Complete Bio-data of the Applicant (Max 1.5 MB)

Education:

SI No	Institution Place	Degree Awarded	Year	Field of Study
1	University of Allahabad	B.Sc.	2004	Chemistry, Botany, Zoology
1	University of Jammu	M.Sc.	2006	Biotechnology
2	University of Calcutta	Ph.D.	2014	Immunology

Position and Employment:

SI No	Institution Place	Position	From (Date)	To (Date)
1	ICGEB, New Delhi, India	Group Leader	01/02/2019	Present
2	ICGEB, New Delhi, India	DST-INSPIRE Faculty	17/04/2015	31/01/2019
3	University of KwaZulu-Natal, Durban, South Africa	Post Doc Fellow	18/08/2013	31/03/2015

Honors/Awards:

1. Full time scholarship from DBT (Govt. of India) during the M.Sc. course.
2. Qualified GATE 2008 with 97 percentile.
3. Awarded travel grant from DBT to attend the Keystone Symposium: J3-Immunology, Cell Biology and Novel Vaccination Strategies held 1/15/2011 - 1/20/2011 at Fairmont Hotel Vancouver, BC, Canada.
4. Awarded Best Thesis Award from the association of Indian Universities.
5. Awarded first prize in oral presentation in College of Health Sciences Research Symposium (CHSRS), held at K-RITH Building, UKZN, Durban on September 11-12, 2014.
6. Awarded DST-INSPIRE Faculty Fellowship 2015.
7. Awarded travel grant from Bill Gates & Melinda Foundation to attend the Keystone Symposium held 29/02/2016 - 04/03/2016 at Keystone Resort, Colorado, USA.
8. Awarded Early Career Research Award (2016) from DST-SERB.
9. Lifetime Member of Indian Immunological Society.
10. Awarded future of science fund scholarship from Keystone Symposium to attend Tuberculosis: Translating Scientific Findings for Clinical and Public Health Impact (X7) from April 15-19, 2018 at Fairmont Chateau Whistler, Whistler, British Columbia, Canada.
11. Awarded NASI-Young Scientist Platinum Jubilee Award-2019.
12. Awarded Global Health Travel Award from Keystone Symposium to attend eSymposium on Tuberculosis: Science Aimed at Ending the Epidemic - EK10 from December 2-4, 2020.
13. Selected for ICMR Training on Roles and Responsibilities of Ethics Committee

Members, held on 16th March 2021 and Organized by ICMR Bioethics Unit, National Centre for Disease Informatics and Research, Bangalore, India.

14. Awarded ICMR-Shakuntala Amir Chand Prize 2020 from Indian Council of Medical Research.
15. Selected as BRICS Young Scientist 2022.

Institutional Responsibilities:

1. Institutional Academic/Admission Committee member.
2. Institutional Purchase Committee member.
3. Institutional Safety Committee member.

Other Responsibilities:
Instrument Purchase Committee member in Ministry of Ayush, Government of India.

Teaching:
Teaching Immunology in course work for PhD students at ICGEB, New Delhi, India

Examiner:
Served as an examiner for Masters student at MCARS, Jamia Milia Islamia University, New Delhi, India

Conference Organization:

1. Co-Organized International Conference on Molecular Basis of Diseases and Therapeutics (ICMBDT-2019) held on March 8-10, 2019 at Central University of Rajasthan, Rajasthan India.
2. Co-Organized ICGEB In-House Symposium held on 22 October 2019 at International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India.
3. Co-Organized and Presented in EMBO India Symposium: Mycobacterial heterogeneity and host tissue tropism held on 11-15th February 2020 at National Institute of Immunology and International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India
4. Organized International ICGEB-DBT workshop on "Advanced training in immunology of tuberculosis" held on 16th- 22nd May 2022 at National Institute of Immunology and International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India

Reviewer:
Trends in Microbiology, Nature Communications, Molecular Therapy-Nucleic acid Research, Frontiers in cellular and infection microbiology, Open Biology from Royal Society, Frontiers in Microbiology, Frontiers in Pharmacology, Frontiers in Immunology.

