Brief Curriculum Vitae

Personal Information

Name: GEETA RAI, Ph.D.
Date of Birth: November 19, 1974
Marital Status: Married
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Present Designation and Address

Professor
Department of Molecular and Human Genetics; Faculty of Science
Banaras Hindu University, Varanasi-221 005, UP (INDIA);(-2006 till date)
Cell: (+91) 945 207 3466; (+91) 991 947 6655

Post Doctoral Fellow: NIAID, National Institute of Health, Bethesda, USA (2003-2006)

Fields of specialization

- Immunogenetics
- Molecular Biology
- Stem Cell Biology

Awards/Honors/Recognition :

- **Special Invitee and Lecture, G 20 (EMPOWER)** meeting on at Thiruvananthapuram, Kerala on 5th-6th April, 2023 on "Women's Empowerment: A Win-Win for Equity & Economy' , Deliberated on role of STEM Education & Innovation for Scaling up Businesses
- **Coordinator (North Zone)**, Technology Vision-2047 National Consultative Meeting, DST, MoS&T, Govt of India. (2023).
- Nominated by Ministry of Science and Technology, Govt of India to be a part of Indian Delegacy to **United Nation COP-27** meeting, 6th-18th November 2022, Egypt to deliberate on 'Technology needs assessment' in the perspective of Health Care technologies.
- **Awarded** as **75 Women in STEAM** (by the Principal Scientific Advisor, Govt of India and British High Commission (March 2022), and featured in book **She Is: 75 Women in STEAM**.
- **Awarded** as **200 Women in STEM, CII**, included in Compendium 2.0, 2023
- **GATI award for excellence in science',** DST-BHU**,** (2022).
- **Co-ordinator** for Nationally Operated Tele Digital Health program of Govt of India for Electronic Health Record (EHR) generation**.**
- **'Wonder Woman of BHU'** Title and recognition by BHU for two consecutive years 2022, 2023.
- **Member,** subject expert committee on Women Scientist Scheme –A (WOS-A), Department of Science and Technology, New Delhi.(2021-till today).
- **Member,** Writing Committee, Technology Vision 2047, (TIFAC, DST).
- **Member, coordination committee,** All Indian Patent exams, DST, New Delhi.
- **Nominated Member**, General Assembly, International Union of Immunology Societies (2019-22;2022-25).
- **Elected Vice President,** Indian Immunology Society, (2022-24)
- **Elected Member, Executive Committee,** Indian Immunology Society, (2018-2022)
- **Membership award,** The National Academy of Sciences, India (NASI) (2015-)
- **Guest Editor,** Frontiers in Immunology (2022; 2023)
- **Fellow,** Society of Applied Biotechnology, (2015)
- **Expert/evaluator** for the PRISM program, DSIR, (Ministry of Science & Technology, Govt. of India),
- **Domain Expert for Biotech Start-ups**, Govt. of India, Initiative for 'Make in India', (MCIIE) IIT, BHU;

- **Project evaluator** for UK Medical Research Council (MRC), the Korean Ministry of Science and ICT (MSIT) and the National Research Foundation of Korea (NRF) sponsored project
- **National Mentor, INSPIRE-Academy Panel of DST**. (2012 onwards)
- **Mentor**, Smart India Hackathon, 2018.
- **Member, Executive Council** BioNest Incubator, BHU.
- VC Nominee for selection of the post of Assistant Professor, Lucknow University, Uttar Pradesh.
- **G.P. Talwar Young scientist award** for Lab (2013) and (2023)
- Best paper awards in oral presentations in conferences: **FIVE** (5)
- Honorable Jury Academic Brilliance Award 2018
- Award of Appreciation for contribution in proctorial duty, 2018
- Award for valuable contribution in field of expertise, International Women's day, 2018, Women Grievance cell of BHU, 2018
- Scientific Advisor to NWIL, Mumbai
- Scientific Advisor to Neiss Lab, Mumbai
- Scientific Advisor to Agati Health Care, Mumbai
- **International Travel award**, Chinese society of Immunology, for attending IUIS -2019, Beijing
- **International Travel award**, Immunology foundation, India,for attending IUIS -2019, Beijing
- **International Travel award**, CSIR, Invited for talk at FOCIS-2019, Boston, USA

- **Four GRANTED Patents**
- Developed a **novel model for autoimmune disease** 'Systemic Lupus Erythematosus' NIH (2006)

Current Research Focus

- Understanding the immunopathogenesis and regulatory mechanism in autoimmune disease SLE.
  - Evaluating the role of Toll like Receptor (TLRs) signaling in the diverse manifestations of this disease.
  - Characterization of novel autoantibody markers in SLE using genomic and proteomic approaches.
  - Delineating microRNA mediated regulation and Transcriptomics for distinguishing the SLE subgroups.
  - Drug development.
- Understanding the defective mechanisms of the innate immunity in full term low birth weight newborns.
  - Gene expression and proteomics studies of difference from normal birth weight newborns.
  - Netosis impairment and elucidating signaling pathway for netosis.
  - Development for novel formulation to increase immune efficiency hematopoiesis.
- Stem cell studies to develop better tools for regenerative medicine.
  - Understanding defective differentiation of cordblood hematopoetic stem cells in LBW newborns.
  - Mesenchymal stem cells for immunomodulation in SLE.

