

# Jaypee University of Information Technology

## Department of Biotechnology and Bioinformatics

**Dr. Tiratha Raj Singh**

**Professor & Faculty In-charge, Media Relations**

**Coordinator: Centre of Healthcare Technologies and Informatics (CEHTI)**

### PERSONAL AND CONTACT DETAILS:

September 23, 2024

Biographical : Born 15/03/1976, Indian, Married+2(child)

Permanent Address : 23/6, housing Board Colony, Shoghi,  
Shimla, H.P., India

Present Position : **Professor**  
**Media In-charge, JUIT**  
Coordinator: **CEHTI**

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### ACADEMIC AND PROFESSIONAL EXPERIENCE:

Position	Affiliation	From	To	Area of work
Professor	Department of Biotechnology & Bioinformatics, Jaypee University of Information Technology, Wagnaghat Solan (H.P.) India	Jan., 2023	Till date	Bioinformatics, Biomedical and Healthcare
Associate Professor	Department of Biotechnology & Bioinformatics, Jaypee University of Information Technology, Wagnaghat Solan (H.P.) India	2017 -	Dec., 2022	Biotechnology & Bioinformatics
Coordinator	Centre of Healthcare Technologies and Informatics (CEHTI), JUIT.	2018	Till date	Bioinformatics, Biomedical and Healthcare

<b>Faculty In-Charge</b>	Media Relations, JUIT.	2018	Till date	Print and digital advertisements for admissions and vacant posts, press releases etc.
<b>Assistant Professor (Senior Grade)</b>	Department of Biotechnology & Bioinformatics, Jaypee University of Information Technology, Waknaghat Solan (H.P.) India	2013 -	2017	Biotechnology & Bioinformatics
<b>Assistant Professor (Grade II)</b>	Department of Biotechnology & Bioinformatics, Jaypee University of Information Technology, Waknaghat Solan (H.P.) India	2010 -	2013	Biotechnology & Bioinformatics
<b>Information Officer</b>	Department of Biotechnology DAVV, Indore, M.P., India	July, 2009	2010	Bioinformatics Team Leader
<b>Post Doc Fellow</b>	UIET, BU, Bhopal, M.P., India	April, 2009	July, 2009	Bioinformatics
<b>Post Doc Fellow</b>	Tel Aviv University, Tel-Aviv, Israel	2008 -	2009	Bioinformatics, Genomics and Molecular Evolution
<b>Assistant Professor</b>	Takshshila College, Rachna Nagar, Bhopal	2002 -	2004	Computer Science

#### AWARDS, HONOURS AND FELLOWSHIPS:

- ✦ A patent was published on "**MACHINE LEARNING-BASED METHOD FOR CLASSIFYING ALZHEIMER'S DISEASE-ASSOCIATED GENES**", June, 2023.
- ✦ A copyright as an IP was filed for "**QUADON**" on 21/06/ 2023.
- ✦ An International Patent granted in 2022 on "*Device for Measuring Severity Estimation in Muscular Atrophy and Inflammation of Muscles*".
- ✦ Received a very prestigious **Bioclues Innovation Research and Development (BIRD) award** by the largest Bioinformatics Society of India, **Bioclues.org** in Sept., 2022 for the recognition in "Computational Genomics and Bioinformatics".
- ✦ **Frank A. Beach Award** for the publication in the Journal **Hormones and Behavior**, 2017
- ✦ **NVIDIA Hardware Award in 2015.**
- ✦ Served as **Indian Host for Dr. Ahmed Moussa for the prestigious CV Raman Fellowship from DST, India** during September, 2013.
- ✦ **Multiple research and academic funding from government agencies such as SERB, ICMR, DBT, HIMCOSTE etc.**
- ✦ **Young Scientist Award** in Ist IFIP (International Federation for Information Processing) International conference on Bioinformatics at NIT, Surat, India, March 25-28, 2010.
- ✦ Multiple students from our lab won oral and poster awards during conferences for the research work done under my guidance (2010 onwards).

- ✦ **Post doctoral fellowship** from The Council for higher education (VATAT), Tel-Aviv University, for the period of 1 year (April-2008 to March 2009).
- ✦ **Best Poster Award:** “*In silico* analysis of biological sequences by using bioinformatics tools” at National Conference on Bioinformatics and Contemporary Drifts in Life Science during Dec. 12th to 15th, 2005 at NITTR, Bhopal, India.
- ✦ Secured **second position in graduation in district** for **Kshatriya Sabha, Hathras**, 1996.
- ✦ Secured **first position in the school merit** in Intermediate board exams of 1992.
- ✦ U.P. Government Fellowship for two years based upon 10th Merit during 1990-92.

#### INTERNATIONAL COLLABORATIONS:

- ✦ **Prof. Holger Fröhlich**, Head of AI & Data Science Group, Deputy Head of Department of Bioinformatics, Fraunhofer SCAI, GERMANY.
- ✦ **Prof. Yosi Shacham Diuamand**, Emeritus in Department of Electrical Engineering, Tel-Aviv University, Tel-Aviv, ISRAEL.
- ✦ **Prof. Brigitte Vannier**, 2RCT, Receptors, Regulation and Tumor Cells, University of Poitiers, Poitiers Cedex, FRANCE.
- ✦ **Prof. Moacyr Comar Junior**, Instituto de Química, Universidade Federal Uberlândia, Campus Santa Mônica, Uberlândia - MG, BRAZIL.
- ✦ **Prof. Ahmed Moussa**, Director of ENSA-Tangier, Abdelmalek Essaadi University, Tangier, MOROCCO.