Editor:
Frontiers in Microbiology, Frontiers in Pharmacology

Professional Experience and Training:
We provided the evidence for the first time that Th17 cell responses in the lung play a critical role for enhanced protection against TB **(PLoS Pathogens 2011)**. Furthermore, our findings indicate that IL-1β induced by RD-1/ESAT-6 plays an important role in the differentiation of

Th2 cells, which in turn facilitates progression of TB **(Journal of Biological Chemistry 2012)**. Moreover, our group developed a novel therapy for tuberculosis as they show that animals (Stat-6-/-CD4-TGFβRIIDN mice) that are unable to generate both Th2 cells and Tregs are highly resistant to *M.tb* infection and simultaneous inhibition of these two subsets of Th cells by therapeutic compounds dramatically reduced bacterial burden in different organs **(Journal of Biological Chemistry 2014a)**. Furthermore, our findings provide evidence that simultaneous inhibition of Th2 cells and Tregs during BCG vaccination promotes vaccine efficacy **(Journal of Biological Chemistry 2014b)**. We also reported that TlyA protein of *M.tb* significantly contributes to the pathogenesis of *M.tb.* **(Journal of Biological Chemistry 2015)**. Moreover, we showed that pharmacological inhibition of $Kv1.3^{+}$, a potassium channel preferentially expressed by T_{EM} cells, with Clofazimine selectively expands T_{CM} cells during vaccination with Bacillus Calmette Guerin (BCG) **(Journal of Infectious Diseases 2016)**. Furthermore, I established my own group, Immunobiology group at ICGEB, New Delhi in early 2019 and started giving training to my graduate students and post-doctoral fellows. One of our findings recently got published in **The Journal of Biological Chemistry 2019**, where my group has shown that the immunomodulator Bergenin, isolated from the medicinal plants may be employed as an adjunct therapy along with traditional tuberculosis therapy with ATT therapy in mice and promoted long- lasting, antigen-specific central memory T cell responses; and acted as a self-propelled vaccine. **(Frontiers in Cellular and Infection Microbiology 2017; Journal of Biological Chemistry 2019)**. Recently in collaborative study, we established that *M.tb* gains dormancy in MSCs, which serve as a long-term natural reservoir of dormant *M.tb* and induction of autophagy eliminated *M.tb* from MSCs, and attained sterile clearance and prevented disease reactivation **(Journal of Clinical Investigation 2020)**. Furthermore, we have generated an immunogenic complex against *M.tb*, consisting of promiscuous T cell epitopes and TLR ligands assembled in liposomes. Intranasal delivery of this complex significantly reduced the bacterial burden in the infected mice by inducing robust *M.tb* specific polyfunctional immune responses and long-lasting central memory responses thereby reducing the risk of TB recurrence in DOTS treated infected animals **(JCI Insight, 2021)**. **This molecule (PTLs) has been patented and presently in National Phases of various South East Asian and African Countries.**
Furthermore, we provided evidence for the first time that SQ109 (N^1-(Adamantan-2-yl)-N^2-[(2*E*)-3,7-dimethylocta-2,6-dien-1-yl]ethane-1,2-diamine), an anti-mycobacterial drug affects the host immune responses during tuberculosis and observed that SQ109 instigates M1-macrophage polarization and induces protective pro-inflammatory cytokines through the p38-MAPK pathway **(Commun Biol. 2022)**. We are also trying to understand the transition of *Mycobacterium tuberculosis* (*M.tb*) from a dormant to an active state for designing novel therapeutic strategies to prevent *M.tb* resuscitation **(Front Cell Infect Microbiol. 2022)**. We are also involved in employing various strategies to generate novel vaccination approaches against TB **(Front Immunol. 2022)**. Apart from this group we are also involved in exploring the role of epigenetics during TB pathogenesis **(FEBS J. 2022; iScience 2023)**. We have also formulated various adjunct-therapy of TB, which can shorten the duration of ATT and also induces the long lasting protective immunity against TB **(PLoS Pathogens-2023; Microbiology Spectrum-2023a; Microbiology Spectrum-2023b; JID-2023)**.