Educational Qualifications

Post-doctoral fellowship: Visiting Fellow at NIAID, National Institutes of Health, Bethesda, MD (USA) [March 2003-August 2006]

Ph.D. (Immunology) – Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India (2002) **Thesis:** Uveitis: Cellular Response and Cytokine Profile

M. Sc. (Biochemistry& Biotechnology) - GBPUA&T, Pantnagar, India (1997)

B. Sc. (Hons.) - Banaras Hindu University, Varanasi, India (1995)

Research Projects (11)

SN	Project Title	Funding agency	Duration	Amount (Rs. In Lakhs)
	On-going projects			
1.	Immunomodulatory property of preconditioned MSC CM in SLE	SERB, DST, N Delhi	2023-2026	48.00

2.	Pilot Telemedicine Demonstration Project- Social outreach	TIFAC , MoS&T, GoI	2022 (6 Months)	8.00
3.	Identification of NETosis based Novel Drug Candidates in Autoimmune Diseases	UP CST, LKO	3 years (2022-2025)	13.00
4.	Proteomic Studies in LBW newborn (PI).	IOE-BHU, Varanasi	3 years (2021-2024)	8.00
5.	Preclinical validation of a vitamin based novel formulation for increasing the immune efficiency in low birth weight newborns	ATMA-TIFAC,DST, New Delhi	1 year (2023-24)	10.00
	Completed projects			
6.	Identification of Neutrophil Function (Netosis) Based Novel Therapeutic Molecular Targets for Immuno-compromised Low Birth Weight Newborns using Genomic and Proteomic Approaches. (PI)	DBT, New Delhi	3 years (2015-2018)	77.58
7.	Development of Novel Prognostic Molecular Markers for Systemic Lupus Erythematosus using Genomics and Proteomics approaches. (PI)	DBT, New Delhi	3 years (2012-2015)	61.07
8.	Role of micro-RNAs in Toll like Receptors Regulation and autoantibody diversity in Systemic Lupus Erythematosus. (Fellowship grant) (PI)	ICMR, New Delhi	3 years (2012-2015)	8.66
9.	Identification of Protein Factors Responsible for Impaired NETOSIS in Low Birth Weight Newborns using Genetic Knockout approach (PI)	UGC-UPE	2012	2.00
10.	Role of Toll-like Receptors in Immunopathogenesis of Systemic Lupus Erythematosus (PI)	DBT, New Delhi	3 years (2010-2013)	39.10
11.	Role of Immunological Responses in the outcome of sepsis in Low Birth Weight Infants (PI)	DBT, New Delhi	3 years (2008-2011)	17.29

Consultancy Services:

- Scientific Advisor to NWIL, Mumbai
- Scientific Advisor to Neiss Lab, Mumbai
- Scientific Advisor to Agati Health Care, Mumbai

Reviewer for:

- Frontiers in Immunology, Immunobiology; Journal of Advance Research; Immunology Letters; DNA and Cell Biology; Indian Journal of Medical Rsesearch,;Journal of Allbiosolution; Journal of Proteome

PublicationsSummary (Total: 130 +07)

❖ Patents: 07; Research Articles: 54; Book: 1, Book Chapters: 05; Papers in Conference Proceedings: 54, NCBI: 11

Patents (7)

1. A Pattern Recognition Receptor (PRR) particularly a Toll-like receptor (TLR) which has a unique association with the presence of glomerulonephritis (GN) in Systemic Lupus Erythematosus (SLE)". (Ind. Patent Appln. No.128/DEL/2013). **GRANTED.**
2. A Novel formulation of Vitamins increases the immune efficiency in low birth weight newborn (392096) **GRANTED.**
3. A cattle milk based formulation with potential for management of dengue symptoms.(Ind. Patent Appln. No.201611044471) /DEL/2016.

4. A novel silver nanoparticle conjugate prepared from a phytochemical extract causing preferred apoptosis in cancer cell lines and the preparation process therein. Indian Patent Application No. 201711018834/DEL/2017**. GRANTED**
5. A novel and reliable RT PCR based detection method for Corona Virus (2020) infection. (Ind. Patent Application. No. 202011013176. **GRANTED.**
6. Pharmaceutical composition for autoimmune disease Systemic Lupus Erythematosus Patent Application. No. 202311043479.
7. Design and Evaluation Optimization of a novel point of care device based on chromatic process. Patent Application. No. 202311043474

Publications (61)

Year 2025 (ongoing):

1. Priya K, Rawat S, Das D, Mohanty S, Chaubey M, Thacker H, Giri K, Rai M, Rai G (2025). Autoimmunity and clinical pathology amelioration in SLE by Dexamethasone primed Mesenchymal Stem Cell derived conditioned media. Stem Cell Res Ther. (Accepted) **IF: 7.2**

Year 2024 :