#### ACADEMIC ACHIEVEMENTS AND LEADERSHIP RESPONSIBILITIES:

- ✦ **Program Chair:** First National Space Day organized at JUIT by connecting multiple schools of Himachal Pradesh, August 23, 2024.
- ✦ **Coordinator** of fourth edition of one week workshop on Statistical Techniques in Biological and Medical Sciences (**STBMS**)-2024, June 10-15, 2024 [[http://www.juit.ac.in/stbms\\_2024/](http://www.juit.ac.in/stbms_2024/)].
- ✦ **Convener:** Third National Science Day Symposium (**NSDS**) organized at JUIT by connecting several schools of Himachal Pradesh and other nearby states, February, 2024.
- ✦ **Convener:** Second National Science Day Symposium (**NSDS**) organized at JUIT by connecting several schools of Himachal Pradesh and other nearby states, February, 2023.
- ✦ **Co-coordinator:** National Mathematics Day (**NMD**) Event organized at JUIT by connecting several schools of Himachal Pradesh, December, 2022.
- ✦ **Coordinator** of third edition of DST and DBT sponsored one week workshop on Statistical Techniques in Biological and Medical Sciences (**STBMS**)-2022, June 17-23, 2022 [[http://www.juit.ac.in/stbms\\_2022/](http://www.juit.ac.in/stbms_2022/)].

- ✦ **Convener:** First National Science Day Symposium (**NSDS**) organized at JUIT by connecting several schools of Himachal Pradesh and other nearby states, February, 2022.
- ✦ **Convener, International Webinar Series (IWS) Season-2, CEHTI,** Department of BT and BI, JUIT, being organized during September, 2021 to January, 2022.
- ✦ **Coordinator:** National Mathematics Day (**NMD**) Event organized at JUIT by connecting several schools of Himachal Pradesh, December, 2021.
- ✦ **Online/Virtual International Summit on Tech4Seva** held during October 20-23, 2021, organized by ICMR-CIBioD where 2000+ delegates and 50+ domain experts participated from across the globe. This event is supported through CEHTI, Department of BT and BI, JUIT. Many students of JUIT actively participated in these events. **Dr. Tiratha Raj Singh** coordinated all these activities.
- ✦ **Convener, International Webinar Series (IWS) Season-1, CEHTI,** Department of BT and BI, JUIT, organized during August, 2020 to January, 2021.
- ✦ **Coordinated JUIT representation** in Online/Virtual International Summit on **Atmanirbhar Bharat: India as Manufacturing Hub (Promoting Innovation and Entrepreneurship in Medical Devices)**, held during November 26-27, 2020, organized by ICMR-CIBioD where 2700+ delegates and 65+ domain experts participated from across the globe. This was an activity after the MoU was signed between JUIT and CIBioD, PGI, Chandigarh.
- ✦ **Convener, 1st International Conference of our department on Recent Trends in Biotechnology and Bioinformatics (ICBAB-2019)**, organized at JUIT during August, 01-03, 2019.
- ✦ **Member, Board of studies,** Department of BT and BI, JUIT since 2017.
- ✦ **Faculty Coordinator,** SYNAPSE CLUB of the Department, 2019 onwards.
- ✦ **Departmental coordinator for outreach** and member of the Outreach team of the university.
- ✦ **Publication Chair, Inbix'20** (Indian Conference on Bioinformatics 2020), April, 16-18, 2020, NEHU, Shillong, India.
- ✦ **Coordinator** of third edition of one week workshop on Statistical Techniques in Biological and Medical Sciences (**STBMS**)-2020, June 01-06, 2020 (postponed due to Covid-19, now held in 2022). [[http://www.juit.ac.in/stbms\\_2020/](http://www.juit.ac.in/stbms_2020/)]
- ✦ Provided **Reviewing Services to Chile Scientific Agencies** for Reviewing Research Project in 2019.
- ✦ **Coordinator** of one week workshop Statistical Techniques in Biological and Medical