Publications:

1. Dhiraj Kumar Singh, Ashima Bhaskar, Isha Pahuja, Aishwarya Shaji, Barnani Moitra, Yufang Shi, **Ved Prakash Dwivedi**, Gobardhan Das. Co-treatment with Clofazimine and

Rapamycin eliminates drug-resistant tuberculosis by inducing polyfunctional central memory T cell responses. **J Infect Dis. 2023 Jun 8:jiad214. Online ahead of print.**

2. Isha Pahuja, Akanksha Verma, Antara Ghoshal, Suparba Mukhopadhyay, Anjna Kumari, Aishwarya Shaji, Shivam Chaturvedi, **Ved Prakash Dwivedi**, Ashima Bhaskar. Biapenem, a Carbapenem Antibiotic, Elicits Mycobacteria Specific Immune Responses and Reduces the Recurrence of Tuberculosis. **Microbiol Spectr. 2023 Jun 5:e0085823.**
3. Ashima Bhaskar, Isha Pahuja, Kriti Negi, Akanksha Verma, Antara Ghoshal, Babu Mathew, Gaurav Tripathi, Jaswinder Singh Maras, Shivam Chaturvedi and **Ved Prakash Dwivedi**. SIRT2 inhibition by AGK2 enhances mycobacteria- specific stem cell memory responses by modulating beta-catenin and glycolysis. **iScience. 2023 Apr 10;26(5):106644.**
4. Annu Devi, Isha Pahuja, Shashi Prakash Singh, Akanksha Verma, Debapriya Bhattacharya, Ashima Bhaskar, **Ved Prakash Dwivedi***, Gobardhan Das*. Revisiting the role of mesenchymal stem cells in tuberculosis and other infectious diseases. Cell Mol Immunol. 2023 May 12:1-13. doi: 10.1038/s41423-023-01028-7.
5. Anjna Kumari, Isha Pahuja, Kriti Negi, Antara Ghoshal, Suparba Mukhopadhyay, Meetu Agarwal, Babu Mathew, Jaswinder Singh Maras, Shivam Chaturvedi, Ashima Bhaskar and **Ved Prakash Dwivedi** (2023). Withaferin A protects against primary and recurrent tuberculosis by modulating mycobacteria-specific host immune responses. **Microbiol Spectr. 2023 Mar 14;11(2):e0058323.**
6. Isha Pahuja, Kriti Negi, Anjna Kumari, Meetu Agarwal, Suparba Mukhopadhyay, Babu Mathew, Jaswinder Singh Maras, Shivam Chaturvedi, Ashima Bhaskar and **Ved Prakash Dwivedi** (2023) Berberine governs NOTCH3/AKT signaling to enrich lung-resident memory T cells during tuberculosis. **PLoS Pathog. 2023 Mar 7;19(3):e1011165.**
7. Kriti Negi, Meetu Agarwal, Isha Pahuja, Bhavya Bhardwaj, Mansi Rawat, Ashima Bhaskar and **Ved Prakash Dwivedi**. Combating the challenges of COVID-19 pandemic: Insights into molecular mechanisms, immune responses and therapeutics against SARS-CoV-2. **Oxf Open Immunol. 2023 Jan 10;4(1):iqad001.**
8. Akanksha Verma, Antara Ghoshal, **Ved Prakash Dwivedi** and Ashima Bhaskar. Tuberculosis: The success tale of less explored dormant Mycobacterium tuberculosis. **Front Cell Infect Microbiol. 2022 Dec 22;12:1079569.**
9. Kriti Negi, Ashima Bhaskar and **Ved Prakash Dwivedi**. Progressive host-directed strategies to potentiate BCG vaccination against Tuberculosis. **Front Immunol. 2022 Jul 28;13:944183.**
10. Mona Singh, Santosh Kumar, Baldeep Singh, Preeti Jain, Anjna Kumari, Isha Pahuja, Shivam Chaturvedi, **Ved Prakash Dwivedi*** and Gobardhan Das*. The 1, 2-ethylenediamine SQ109 provides host protection against tuberculosis by promoting M1 macrophage polarization through the p38 MAPK pathway. **Commun Biol. 2022 Jul 28;5(1):759.**
11. Mona Singh, Mony Thakur, Manish Mishra, Manisha Yadav, Rajkamal Vibhuti, Athira M Menon, Girima Nagda, **Ved Prakash Dwivedi**, Tikam Chand Dakal, Vinod Yadav. Gene regulation of Intracellular adhesion molecule-1 (ICAM-1): a molecule with multiple functions. **Immunol Lett. 2021 Oct 26:S0165-2478(21)00168-1.**
12. Samreen Fatima, Anjna Kumari, Meetu Agarwal, Isha Pahuja, **Ved Prakash Dwivedi** and Ashima Bhaskar. Epigenetic code during mycobacterial infections: Therapeutic implications in TB. **FEBS J. 2021 Aug 28. doi: 10.1111/febs.16170.**
13. Dhiraj Kumar Singh, Sultan Tousif, Ashima Bhaskar, Annu Devi, Kriti Negi, Barnani Moitra, Anand Ranganathan, Luc Van Kaer, **Ved Prakash Dwivedi** and Gobardhan Das

