**Dr. Amit Kumar Singh**

* **Designation:** Scientist D & In-charge
* **Department:** Experimental Animal Facility
* **Educational Details:**

|  |  |  |
| --- | --- | --- |
| **Degree** | **Institution** | **Year** |
| B.V.Sc.&A.H. | Indira Gandhi Krishi Vishwavidalaya, Raipur, Chhattisgarh | 2003 |
| M.V.Sc | National Dairy Research Institute, Karnal, Haryana | 2006 |
| Ph. D. | Jawaharlal Nehru University (Worked at Central Drug Research Institute, Lucknow) | 2012 |

* **Research interests:** Screening for potent anti-tubercular compounds and evaluating their in-vivo efficacy, Host-pathogen Interaction & Drug Delivery System
* **Research experience (in Years):** 10 years
* **Awards/ Recognitions/Honors:**

Recipient of the *International Scholarship* by Human Genome Variation (HGV) Conference Organizers based on the quality of submitted abstract to attend *12th International Meeting* on ‘Human Genome Variation and Complex Genome Analysis (HGV2011)’ at Berkeley, California, USA, 8-10 September, 2011.

Received *International Travel Grant* for Young Scientists by the Department of Science & Technology (DST), New Delhi, India to attend a *Keystone Symposium* on ‘Tuberculosis: Immunology, Cell Biology and Novel Vaccination Strategies (J3)’ at Vancouver, Canada, January 15-20, 2011.

* **Ongoing Research projects:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Project** | **Role as PI/Co-PI** | **Funding Agency** | **Period** |
| 1 | Investigating Therapeutic Impact of L-Serine Derived Sphingolipids for Controlling *Mycobacterium tuberculosis* Infection in Host | PI | DHR  (R.11013/06/2021-GIA/HR) | 2021-2024 |
| 2 | N2B (Nose-to-Brain) delivery of anti-TB drugs using particulate drug delivery system to ameliorate Tuberculous Meningitis (TBM) and enhance functional recovery | PI | ICMR 5/8/5/68/Adhoc/2020/ECD-I) | 2021-2023 |
| 3 | An investigational study on Mycobacteriophages and their enzymes as new drugs (IND) for treating tuberculosis | PI | ICMR  (File No: 5/8/5/38/2019-ECD-I) | 2019-2022 |
| 4 | Evaluation of enriched fractions of lead plant extractsfor*in-vivo* anti-tuberculosis and immunomodulatory potentials with first line anti-TB drugs for the development of adjunct phytotherapy | Co-I | ICMR  (F. No. 65/9/2020/PD/BMS) | 2021-2023 |
| 5 | Development of mice models for amyloidosis: A rare disease | Co-I | ICMR | 2019-2022 |

* **Completed Research projects (Last 3 years):**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Project** | **Funding agency** | **Period** |
| 6 | Validation of herbal healers claims for tuberculosis | National Innovation foundation, Gujarat (Wing of DST) (File No.: NIF/VARD/11205) | April, 2018-2021 |
| **7** | Bioprocess development and Preclinical evaluation of novel anti TB antibiotic, Transitmycin isolated from marine *Streptomyces* sp*.* MTCC 5597 | ICMR  (File No.: 5/8/5/8/TF/2017/ECD-I) | January, 2019-April, 2020 |

* **Patent / technology transferred**(Last three Years): Nil
* **List of publications** (Last three years)

**(I) Chapters in Books**

1. Tarun K. Upadhyay, Akanksha Sharma, Nida Fatima, **Amit Singh**, Pavan Muttil, and Rolee Sharma. Targeted Delivery of Antibiotics Using Microparticles to Combat Multidrug-Resistant Tuberculosis. In: Iqbal Ahmad, Shamim Ahmad and Kendra P. Rumbaugh (Eds). **Antibacterial Drug Discovery to Combat MDR- Natural Compounds, Nanotechnology and Novel Synthetic Sources*.*** Springer Nature. 2019.

