

Curriculum Vitae
Birendra P Gupta, PhD
Research Associate, Institute of Human Virology
University of Maryland

Contact Information

Business Address: Institute of Human Virology
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2010 B.S., with distinction, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), India
2012 M.S., Virology, University of Pune (UP), India
2017 Ph.D., Tribhuvan University (TU), Nepal

Post Graduate Education and Training

2022 - 2024 Postdoctoral Fellow, Institute of Human Virology, MD, USA
2017 - 2018 WHO-TDR Clinical Research Fellow, International Vaccine Institute, Seoul, South Korea

Certifications

2019-2019 Diploma in Vaccinology, Institute Pasteur, Paris, France

Employment History

Academic Appointments

2018-2019 Consultant, International Vaccine Institute, South Korea
2020-2022 Assistant Professor, Central Department of Biotechnology, Tribhuvan University, Nepal
2024-present Research Associate, Institute of Human Virology
2025- present Adjunct Assistant Professor, Duke-NUS, Singapore
2025- present Adjunct Assistant Professor, Madan Bhandari Academy of Health Science, Nepal

Honors and Awards

2010 Gold Medal for outstanding student of JIPMER, India

2013 Nepal Bidhya Bhusan Padak 'Ka' from Honorable President of Nepal
2019 Nepal Bidhya Bhusan Padak 'Ga' from Honorable President of Nepal

Research Activities

Research Interest:

My research focuses on infectious diseases, particularly virology, emerging and re-emerging infections, molecular diagnostics, pathogen genomics, and vaccine clinical trials. My goal is to improve infectious disease diagnosis, surveillance, and prevention, particularly in low- and middle-income countries (LMICs).

A major focus of my research is acute febrile illness (AFI) and pyrexia of unknown origin (PUO), with an emphasis on using multiplex PCR, metagenomic next-generation sequencing (mNGS), and pathogen genomic sequencing to identify infectious causes of unexplained fever. My work also includes molecular epidemiology and genomic characterization of emerging viral infections to better understand pathogen transmission, evolution, and outbreaks.

I have experience in vaccine research, including Phase III clinical trials of typhoid conjugate and oral cholera vaccines. I am also committed to strengthening research and laboratory capacity in LMICs through international collaboration. My long-term goal is to integrate clinical research, molecular diagnostics, genomics, and epidemiology to strengthen infectious disease surveillance, outbreak preparedness, and prevention globally.

Publications

Peer-reviewed journal articles

1. **Gupta, B.**, Blanco, N., Wagle, C. et al. Pyrexia of unknown origin (PUO) in South Asia: a systematic review of etiology, diagnostic gaps and management practices. BMC Infect Dis(2026). <https://doi.org/10.1186/s12879-026-14121-9>
2. Seroprevalence of hepatitis E in general, hepatic, and pregnant populations in Nepal, Bangladesh, and Pakistan: a systematic review and meta-analysis. **Gupta BP**, Sah AK, Sah AK, Gupta VP, Ghimire DP, Acharya N, Wagle C. Virol J. 2025 Dec 5;23(1):6. doi: 10.1186/s12985-025-03027-8. PMID: 41350906 Free PMC article.
3. Serological and molecular characterization of hepatitis E virus and co-infections during the 2014 Biratnagar outbreak in Nepal. **Gupta BP**, Sah AK, Sah AK, Gupta VP, Ghimire DP, Acharya N, Wagle C. BMC Infect Dis. 2025 Oct 23;25(1):1395. doi: 10.1186/s12879-025-11880-9. PMID: 41131491
4. Wagle, C., Ghimire, D.P., Sah, A.K., Sah, A.K., Gupta, V.P., Uranw, S., **Gupta, B.P.** Elevated liver enzyme (AST and ALT) as biomarkers for severe dengue in Nepalese patients: a cross-sectional study. BMC Infect Dis 25, 1118 (2025). <https://doi.org/10.1186/s12879-025-11549-3>
5. Malhotra S, **Gupta BP**, Uranw S, Mantri CK, Rathore APS, St John AL. Dengue disease severity in humans is augmented by waning Japanese encephalitis virus immunity. Sci Transl Med. 2025 Sep 3;17(814):eads9572. doi: 10.1126/scitranslmed.ads9572. Epub 2025 Sep 3. PMID: 40901927.

