



Brief Biography

Prof. Sunit K. Singh, Ph.D (Germany)

Professor of Molecular Immunology

Molecular Biology Unit, Faculty of Medicine,

Institute of Medical Sciences, Banaras Hindu University, Varanasi

E-mail: sunitsingh2000@gmail.com, sunitsingh2000@bhu.ac.in

Research Interests: Human Molecular Virology, Immunology and Inflammation Biology

Professional Experience:

1. Professor of Molecular Immunology; Molecular Biology Unit, Faculty of Medicine, Institute of Medical Sciences (IMS), Banaras Hindu University (BHU), Varanasi, India
2. Associate Professor of Molecular Immunology; Molecular Biology Unit, Faculty of Medicine, Institute of Medical Sciences (IMS), Banaras Hindu University (BHU), Varanasi, India
3. Scientist, Section of Infectious Diseases, Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India.
4. Honorary Faculty, Faculty of Biological Sciences, Academy of Scientific and Innovative Research (ACSIR), New Delhi, India
5. Visiting Scientist, Department of Pathology & Immunology, University Medical Centre, University of Geneva, Geneva, Switzerland
6. Visiting Scientist, Department of Microbiology, College of Veterinary Medicine, Chonbuk National University, Republic of Korea.
7. Visiting Scientist, Section of Arbovirology, Dept of Parasitology, Academy of Science Czech Republic, Czech Republic.

8. Visiting Scientist, Dept. of Paediatric Infectious Diseases and Immunology, Uni-Kinderklinik, University of Wuerzburg, Wuerzburg, Germany.
9. Visiting Scientist, Dept. of Pathology, Dept of Microbiology and Immunology, Albert Einstein College of Medicine, Bronx, New York (USA).
10. Postdoctoral Scholar, Department of Neurology, University of California Davis Medical Centre, Sacramento, California (USA).
11. Postdoctoral Associate, Section of Rheumatology, Dept of Internal medicine, Yale University, School of Medicine, New Haven, Connecticut, USA.
12. IZKF Research Fellow (Biologist), Department of Paediatric Rheumatology, Osteology, and Infectious Diseases, Children's Hospital, University of Wuerzburg, Germany.

Awards and Honors:

1. 2019-**NAVBD-Molecular Biology Award** of National Academy of Vector Borne Diseases, Bhubaneswar
2. 2017-**ICMR Chaturvedi Ghanshyam Das Jaigopal Memorial Award for Immunology** of Indian Council of Medical Research
3. 2017-**Dr. B.C. Roy Award** of Medical Council of India
4. 2016-**Outstanding Alumnus Award** by GB Pant Univ. of Agril. & Tech, Pantnagar
5. 2016-**Nature Travel Grant Award** to attend Gordon Research Conference at New London, USA
6. 2015-**ICMR-Dr. J. B Srivastav Memorial Oration Award for Virology** of Indian Council of Medical Research
7. 2014- **Institute of Medical Sciences, BHU, Research Publication Award**
8. 2011-**FEBS Journal Top Cited Paper Award.**
9. July 01-08, 2011 **DAAD-Travel Grant Award**-To attend Euro-Indian Week, University of Wuerzburg, Wuerzburg, Germany.
10. Aug 24-27, 2010 **Sabin Vaccine Institute Travel Grant Award**- To attend the Smallpox Eradication Commemoration 2010 symposium (SEC2010) symposium titled "Smallpox Eradication after 30 Years: Lessons, Legacies, and Innovations at Rio de Janeiro, Brazil.
11. Aug 01-13, 2010 **Gateways Partners, GenØk, INBI and TWN, Travel Grant Award** to attend International Biosafety course at Tromso, Norway.
12. 2010-11 "**European Cooperation in Science and Technology, Belgium-Grant**"- to attend the course on Array Technologies for BSL-3 and BSL-4 pathogens-Action B28, Institute of Virology, Bereich Humanmedizin, Georg August University, Gottingen, Germany.
13. 2008-09 "**NIH-Fogarty Fellow**"- AIDS International Training Program, AECOM, New York, USA.
14. 2007-08 "**Travel Grant Award**" by Sandia National Laboratories, New Mexico, USA.
15. 2004-05 "**Best Poster Award**" in Annual convention of the German Society for Paediatric infections, Mainz, Germany.
16. 2003-04 "**Best Poster Award**" in 13th Annual conference of working groups on Juvenile and Adolescent arthritis, Halle, Germany.
17. 2001-02 "**Travel Grant Award**" by American Fisheries Society, Bethesda, USA.
18. 2001-02 "**Skinner Memorial Award**" by American Fisheries Society, Bethesda, USA.
19. 1996-97 "**National Award "SCIENTILLA-96"** in National Bio-technomeet organised by