(2021). Luteolin as a potential host-directed immunotherapy adjunct to isoniazid treatment of tuberculosis. **PLoS Pathog 2021 Aug 20;17(8):e1009805.**

14. Samreen Fatima, Anjna Kumari and **Ved Prakash Dwivedi (2021)**. Advances in adjunct therapy against Tuberculosis: Deciphering the emerging role of phytochemicals. **MedComm (2020). 2021 Aug 5;2(4):494-513.**
15. Samreen Fatima, Ashima Bhaskar and Ved Prakash Dwivedi. Repurposing Immunomodulatory Drugs to Combat Tuberculosis. **Front Immunol. 2021 Apr 13;12:645485.**
16. Priya Bhatia, Anushka Sharma, Abhilash J George, D Anvitha, Pragya Kumar, **Ved Prakash Dwivedi** and Nidhi Subhash Chandra. Antibacterial activity of Medicinal plants against ESKAPE. **Heliyon. 2021 Feb 20;7(2):e06310.**
17. Santosh Kumar, Ashima Bhaskar, Gautam Patnaik, Chetan Sharma, Dhiraj Kumar Singh, Sandeep Rai Kaushik, Shivam Chaturvedi, Gobardhan Das and Ved Prakash Dwivedi. Intranasal Immunization with Peptide-based Immunogenic Complex Enhances BCG Vaccine Efficacy in murine model of Tuberculosis. **JCI Insight. 2021 Jan 14;145228. doi: 10.1172/jci.insight.145228.**
18. Ayushi Chaurasiya, Swati Garg, Ashish Khanna, Chintam Narayana, **Ved Prakash Dwivedi**, Nishant Joshi, Zill e Anam, Niharika Singh, Jhalak Singhal, Shikha Kaushik, Amandeep Kaur, Pallavi Srivastava, Manisha Marothia, Mukesh Kumar, Santosh Kumar, Geeta Kumari, Akshay Munjal, Sonal Gupta, Preeti Singh, Soumya Pati, Gobardhan Das, Ram Sagar, Anand Ranganathan and Shailja Singh. Pathogen induced subversion of NAD^+ metabolism mediating host cell death: a target for development of chemotherapeutics. **Cell Death Discov. 2021 Jan 13;7(1):10.**
19. Ashima Bhaskar, Anjna Kumari, Mona Singh, Santosh Kumar, Shivam Chaturvedi, Vinod Yadav and **Ved Prakash Dwivedi**. [6]-Gingerol exhibits potent anti-mycobacterial and immunomodulatory activity against tuberculosis. **Int Immunopharmacol. 2020 Oct;87:106809.**
20. Dhiraj Kumar Singh, Ved Prakash Dwivedi, Shashi Prakash Singh, Anand Ranganathan, Luc Van Kaer and Gobardhan Das. Luteolin mediated Kv1.3 K+ channel inhibition augments BCG vaccine efficacy against tuberculosis by promoting central memory T cell responses in mice. **PLoS Pathog. 2020 Sep 21;16(9):e1008887.**
21. Ashima Bhaskar, Santosh Kumar, Mehak Zahoor Khan, Amit Singh, **Ved Prakash Dwivedi** and Vinay Kumar Nandicoori. Host Sirtuin 2 as an Immunotherapeutic Target against Tuberculosis. **Elife. 2020 Jul 22;9:e55415.**
22. Samreen Fatima and **Ved Prakash Dwivedi**. Revisiting host-directed adjunct therapies in Tuberculosis. **J Bacteriol Mycol. 2020; 7(4): 1139.**
23. Samreen Fatima and **Ved Prakash Dwivedi**. Allicin as an adjunct immunotherapy against tuberculosis. J Cell Immunol. 2020; 2(4): 178-182.
24. Samreen Fatima, Anjna Kumari, Gobardhan Das and **Ved Prakash Dwivedi**. Tuberculosis Vaccine: A journey From BCG to present. **Life Sci. 2020 Apr 16:117594. doi: 10.1016/j.lfs.2020.117594.**
25. Samreen Fatima, Shashank Shivaji Kamble, **Ved Prakash Dwivedi**, Debapriya Bhattacharya, Santosh Kumar, Anand Ranganathan, Luc Van Kaer, Sujatha Mohanty, Gobardhan Das. *Mycobacterium tuberculosis* Programs Mesenchymal Stem Cells to Establish Dormancy and Persistence. **J Clin Invest. 2020 Feb 3;130(2):655-661.**
26. **Ved Prakash Dwivedi**, Arindam Banerjee, Indraneel Das, Aparajita Saha, Malabika Dutta, Bhavya Bhardwaj, Saptarshi Biswas and Debprasad Chattopadhyay. Diet and

