

## **Ekansh Mittal, PhD**

Staff Scientist

Department of Internal Medicine, School of Medicine

Washington University in Saint Louis, Saint Louis MO-63110

**Email:** [emittal@wustl.edu](mailto:emittal@wustl.edu), [emittal09@gmail.com](mailto:emittal09@gmail.com)

**Mobile:** (314) 728-9495

---

---

### **Personal Statement:**

My primary aim is to investigate the dynamic cellular events associated with the subversion of host innate immune response by *Mycobacterium tuberculosis* which causes Tuberculosis (TB). I am also interested in studying host-pathogen interactions that govern the ability of other intracellular pathogens to evade host immune defenses. Currently, we have developed a SARS-CoV2 antiviral screening platform which will allow testing of antivirals to generate preliminary data that will enable investigators to acquire subsequent federal and foundation funding for mechanistic, pre-clinical, and translational studies.

### **Current Position**

November 2020 to present, Staff Scientist

**Institution:** Washington University in Saint Louis, USA

**Research Advisor:** Dr. Jennifer A Philips, Co-Director, Division of Infectious Diseases  
Associate Professor of Medicine and Molecular Microbiology

### **Previous Position**

Nov 2015 to Oct 2020, Postdoctoral Research Associate

**Institution:** Washington University in Saint Louis, USA

**Research Advisor:** Dr. Jennifer A Philips, Co-Director, Division of Infectious Diseases  
Associate Professor of Medicine and Molecular Microbiology

### **Education**

**2009-2015 Ph.D., Biotechnology (Microbial Pathogenesis)**

**Institution:** National Centre for Cell Science, Savitribai Phule Pune University, Pune, India.

**Research Topic:** Investigation of Topology and Mechanism of Functions of Rv1694, TlyA protein of *Mycobacterium tuberculosis*, H37Rv.

**Research Advisor:** Dr. M.V. Krishnasastry (Scientist G), NCCS

**2007-2009: M.Sc., Biotechnology**

**Institution:** Jamia Millia Islamia New Delhi, India.

**Dissertation:** Jan,2009 to June,2009

**Institution:** National Institute of Immunology, New Delhi, India.

**Research Topic:** Cloning, Expression and Purification of Rv2224c (a Membrane Protease) from *Mycobacterium tuberculosis*.

**Research Advisor:** Dr. Bichitra K. Biswal, (Staff Scientist-VI), NII

**2004-2007: B.Sc., Botany, Zoology and Chemistry**

**Institution:** Agra college, Dr. Bhimrao Ambedkar University, Agra, India.

**Summer training:** Nov,2005 to Jan,2006

**Institution:** National JALMA Institute for Leprosy and other Mycobacterial Diseases, Agra, India.

### **List of Achievements**

#### **Awards, Grants and Fellowships**

1. Awarded Postdoctoral Research Associateship by Department of Internal Medicine, School of Medicine, Washington University in Saint Louis MO, USA (2015-2020).
2. Awarded project fellowship by National Centre for Cell Science (NCCS), Pune, India (2014-2015).
3. Awarded Senior Research Fellowship by Council of Scientific and Industrial Research (CSIR) (2011-2014).
4. Awarded Junior Research Fellowship by Council of Scientific and Industrial Research (CSIR) (2009-2011).

#### **Other Prestigious Tests Qualified**

1. Selected for All India doctoral program conducted by National Centre for Cell Science (NCCS), Pune, India (2009).
2. Qualified National Eligibility Test (NET) conducted by CSIR for Junior Research Fellowship and Lectureship (June-2008 and Dec-2008).
3. Qualified Graduate Aptitude Test in Engineering (GATE) -2009 with All India Ranking of **50<sup>th</sup>** (Percentile 99.61), conducted by Roorkee IIT (Ministry of Human Resource Development, Government of India).
4. Qualified Graduate Aptitude Test in Engineering (GATE) -2008 with All India Ranking of **202** (Percentile 98.47), conducted by Bangalore IIT (Ministry of Human Resource Development, Government of India).
5. Qualified Joint Admission Test for M.Sc. (GATE-JAM 2007) with **49<sup>th</sup>** Rank conducted by Indian Institutes of Technology (IIT), Government of India.
6. Qualified entrance exam for M.Sc. (Biotechnology-2007) with **1<sup>st</sup>** Rank conducted by Jamia Millia Islamia (JMI), New Delhi, India.
7. Qualified entrance exam for M.Sc. (Biotechnology-2007) conducted by Jamia Hamdard (JH), New Delhi, India.
8. Qualified All India Entrance Test for admission to M.Sc. Biotechnology Program-2006 with **170<sup>th</sup>** Rank conducted by Jawaharlal Nehru University (JNU), New Delhi (Biotechnology Fellowship Program, Department of Biotechnology, Government of India).