Association of Biochemical Eng. and food technologists, India at Harcourt Butler Technological Institute, Kanpur, (U.P).

20. 1996-97 “Vice Chancellor Gold Medal” in BS degree programme.

Selected Publications

Books Published

1. “Defense Against Biological Attacks- Vol-II” (2019)

Editors: Sunit K. Singh, Jens H. Kuhn

Publisher: Springer International Publishing, Springer Nature Switzerland AG
(<https://www.springer.com/gp/book/9783030030704>), Pp No: 1-415.

ISBN: 9783030030711

2. “Defense Against Biological Attacks- Vol-I” (2019)

Editors: Sunit K. Singh, Jens H. Kuhn

Publisher: Springer International Publishing, Springer Nature Switzerland AG
(<https://www.springer.com/gp/book/9783030030520>), Pp No: 1-327.

ISBN: 9783030030537

3. “Diagnostics to Pathogenomics of Sexually Transmitted Infections” (2018)

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA (<https://www.wiley.com/en-us/Diagnostics+to+Pathogenomics+of+Sexually+Transmitted+Infections-p-9781119380955>),
Pp No: 1-416.

ISBN: 9781119380955

4. “Neglected Tropical Diseases of South Asia” (2017)

Editors: Sunit K. Singh

Publisher: Springer-Verlag GmbH, Austria
(<https://www.springer.com/gp/book/9783319684925>), Pp No: 517-984.

ISBN: 9783319684932

5. “Special Issue on “Respiratory Viral Infection” for the journal “Seminars in Respiratory and Critical Care Medicine” (2016)

Editors: Sunit K. Singh

Publisher: Thieme, Germany
(<http://as.wiley.com/WileyCDA/WileyTitle/productCd-1118644719.html>), Pp No: 487-646.

Issue: 04, Volume: 37, August 2016, DOI: 10.1055/s-006-32132

6. “Human Emerging and Re-emerging Infections: Bacterial & Mycotic Infections (Vol. II)” (2015)

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA
(<http://as.wiley.com/WileyCDA/WileyTitle/productCd-1118644719.html>), Pp No: 517-984.

ISBN: 9781119074489

7. “Human Emerging and Re-emerging Infections: Viral & Parasitic Infections” (Vol-I)” (2015)

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA

(<http://as.wiley.com/WileyCDA/WileyTitle/productCd-1118644719.html>), Pp No: 1-516.

ISBN: 9781118644713

8. “Human Respiratory Viral Infections” (2014)

Editors: Sunit K. Singh

Publisher: Taylor & Francis/CRC Press, USA (<https://www.crcpress.com/Human-Respiratory-Viral-Infections/Singh/9781466583207>), Pp No: 1-662.

ISBN: 9781466583207

9. “Viral Infections and Global Change” (2013)

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA

(<http://as.wiley.com/WileyCDA/WileyTitle/productCd-1118297873.html>), Pp No: 1-628.

ISBN: 9781118297872

10. “Viral Hemorrhagic Fevers” (2013)

Editors: Sunit K. Singh & Daniel Ruzek

Publisher: Taylor & Francis/CRC Press, USA

(<http://www.ncbi.nlm.nih.gov/nlmcatalog/101603935>), Pp No: 1-576.