2. Das D, Thacker H, Priya K, Jain M, Singh S, **Rai G**. Complement component 5a receptor 1 and leukotriene B4 receptor 1 regulate neutrophil extracellular trap (NET) formation through Rap1a/B-Raf/ERK signaling pathway and their deficiency in term low birth weight newborns leads to deficient NETosis. *Int Immunopharmacol*. 2024 Sep 19;142(Pt B):113165. doi: 10.1016/j.intimp.2024.113165. Epub ahead of print. PMID: 39303536. **IF: 5**
3. Priya K, Thacker H, Chaubey M, Rai M, Singh S, Rawat S, Giri K, Mohanty S, **Rai G**. Dexamethasone and IFN-γ primed mesenchymal stem cells conditioned media immunomodulates aberrant NETosis in SLE via PGE2 and IDO. *Frontiers of Immunology*, 15:1461841. doi:10.3389/fimmu. 2024.1461841. **IF: 7**
4. **Rai G**, Das D, Priya K and Thacker H. Book Chapter: Clinical outcomes of Defective Hematopoiesis. Biochemical, Cellular, Molecular and Genomic Perspectives in Hematopoiesis. 2024, Apple Academic Press. https://doi.org/10.1201/9781003413059-7, PP 143-159, eBook ISBN: 9781003413059.
5. Sharma A, Priya K, Rai G, Kumar P, Khanna A, Tiwary S. Gene Expression Study in Venous Ulcer. *Vascular Acta Phlebologica*, 2024;25(3):163-9. **IF: 1**
6. Eram N, Sachan S, Singh J, Shreya, Dwivedi U, Das D, **Rai G**, Rajan M. Growth Factor Independence-1 (GFI-1) Gene Expression in Hematopoietic Stem Cell Lineage Differentiation in Low Birth Weight Newborns Compared With Normal Birth Weight Newborns at Term Pregnancy. Cureus. 2023 Dec 17;15(12):e50696. doi: 10.7759/cureus.50696. PMID: 38239528; PMCID: PMC10796131 **IF: 1.2**

Year 2023

7. Gourav Singh, Jobin Thomas, Sahil Wadhawa, Anurag Kashyap, Syed Ajijur Rahaman, Subhomoi Borkotoky, Agnisha Datta, Gireesh Kumar Singh, Indra Bhushan Mishra, **Geeta Rai**, Jitendra Satija[b], Vikash Kumar Dubey[c], Gyan Modi. Repurposing the in-house generated Alzheimer's disease targeting molecules through computational and preliminary *in-vitro* studies for the management of SARS-Coronavirus-2. *Molecular Diversity*. 2023, (accepted) **IF: 3.36**

8. Doli Das , Vikas V Singh , Sudhir K Chauhan , Richa Rai , Ashok Kumar , Madhu Jain , **Geeta Rai**. Innate Immune Mechanism of Neutrophil Extracellular Trap Formation is Impaired in at-Risk Term Low Birth

Weight Newborns, *Pediatr Hematol Oncol*. 2023 Jun 8;1-19. doi: 10.1080/08880018.2023.2218409. **IF: 1.17**

9. **Rai G**, Priya K, Das D. Role of NETosis in Reproductive Health. 30th issue of ISSRF Newsletter on theme "A Kaleidoscopic View of Advances in Reproductive Health Research as India Turns 75. 2023.
10. Kumari S, Chaudhary N, Priya K, **Rai G ,** Dev Nath Singh Gautam & Upendra Kumar Singh. Pongamol from the seeds of *Tephrosia purpurea* exert anti-cancer activity against cervical cancer Indian Journal of Traditional Knowledge Vol 22(1), 2023, 182-188, DOI: 10.56042/ijtk.v22il.33137

Year 2022

11. Priya K, Das D, Singh S, Rai G. Green synthesis of silver nanoparticles using Musa balbisiana and their cytotoxic effect on HL-60 and SiHa cancer cells through clathrin-mediated endocytosis. BioNanoScience, 2022, https://doi.org/10.1007/s12668-022-00955-5 **IF: 2.305**
12. Rai G, Das D, Priya K. Book Chapter: Genetic Association in Lower Limb Swelling. SPRINGER, 2022, DOI:10.1007/978-981-16-6206-5_14, PP 199-217. online ISBN: 978-981-16-6206-5, Print ISBN: 978-981-16-6205-8
13. Rai G, Thacker H, Das D, Priya K. Book Chapter: Immunogenetic perspective of inflammatory disorders. 2022, ELSEVIER.https://doi.org/10.1016/B978-0-323-90250-2.00009-1, PP 185-218, eBook ISBN: 9780323902519, Paperback ISBN: 9780323902502

Year 2021

14. Singh, Yash ; Kumar, Navneet; Priya, Khushbu ; Chauhan, Brijesh ; Shankar, Gauri ; Kumar, Saroj; Singh, Gireesh; Srikrishna, Saripella; Garg, Prabha; **Rai, Geeta**; Modi, Gyan. Exploration of Neuroprotective Properties of Naturally Inspired Multifunctional Molecule (F24) Against Oxidative Stress and Amyloid β Induced Neurotoxicity in Alzheimer's Disease Models. ***ACS Chemical Neuroscience,*** 2021, DOI: 10.1021/acschemneuro.1c00443, ISSN: 1948-7193. **IF: 5.78**