6. Adhikari S, Rai GK, Chapagain RH, Giri BR, Joshi P, Shrestha NJ, Manandhar BP, Tamang SM, Maharjan J, Thapaliya B, **Gupta BP**, Kim DR, Vemula S, Sahastrabuddhe S, Saluja T. Immunogenicity and Safety Profile of Typhoid Conjugate Vaccine (Vi-DT) Among Nepali Children. *J Nepal Health Res Counc.* 2025 Jun 29;23(1):82-88. doi: 10.33314/jnhrc.v23i01.5251. PMID: 40776518.
7. Wagle C, Baniya JB, Aryal N, Ghimire DP, Sah AK, Sah AK, Gupta VP, **Gupta BP**. HEV seroprevalence and associated risk factors among HIV-positive individuals in post-earthquake Kathmandu: a 2016 cross-sectional study. *BMC Infect Dis.* 2025 Aug 5;25(1):986. doi: 10.1186/s12879-025-11382-8. PMID: 40764531; PMCID: PMC12326692.
8. **Gupta BP**, Ghimire N. Expanding Horizons: Increasing Injectable Vaccine in the Expanded Program on Immunization. *JNMA J Nepal Med Assoc.* 2024 Nov;62(279):785-788. doi: 10.31729/jnma.8773. Epub 2024 Nov 30. PMID: 40656802; PMCID: PMC11931338.
9. **Gupta BP**, Uranw S, Gupta VP, Deuba E, Sah AK, Chaudhary S, Wagle C. Leukopenia and thrombocytopenia in dengue patients: a cross-sectional study from a tertiary hospital in Koshi Province, Nepal. *BMC Infect Dis.* 2025 May 26;25(1):753. doi: 10.1186/s12879-025-11126-8. PMID: 40419985; PMCID: PMC12105263.
10. Haque Pial R, Rai GK, Shrestha R, Das SK, Chapagain RH, Chaudhary S, Tamrakar D, Kanodia P, Thapa P, Vemula S, **Gupta BP**, Hill A, Kimathi D, Baiden R, Kim HS, Excler JL, Wartel TA, Sahastrabuddhe S, Saluja T. The long-term impact of vaccine clinical research on national stakeholders involved: Experience from a low-income Country. *Hum Vaccin Immunother.* 2025 Dec;21(1):2441425. doi: 10.1080/21645515.2024.2441425. Epub 2024 Dec 26. PMID: 39723535.
11. Chaudhary S, Uranw S, Rai B, Keshary Bhatta N, Shah GS, Poudel P, Khanal B, Shah Kalawar RP, Rai N, Shrestha J, Shrestha M, Parajuli S, **Gupta BP**, Vemula S, Rok Song K, Lynch J, Saluja T. Knowledge and perception of a clinical trial among the participants: An experience from oral cholera vaccine study in Koshi Province, Nepal. *Hum Vaccin Immunother.* 2024 Dec 31;20(1):2416760. doi: 10.1080/21645515.2024.2416760. Epub 2024 Oct 15. PMID: 39410717; PMCID: PMC11485811.
12. Tamrakar D, Poudel P, Thapa P, Singh S, Khadgi A, Thapa S, Tamrakar R, Shrestha A, Madhup S, Rai GK, **Gupta BP**, Saluja T, Sahastrabuddhe S, Shrestha R. Safety and immunogenicity of conjugate vaccine for typhoid (Vi-DT): Finding from an observer-blind, active-controlled, randomized, non-inferiority, phase III clinical trial among healthy volunteers. *Hum Vaccin Immunother.* 2024 Dec 31;20(1):2301631. doi: 10.1080/21645515.2023.2301631. Epub 2024 Jan 8. PMID: 38189360; PMCID: PMC10793708.
13. Chaudhary S, Shah GS, Bhatta NK, Poudel P, Rai B, Uranw S, Tripathi PM, Khanal B, Ghimire A, Rai N, **Gupta BP**, Vemula S, Wartel TA, Sahastrabuddhe S, Saluja T. A randomized, observer-blind, controlled phase III clinical trial assessing safety and immunological non-inferiority of Vi-diphtheria toxoid versus Vi-tetanus toxoid typhoid conjugate vaccine in healthy volunteers in eastern Nepal. *Hum Vaccin Immunother.* 2023 Dec 31;19(1):2203634. doi: 10.1080/21645515.2023.2203634. PMID: 37128723; PMCID: PMC10142305.
14. Saluja T, Rai GK, Chaudhary S, Kanodia P, Giri BR, Kim DR, Yang JS, Park IY, Kyung SE, Vemula S, Reddy E J, Kim B, **Gupta BP**, Jo SK, Ryu JH, Park HK, Shin JH, Lee Y, Kim H, Kim