ISBN: 9780367379797

11. “Neuroviral Infections: General Principles and RNA Viruses” Vol-II (2013)

Editors: Sunit K. Singh & Daniel Ruzek

Publisher: Taylor & Francis/CRC Press, USA

(<http://www.ncbi.nlm.nih.gov/nlmcatalog/101592050>), Pp No: 1-499.

ISBN: 9781466567207

12. “Neuroviral Infections: General Principles and DNA Viruses” Vol-I (2013)

Editors: Sunit K. Singh & Daniel Ruzek

Publisher: Taylor & Francis/CRC Press, USA

(<http://www.ncbi.nlm.nih.gov/nlmcatalog/101591963>), Pp No: 1-374.

ISBN: 9781466567191

Book Chapters Published

1. Meghana Rastogi & Sunit K. Singh, 2019, Advances in Molecular Diagnostic Approaches for Biothreat Agents, In “Defense Against Biological Attacks- Vol-II” (2019)

Editors: Sunit K. Singh, Jens H. Kuhn

Publisher: Springer International Publishing, Springer Nature Switzerland AG, Pp No: 1-415, ISBN: 9783030030711

2. Santosh K. Singh & **Sunit K. Singh**, 2018, Human Immunodeficiency Virus (HIV) Infection In **“Diagnostics to Pathogenomics of Sexually Transmitted Infections” (2018)**

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA, Pp No: 61-75, ISBN: 9781119380955

3. Meghana Rastogi & **Sunit K. Singh**, 2017, Kyasanur Forest Disease; In **“Neglected Tropical Diseases of South Asia” (2017)**

Editors: Sunit K. Singh

Publisher: Springer-Verlag GmbH, Austria, Pp No: 373-386, ISBN: 9783319684932

4. **Sunit K. Singh**, Middle East Respiratory Syndrome Virus Pathogenesis In **“Special Issue on “Respiratory Viral Infection” for the journal “Seminars in Respiratory and Critical Care Medicine” (2016)**

Editors: Sunit K. Singh

Publisher: Thieme, Germany, Pp No: 572-577, Issue: 04, Volume: 37, August 2016, DOI: 10.1055/s-006-32132

5. **Sunit K. Singh**, Overview on Chikungunya Virus Pathogenesis In **“Human Emerging and Re-emerging Infections: Bacterial & Mycotic Infections (Vol. II)” (2015)**

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA, Pp No: 177-188, ISBN: 9781119074489

6. **Sunit K. Singh**, Molecular Pathogenesis of Japanese Encephalitis Virus Infection In **“Human Emerging and Re-emerging Infections: Bacterial & Mycotic Infections (Vol. II)” (2015)**

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA, Pp No: 113-124, ISBN: 9781119074489

7. A. Sinha, **Sunit K. Singh**, Overview on anatomy of human respiratory system, In **“Human Respiratory Viral Infections” (2014)**

Editors: Sunit K. Singh

Publisher: Taylor & Francis/CRC Press, Pp No: 3-15. ISBN: 9781466583207

8. **Sunit K. Singh**, Spill over Transmission and Emergence of Viral Outbreaks in Humans In **“Viral Infections and Global Change” (2013)**

Editors: Sunit K. Singh

Publisher: John Wiley & Sons/Wiley Blackwell, USA

Pp No: 343-351, ISBN: 9781118297872

9. JA Lahoti, R. Mishra, **Sunit K. Singh**, Vascular Endothelial Dysfunctions: Viral Attack and Immunological Defense, In “**Viral Hemorrhagic Fevers**” (2013)

Editors: Sunit K. Singh & Daniel Ruzek

Publisher: Taylor & Francis/CRC Press, USA

Pp No: 63-83, ISBN: 9780367379797

10. Ritu Mishra, **Sunit K. Singh**, Human Immunodeficiency Virus (HIV) Neuropathogenesis, In “**Neuroviral Infections: General Principles and RNA Viruses**” Vol-II (2013)

Editors: Sunit K. Singh & Daniel Ruzek

Publisher: Taylor & Francis/CRC Press, USA

Pp No: 457-483, ISBN: 9781466567207

11. **Sunit K. Singh** & P B Hajeri, RNAi: From Basics to Therapeutics, In “**Molecular and Cellular Therapeutics** (2012)