Nutrition: An important Risk factor in Leprosy. **Microb Pathog. 2019 Sep 4;137:103714.**

27. Santosh Kumar, Chetan Sharma, Sandeep Rai Kaushik, Ankur Kulshreshta, Shivam Chaturvedi, Ranjan Kumar Nanda, Ashima Bhaskar, Debprasad Chattopadhyay, Gobardhan Das and **Ved Prakash Dwivedi**. The phytochemical bergenin as an adjunct immunotherapy for tuberculosis in mice. **J Biol Chem. 2019 May 24;294(21):8555-8563.**

28. Ved Prakash Dwivedi, Debapriya Bhattacharya, Mona Singh, Ashima Bhaskar, Santosh Kumar, Parveen Sobia, Luc Van Kaer and Gobardhan Das. Allicin enhances anti-mycobacterial activity of macrophages via SAPK/JNK signaling. **J Ethnopharmacol. 2019 Oct 28;243:111634.**

29. Ved Prakash Dwivedi, Debapriya Bhattacharya, Vinod Yadav, Dhiraj Kumar Singh, Santosh Kumar, Mona Singh, Durbadal Ojha, Anand Ranganathan, Luc Van kaer, Debprasad Chattopadhyay and Gobardhan Das (2017) The phytochemical bergenin enhances T helper 1 responses and anti-Mycobacterial immunity by activating the MAP kinase pathway in macrophages. **Front Cell Infect Microbiol. 2017: 7: 149.**

30. Dhiraj Kumar Singh, **Ved Prakash Dwivedi**, Anand Ranganathan, William R Bishai, Luc Van Kaer and Gobardhan Das. Reply to Levis and Rendini. **J Infect Dis. 2017 May 1; 215 (9): 1488–1489.**

31. Dhiraj Kumar Singh, **Ved Prakash Dwivedi**, Anand Ranganathan, William R Bishai, Luc Van Kaer and Gobardhan Das. Blockade of the Kv1.3 K^+ channel enhances BCG vaccine efficacy by expanding central memory T lymphocytes. **J Infect Dis. 2016 Nov 1; 214 (9): 1456-1464.**

32. Debapriya Bhattacharya***** **Ved Prakash Dwivedi***, Mona Singh, Vinod Yadav and Gobardhan Das. Understanding the role of Mesenchymal stem cells in infectious diseases: Focus on Tuberculosis, Malaria, Sepsis and HIV. **Electronic J Biol; 2016 12: 3.**

33. Durbadal Ojha, Rashmi Das, Parveen Sobia, **Ved Prakash Dwivedi**, Soma Ghosh, Amalesh Samanta, Debprasad Chattopadhyay. *Pedilanthus tithymaloides* inhibits HSV infection through the modulation of NF-kB signaling pathway. **PLoS One. 2015 Sep 25; 10 (9): e0139338.**

34. Vinod Yadav, **Ved Prakash Dwivedi**, Debapriya Bhattacharya, Ashwani Mittal, Prashini Moodley and Gobardhan Das. Understanding the Host Epigenetics in *Mycobacterium tuberculosis* Infection. **J Genet Genome Res 2015; 2:1.**

35. Md Aejazur Rahman*, Parveen Sobia*, **Ved Prakash Dwivedi***, Pawan Sharma, Prashini Moodley, Luc Van Kaer, William R Bishai and Gobardhan Das. *Mycobacterium tuberculosis* TlyA negatively regulates Th1 and Th17 differentiation and promotes tuberculosis pathogenesis. **J Biol Chem. 2015 Jun 5; 290 (23): 14407-17.**