- Sciences (STBMS) - 2018, June 04-09, 2018. [[http://www.juit.ac.in/stbms\\_2018/](http://www.juit.ac.in/stbms_2018/)]
- ✦ Provided **Reviewing Services to Croatian Scientific Agencies** for Reviewing Research Projects under NEWFELPRO Scheme in 2017.
  - ✦ **Program co-chair, Inbix'17** (Indian Conference on Bioinformatics 2017), Nov. 07-09, 2017, BISR, Jaipur.
  - ✦ **Coordinator** of one week workshop Statistical Techniques in Biological and Medical Sciences (STBMS) - 2016, June 13-18, 2016. [[http://www.juit.ac.in/stbms\\_2016/](http://www.juit.ac.in/stbms_2016/)]
  - ✦ **Convener**, National Symposium on Computational Systems Biology (NSCSB-2016), March 18-20, 2016. [[http://www.juit.ac.in/nscsb\\_2016/](http://www.juit.ac.in/nscsb_2016/)]
  - ✦ **Academic Editor, PlosOne, 2015 onwards.**
  - ✦ **Program Committee Member**, 6th International Workshop on Biological Knowledge Discovery and Data Mining (BIOKDD'15), BIOKDD'15 at DEXA-15, Valencia, Spain.
  - ✦ **Program Committee member, Biomining'14** in conjunction with SFC-2014, Sept., 08-12, 2014, Rabat, Morocco.
  - ✦ Program Committee Member, 5th International Workshop on Biological Knowledge Discovery and Data Mining (BIOKDD'14), **BIOKDD'14 at DEXA-14**, Munich, Germany.
  - ✦ Managing Editor, International Journal for Computational Biology (IJCB) ([www.ijcb.in](http://www.ijcb.in)), 2012 onwards.
  - ✦ Program Committee member, **Biomining'11** in conjunction with EGC-M2011, Nov., 22-25, 2011, Tangier, Morocco.
  - ✦ Served as an **Indian member for the PhD jury of a Moroccan student** during 2014.
  - ✦ **Reviewed five PhD thesis (01 from Morocco and 04 from India)** in the area of Bioinformatics during 2014 onwards.
  - ✦ **Post doctoral fellowship** from The Council for higher education (VATAT), Planning and budgeting committee (PBC), Tel-Aviv University, Tel-Aviv, Israel for the period of 1 year (April-2008 to March 2009).
  - ✦ **Vice President**, Bioclues.org, 2009 onwards. Presently **VP (Entrepreneurship)** Bioclues.org.
  - ✦ **Team Leader**, Bioinformatics Sub-Centre, School of Biotechnology, DAVV, Indore, India, during July, 2009 to March, 2010.
  - ✦ Organizer and Program Chair, **Inbix'10, First Virtual Conference on Bioinformatics**, Feb., 12-13, 2010, organized by Bioclues.org and

Bioinformatics.org.

- ✦ **Convener** of International Congress of World Society of Cellular and Molecular Biology - 09, (Nov., 2-6, 2009).
- ✦ **Coordinator** of National Workshop on Structural Bioinformatics and Systems Biology (Nov., 25-27, 2009).
- ✦ **Co-moderator** for symposium on Bioinformatics and Molecular Modeling during WCCMB-09 (Nov., 5, 2009).
- ✦ The poster presented was awarded first in Bioinformatics Section in “**National Conference on Bioinformatics and Contemporary Drifts in Life Science**” during Dec. 12th to 15th, 2005 at NITTR, Bhopal, India.
- ✦ Completed the **Quality program at NIIT**, Ghaziabad, (UP), India through The Quality College of Philip B. Crosby Associated, during 1998-99.
- ✦ Two years U.P. government fellowship during Intermediate studies (1990-1992) based on the merit of High School.

#### GLIMPSE OF ACADEMICS AND RESEARCH:

- **Ad Hoc Reviewer of Journals: 30+**
- **Contributions to NCBI Genbank database (Total = 4 Mitochondrial genomes during PhD and Post doctoral studies)**
- **Publications (Total publications (Peer reviewed journals) – 70+ ; Citations: 1000+ ; H-index: 20 ; i10 index: 30; Conferences /Abstracts (Total = 45+))**
- **Cumulative Impact Factor: 140+**
- **International Patent and Multiple Awards.**

#### RESEARCH PROJECT FROM GOVERNMENT FUNDING AGENCIES:

S. No.	Funding Agency	Project Title	Amount in INR	Role	Timeline (Duration)
1	DST (Research)	Studies on structural, functional and evolutionary aspects of repair proteins with special relevance to human disease	12.48 Lacs	PI	2012-15 (3 Yrs)
2	ICMR (Research)	A Bioinformatic and experimental approach to investigate the interaction between acetylcholinesterase (AchE) and angiotensin-converting-enzyme (ACE) along with Alzheimer's Disease associated proteins	25.55 Lacs	PI	2015-18 (3 Yrs)

3	DBT (Research)	Functional Analysis & Validation of Picosides Biosynthetic Pathway and Development of Gene Markers for Elite Chemotypes of <i>Picrorhiza kurroa</i>	349.82 Lacs	Co-PI	2015-20 (5 Yrs)
4	ICMR (Research)	Identification, Inhibition mechanism analysis and validation of novel multi-target inhibitors for Alzheimer's disease using polypharmacology and systems pharmacology approaches.	14 Lacs	PI (Mentor)	2019-22 (3 Yrs)
5	DRID, JES (Research)	AI Based adaptive and effective learning.	1 Lac	Co-PI	2023-24