- JH, Mojares ZR, Wartel TA, Sahastrabuddhe S. Immune non- interference and safety study of Vi-DT typhoid conjugate vaccine with a measles, mumps and rubella containing vaccine in 9-15 months old Nepalese infants. *Vaccine*. 2022 Sep 22;40(40):5828-5834. doi: 10.1016/j.vaccine.2022.08.034. Epub 2022 Sep 3. PMID: 36064672.
15. Chapagain RH, Adhikari S, Giri BR, Ray P, Shrestha NJ, Prajapati B, Joshi P, Pokharel S, Tamang SM, **Gupta BP**, Wartel TA, Sahastrabuddhe S, Rai GK, Saluja T. Factors affecting willingness to participate in vaccine clinical trials in an underdeveloped country: perspective from Nepal. *Hum Vaccin Immunother*. 2022 Nov 30;18(5):2051413. doi: 10.1080/21645515.2022.2051413. Epub 2022 Mar 30. PMID: 35353657; PMCID: PMC9225427.
 16. Kumar Rai G, Saluja T, Chaudhary S, Tamrakar D, Kanodia P, Giri BR, Shrestha R, Uranw S, Kim DR, Yang JS, Park IY, Kyung SE, Vemula S, Reddy E J, Kim B, **Gupta BP**, Jo SK, Ryu JH, Park HK, Shin JH, Lee Y, Kim H, Kim JH, Mojares ZR, Wartel TA, Sahastrabuddhe S. Safety and immunogenicity of the Vi-DT typhoid conjugate vaccine in healthy volunteers in Nepal: an observer-blind, active- controlled, randomised, non-inferiority, phase 3 trial. *Lancet Infect Dis*. 2022 Apr;22(4):529-540. doi: 10.1016/S1473-3099(21)00455-2. Epub 2021 Dec 20. PMID: 34942090; PMCID: PMC8942857.
 17. Saluja T, Giri BR, Chaudhary S, Tamrakar D, Kanodia P, Palkar S, Vemula S, Chinaworapong S, Kim B, **Gupta BP**, Kyoung Jo S, Aspinall S, Rai GK, Steele D, Kim JH, Wartel TA, Sahastrabuddhe S. Challenges and opportunities in setting up a phase III vaccine clinical trial in resource limited settings: Experience from Nepal. *Hum Vaccin Immunother*. 2021 Jul 3;17(7):2149-2157. doi: 10.1080/21645515.2020.1855955. Epub 2021 Feb 1. PMID: 33524278; PMCID: PMC8189093.
 18. Manandhar KD, McCauley M, **Gupta BP**, Kurmi R, Adhikari A, Nguyen AV, Elong Ngono A, Zompi S, Sessions OM, Shresta S. Whole Genome Sequencing of Dengue Virus Serotype 2 from Two Clinical Isolates and Serological Profile of Dengue in the 2015-2016 Nepal Outbreak. *Am J Trop Med Hyg*. 2021 Jan;104(1):115-120. doi: 10.4269/ajtmh.20-0163. PMID: 33073748; PMCID: PMC7790085.
 19. Bastola A, Shrestha M, Lamsal M, Shrestha S, Prajapati S, Adhikari A, **Gupta BP**, Hide M, Devkota L, Chalise BS, Pandey K, Manandhar KD. A case of high altitude cutaneous leishmaniasis in a non-endemic region in Nepal. *Parasitol Int*. 2020 Feb;74:101991. doi: 10.1016/j.parint.2019.101991. Epub 2019 Sep 11. PMID: 31520692.
 20. Wang SL, **Gupta BP**, Ji WF, Tang ZM, Wen GP, Adhikari A, Ying D, Zhang X, Liu C, Zheng ZZ, Xia NS. Application of Hepatitis E Virus-Related Markers on Samples from a Developing Country. *Clin Lab*. 2019 Mar 1;65(3). doi: 10.7754/Clin.Lab.2018.180708. PMID: 30868849.
 21. Karn S, Bhattarai M, Rauniyar R, Adhikari A, Karna P, Upadhyay BP, **Gupta BP**. Determination of CD4+ T- Lymphocytes in Healthy Children of Kathmandu. *J Nepal Health Res Counc*. 2018 Oct 30;16(3):325-329. PMID: 30455494.
 22. Shah SM, Baniya JB, **Gupta BP**, Shrestha A, Rodin H, Boonstra A, Debes JD. Short article: Association between liver fibrosis and hepatitis E seroprevalence among HIV-positive individuals in Nepal. *Eur J Gastroenterol Hepatol*. 2019 Apr;31(4):503-505. doi: 10.1097/MEG.0000000000001308. PMID: 30399002.