15. Jain M, Rai G. A novel formulation with potential for improving osteoarthritis mediated through COX2 and MMP9 receptors***. International J. Computational Biology and Drug Design***. Volume: 14, No : 4, 237-250, DOI: 10.1504/IJCBDD.2021.118814, ISSN online 1756-0764, ISSN print 1756-0756. **IF 0.9**

Year 2020-21

16. Singh YP, **Rai G**, Priya K, Tej GNVC, Pandey A, Pandey P, Shankar G, Nayak PK, Chittiboyina A, Doerksen R, Vishwakarma S. Design, Synthesis and Biological Evaluation of Novel Naturally-Inspired Multifunctional Molecules for the Management of Alzheimer's Disease. ***European Journal of Medicinal Chemistry,*** 2020, https://doi.org/10.1016/j.ejmech.2020.112257, ISSN: 0223-5234 (Web) 0009-4374 (print). **IF: 7.08**
17. **Rai G**, Das D, Priya K. New insights on stem cells modeling and treatment of human diseases. ***Landmark Frontiers In Bioscience,*** 2020, Volume : 25, DOI No:10.2741/4868, ISSN: 1093-4715 (Online) ISSN: 1093-9946 (print). **IF: 2.349**
18. Singh S, Rai G. Structural Insights into the IL12:IL12 Receptor Complex Assembly by Molecular Modeling, Docking, and Molecular Dynamics Simulation. ***Combinatorial Chemistry & High Throughput Screening***, 2020, ISSN: 1875-5402 (Online) ISSN: 1386-2073 (Print). **IF: 1.195**
19. Singh S, Chaturvedi N, **Rai G**. *De novo* modeling and structural characterization of IL9-IL9 receptor complex: A potential drug target for hematopoietic stem cell therapy. ***Network Modeling Analysis in Health Informatics and Bioinformatics, 2020,*** doi.org/10.1007/s13721-020-00236-9 Electronic ISSN - 2192-6670. **IF: 1.06**

20. Barik A, **Rai G**, Gyan M. Molecular docking and binding mode analysis of selected FDA approved drugs against COVID-19 selected key protein targets: An effort towards drug repurposing to identify the combination therapy to combat COVID-19. **Biomolecules**, *Cornell University*, 14th April 2020. https://doi.org/10.48550/arXiv.2004.06447

Year 2019-18

21. **Rai G**, Das D, Singh S, Priya K, Jain M. Reduced hematopoiesis and stem cells differentiation in term low birth weight newborns with compromised innate Immunity. European Journal of Immunology, 2019, Volume : 49, Issue : S3, https://doi.org/10.1002/eji.201970400, Online ISSN:1521-4141, **IF: 4.695**
22. Das D, **Rai G**, Jain M, Kumar A. Role of leukotriene B4 receptor (LTB4R) in neutrophil extracellular trap formation. European Journal of Immunology, 2019, Volume: 49, Issue : S3, https://doi.org/10.1002/eji.201970400, Online ISSN:1521-4141, **IF: 4.695**
23. **Rai G**. A Book: NETosis: Immunity, Pathogenesis and Therapeutics Drug Development. **ELSEVIER**, 2019. eBook ISBN: 9780128163795, Paperback ISBN: 9780128161470
24. Singh S**,** Singh VK, **Rai G**. Identification of differentially expressed hematopoiesis-associated genes in term low birth weight newborns by systems genomics approach. **Current Genomics**, 2019, DOI: 10.2174/1389202920666191203123025, ISSN: 1875-5488 (Online) ISSN: 1389-2029 (Print). **IF: 2.68**

Year 2017-2016:

25. Rai R, Chauhan SK, Singh VV, Rai M, **Rai G**. RNA- seq analysis reveals unique transcriptome signatures in systemic lupus erythematosus patients with distinct autoantibody specificities. ***PLoS One***. 2016 Nov 11;11(11):e0166312. doi: 10.1371/journal.pone.0166312. **IF: 3.752.**
26. AnshulShakya, Ajit K. Thakur, Soni UK, **Rai G**, Shyam S. Chatterjee, Vikas Kumar. Gastro-protective and Anti-stress Efficacies of Monomethyl Fumarate and a Fumariaindica Extract in Chronically Stressed Rats. ***Cellular and Molecular Neurobiology,*** (2016), 36 (4): 621-635, **IF: 2.50.**
27. Ajit K. Thakur, **Rai G**, Shyam S. Chatterjee, Vikas Kumar. Beneficial effects of an Andrographispaniculate extract and andrographolide on cognitive functions in streptozotocin-indused diabetic rats. ***Pharmaceutical Biology***, 2016, 2(3):1-5 ISSN: 1388-0209, **IF: 1.24**
28. **Rai G**, Rai R, Saidien AH, Rai M. Microarray to deep sequencing: Transcriptome and miRNA profiling to elucidate molecular pathways in Systemic Lupus Erythematosus. ***Immunologic Research***, 2015. ISSN: 0257-277X (Print) 1559-0755 (Online) DOI: 10.1007/s12026-015-8672-y, 2016, 64: 14-24, **IF: 4.5** (Review)

Year 2015:

29. Chauhan SK, Singh VV, Rai R, MadhukarRai, **Rai G**. Differential clearance mechanisms, neutrophil extracellular trap degradation and phagocytosis are operative in systemic lupus erythematosus patients with distinct autoantibody specificities. 168; 254-259, ***Immunology Letters,*** 2015 ISSN: 0165-2478, **IF: 2.367.**
30. Rai R, Chauhan SK, Singh VV, Rai M, **Rai G.** Heat shock protein 27 and its regulatory molecules express differentially in SLE patients with distinct autoantibody profiles. ***Immunology Letters,*** 2015 165;25-32 ISSN: 0165-2478, **IF: 2.367.**
31. Ajit K. Thakur, Soni UK, **Rai G**, Shyam S. Chatterjee, Vikas Kumar. Andrographolide Modulate some Toll-like Receptors and Cytokines Expressions in HL-60 Cell Line. ***Pharmacy & Pharmacology International Journal***, 2015, 2(3): 19-28. ISSN: 2373-6367
32. Ajit K. Thakur,**Rai G**, Shyam S. Chatterjee, Vikas Kumar. Analgesic and Anti-inflammatory activity of Andrographispaniculata and Andrographolide in Diabetic Rodents. ***EC PHARMACEUTICAL SCIENCE*****,** 2015,1(1):19-28. Online ISSN: 1520-6017.
33. Jain MM, Kumari N**, Rai G**. A novel formulation of veggies with potent liver detoxifying activity**.** ***International J. Computational Biology and Drug Design***. 2015doi: 10.1504/IJCBDD.2015.068792. **IF 0.94**
34. Jain MM, Kumari N**, Rai G**. A novel formulation of veggies with potent anti-migraine activity. ***International J. Computational Biology and Drug Design*****.** 2015, 10.1504/IJCBDD.2015.068787.**IF 0.94**

Year 2014:

35. Singh VV, Chauhan SK ,Rai R, Kumar A,**Rai G**. Decreased Toll-Like Receptor-4/ Myeloid Differentiation Factor 88 Response Leads to Defective Interleukin-1β Production in Low Birth Weight Newborns. ***The Pediatric Infectious Disease Journal***, 2014, 33(12):1270-6. ISSN: 0891-3668, Online ISSN: 1532-0987, **IF: 5.23.**
36. Chauhan SK , Singh VV, Rai R, MadhukarRai, **Rai G**. Differential microRNA profile and post-transcriptional regulation exist in systemic lupus erythematosus patients with distinct autoantibody specificities***.Journal of Clinical Immunology***, 2014, 34(4):491-503. ISSN: 0271-9142 (print version), ISSN: 1573-2592 (electronic version), **IF: 8.317.**
37. Sushma Singh, **Rai G** and Amita Aggarwal. Association of microRNA-146a and it's target gene IRAK1 polymorphism with enthesitis related arthritis category of juvenile idiopathic arthritis. ***Rheumatology International (Clinical and Experimental Investigations)***. Ms. No. RHEI-D-14-00013R1, 2014, 34(10):1395-400. ISSN:0172-8172, ISSN: 1437-160X (electronic version), **IF: 2.21.**
38. Vikas Kumar, **Rai G,** Shyam S. Chatterjee, Soni UK, Ajit K. Thakur. Protective effects of an Andrographispaniculata extract and pure andrographolide against chronic stress triggered pathologies in rats. ***Cellular and Molecular Neurobiology*,** 2014, 34(8):1111-21. ISSN: 0272-4340 (print version), ISSN: 1573-6830 (online).
39. Singh GK, **Rai G**, Chatterjee SS, Kumar Vikas. Biochemical mechanisms involved in Neuro-psychopharmacological activity profile of a hydro alcoholic *Fumariaindica* extract. ***In:"Traditional Medicine and Globalization – The Future of Ancient Systems of Medicin*e,** Maven Publishers; Kolkata, 2014, 632-644, 2014. **ISBN 978-81-926243-0-3.**
40. Jain MM, Kumari N, Rai G. A Novel Formulation of Herbs With Potent Anti-Ageing Activity. ***European J of Bioinformatics*,** 2014**,** 2:1-5, ISSN 2056-9912.
41. Gulam Mohammed Husain, Rai R, **Rai G**, Harikesh Bahadur Singh, Ajit K. Thakur, Vikas Kumar. Potential mechanism of anti-diabetic activity of Picrorhizakurroa. ***Tang Humanitas Medicine*,** 2014, 4 (4):e27. E ISSN: 2233-8985.