#### ACADEMIC FUNDINGS RECEIVED FROM GOVERNMENT AGENCIES:

1	HIMCOSTE	National Mathematics and Science days 2023 and 2024 respectively	50K	Convener	2023-2024
2	HIMCOSTE	National Mathematics and Science days 2022 and 2023 respectively	20K	Convener	2022-2023
3	HIMCOSTE	National Mathematics and Science days 2021 and 2022 respectively	1 Lac	Convener	2021-2022
4	SERB, DST	Third National Workshop on Statistical Techniques for Biological and Medical Sciences (STBMS)-2022	50K	Coordinator	2022
5	DBT	Third National Workshop on Statistical Techniques for Biological and Medical Sciences (STBMS)-2022	30K	Coordinator	2022
6	DBT	First National Workshop on Statistical Techniques for Biological and Medical Sciences (STBMS)-2022	75K	Coordinator	2016
7	NNMCB (Through SERB)	Organization of National Symposium on Computational Systems Biology (NSCSB) - 2016	1.5 Lacs	Convener	2016

#### RESEARCH GUIDANCE:

- ✚ Guided more than 50 B.Tech. student for their final year projects during 2010-2023.
- ✚ Guided 3 M.Tech. and 2 M.Sc. students in their final project in Bioinformatics/Computational Biology, at DAVV, Indore during 2009-10.
- ✚ For the students of PhD (8), MTech (5), MSc (7) from JUIT, details are given below:

S. No.	Enrol. No. & Name of the Student	Title of Thesis/Dissertation/Project	Level (PhD/ M Tech/MSc)	Status (Completed/Ongoing)
1	106504, Priya P. Panigrahi	Analysis of bio-molecules for system level understanding of Alzheimer's disease	<i>PhD</i>	Completed (2015)
2	116501, Manika Sehgal	Computational Studies for the Identification and Analysis of Candidate Biomarkers for Human Diseases Implicated in DNA Repair System	<i>PhD</i>	Completed (2015)
3	136506, Ashwani Kumar	Computational Mining of Genomic and Proteomic data to Gain Insight for Alzheimer's Disease (AD)	<i>PhD</i>	Completed (2018)
4	136502 Ankita Shukla	Computational studies to Investigate Human DNA Repair Associated Malignancies with special relevance to colorectal cancer	<i>PhD</i>	Completed (2018)
5	156501 Ankush Bansal	Development of computational pipelines for biological networks	<i>PhD</i>	Completed (2019)
6	136501 Nupur Munjal	Development of QSPR strategies for solubility prediction	<i>PhD</i>	Completed (2020)
7	186501 Rohit Shukla	Systems and structural level analysis of TAU for Alzheimer's Disease	<i>PhD</i>	Completed (2022)
8	176501 Arvind Kumar Yadav	Machine learning based prediction, in silico inhibitors design and polymorphism analysis of protein methyl transferases involved in human malignancies	<i>PhD</i>	Completed (2022)
9	122503, Rajinder Gupta	Annotation of biological systems using top down approach of systems biology	<i>MTech</i>	Completed
10	111561, Amrita Buddhiraja	Investigation of protein-protein interactions between Acetylcholinesterase along with Alzheimer's related proteins	<i>MTech</i>	Completed
11	111563, Uttara Shankar	Studies on chemical and herbal compounds as acetylcholine esterase inhibitors for the regulation of cholinergic activity in Alzheimer's disease	<i>MTech</i>	Completed



12	112501 Ashwani Kumar	Modeling and Simulation Analysis of Colorectal Cancer Key Pathways	<i>MTech</i>	Completed
13	112505 Abhay Pratap	NMDB: Network Motif Database	<i>MTech</i>	Completed
14	Ajay Kumar	Neuroinflammation and Alzheimer's disease	<i>MSc</i>	Completed
15	Tiyasha Dey	DNA repair and Alzheimer's disease	<i>MSc</i>	Completed
16	Simran Rai	SERPIN1 Gene and Alzheimer's disease	<i>MSc</i>	Completed
17	Nonita Sood	DNA repair mechanisms and NSCLC	<i>MSc</i>	Completed
18	Ankita	Microglial cell and their role in Alzheimer's disease	<i>MSc</i>	Completed
19	Gargi	Alzheimer's disease and role of Mitochondria	<i>MSc</i>	Completed
20	Namra	DNA repair mechanisms and SCLC	<i>MSc</i>	Completed
21	Kushum	Neuroinflammation and Alzheimer's disease	<i>MSc</i>	Completed
22	Khushboo	Neuroinflammation and Alzheimer's disease	<i>MSc</i>	Completed
23	Srina Kalia	Medicinal compounds and Alzheimer's disease	<i>MSc</i>	Completed

**POST DOCTORAL PROFILE:**

Mitochondrial gene rearrangements, its evolutionary implications and applications in tunicates and other organisms. Studying the mitochondrial genomics and evolutionary selection forces shaping genes and genomes and the *in-silico* predictions of these forces. **New Mt. genome of a tunicate was sequenced and computationally annotated. A new direction for tunicate evolution was proposed. NGS data was assembled, computationally analyzed and characterized for Mt genomics.**