23. Adhikari K, Saimbi CS, **Gupta BP**. Estimation of Transmission of Porphyromonas Gingivalis from Mother to Child through Saliva. JNMA J Nepal Med Assoc. 2018 Jul-Aug;56(212):781-786. doi: 10.31729/jnma.3475. PMID: 30387469; PMCID: PMC8827543.
24. **Gupta BP**, Adhikari A, Chaudhary S. Hepatitis viruses in Kathmandu, Nepal: hospital-based study. BMC Res Notes. 2018 Aug 30;11(1):627. doi: 10.1186/s13104-018-3739-1. PMID: 30165899; PMCID: PMC6117890.
25. Mehta PK, Rauniyar R, **Gupta BP**. Microfilaria persistent foci during post MDA and the risk assessment of resurgence in India. Trop Med Health. 2018 Jul 17;46:25. doi: 10.1186/s41182-018-0107-8. PMID: 30026669; PMCID: PMC6050703.
26. **Gupta BP**, Haselbeck A, Kim JH, Marks F, Saluja T. The Dengue virus in Nepal: gaps in diagnosis and surveillance. Ann Clin Microbiol Antimicrob. 2018 Jul 16;17(1):32. doi: 10.1186/s12941-018-0284-7. PMID: 30008269; PMCID: PMC6047123.
27. Khetan RP, Stein DA, Chaudhary SK, Rauniyar R, Upadhyay BP, Gupta UP, **Gupta BP**. Profile of the 2016 dengue outbreak in Nepal. BMC Res Notes. 2018 Jul 3;11(1):423. doi: 10.1186/s13104-018-3514-3. PMID: 29970132; PMCID: PMC6029055.
28. **Gupta BP**, Lamsal M, Chaulagain S, Rauniyar R, Malla R, Shrestha S, Kurmi R, Das Manandhar K. Emergence of dengue in Nepal. Virusdisease. 2018 Jun;29(2):129-133. doi: 10.1007/s13337-018-0439-3. Epub 2018 Feb 17. PMID: 29911144; PMCID: PMC6003061.
29. Bhattarai M, Baniya JB, Aryal N, Shrestha B, Rauniyar R, Adhikari A, Koirala P, Oli PK, Pandit RD, Stein DA, **Gupta BP**. Epidemiological Profile and Risk Factors for Acquiring HBV and/or HCV in HIV-Infected Population Groups in Nepal. Biomed Res Int. 2018 Jan 2;2018:9241679. doi: 10.1155/2018/9241679. PMID: 29487874; PMCID: PMC5816881.
30. **Gupta BP**, Tuladhar R, Kurmi R, Manandhar KD. Dengue periodic outbreaks and epidemiological trends in Nepal. Ann Clin Microbiol Antimicrob. 2018 Feb 23;17(1):6. doi: 10.1186/s12941-018-0258-9. PMID: 29471819; PMCID: PMC5824540.
31. Sah SK, González JV, Shrestha S, Adhikari A, Manandhar KD, Yadav SB, Stein DA, **Gupta BP**, Picconi MA. Human papillomavirus genotype distribution in cervical cancer biopsies from Nepalese women. Infect Agent Cancer. 2018 Jan 17;13:4. doi: 10.1186/s13027-018-0176-7. PMID: 29375654; PMCID: PMC5773015.
32. Shrestha A, Adhikari A, Bhattarai M, Rauniyar R, Debes JD, Boonstra A, Lama TK, Al Mahtab M, Butt AS, Akbar SMF, Aryal N, Karn S, Manandhar KD, **Gupta BP**. Prevalence and risk of hepatitis E virus infection in the HIV population of Nepal. Virol J. 2017 Nov 21;14(1):228. doi: 10.1186/s12985-017-0899-x. PMID: 29162143; PMCID: PMC5696774.
33. Sah AK, Joshi B, Khadka DK, **Gupta BP**, Adhikari A, Singh SK, Rai G, Vaidya GS, Rajbhandari R, Pant B, Rai SK. Comparative Study of GeneXpert MTB/RIF Assay and Multiplex PCR Assay for Direct Detection of Mycobacterium tuberculosis in Suspected Pulmonary Tuberculosis Patients. Curr Microbiol. 2017 Sep;74(9):1026-1032. doi: 10.1007/s00284-017-1279-x. Epub 2017 Jun 13. PMID: 28612135.
34. **Gupta BP**, Lama TK, Adhikari A, Shrestha A, Rauniyar R, Sapkota B, Thapa S, Shrestha S, Gupta PP, Das Manandhar K. First report of hepatitis E virus viremia in healthy blood donors from Nepal. Virusdisease. 2016 Sep;27(3):324-326. doi:10.1007/s13337-016-0331-y. Epub 2016 Aug 10. PMID: 28466048; PMCID: PMC5394713.
35. Chaudhary P, Bhandari D, Thapa K, Thapa P, Shrestha D, Chaudhary HK, Shrestha A, Parajuli H, **Gupta BP**. Prevalence of Extended Spectrum Beta-Lactamase Producing

