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Scientist-E

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EDUCATION**PhD : Biochemistry (2004 - 2010)**

University of Delhi, New Delhi, India

Thesis: "Development of Strategies for Protection against Tuberculosis."

Mentor: Prof. Anil K. Tyagi.

MVSc : Animal Genetics and Breeding (2002 - 2004)

CCS Haryana Agricultural University, Hissar, Haryana, India

Thesis: "Genetic studies on reproduction and production traits of Nali sheep."

Mentor: Dr. J. S. Poonia.

BVSc & AH : Veterinary Science (1997 - 2002)

West Bengal University of Animal and Fishery Sciences, Kolkata, West Bengal, India

POST-PHD RESEARCH EXPERIENCE**Senior Research Scientist: 2016 - 2017**

National Emerging Infectious Diseases Laboratories (NEIDL), Boston University, Boston, MA, USA.

Post-doctoral Fellow/ Research Associate: 2011-2016

Center for TB research, Johns Hopkins University (JHU), School of Medicine, Baltimore, MD, USA/ Howard Hughes Medical Institute (HHMI); Mentor: Prof. (Dr.) William Bishai.

Scientist-C (DBT-Project): 2010-2011

Department of Biochemistry, University of Delhi, New Delhi, India; Lab director: Prof. Anil K. Tyagi.

Research Associate: 2009 –2010

Department of Biochemistry, University of Delhi, New Delhi, India; Lab director: Prof. Anil K. Tyagi.

AWARDS & FELLOWSHIPS

- DST-SERB-Ramanujan Fellowship (2017)
- UGC-Faculty Recharge Program (FRP) Assistant Professor (Selectee) [2017, Cycle IV]
- CSIR-NET: JRF (2004-2005) & SRF (2006-2009): CSIR., Govt. of India.
- ICAR - Research Fellow for MVSc at CCSHAU, Hissar, India (2002-2004).
- Merit Scholarship: B.V.Sc. & A.H. (5 Yrs).

MEMBERSHIP

1. American Society for Microbiology (ASM)-since 2013.
2. Life Member of Society of Biological Chemist (SBC), India-2008.
3. Life Member of Association of Microbiologists of India (AMI)-2009.
4. Veterinary Council of India (VCI)-2002
5. West Bengal Veterinary Council (WBVC)-2002

PEER REVIEWED PUBLICATIONS

1. Dey RJ*, **Dey B***, Singh AK, Praharaj M, and Bishai WR. BCG overexpressing an endogenous STING agonist provides enhanced protection against pulmonary tuberculosis. *Journal of Infectious Diseases*. March 2019. doi: 10.1093/infdis/jiz116. *Joint first author.
2. Dey RJ*, **Dey B***, Zheng Y*, Cheung L, Zhou J, Sayre D, Kumar P, Guo H, Lamichhane G, Sintim HO, Bishai WR. Inhibition of innate immune cytosolic surveillance by a *M. tuberculosis* phosphodiesterase. *Nature Chemical Biology*. 2017 Feb. 13: 210-217.*Joint first author.
3. Xu Z, Bagci U, Mansoor A, Kramer-Marek G, Luna B, Kubler A, **Dey B**, Foster B, Papadakis GZ, Camp JV, Jonsson CB, Bishai WR, Jain S, Udupa JK, Mollura DJ. Computer-aided pulmonary image analysis in small animal models. *Med Phys*. 2015 Jul;42(7):3896.
4. **Dey B**, Dey RJ., Cheung SL, Pokkali S, Guo H, Lee JH and Bishai WR. A bacterial cyclic dinucleotide activates the cytosolic surveillance pathway and mediates innate resistance to tuberculosis. *Nature Medicine*. 2015 Apr;21(4):401-6.
5. **Dey B**, Bishai WR. Crosstalk between Mycobacterium tuberculosis and the host cell. *Semin Immunol*. Dec 2014; 26(6):486-496.
6. Foster B, Bagci U, Ziyue Xu, **Dey B**, Luna B, Bishai W, Jain S, Mollura DJ. Segmentation of PET images for computer-aided functional quantification of tuberculosis in small animal models. *IEEE Trans Biomed Eng*. 2014 Mar;61(3):711-24.
7. Bagci U, Foster B, Miller-Jaster K, Luna B, **Dey B**, Bishai WR, Jonsson CB, JainS, Mollura DJ. A computational pipeline for quantification of pulmonary infections in small animal models using serial PET-CT imaging. *EJNMMI Res*. 2013 Jul 23;3(1):55.
8. Dannenberg AM, **Dey B**. Perspectives for Developing New Tuberculosis Vaccines Derived from the Pathogenesis of Tuberculosis: I. Basic Principles, II. Preclinical Testing, and III. Clinical Testing. *Vaccines* 2013; 1 (1), 58-76.

9. Chauhan P, Jain R, **Dey B**, Tyagi AK. Adjunctive immunotherapy with α -crystallin based DNA vaccination reduces Tuberculosis chemotherapy period in chronically infected mice. *Sci Rep*. 2013;3:1821.

10. Jain R*, **Dey B**, Tyagi AK. Development of the first oligonucleotide microarray for global gene expression profiling in guinea pigs: defining the transcription signature of infectious diseases. *BMC Genomics*. 2012 Oct 2;13:520.