36. Kuhulika Bhalla, Monika Chugh, Sonali Mehrotra, Sumit Rathore, Sultan Tousif, **Ved Prakash Dwivedi**, Prem Prakash, Sachin Kumar Samuchiwal, Sushil Kumar, Dhiraj Kumar Singh, Swapnil Ghanwat, Dhiraj Kumar, Gobardhan Das, Asif Mohmmed, Pawan Malhotra and Anand Ranganathan. Host ICAMs play a role in cell invasion by *Mycobacterium tuberculosis* and *Plasmodium falciparum*. **Nature Commun. 2015 Jan 14; 6: 6049.**

37. Debapriya Bhattacharya*, **Ved Prakash Dwivedi***, Santosh Kumar, Madhava C Reddy, Luc Van Kaer, Prashini Moodley and Gobardhan Das. Simultaneous inhibition of T helper 2 and T regulatory cell differentiation by small molecules enhances Bacillus Calmette-Guerin vaccine efficacy. **J Biol Chem. 2014 Nov 28; 289 (48): 33404-11.**

38. Durbadal Ojha, Hemanta Mukherjee, Aditya Jena, Supriya Mondal, **Ved Prakash Dwivedi**, Keshab C Mondal, Amalesh Samanta, Debprasad Chattopadhyay. In vivo and in vitro anti-inflammatory activity of Odina wodier Roxb, an Indian folk medicine, through inhibition of toll-like receptor 4 signaling pathway. **PLoS One. 2014, 9 (8): e104939.**

39. Debapriya Bhattacharya, **Ved Prakash Dwivedi**, Mamoudou Maiga, Mariama Maiga, Luc Van Kaer, William R Bishai & Gobardhan Das. Small molecule directed immunotherapy against recurrent infection by *Mycobacterium tuberculosis*. **J Biol Chem. 2014 Jun 6; 289 (23): 16508-15.**

40. Debapriya Bhattacharya, **Ved Prakash Dwivedi**, Gobardhan Das (2013) Revisiting Immunotherapy in Tuberculosis. **J Mycobac Dis 2013, 4: e123.**

41. Swagata Ghosh, Hanumantha Rao Kongara, Neel Sarovar Bhavesh, Gobardhan Das, **Ved Prakash Dwivedi** and Asis Datta. N-acetylglucosamine (GlcNAc) inducible gene, GIG2, is a novel component of GlcNAc metabolism in *Candida albicans*. **Eukaryot Cell. 2014 Jan; 13 (1): 66–76.**

42. Yogesh Singh, Samit Chatterjee, Vandana Kaul, Sultan Tousif, **Ved Prakash Dwivedi**, Alka Mehra, Luc Van Kaer, Gobardhan Das. *Mycobacterium tuberculosis* controls microRNA-99b (miR-99b) expression in infected murine dendritic cells to modulate host immunity. **J Biol Chem. 2013. Feb 15; 288 (7): 5056- 61.**

43. **Ved Prakash Dwivedi**, Debapriya Bhattacharya, Samit Chatterjee, Luc Van Kaer, Debprasad Chattopadhyay, William R. Bishai, and Gobardhan Das. *Mycobacterium tuberculosis* directs T helper 2 cell differentiations by inducing in terleukin-1β production in dendritic cells. **J Biol Chem. 2012 Sep 28; 287 (40): 33656-63.**

44. Ramesh Chandra Rai*, **Ved Prakash Dwivedi***, Samit Chatterjee*, Durbaka Vijaya Raghava Prasad and Gobardhan Das. Early secretory antigenic target-6 of *Mycobacterium tuberculosis*: enigmatic factor in pathogen-host interactions. **Microbes Infect. 2012 Nov; 14 (13): 1220-6.**

45. Mohd Moin Khan*, Samit Chatterjee*, **Ved Prakash Dwivedi***, Nishant Kumar Pandey*, Yogesh Singh, Sultan Tousif, Neel Sarovar Bhavesh, Luc Van Kaer, Jyoti Das, and Gobardhan Das. $CD4^+$T Cell-derived Novel Peptide Thp5 Induces Interleukin-4 Production in $CD4^+$T Cells to Direct T Helper 2 Cell Differentiation. **J Biol Chem 2012 Jan 20: 287 (4): 2830–2835.**

46. **Ved Prakash Dwivedi***, Sultan Tousif*, Debapriya Bhattacharya, Durbaka Vijaya Raghava Prasad, Luc Van Kaer, Jyoti Das, and Gobardhan Das. Trans forming growth factor-β protein inversely regulates in vivo differentiation of interleukin-17 (IL-17)-producing $CD4^+$ and $CD8^+$T cells. **J Biol Chem. 2012 Jan 27; 287 (5): 2943-7.**