**DOCTORAL (PhD) PROFILE:**

Ph.D. from MANIT, Bhopal, India and Tel-Aviv University, Tel-Aviv, Israel entitled “**Computational Approach for the Biological Sequence Analysis and their Molecular Evolution**”, under the supervision of **Dr. K.R. Pardasani**, Professor & Head, Department of Mathematics and Computer Applications, **MANIT, Bhopal, India** and **Dr. Tal Pupko**, Professor, Department of Cell Research and Immunology, G.S. Wise Faculty of Life Sciences, **Tel-Aviv University, Tel-Aviv, Israel**. **NGS data was assembled, computationally analyzed and characterized for Mt genomics. Three new Mt. genomes of Passerine birds were sequenced, annotated and a new vision and direction for the existing hypothesis was provided to correct that hypothesis.**

#### RESEARCH EXPERIENCE: COMPUTATIONAL:

- ✦ More than twenty years experience of analyzing various kinds of biological data (Transcriptomic, Genomic and Proteomic) *in silico* by using various tools and servers.
- ✦ Good hand on myriad of online and offline Bioinformatics (sequence, structure, phylogenetic and systems) analysis tools and servers.
- ✦ Vast experience of developing new computational models, algorithms, databases and methods for solving problems in Biology specifically for Genomics, Immunoinformatics, Systems Biology, and Molecular Evolution.
- ✦ **Platforms:** DOS, Windows, Linux basics.
- ✦ **Programming languages:** Perl, PHP, R, JavaScript, Python Basics, C++, VB-6, HTML/DHTML/XML/SBML, CSS.
- ✦ **RDBMS:** MS-Access, MySQL.
- ✦ **Packages:** MS-Office 97-2010, Origin-Lab, CGI, Dreamweaver and many more.
- ✦ **Websserver:** Apache.
- ✦ **Bioinformatics Packages:** Autodock, Cell Designer, Cytoscape, Phylip, MEGA, Treefinder, Clustal, BioEdit, Rasmol, SPDBV, FANMOD, Haploview, and many more.

2012-2015	PI, DST FASTRACK Project for young scientist. [ <i>Research</i> ]
2015-2018	PI, ICMR Project. [ <i>Research Grant</i> ]
2015-2020	CO-PI, DBT Project. [ <i>Research Grant</i> ]
2019-2022	PI (Mentor), ICMR Project. [ <i>Research Grant</i> ]
2021-2022	PI, HIMCOSTE Project. [ <i>Academic Grant</i> ]
2022-2023	PI, HIMCOSTE Project. [ <i>Academic Grant</i> ]

- July, 2010 – till date** Department of BT and BI, JUIT [*Teaching, Research and Team Leader*]
- July, 2009 – March, 2010** Bioinformatics Sub-Centre, School of Biotechnology, DAVV, Indore. [*Team Leader, Research and Teaching*]
- April, 2009 – June, 2009** PDF, BUIT, BU, Bhopal [*Research*]
- April, 2008 – March, 2009** PDF, Tel-Aviv University [*Dr. Dorothee Huchon*]: Worked on mitochondrial gene rearrangements and its role in evolution.
- July, 2006 – March, 2008** Tel-Aviv University [*Dr. Tal Pupko*]: Worked on patterns in molecular evolution, evolutionary theories and hypotheses, stop codons and their role in evolutionary selection [*Research*]
- July, 2006 – March, 2008** Tel-Aviv University [*Dr. Dorothee Huchon*]: Worked on mitochondrial gene rearrangements and its role in bird's evolution [*Research*]
- July, 2003 – June, 2006** MANIT, Bhopal [*Prof. K.R. Pardasani*]: Worked on Restriction Enzymes and other patterns in biological sequences and their structural, functional and evolutionary role [*Research and Teaching*]

#### EXPERIMENTAL:

- July, 2006 – March, 2009** Tel-Aviv University [*Dr. Dorothee Huchon*]: DNA Extraction, PCR, Gel Electrophoresis, Cloning, and DNA purification.

#### RESEARCH INTERESTS:

My research interests are concerned with various aspects of Bioinformatics:

- **Functional genomics:** Studying the genomics and evolutionary selection forces shaping genes and genomes and the *in-silico* predictions of these forces, Microarray data analysis.
- **Data Mining:** Analyzing huge amount of data through computational means, Patterns in Biological Sequences; Restriction Endonucleases and their structural and evolutionary studies, micro RNAs.
- **Molecular Evolution and Phylogeny:** Inferring evolutionary relationships and evolutionary dynamics: biological, statistical and computational aspects.
- **Computational Systems Biology:** Alzheimer's Disease associated proteins and their functional and evolutionary studies. Biological network analyses and annotations.
- **Immunoinformatics:** Computational and *in silico* analysis of epitope predictions.
- **Structural Bioinformatics:** Proteomics, Homology Modeling, MDS, Drug Design and

Applications, SNPs discovery and analysis at sequence and structure level.

#### MEMBERSHIPS AND NETWORKS:

- ✦ ISCB (International Society of Computational Biology), since 2006.
- ✦ Computer Society of India (CSI), *Life Member*.
- ✦ ISC (Indian Science Congress), *Life Member*.
- ✦ Indian Academy of Neurology (IAN), *Life Member*.
- ✦ Bioinformatics and Drug Discovery Society (BIDDS), *Life Member*.
- ✦ GAMS (Gwalior Academy of Mathematical Sciences), *Life Member*.
- ✦ Israeli Society for Bioinformatics and Computational Biology (ISBCB).
- ✦ Bioclues.org, *Life Member*.
- ✦ Bioinfoindia.org, *Founder, Administrator*.
- ✦ Bioinformatics.org, *Life Member*.