Year 2013:

42. SinghVV, Chauhan SK, Rai R, Kumar A, Singh SM, **Rai G**. Decreased Pattern Recognition Receptor Signaling, Interferon-Signature, and Bactericidal/Permeability-Increasing Protein Gene Expression in Cord Blood of Term Low Birth Weight Human Newborns. ***PLoS ONE***, 2013, 23; 8(4):e62845. ISSN: 1932-6203, **IF: 3.534.**
43. Chauhan SK, SinghVV, Rai R, Rai M, **Rai G**. Distinct Autoantibody Profiles in Systemic Lupus Erythematosus Patients are Selectively Associated with TLR7 and TLR9 Upregulation. ***Journal of Clinical Immunology,*** 2013, 33(5):954-64. ISSN: 0271-9142 (print version), ISSN: 1573-2592; **IF: 8.317.**
44. Srivastava AK, Kumari N, Khan RA, Rai R, **Rai G**, Tabassum S, Mishra L. DNA cleavage activity and cytotoxicity of mononuclear and trinuclear Cu(II) complexes containing 1H-pyrazole-3,5-dicarboxylic acid as ligand. ***Indian Journal of Chemistry***, 2013, 52(A):835-844. ISSN: 0975-0983 (Online), ISSN: 0376-4699;**IF: 0.7.**
45. Singh GK, Chauhan SK, **Rai G**, Chatterjee SS, Kumar V. Potential antianxiety activity of *Fumariaindica*: A preclinical study. ***Pharmacognosy Magazine***. 2013, 9(33): 14–22. ISSN: Print -0973-1296, Online - 0976-4062, **IF: 1.159.**
46. Singh GK, **Rai G**, Chatterjee SS, Kumar V. Effects of ethanolic extract of *Fumariaindica* L. on rat cognitive dysfunctions. ***AYU***. 2013, 34: (4), 421-429. ISSN: Print -0974-8520, Online - 0976-9382.

Year 2012:

47. Mage RG, **Rai G**. A Rabbit Model of Systemic Lupus Erythematosus, Useful for Studies of Neuropsychiatric SLE. Chapter in Book: ***Systemic Lupus Erythematosus***; InTech - Open Access Publisher, Pg 201-216, 2012. **ISBN 978-953-307-868-7.**
48. Thorp-Greenwood FL, Coogan MP, Mishra L, Kumari N,**Rai G** and Saripella S. The importance of cellular localisation of probes: synthesis, photophysical properties, DNA interactions and cellular imaging properties of rhenium dppz complexes with known cellular localisation vectors. ***New Journal of Chemistry***, 2012, 36, 64-72. (Cover page article) ISSN: 1144-0546 (print), 1369-9261 (web), **IF: 3.159.**

49. Singh GK, **Rai G**, Chatterjee SS, Kumar V. Beneficial effects of *Fumariaindica* on chronic stress-induced neurobehavioral and biochemical perturbations in rats. ***Chinese Medicine***. 2012, 3: 49-60. **ISSN: 2151-1918.**
50. Singh GK, **Rai G**, Chatterjee SS, Kumar V. Anti-aggressive, brain neurotransmitters and receptor binding study of *Fumariaindica* in rodents. ***Current Psychopharmacology***. 2012, 1:195-202. **ISSN: 2211-5560.**

Year 2011 and Before:

51. Singh GK, Chauhan SK, **Rai G**, Kumar V. Fumaria indica is Safe During Chronic Toxicity and Cytotoxicity: A preclinical study. ***J. Pharmacology and Pharmacotherapeutics***, 2011, 2:191-192.ISSN: Print -0976-500X, Online - 0976-5018**.**
52. **Rai G**, Ray S, Milton J, Yang J, Ren P, Lempicki R, Mage R. Gene Expression Profiles in a Rabbit Model of Systemic Lupus Erythematosus. ***J.Immunol.***, 2010, 185: 4446-4456, Print ISSN: 0022-1767, Online ISSN: 1550-660, **IF: 5.362**.
53. **Rai G**. Pregnancy, Lactation and Immunological Considerations. A chapter in book: ***Women and Mental Health***, 2009; Indira Sharma (Ed.), Official Publication of Indian Psychiatry Society, (2009) pp 80-88. **ISBN 978-81-8465-646-6.**
54. **Rai G**. Ray S, Shaw RE, DeGrange PF, Mage RG, Newman BA. Models of systemic lupus erythematosus (SLE): Development of autoimmunity following peptide immunizations of non-inbred pedigreed rabbits. ***J.Immunol.***, 2006, 176(1):660-7. Print ISSN: 0022-1767, Online ISSN: 1550-660, **IF: 5.362.**
55. **Rai G**, Saxena S, Kumar H, Singh VK. Human Retinal S-antigen:T Cell Epitope Mapping in Posterior Uveitis Patients. ***Exp. and Mol. Pathology***, 2001, 70:140-145. **IF: 2.12**
56. Singh VK, **Rai G**. Cytokines in Posterior Uveitis: An Update. ***Immunol. Research***, 2001, 23: 59-74. **IF: 2.96.**
57. Singh VK, **Rai G**, Agarwal SS. Role of cytokines in experimental and clinical uveitis. ***Ind. J. Ophthalmology***, 2001, 49: 81-90. **ISSN: 0301-4738.**
58. **Rai G**, Kumar A, Singh A, Garg GK. Modulation of antigenicity of mycelial antigens during developmental cycle of Karnal Bunt (*Tilletiaindica*) of wheat. ***Ind.J. Exp. Biology***, 2000, 38: 488-492. **IF: 1.19.**
59. Singh VK, Biswas S, **Rai G**, Agarwal SS. Immunomodulation in human and experimental uveitis: Recent advances. ***Ind. J. Ophthalmology*** 1999, 47: 65-77. **ISSN: 0301-4738.**
60. **Rai G**, Kumar A, Gaur A, Singh A and Garg GK. Stage dependent changes in protein and isozymes patterns during growth cycle of Karnal bunt (*Tilletiaindica*) of wheat in culture. ***Ind. J. Agric. Biochem.***, 1999, 12: 59-63. **ISSN: 0970-6399.**
61. **Rai G**, Kumar A, Garg GK, Singh A, Lakhchaura BD. Development of microtitre ELISAs for detection and quantitation of mycelial antigens of Karnal Bunt (*Tilletiaindica*). ***Ind. J. Agric. Biochem.***,, 1998, 11: 53-55. **ISSN: 0970-6399.**