**(II). Peer-Reviewed Articles**.

## Mohammed Shakeel Ahmed, Saini Reena Vohra, Jha Abhimanyu Kumar, Hadda Vijay, Singh Amit Kumar, Prakash Hridayesh. Sphingolipids, mycobacteria and host: Unraveling the tug of war. Frontiers in Immunology, 2022; 13 (DOI=10.3389/fimmu.2022.1003384) (Impact Factor-7.561)

## Reddy DVS, Shafi H, Bharti R, Roy T, Verma S, Raman SK, Verma K, Azmi L, Ray L, Singh J, Singh AK, Mugale MN, Misra A. Preparation and Evaluation of Low-Dose Calcitriol Dry Powder Inhalation as Host-Directed Adjunct Therapy for Tuberculosis. Pharm Res. 2022 Aug 12:1–13. (Impact Factor-4.580)

## Davuluri KS, Singh AK, Kumar V, Singh SV, Singh AV, Kumar S, Yadav R, Kushwaha S, Chauhan DS. Stimulated expression of ELR+ chemokines, VEGFA and TNF-AIP3 promote mycobacterial dissemination in extrapulmonary tuberculosis patients and Cavia porcellus model of tuberculosis. Tuberculosis (Edinb). 2022 Jul;135:102224. (Impact Factor-3.575)

## Kumar V, Arora M, Gupta V, Singh A, Patil S. An evidence and reasoning based differential diagnosis of a case of leprosy reinfection from reaction and relapse. Indian J Med Microbiol. 2022 Jul 9:S0255-0857(22)00101-3. (Impact Factor-1.347)

## Reena Bharti, Trisha Roy, Sonia Verma, D.V. Siva Reddy, Hasham Shafi, Khushboo Verma, Sunil K. Raman, Sampita Pal, Lubna Azmi, Amit K. Singh, Lipika Ray, Madhav N. Mugale, Amit Misra (2022). Transient, inhaled gene therapy with gamma interferon mitigates pathology induced by host response in a mouse model of tuberculosis, Tuberculosis, Volume 134, 2022, 102198. (Impact Factor-3.575)

## Krishna Jadhav, Raghuraj Singh, Eupa Ray, Amit Singh, Rahul K Verma. (2022). Taming the devil: Antimicrobial peptides for safer TB therapeutics. Current Protein & Peptide Science*,* 2022. May, 26 (Accepted). DOI: 10.2174/1389203723666220526161109 (Impact Factor-3.183)

## Bhargavi G, Singh AK, Deenadayalan A, Ponnuraja C, Patil SA, Palaniyandi K. Role of a Putative Alkylhydroperoxidase Rv2159c in the Oxidative Stress Response and Virulence of *Mycobacterium tuberculosis*. Pathogens. 2022 Jun 14;11(6):684.

## Gunapati Bhargavi, Amit Kumar Singh, Shripad A. Patil, Kannan Palaniyandi (2022). A putative short-chain dehydrogenase Rv0148 of Mycobacterium tuberculosis affects bacterial survival and virulence. Current Research in Microbial Sciences, Volume 3, 2022, 100113.

## Sharma A, Gaur A, Kumar V, Sharma N, Patil SA, Verma RK, Singh AK. Antimicrobial activity of synthetic antimicrobial peptides loaded in poly-Ɛ-caprolactone nanoparticles against mycobacteria and their functional synergy with rifampicin. Int J Pharm. 2021 Oct 25;608:121097. doi: 10.1016/j.ijpharm.2021.121097. (Impact Factor-5.875)

## Amit K. Singh, Rahul K. Verma, Jatinder Kaur Mukker, Awadh B. Yadav, Pavan Muttil, Rolee Sharma, Mradul Mohan, Atul K. Agrawal, Anuradha Gupta, Anil K. Dwivedi, Pushpa Gupta, Umesh D. Gupta, Uthirappan Mani, Bhushan P. Chaudhari, Ramesh C. Murthy, Sharad Sharma, Smrati Bhadauria, Sarika Singh, Srikanta Kumar Rath, Amit Misra (2021). Inhalable particles containing isoniazid and rifabutin as adjunct therapy for safe, efficacious and relapse-free cure of experimental animal tuberculosis in one month. Tuberculosis, Volume 128, 102081 (Impact Factor-3.131)