11. Jain R, **Dey B**, Tyagi AK. Response of the authors to the letter entitled, "Warning: Differences in the copy number of duplication unit 2 (DU2) within BCG Danish 1331 may influence findings involving genetically-modified BCG Danish strains" by Dr. Douglas S. Kernodle. *Vaccine*. 2012; 30 (42), 6015.

12. **Dey B***, Jain R*, Gupta UD, Katoch VM, Ramanathan VD, Tyagi AK. A booster vaccine expressing a latency-associated antigen augments BCG induced immunity and confers enhanced protection against tuberculosis. *PLoS One*. 2011;6(8):e23360.

13. Jain R*, **Dey B***, Khera A, Srivastav P, Gupta UD, Katoch VM, Ramanathan VD, Tyagi AK. Over-expression of superoxide dismutase obliterates the protective effect of BCG against tuberculosis by modulating innate and adaptive immune responses. *Vaccine*. 2011 Oct 19;29(45):8118-25.

14. **Dey B***, Jain R*, Khera A, Gupta UD, Katoch VM, Ramanathan VD, Tyagi AK. Latency antigen α -crystallin based vaccination imparts a robust protection against TB by modulating the dynamics of pulmonary cytokines. *PLoS One*. 2011 Apr 18;6(4):e18773.

15. **Dey B***, Jain R*, Khera A, Rao V, Dhar N, Gupta UD, Katoch VM, Ramanathan VD, Tyagi AK. Boosting with a DNA vaccine expressing ESAT-6 (DNAE6) obliterates the protection imparted by recombinant BCG (rBCGE6) against aerosol Mycobacterium tuberculosis infection in guinea pigs. *Vaccine*. 2009 Dec 10;28(1):63-70.

16. Jain R*, **Dey B***, Dhar N, Rao V, Singh R, Gupta UD, Katoch VM, Ramanathan VD, Tyagi AK. Enhanced and enduring protection against tuberculosis by recombinant BCG-Ag85C and its association with modulation of cytokine profile in lung. *PLoS One*. 2008;3(12):e3869. *Joint first author.

17. **Dey B** and J. S. Poonia. Estimates of phenotypic, genetic and environmental trends in a flock of Nali sheep *The Indian J Small Ruminants*. 2006; 12(2) October:185 – 87.

18. **Dey B** and J. S. Poonia. Reproductive performance of Nali sheep. *The Indian J Small Ruminants*. 2005; 11(1) April: 10-13.

19. **Dey B** and J. S. Poonia. Factors affecting growth traits in Nali sheep. *The Indian J Small Ruminants*. 2005; 11(1) April: 77-79.

BOOK CHAPTERS

1. Jain R, **Dey B** and Tyagi AK. *Role of Vaccines and Immuno-modulation in Tuberculosis*. In: N. K. Mehra and S. K. Sharma and O. P. Sood (eds.), *Challenges of MDR/XDR Tuberculosis in India*. Round Table Conference Series. 2009. Ranbaxy Science Foundation, New Delhi, India.

2. Tyagi AK, **Dey B** and Jain R. *Tuberculosis vaccine development: current status and future expectations*. In S. K Sharma and A. Mohon (eds.), *Tuberculosis 2nd edition*. 2009. 918-946. Jaypee Brothers Medical Publishers, New Delhi, India.

3. Tyagi AK, **Dey B** and Jain R. *Development of vaccine against tuberculosis*. In: N. K. Mehra and S. K. Sharma and O. P. Sood (eds.), *HIV and Tuberculosis: Co-infection*. Round Table Conference Series. 2005. (15) 149-153. Ranbaxy Science Foundation, New Delhi, India.

4. Dannenberg AM, **Dey B**. Perspectives for Developing New Tuberculosis Vaccines Derived from the Pathogenesis of Tuberculosis. In *Tuberculosis and Non-Tuberculous Mycobacterial Infections*, Seventh Ed. edited by David Schlossberg, 2017, ASM Press, Washington DC, USA.

PATENTS

1. Inventor: Bishai WR. Dey RJ, **Dey B** and Cheung L. Bacteria over-expressing c-di-AMP and therapeutic methods. U.S. Patent Application granted, No. 10130663, Date of Patent Granted: November 20, 2018.

2. Inventors: WR. Dey RJ, **Dey B** and Cheung L. Methods of treating cancer using bacteria expressing c-di-AMP. U.S. Patent Application Publication number: 20190030091, Filed: October 1, 2018.

3. Inventor: Tyagi AK, **Dey B**, Jain R, Khera A, Ramanathan VD, Gupta UD and Katoch VM. Patent application No. 473/DEL/2009. Published on 2010-09-17: Published in J. No.: 38/2010. Alpha-crystallin based immunization against mycobacterium and methods thereof.

4. Inventor: Tyagi AK, Jain R, **Dey B**, Khera A, Ramanathan VD, Gupta UD and Katoch VM. Patent application No. 2639/DEL/2008. Published on: 2010-05-28. International Classification: A61K39/00; A61P31/00. Recombinant BCG-Ag85C based immunization against tuberculosis.