- **Structure submission in Protein Model database (7):**

SN	Title	PMDB ID	Year of submission	Author description
1	Homology modeling of ALDH6A1 protein using Discovery Studio 3.0	PM0080979	2017	Sakshi Singh, Vinay Kumar Singh and GeetaRai*
2	Structure prediction of JAZF1 protein using Modeller approach	PM0080980	2017	Sakshi Singh and GeetaRai*
3	*In-silico* structure prediction of RTN1 protein using EasyModeller 4.0	PM0080977	2017	Sakshi Singh, Vinay Kumar Singh and GeetaRai*
4	3D modeling of SNAP23 protein using I-TASSER	PM0080981	2017	Sakshi Singh, Vinay Kumar Singh and GeetaRai*
5	Structure prediction of IL9R protein using SWISS-MODEL workspace	PM0081000	2017	Sakshi Singh and GeetaRai*
6	LTB4R modeling using MODELLER 9.14	PM0081155	2017	Sakshi Singh and GeetaRai*

7	3D structure prediction of IL-12RB2 protein using SWISS-MODEL workspace and ModRefiner	PM0081480	2018	Sakshi Singh and GeetaRai*

- **Submissions in NCBI (4):-**
  1. Unique transcriptome expression RNA seq data in systemic lupus erythematosus patients with distinct autoantibody profile. Rai R, Chauhan SK, Singh VV, Rai M and **Rai G**. 2016. GEO series accession number: **GSE80183**.
  2. Microarray Gene expression data of term Low birth Weight newborns. Singh VV, Kumar A, Singh SM and **Rai G.** 2012. GEO series accession number: **GSE29807**.
  3. GenBank accession number for our nucleotide sequence, 2019: **BankIt2225531 Seq1 MK945892, https://www.ncbi.nlm.nih.gov/nuccore/MK945892**
  4. GenBank accession number for our nucleotide sequence, 2020: **BankIt2232810 Seq1 MN052873; https://www.ncbi.nlm.nih.gov/nuccore/MN052873**

- **Oral presentations/Abstracts/Posters in conferences :65**
- **Invited talks/lectures: 40**

Research Thesis Guidance

Degree	Awarded	In progress
Ph. D.	**10**	02
MD	**05**	
M. Sc.	45	03

SN	PhD Thesis Title	Student	Year of Award/current position
1.	Evaluation of Immunomodulatory potential of IFN-g, and Dexamethasone primed MSC derived conditioned media in autoimmune disease SLE.	Khushbu Priya	2024, NIH, USA
2	Pharmaceutical and Pharmacological study of Arbudariyoga on Arbuda (Cancer)	Anupriya Singh	2023, Teach for BHU Fellow
3	Immunogenetic and Proteomic Studies of Impaired NETosis and Hematopoiesis in Term Low Birth Weight Newborns	Doli Das	2022 (Senior project associate, DST, New Delhi)
4	High throughput Data Analysis for Hematopoietic genes in low birth Weight Newborns using in-silico approach	Sakshi Singh	2021; PDF (Germany)
5	A study on role of miRNAs and their targets in regulation of toll like receptor signalling pathway involved in the pathogenesis of enthesitis related arthritis	Sushma Singh	2017 research scientist, SGPGI (India)
6	Genomic and Proteomic Studies in Systemic Lupus Erythematosus Patients with Distinct AutoantibodySpecificities to Nuclear Autoantigens	Richa Rai	2016; Research scientist, NY (USA)
7.	Neuropsychopharmacological Studies on *Andrographispaniculata* and Andrographolide in Non-diabetic and Diabetic Rodents	Ajit KThakur	2014; Asst prof, N Delhi

8	Molecular and immunogenetic studies in Systemic Lupus Erythematosus Patients with Distinct Autoantibody Specificities to nuclear Autoantigens	Sudhir Chauhan	2013; Scientist (Norway)
9	Genetic basis of impaired innate immunity in low birth weight newborns	Vikas Singh	2013; Scientist (USA)
10	Neuropharmacological studies on standardised extract of *FumeriaIndica.*	Gireesh Singh	2012; Asst. Prof, Bihar

Fellowship/Membership of Professional Societies

1. Fellow of Society for Applied Biotechnology, India
2. Membership award, National Academy of Sciences, India (NASI), Allahabad
3. Member, Indian Immunology Society (IIS), New Delhi
4. Member, International Union of Immunology Societies (IUIS), Germany
5. Member, Indian Society of Cell Biology (ISCB), BHU, Varanasi
6. Member, The Biotech Research Society, India
7. Member, Indian Association of Biomedical Sciences.