## Amit Kumar Singh, Mrinmoy Ghosh, Vimal Kumar, Sumit Aggarwal, Shripad A. Patil (2021). Interplay between miRNAs and *Mycobacterium tuberculosis*: diagnostic and therapeutic implications. Drug Discovery Today, May; 26(5):1245-1255 (Impact Factor-7.321)

## Sumit Aggarwal\*, Amit Kumar Singh, Sivaraman Balaji and Deepti Ambalkar (2021). Sexually Transmitted Infections (STIs) and Its Changing Scenario: A Scoping Review. Combinatorial Chemistry & High Throughput Screening 2021;24. https://doi.org/10.2174/1386207324666210301093001 (Impact Factor-1.339)

1. Reena Bharti , Ashish Srivastava, Trisha Roy, Khushboo Verma, DV Siva Reddy , Hasham Shafi , Sonia Verma , Sunil K Raman , **Amit K Singh** , Jyotsna Singh , Lipika Ray , Amit Misra **(2020)**. Transient transfection of the respiratory epithelium with gamma interferon for host directed therapy in pulmonary tuberculosis. Molecular Therapy Nucleic Acid, 22: 1121–1128. **(Impact Factor-7.032)**
2. Ankur Sharma, Kalpesh Vaghasiya, Eupa Ray, Pushpa Gupta, Umesh Datta Gupta, **Amit Kumar Singh\*** and Rahul Kumar Verma\* **(2020)**. Targeted pulmonary delivery of Epigallocatechin gallate (EGCG), a green tea polyphenol controls the growth of Mycobacterium tuberculosis by enhancing the autophagy and supressing bacterial burden. ACS Biomater. Sci. Eng, 6, 7, 4126–4140 **(Impact Factor-4.490)**
3. Ankur Sharma, Kalpesh Vaghasiya, Pushpa Gupta, **Amit Kumar Singh**, Umesh Gupta, & Rahul Verma,. **(2020)**. Dynamic mucus penetrating microspheres for efficient pulmonary delivery and enhanced efficacy of host defence peptide (HDP) in experimental tuberculosis. Journal of Controlled Release 324, 17-33. **(Impact Factor-7.63)**
4. Zul I. Huma, Neelesh Sharma, Sarabpreet Kour, Suhasani Tandon,Praveen Kumar Guttula, Savleen Kour, **Amit Kumar Singh**, Rajiv Singh and Mukesh Kumar Gupta **(2020)**. Putative biomarkers for early detection of mastitis in cattle. **Animal Production Science,** doi.org/10.1071/AN19539 (**(Impact Factor-1.371)**
5. Zul-I-Huma Syed, Neelesh Sharma, **Amit Kumar Singh**, Anand Kumar Pathak, Iva Bacic, Goran Bacic, Nino Macesic and Dong Kee Jeong **(2019)**. Inflammatory cytokines, helping tool in veterinary diagnostics: from basics to advancement. **Veterinary Practitioner** 20(2): 159-162
6. Ankur Sharma , Kalpesh Vaghasiya , Eupa Ray , Pushpa Gupta , **Amit Kumar Singh** , Umesh Datta Gupta , Rahul Kumar Verma **(2019)**. Mycobactericidal activity of some micro-encapsulated synthetic Host Defense Peptides (HDP) by expediting the permeation of antibiotic: A new paradigm of drug delivery for tuberculosis, **International Journal of Pharmaceutics** 558; 231–241

* **Total number of Publications:** 40 ([**https://www.researchgate.net/profile/Amit-Singh-196**](https://www.researchgate.net/profile/Amit-Singh-196))
* **Academic contributions:**

1. M.Sc/M.Pharm students dissertation supervision: 16
2. PhD thesis co-guide: 2