Editors: D. Whitehouse and R. Rapley

Publisher: John Willey & Sons Publication, Willey-Blackwell Press, USA,

Pp No: 140-167, ISBN: 9780470748145

12. U. Bhadra, **Sunit K. Singh**, P B Hajeri, M. Bhadra, microRNA tales in fly development”, In, Regulation of gene expression by small RNAs (2009)

Editors: R.K.Gaur and J.J.Rossi

Publisher: Taylor & Francis Group, CRC Press, USA,

Pp No: 123-147, ISBN: 9780470748145

Selected Publications in Peer Reviewed Journals:

1. Rastogi M, **Singh SK** (2020), Japanese Encephalitis Virus exploits microRNA-155 to suppress the non-canonical NF- κ B pathway in human microglial cells, *BBA - Gene Regulatory Mechanisms*, 1863, (11), 194639, <https://doi.org/10.1016/j.bbagr.2020.194639>

2. Rastogi M, **Singh SK** (2020), Zika Virus NS1 affects the Junctional Integrity of Human Brain Microvascular Endothelial Cells, *Biochimie*, 176 (2020), 52-61, [10.1016/j.biochi.2020.06.011](https://doi.org/10.1016/j.biochi.2020.06.011)

3. Agrawal M, Pandey N, Rastogi M, Dogra S, **Singh SK** (2019), Chikungunya Virus modulates the miRNA expression patterns in Human Synovial Fibroblasts *Journal of Medical Virology*, 2019 Sep 4. doi: 10.1002/jmv.25588

4. Rastogi M, **Singh SK** (2019), Modulation of type-I Interferon response by hsa-miR-374b-5p during Japanese Encephalitis Virus infection in human microglial cells *Front. Cell. Infect. Microbiol.*, 2019, Aug 9;9:291. doi: 10.3389/fcimb.2019.00291

5. Agrawal M, Rastogi M, Dogra S, Pandey N, Basu A, **Singh SK** (2019), Chandipura Virus changes cellular miRNome in human microglial cells *Journal of Medical*

Virology, 2019 Apr 24. doi: 10.1002/jmv.25491.

6. Rastogi M, Srivastava N, **Singh SK** (2018), Exploitation of microRNAs by Japanese Encephalitis virus in human microglial cells, *Journal of Medical Virology; Apr;90(4):648-654. doi: 10.1002/jmv.24995.*
7. **Singh SK** (2016), Overview on the tricks of HIV Tat to hit the Blood Brain Barrier, *Current HIV Research*, 2016 14(5):382-388.
8. Rastogi M, Sharma N, **Singh SK** (2016), Flavivirus NS1: A Multifaceted Enigmatic Viral protein, *Virology Journal* 2016 Jul 29;13(1):131, doi: 10.1186/s12985-016-0590-7.
9. Sharma N, Kumawat KL, Rastogi M, Basu A, **Singh SK** (2016), Japanese Encephalitis Virus exploits the microRNA-432 to regulate the expression of Suppressor of Cytokine Signaling (SOCS) 5, *Scientific Reports* 2016 Jun 10;6:27685. doi: 10.1038/srep27685
10. Sharma N, **Singh SK** (2016), Implications of Non-coding RNAs in Viral Infections, *Reviews in Medical Virology Sep;26(5):356-68. doi: 10.1002/rmv.1893.*
11. Sharma N, Verma R, Kumawat KL, Basu A, **Singh SK** (2015), miR-146a suppresses cellular immune response during Japanese encephalitis virus JaOArS982 strain infection in human microglial cells, *Journal of Neuroinflammation*, Feb 18;12:30. doi: 10.1186/s12974-015-0249-0
12. Johri MK, Sharma N, **Singh SK** (2015), HIV Tat Protein: Is Tat-C much trickier than Tat-B? *Journal of Medical Virology*, Aug;87(8):1334-43. doi: 10.1002/jmv.24182.
13. Jadhav V, Krause K-H, **Singh SK** (2014), HIV-1 Tat C modulates NOX2 and NOX4 expressions through miR-17 in Human Microglial Cells, *Journal of Neurochemistry. Dec;131(6):803-15. doi: 10.1111/jnc.12933.*
14. Selvamani SP, Mishra R, **Singh SK** (2014), Chikungunya virus exploits miR-146a to regulate NF- κ B pathway in human synovial fibroblasts, *PLoS One. Aug 1; 9(8): e103624. doi: 10.1371/journal.pone.0103624.*
15. Mishra R, **Singh SK** (2014), HIV-1 Tat C phosphorylates VE-cadherin complex and increases human brain microvascular endothelial cell permeability, *BMC Neuroscience* 2014 Jun 26; 15(1):80. doi: 10.1186/1471-2202-15-80).
16. Manocha GD, Mishra R, Sharma N, Kumawat KL, Basu A, **Singh SK** (2014), Regulatory role of TRIM21 in type-I interferon pathway in Japanese encephalitis virus infected human microglial cells *Journal of Neuroinflammation*, Feb 1;11:24. doi: 10.1186/1742-2094-11-24.
17. Mishra R, **Singh SK** (2013), HIV-1 Tat C modulates expression of miRNA-101 to