Teaching courses developed for PG students

1. Molecular and Human Genetics
2. Chromosomal and Molecular Diagnostics
3. Initiated Journal Club/Seminar series in Department of Mol. & Human Genetics

Administration/Coordination

1. Member, IPR cell, BHU (2023-)
2. Proctor, BHU (2017-)
3. Chairperson, Shooting, BHU Sports Board (2019-)
4. Member, Women Grievance cell, BHU (2017-)
5. Member, Itellectual Property Cell, BHU (2023-)
6. Member, Campus Development Committee, BHU (2023-)
7. Acting Head, Department of Molecular and Human Genetics (23rd May 2012-23rd June 2012).
8. Seminar and formulation of Research Project (Course:MGM L 408) of Dept. of Mol. & Human Gen., BHU): 2007-contd.
9. Summer Training presentation (M.Sc. Students), Deptt. (Mol. & Human Gen., BHU): 2007-contd.
10. Journal club of the Department (Mol. & Human Gen., BHU): 2010-contd.
11. Member, Committee for Stem cell and bone marrow transplant center, IMS, BHU Since 2012.
12. Member, Ragging Prevention committee (2011).
13. Member of organizing committee for Orientation programme for B.Sc. (Hons.) students (2010)
14. Member, Equipment Committee, Inter-disciplinary School of Life Sciences (ISLS), BHU, (2010).
15. Member, Board of Studies, Chromo.& Mol. Diagnostics, Centre for Gen. Disorders, BHU (2010, 2018)
16. Member, Committee for Framing Ordinances and Course content for Ph.D. (2010).
17. Member, Board of Studies in Mol.& Human Genetics, Dept. of Mol.& Human Gen. (2009-2010).
18. Member of purchase committee of the Department (MHG, BHU) (2009- contd.)
19. Member,Course Content Development committee for faculty, BHU (2010-).

Conferences/Symposia organized

1. Scientific committee, i)Golden Jubilee Immunocon, AIIMS-New Delhi, 2023 and ii) Immuncon 51st, IISc Bangalore, 2024.
2. Coordinator (North Zone), Technology Vision-2047 National Consultative Meeting, DST, MoS&T, Govt of India. (20th- 21st, March, 2023), BHU.

3. Convenor, 48th Annual Meeting of Indian Immunology Society, IMMUNOCON BHU, 8th-9th, July, 2022, BHU
4. Convenor, National Seminar on Machanisms of Immune Response, 10th-11th, August, 2018, BHU
5. Organizing member, Scientific Committee, Golden Jubilee Immunocon (IIS), AIIMS, New Delhi)
6. Member of Organizing Committee, Where and How to Publish?' Symposium on Research Ethics and Scientific Publishing, 27th, March, 2019, BHU
7. Member of Organizing Committee, National Workshop on Maternal & New Born Care: Issues and Challenges, 1st -7th, September, 2018, BHU
8. Organizing Secretary, BHU-DST-ISLS workshop on Bioinformatics &Proteomics, Feb 20-26, 2011, Varanasi.
9. Organizing Committee, International Symposium on Environmental Factors, Cellular Stress and Evolution. October 13-15, 2006, BHU, Varanasi
10. Member of Organizing Committee, International Conference on Emerging Trends in Biotechnology (ETBT), Dec. 4-6, 2009, BHU, Varanasi.
11. Member of Organizing Committee, International Conference on Functional Genomics: Prospects and Challenges. October 2-4, 2010, BHU, Varanasi.
12. Member of Organizing Committee, XXXI All India Cell Biology Conference, Dec. 14-16, 2007, BHU, Varanasi

Outreach to the society:

1. Member of project monitoring committee of' Ministry of Communication & Information technology Govt of India' funded 'ICT based resource center' of Sai Institute of Rural Development, Varanasi: creating entrepreneurship opportunities for women through use of science and technology.
2. Mapped 20,000 individual from villages of Varanasi for electrnic health record generation, for Govt of India- pilot program
3. Spreading awareness in masses, about newborn's care and women's health related issues through various radio talks and newspaper.
   - Education and awareness delivery for masses on "Vaigyanik Anusandhan mein Mahilaonkayogdan" through Prasar Bharati, Akashwani (All India Radio), 14th July, 2017.
   - Education and awareness delivery for masses on "low birth weight babies and maternal health" through PrasarBharati, Akashwani (All India Radio), 24th January, 2017.
   - Education and awareness delivery for masses on "Mahilawokeswasthya per nashekadusprabhaw" through PrasarBharati, Akashwani (All India Radio), 27th March, 2018.
4. As a **Domain Expert for Biotech Start-ups, Govt. of India, Initiative for 'Make in India',** and involved in projects like **TePP Out Reach Centre cum innovation cluster (supported by DSIR, since 2006),** wherein funding/ mentoring support to various grass root innovators is been provided.
5. Significant media coverage on: "Development of our research"
   - Silver nanoparticle using biogenic method that targets and kill cancer cells. (Covered by **12**) electronic and print media