga Institute of Industrial Technology \(KIIT\)](#)
University
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- **Dr. Punit Prasad**
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[Cancer Biology Group](#)
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- **Dr. Anshuman Dixit**
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