#### BOOKS:

1. **Tiratha Raj Singh**, Hemraj Saini, Moacyr Comar Junior (2023). [\*Bioinformatics and Computational Biology: Technological Advancements, Applications and Opportunities\*](#). (1st) UK : CRC Press. [ISBN : 9781032361581] [SCOPUS ]
2. **Tiratha Raj Singh**, Anju Sharma, Rohit Shukla and VS Bhardwaj, Easy Way of Doing Bioinformatics: A tool for Biological data analysis, Volume I and II, INDU Book Services, New Delhi, INDIA.

#### REFEREED PUBLICATIONS (@Journals):

More details are available at: <https://www.juit.ac.in/faculty.php?id=108&dep=bio&page=0> and <https://scholar.google.com/citations?user=nJiKTMkAAAAJ&hl=en&authuser=1>

1. Girish, Aishwarya, Samruddhi Sutar, TP Krishna Murthy, Suheeth Amberi Premanand, Vrinda Garg, Lavan Patil, S. Shreyas, Rohit Shukla, Arvind Kumar Yadav, and **Tiratha Raj Singh** (2024). "Comprehensive bioinformatics analysis of structural and functional consequences of deleterious missense mutations in the human QDPR gene." *Journal of Biomolecular Structure and Dynamics* 42, no. 11 (2024): 5485-5501. [IF: 5.24]
2. Rohit Shukla, Anuj Kumar, David J. Kelvin, **Tiratha Raj Singh** (2023). Disruption of DYRK1A-induced hyperphosphorylation of amyloid-beta and tau protein in Alzheimer's disease: An integrative molecular modeling approach. *Front. Mol.*

- Biosci.*, 9 (2022), pp. 1-12, DOI: <https://doi.org/10.3389/fmolb.2022.1078987>. [IF: 6.11]
3. Rohit Shukla, Anshuman Chandra, Anuj Kumar, Pallavi Kandpal, Himanshu Avashthi, Vijay Kumar Goel, Imteyaz Qamar, Nagendra Singh, David J. Kelvin, **Tiratha Raj Singh** (2023). **Repurposing of drugs against methyltransferase as potential Zika virus therapies**. *Scientific Reports*, 13 (Article number: 7870), pp. 1-15, DOI: 10.1038/s41598-023-33341-6. [IF: 4.99]
  4. Michel Arnaud Mbock, Raceline Gounou Kamkumo, Rohit Shukla, William Feudjou Fouatio, Patrick Valère Tsouh Fokou, Florence Ngueguim Tsofack, Clarice Djouwoug Noussi, Rodrigue Fifen, Augustin Ephrem Nkengfack, **Tiratha Raj Singh**, Bruno Lenta Ndjakou, Norbert Sewald, Fabrice Fekam Boyom, Jean Justin Essia Ngang, Onana Boyomo, Theophile Dimo (2023). Curative anti-typhoid effect of Detarium microcarpum Guill. & Perr.(Leguminosae) hydroethanolic extract root bark based-on in vivo and molecular docking analyses; *Journal of Ethnopharmacology* 307, 116209. [IF: 5.12]
  5. T. P. Krishna Murthy, Rohit Shukla, N. Durga Prasad, Praveen Swetha, S. Shreyas, **Tiratha Raj Singh**, Ramya Pattabiraman, Shishira S. Nair, Blessy B. Mathew, K. M. Kumar (2023). Comprehensive analysis of non-synonymous missense SNPs of human galactose mutarotase (GALM) gene: an integrated computational approach. *Journal of Biomolecular Structure and Dynamics*, Online (In Press), pp. 1-15, DOI: <https://doi.org/10.1080/07391102.2022.2160813>. [IF: 5.24]
  6. Sidharth Saxena, T. P. Krishna Murthy, C. R. Chandrashekhar, Lavan S. Patil, Abhinav Aditya, Rohit Shukla, Arvind Kumar Yadav, **Tiratha Raj Singh**, Mahesh Samantaray, Amutha Ramaswamy (2022). A bioinformatics approach to the identification of novel deleterious mutations of human TPMT through validated screening and molecular dynamics. *Scientific Reports*, 12 (Article number: 18872), pp. 1-21, DOI: <https://doi.org/10.1038/s41598-022-23488-z>. [IF: 4.99]
  7. G Sharma, R Shukla, **TR Singh**, (2022) Identification of small molecules against the NMDAR: an insight from virtual screening, density functional theory, free energy landscape and molecular dynamics simulation-based findings. *Network Modeling Analysis in Health Informatics and Bioinformatics* 11 (1), 1-15.
  8. S Krishna, TPK Murthy, G Divyashri, M Murahari, R Shukla, SB Kumar and **Singh TR**, (2022) Pharmacoinformatics based screening of combined synthetic and natural