suppress VE-Cadherin in Human Brain Microvascular Endothelial Cells, *The Journal of Neuroscience* 33(14):5992-6000; doi:10.1523/JNEUROSCI.4796-12.2013. (Included in F1000)

18. F1000Prime Recommendations, Dissents and Comments for [Mishra R and Singh SK, J Neurosci 2013, 33(14):5992-6000]. In F1000 Prime, 15 May 2013; F1000Prime.com/718001871
19. Hotez P, Singh SK, Zhou X-N (2013), Advancing Sino-Indian Cooperation to combat tropical diseases (Editorial), *PLoS Neglected Tropical Diseases* 7(9), 1-4.
20. Mishra R, Chhatbar C, Singh SK (2012), HIV-1 Tat C-mediated regulation of tumor necrosis factor receptor-associated factor-3 by microRNA 32 in human microglia, *Journal of Neuroinflammation*, Jun 18;9:131. doi: 10.1186/1742-2094-9-131
21. Han YW, Singh SK, Eo SK (2012), The Roles and Perspectives of Toll-Like Receptors and CD4+ Helper T Cell Subsets in Acute Viral Encephalitis. *Immune Network*. 12(2):48-57.
22. Růžek D, Salát J, Singh SK, Kopecký J (2011) Breakdown of the Blood-Brain Barrier During Tick-Borne Encephalitis in Mice Is Not Dependent on CD8+ T-cells *PLoS One*. 2011;6(5): e20472. doi: 10.1371/journal.pone.0020472.
23. Singh SK, Unni SK (2011), Chikungunya Virus: Host Pathogen Interaction. *Reviews in Medical Virology*, 21(2)78-88.
24. Chhatbar C, Mishra R, Singh SK (2011), HIV Vaccine: Hopes and Hurdles. *Drug Discov Today*.,Nov;16(21-22):948-56.
25. Unni SK, Růžek D, Chhatbar C, Mishra R, Johri MK, Singh SK (2011), Japanese encephalitis virus: From Genome to Infectome. *Microbes and Infection*. 13(4) 312-21.
26. Johri MK, Mishra R, Chhatbar C, Unni SK, Singh SK (2011), Tits and bits of HIV Tat Protein. *Expert Opinion on Biological Therapy*. 11 (3) 269-83.
27. Singh SK, Gaur RK (2009), Progress towards therapeutic application of RNA interference for HIV infection, *BioDrugs*, 23 (5): 269–276.
28. Singh SK, Hajeri PB (2009), siRNAs: their potential as therapeutic agents - Part II. Methods of delivery, *Drug Discovery Today*, Sep; 14(17-18):859-65.
29. Hajeri PB, Singh SK (2009), siRNAs: their potential as therapeutic agents - Part I. Designing of siRNAs, *Drug Discovery Today*, Sep; 14(17-18):851-8.
30. Singh SK (2008), RNA interference and its therapeutic potential against HIV infection. *Expert Opinion on Biological Therapy* 8(4):449-461.
31. Morbach H, Richl P, Faber C, Singh SK, H.J Girschick (2008), The kappa

immunoglobulin light chain repertoire of peripheral blood B cells in patients with juvenile rheumatoid arthritis, *Molecular Immunology*, 45(14):3840-6.