47. Samit Chatterjee*, **Ved Prakash Dwivedi***, Yogesh Singh, Imran Siddiqui, Pawan Sharma, Luc Van Kaer, Debprasad Chattopadhyay and Gobardhan Das. Early secreted antigen ESAT-6 of *Mycobacterium tuberculosis* promotes protective T helper 17 cell responses in a toll-like receptor-2-dependent manner. **PLoS Pathog. 2011 Nov: 7(11): e1002378.**

48. Tarun Kumar Bhatt, Sameena Khan, **Ved Prakash Dwivedi**, Mudassir Meraj Banday, Arvind Sharma, Anmol Chandele, Noelia Camacho, Lluís Ribas de Pouplana, Yang Wu, Alister G. Craig, Antti Tapani Mikkonen, Alexander Gerd Maier, Manickam Yogavel and Amit Sharma. Malaria parasite tyrosyl-tRNA synthetase secretion triggers pro-inflammatory responses. **Nature Commun. 2011 Nov 8; 2: 530.**

Patent:

1. *Mycobacterium tuberculosis* Mimic for Immunization and Enhancement of BCG Vaccine Efficacy. Patent Application No.: 201911043992,
   Inventor: Dr Ved Prakash Dwivedi

Book Chapters:

1. Gobardhan Das, **Ved Prakash Dwivedi**, Debapriya Bhattacharya and Vinod Yadav (2018). Tuberculosis: An Emerging Threat to Humanity in India and Elsewhere. In the Book, "Recent Advances in Communicable and Non-Communicable Diseases" (Edited by Prof Asis Datta and Prof V.P. Sharma, NASI, India).
2. Ashima Bhaskar, **Ved Prakash Dwivedi** and Vinay Kumar Nandicoori (2019). Eliminating Mycobacterial Persistence: Novel Targets for Anti-TB Therapy. In the Book, "Pathogenicity and Drug resistance of Human Pathogens" (Edited by Dr. Saif Hameed Dr. Zeeshan Fatima, Springer Nature).
3. Samreen Fatima, Bhavya Bhardwaj and **Ved Prakash Dwivedi** (2021). Targeting host and bacterial signaling pathways in tuberculosis: An effective strategy for the development of novel anti-tubercular therapies. (Edited by Dr. Saurabh, Dr Kamal Dua, Dr Shakti, Prof Raimer & Prof Luzo, Springer Nature).
4. Joyeta Ghosh, Partha Palit, Subhashish Maity, **Ved Prakash Dwivedi**, Jyoti Das, Chitranjna Sinha and Debprasad Chattopadhyay (2023). Traditional medicine in the management of microbial infections as antimicrobials: Pros and cons. Antibiotics - Therapeutic Spectrum and Limitations.

Financial support for the Group 2018-2023

Funding body	Duration of the grant	Amount awarded	Project Title or Topic	Project Coordinator
Department of Science and Technology, Government of India	2015-2021	3500000.00	Mimicking *Mycobacterium tuberculosis* for the immunization in the lung thereby generating effective vaccine in the local milieu	Ved Prakash Dwivedi
Science and Engineering Research Board, Government of India	2016-2019	4860480.00	A novel strategy for immunotherapy of tuberculosis that avoids generation of drug resistant variants (MDR and XDR) and hepatotoxicity	Ved Prakash Dwivedi
ICGEB Seed Grant	2019	5000000.00	Understanding the Immunology of Tuberculosis	Ved Prakash Dwivedi
ICGEB Core	2019-2023	8000000.00	Understanding the	Ved Prakash

Budget			host protective immune responses during Tuberculosis	Dwivedi
CCRH, Ministry of Ayush, Government of India	2022-2024	6808180.00	Determine the Efficacy of Bioactive Tuberculinum as Adiunct Therapy against Drug Susceptible and Drug-Resistant Tuberculosis	Ved Prakash Dwivedi
Science and Engineering Research Board, Government of India	2023-2026	6500000.00	An OMICS approach to understand the Biological Significance of Follicular T cells (TFH) in the enrichment of Memory cells during Tuberculosis.	Ved Prakash Dwivedi

Place: New Delhi

Signature of the Applicant

Date: 29th August 2023