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9. R Shukla, **TR Singh**, (2022) Identification of small molecules against cyclin dependent kinase-5 using chemoinformatics approach for Alzheimer's disease and other tauopathies, **Journal of Biomolecular Structure and Dynamics** 40 (6), 2815-2827. [IF: 5.24]
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#### **PARTICIPATION / PRESENTATIONS (Invited Talks) IN WORKSHOPS / CONFERENCES:**

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- **Dr. Tiratha Raj Singh** delivered an invited talk in the 9th International conference of GAMS at PCCOE, Pune, India during 29 Sept., 2022 to 01, Oct., 2021 on the topic "Bioinformatics: Multimodal Applications in Biological and Health Sciences".
- Delivered an invited talk in the First National Workshop of GAMS on September 30th, 2021 on the topic "ANN and Deep Learning: Applications in Data Sciences and Bioinformatics" organized by **SATI, Vidisha, M.P., India**.
- Delivered an invited talk on "Resources and Tools for Bioinformatics Towards Biomedical and Healthcare Sectors" in the Health Informatics Summit, during 16-19 October, 2021 organized by **IIIT Delhi, India**.
- Delivered an invited talk in the Faculty Development Program on March 9th, 2021 on the topic "Bioinformatics Applications in Various Domains of Biotechnology" organized by **UIET, Kurukshetra University, Kurukshetra, India**.
- Delivered a webinar on 05th July, 2020 for an invited talk in the Department of Biotechnology, **GLA University, Mathura** on the topic "**Bioinformatics: A new beginning to application based province with a case study on Alzheimer's Disease (AD)**".
- Organized a session through online webinar on the topic "Computational Systems Biology" on 22nd Sept., 2020 in Two-Week International Online Faculty Development Program on "**Bioinformatics, Big Data and Drug Discovery: Prospects & Challenges**", organized by **G.B. Pant Institute of Engineering & Technology, Pauri-Garhwal, Uttarakhand, India**.
- Chaired a session at International Conference on Bioinformatics INBIX-2019, during Feb., 22-23, 2019., at **HMV, Jalandhar, India**.

- Delivered an invited talk at International Conference on Bioinformatics INBIX-2019, during Feb., 22-23, 2019., at **HMV, Jalandhar, India**.
- Delivered a talk on Bioinformatics and its application in Medical Sciences in a workshop at **St. Bedes College, Shimla**. This workshop was organized on the occasion of National Science Day, 2019.
- Session Chaired at **International Conference on Responsible Research and Innovation in Science, Management and Education (ICRRISME-2018), April, 4-6, 2018, PU, Chandigarh**.
- Chaired Sessions in **INBIX, 2017, Birla Institute of Scientific Research (BISR), Jaipur**.
- Delivered an invited talk entitled "**Annotation of Complex Biological Networks Through Simple Network Motifs**" in National Symposium of Bioinformatics and Computational Systems Biology (NSBCSB) at **Central University of Himachal Pradesh, Dharmshala** during 12-14 Nov., 2016.
- Delivered an invited talk in a **Systems Biology workshop organized by HPU, Shimla** Sept., 18-19, 2013.
- 1st IFIP (International Federation for Information Processing) International conference on Bioinformatics at Surat, India during March 25-28, 2010. [[Oral, Young Scientist Award](#)]
- **GGRP: GenBank Genome Record Parser**, Yadav K., Pundhir, S., Singh T.R. and Kumar, A. (2009) **5th World congress of Cellular and Molecular Biology**, Nov., 2-5, DAVV, Indore, India. [[Poster](#)]
- **11<sup>th</sup> Israeli Bioinformatics Symposium** on 27<sup>th</sup> April, 2008 at Tel-Aviv University, Tel-Aviv, Israel.
- "Bioinformatics Studies on Evolutionary Patterns in Restriction Endonucleases", during January 10-13, 2008, at 13+1 GAMS & SMMEB International Conference Agra, India. [[Paper, Proceedings](#)]
- Mini symposium on "**Alzheimer's Disease**", on 11<sup>th</sup> Oct., 2007, organized by Neurobiochemistry Department, Tel-Aviv University, Tel-Aviv, Israel.
- Special guest seminar on "Computational discovery of genetic regulatory networks" by **Prof. Richard M. Karp**, on 14<sup>th</sup> May-2007, organized by Computer Science Department, Tel-Aviv University, Tel-Aviv, Israel.
- Workshop on "**miRNAs – Theory and Practice**", on 26<sup>th</sup> Feb, 2007, organized by Bioinformatics Unit, Tel-Aviv University, Tel-Aviv, Israel.