- Klebsiella Pneumoniae Isolated From Urinary Tract Infected Patients. J Nepal Health Res Counc. 2016 May;14(33):111-115. PMID: 27885293.
36. **Gupta BP**, Adhikari A, Rauniyar R, Kurmi R, Upadhya BP, Jha BK, Pandey B, Das Manandhar K. Dengue virus infection in a French traveller to the hilly region of Nepal in 2015: a case report. J Med Case Rep. 2016 Mar 21;10:65. doi: 10.1186/s13256-016-0847-1. PMID: 26997343; PMCID: PMC4800766.
 37. **Gupta BP**, Singh S, Kurmi R, Malla R, Sreekumar E, Manandhar KD. Re-emergence of dengue virus serotype 2 strains in the 2013 outbreak in Nepal. Indian J Med Res. 2015 Dec;142 Suppl(Suppl 1):S1-6. doi: 10.4103/0971-5916.176564. PMID: 26905233; PMCID: PMC4795338.
 38. **Gupta BP**, Shrestha A, Adhikari A, Lama TK, Sapkota B. Acute hepatitis E virus infection in human immunodeficiency virus-positive men and women in Nepal: Not quite a rare entity. Hepatology. 2016 Sep;64(3):1006-7. doi:10.1002/hep.28480. Epub 2016 Mar 15. PMID: 26845252.
 39. Shrestha A, Lama TK, **Gupta BP**, Sapkota B, Adhikari A, Khadka S, Shrestha SM, Maharjan KG, Karmacharya P, Akbar SM. Hepatitis E virus outbreak in postearthquake Nepal: is a vaccine really needed? J Viral Hepat. 2016 Jun;23(6):492. doi: 10.1111/jvh.12505. Epub 2016 Jan 12. PMID: 26756604.
 40. Adhikari A, Rauniyar R, Raut PP, Manandhar KD, **Gupta BP**. Evaluation of sensitivity and specificity of ELISA against Widal test for typhoid diagnosis in endemic population of Kathmandu. BMC Infect Dis. 2015 Nov 14;15:523. doi: 10.1186/s12879-015-1248-6. PMID: 26573629; PMCID: PMC4647669.
 41. Ojha CR, Rijal N, Khagendra KC, Palpasa K, Kansakar P, **Gupta BP**, Shaky G. Lower respiratory tract infections among HIV positive and control group in Nepal. Virusdisease. 2015 Jun;26(1-2):77-81. doi: 10.1007/s13337-015-0254-z. Epub 2015 Jun 23. PMID: 26436125; PMCID: PMC4585060.
 42. Adhikari A, **Gupta BP**, Das Manandhar K, Mishra SK, Saiju HK, Shrestha RM, Mishra N, Sharma S. Negative feedback circuit for toll like receptor-8 activation in human embryonic Kidney 293 using outer membrane vesicle delivered bi-specific siRNA. BMC Immunol. 2015 Jul 23;16:42. doi: 10.1186/s12865-015-0109-9. PMID: 26202481; PMCID: PMC4510891.
 43. Singh S, **Gupta BP**, Manakkadan A, Das Manandhar K, Sreekumar E. Phylogenetic study reveals co-circulation of Asian II and Cosmopolitan genotypes of Dengue virus serotype 2 in Nepal during 2013. Infect Genet Evol. 2015 Aug;34:402-9. doi: 10.1016/j.meegid.2015.07.006. Epub 2015 Jul 6. PMID: 26160542.

Books

1. Gupta BP, Rai SK, Sherchand JB. Textbook of Medical Virology. 1st ed. Bhundipuran Prakashan: Kathmandu, Nepal; 2015.