32. **Singh SK** (2008), Oral Polio Vaccine: A matter of debate *Future Microbiology* 3(4):383-385.

33. **Singh SK**, Bhadra M, Girschick HJ, Bhadra U (2008), MicroRNAs: Micro in size but macro in function, *The FEBS Journal* 275 (20), 4929-44.

**** Figure selected as the cover page of the journal (First & Corresponding).**

34. **Singh SK** (2007), HIV spread among women (Editorial) *Expert Reviews of Antiinfective Therapy* 5(5):755-758.

35. **Singh SK** (2007), MicroRNAs: From Neurogeneration to Neurodegeneration *Pharmacogenomics*;8(8):971-8.

36. **Singh SK** (2007), Endogenous Retroviruses-Suspects in Disease World. *Future Microbiology* 2(3), 269-275.

37. **Singh SK** (2007), Topical microbicides against HIV spread: What, Where and Why? (Editorial) *Future Virology* 2(3), 219-224.

38. Pleasure D, Soulika A, **Singh SK**, Gallo V, Bannerman P (2006), Inflammation in white matter: Clinical and pathophysiological aspects *Mental Retardation and Developmental Disabilities Research Reviews*, 12(2): 141-146.

39. **Singh SK**, Girschick HJ (2006), Toll like receptors in *Borrelia burgdorferi* induced inflammation, *Clinical Microbiology and Infection*, 12(8): 705-717.

40. Faber C, Morbach H, **Singh SK**, Girschick HJ (2006), Differential expression patterns of recombination-activating genes in individual mature B cells in juvenile idiopathic arthritis *Annals of Rheumatic Diseases* 65(10):1351-6.

41. **Singh SK**, Baar V, Girschick HJ (2005), Expression of ICAM-1, ICAM-2, NCAM-1 and VCAM-1 by human synovial cells exposed to *Borrelia burgdorferi* *in vitro*. *Rheumatology International*, 26(9): 818-827.

42. Morbach H, **Singh SK**, Faber C, Grammer A, Lipsky PE, Girschick HJ (2005), Analysis of RAG expression by peripheral blood CD5+ and CD5- B cells of patients with childhood Systemic Lupus Erythematosus. *Annals of Rheumatic Diseases*,65(4): 482-7.

43. **Singh SK**, Morbach H, Nanki T, Wirsing A, Girschick HJ (2005), Differential expression of Chemokines in Synovial cells exposed to different *Borrelia burgdorferi* isolates, *Clinical and Experimental Rheumatology*, 23(3): 311-22.

44. **Singh SK**, Morbach H, Nanki T, Faber C, Baar V, Girschick HJ (2004), Differential expression of Matrix metalloproteinases and Cyclooxygenases in synovial cells exposed to

different *Borrelia burgdorferi* isolates Geho and B31, *Inflammation Research*, **53(12)** 689-696.

45. **Singh SK**, Girschick HJ (2004), Molecular survival strategies of the Lyme disease spirochete *Borrelia burgdorferi*; *Lancet Infectious diseases*, **4(9)**: 575-583.

46. **Singh SK**, Girschick HJ (2004), Lyme borreliosis: from infection to autoimmunity, *Clinical Microbiology and Infection*, **10(7)**: 598-614. (Impact Factor: 5.197)

47. **Singh SK**, Girschick HJ (2003), Tick-host interaction and their immunological implications in Tick-borne diseases, *Current Science* **85:9**, 1284-1298.

Message for Research Scholars

Ph.D and Postdoctoral aspirants having interest in Molecular Virology to understand the intricacies of Virus-host interactions are always most welcome to join my research group based on the available vacancies. My lab believes in working together as a team to answer the burning research questions in the field of Molecular Human Virology.