- **9<sup>th</sup> Israeli Bioinformatics Symposium** on 16<sup>th</sup> Oct., 2006 at Bar Ilan University, Ramat-Gan, Israel.
- “A finite automation model for DNA fragment extraction” at 11th annual conference of Gwalior Academy of Mathematical Sciences (GAMS) during 22-23 April, 2006 at JIET, Guna, M.P., India. [[Paper](#), [Journal](#)]
- AICTE sponsored Staff Development Programme on “**Pattern Recognition Using Neural Network**” during Jan. 16-28, 2006 at **OIST**, Bhopal, India.
- “*In silico* analysis of biological sequences by using bioinformatics tools” at National Conference on Bioinformatics and Contemporary Drifts in Life Science during Dec. 12th to 15th, 2005 at NITTR, Bhopal, India. [[Poster](#)]
- “Numerical approximation of gene expression patterns” at 10th Annual Conference of GAMS, K. R. G. College, Gwalior, India, during Feb. 26-27, 2005. [[Abstract](#)]
- “Computational model for the sequence analysis of pancreatic cancer gene and their evolutionary relationships” at 10th Annual Conference of GAMS, Govt. K. R. G. College, Gwalior, India, during Feb. 26-27, 2005. [[Abstract](#)]
- “The biology behind understanding protein engineering, immunotoxins and drug designing issues & their applications in finding breast cancer antigen marker” at AICTE sponsored National Conference during Nov. 26th to 28th, 2004 at YCCE, Nagpur, India. [[E-Proceedings](#)]
- “In silico analysis for the construction of multiple sequence alignment and phylogenetic evaluation for the CEAL1, BCRA3 and BCRA3 related mRNA and proteins” during Nov. 26th to 28th, 2004 at YCCE, Nagpur, India. [[E-Proceedings](#)]
- Workshop on “**Bioinformatics: Databases, Retrieval and Analysis**” during 21st to 23rd Sept., 2004 at Deptt. of Biotechnology and Bioinformatics Centre, Barkatullah University, Bhopal, India.
- Financial and Biological Mathematics workshop of Ramanujan Mathematical Society during July 19-20, 2004 at School of Mathematics and Allied Sciences(SOMAS), Jiwaji University, Gwalior, India.
- ISTE sponsored two weeks short term training program (STTP) on “**Developing Bioinformatics Computer Skills**” during 1st to 11th July, 2004 at Yashwantrao Chauhan College of Engineering, Nagpur, India.
- “Computational approach for the construction of optimal alignment of the biological sequences by applying dynamic programming” at Tenth Annual Conference of Vijnana Parishad of India on Mathematical Modeling, during 17th to 19th May, 2004 at MANIT, Bhopal, India. [[Abstract](#)]

- “A model for sequence analysis and homology search for cancer genes” at 9<sup>th</sup> Annual Conference of Gwalior Academy of Mathematical Sciences (GAMS), during 17th to 19th Jan. 2004 at ITM, Gwalior, India. [[Abstract](#)]
- Bioinformatics workshop (**WBCBM-03**) during 14-19 July, 2003 at G.G.D. University, Bilaspur, C.G., India.

#### TEACHING EXPERIENCE:

More than twenty years experience in the field of Bioinformatics as a faculty and researcher.

<b>Jan. 2023 – till date</b>	Professor, Department of Biotechnology and Bioinformatics, JUIT, Wagnaghat, Solan, H.P.
<b>Aug. 2017 – Dec., 2022</b>	Associate Professor, Department of Biotechnology and Bioinformatics, JUIT, Wagnaghat, Solan, H.P.
<b>Aug. 2013 – July, 2017</b>	Assistant Professor (Sr. Grade), Department of Biotechnology and Bioinformatics, JUIT, Wagnaghat, Solan, H.P.
<b>July 2010 – July, 2013</b>	Assistant Professor (Grade II), Department of Biotechnology and Bioinformatics, JUIT, Wagnaghat, Solan, H.P.
<b>July 2009 - March 2010</b>	Bioinformatics faculty and Information Officer, School of Biotechnology, DAVV, Indore
<b>June 2004 - May 2006</b>	Bioinformatics faculty ( <i>Part time</i> ) at MPSTEP, MANIT, Bhopal, India for Eight certificate courses/Training programs of one month on Bioinformatics, six months Diploma in bioinformatics and Training programs of three and six months duration on Bioinformatics.
<b>August, 2002 – Dec., 2004</b>	Assistant Professor in Computer Science Department, Takhshila College, Rachna Nagar, Bhopal.

#### LECTURES DELIVERED (INVITED / GUEST / POPULAR / PLENARY / EXPERT):

VIT, Vellore, 2023

JNU, Jaipur, 2023

PCCOE, Pune, India, 2022

JIIT, Noida, 2022

GLA University, Mathura, 2021

UIET, KU, Kurukshetra, 2020

ENSA, Tangier, Morocco during 2011 and 2014.

PU, Chandigarh, during 2014-19.

KAU, Thrissur, Kerala during 2011.

Thapar University, Patiala, during 2011.  
HPAU, Palampur, during 2012-15.  
HPU, Shimla, during 2013.  
Nauni University, Solan, 2016 onwards.  
SIRT, Bhopal, during 2010.  
DAVV, Indore during 2009-10.  
MANIT, Bhopal, during 2004 - 2014.  
G.G. University, Bilaspur, CG, during, 2004 - 2006.  
BU, Bhopal, during 2005 - 2009.  
Jiwaji University, Gwalior, during 2004-06.  
And many more...

#### REFERENCES:

- **Dr. Kamal Raj Pardasani**  
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- **Dr. Tal Pupko**  
Professor, Department of Cell Research & Immunology,  
George S. Wise Faculty of Life Sciences,  
Tel-Aviv University, Israel  
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- **Dr. GPS Raghava**  
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*(Tiratha Raj Singh)*