#### **Citations Record**

**Google Scholar** (Total Citation: **177** (h-index: **05**, i10-index: **04**),

<https://scholar.google.com/citations?user=qLdlBtgAAAAJ&hl=en&oi=ao>

**Publons:** (Total Citation: **128**, h-index: **04**, Verified reviews: **20**)

<https://publons.com/researcher/3342205/ekansh-mittal/>

**Researchgate:** (Total Citation: **156**)

<https://www.researchgate.net/profile/Ekansh-Mittal>

**Selected Publications** (<https://scholar.google.com/citations?user=qLdlBtgAAAAJ&hl=en>)

**Original Research**

1. EK kasim, **Ekansh Mittal** and Jennifer A. Philips. Investigating the binding ability of *Mycobacterium tuberculosis* effectors EsxG-EsxH with human OCRL. *Ir. J. Med. Sci* 2019 Dec. (Current Impact factor: 2.523)
2. Sapna Deore, Anil Kumar, Santosh Kumar, **Ekansh Mittal**, Anil Lotke and Krishnasastry Musti. Erythrocyte Binding Ligand Region VI specific IgA Confers Tissue Protection in Malaria Infection. *Mol Biol Rep.* 2019 Apr. (Current Impact factor: 1.402)
3. **Ekansh Mittal**, Michael L. Skowrya, Grace Uwase, Emir Tinaztepe, Alka Mehra, Stefan Köster, Phyllis I. Hanson and Jennifer A. Philips. *Mycobacterium tuberculosis* Type VII Secretion System Effectors Differentially Impact the ESCRT Endomembrane Damage Response. *mBio* 2018 Nov. (Current Impact factor: 6.784)
4. Stefan Koster, Sandeep Upadhyay, Pallavi Chandra, Kadamba Papavinasasundaram, Guozhe Yang, Amir Hassan, Steven Grigsby, **Ekansh Mittal**, Heidi S Park, Victoria Jones, Fong-Fu Hsu, Mary C Jackson, Christopher M Sasseti and Jennifer Philips. *Mycobacterium tuberculosis* is protected from NADPH oxidase and LC3-associated phagocytosis by the LCP protein CpsA. *PNAS.* 2017 Sept. (Current Impact factor: 9.412)
5. Santosh Kumar, **Ekansh Mittal**, Sapna Deore, Aejazur Rahman and Musti V. Krishnasastry. Mycobacterial tlyA gene product is localized to the cell-wall without signal sequence. *Front Cell Infect Microbiol.* 2015 Aug. (Current Impact factor: 4.123)
6. **Ekansh Mittal**, Santosh Kumar, Aejazur Rahman and Musti V. Krishnasastry. Modulation of Phagolysosome Maturation by Bacterial tlyA gene product. *J Biosci.* 2014 Dec. (Current Impact factor: 1.645)

### **Original Review Articles**

1. **Ekansh Mittal**\*#, Sapna Deore\*, Mahendra Kumar, and Krishnasastry Musti. When to Die Is the Question: Need and Manipulation of Cell Death by Mycobacterium. *Current Mol Biol Rep.* 2020 June. (Current Impact factor: 1.402) (#Corresponding author)
2. Sandeep Upadhyay, **Ekansh Mittal** and Jennifer A. Philips. Tuberculosis and the art of macrophage manipulation. *FEMS Pathog. Dis.* 2018 June. (Current Impact factor: 2.166)

### **Manuscript under revision**

Anushree Seth, **Ekansh Mittal**, Jingyi Luan, Samhitha Kolla, Hemant Joshi, Rohit Gupta, Priya Rathi, Zheyu Wang, Jeremiah J. Morrissey, Joel D. Ernst, Cynthia Portal Celhay, Sharon Celeste Morley Jennifer A. Philips, Srikanth Singamaneni. High-Resolution Imaging of Protein Secretion at Single-Cell Level using Plasmon-enhanced Fluoro-dots. (Revision in Nature Communications) (Current Impact factor: 12.121)

## **Patent under revision**

Anushree Seth, Rohit Gupta, Zheyu Wang, **Ekansh Mittal**, Samhitha Kolla, Priya Rathi, Aaron Schmitz, Matthew King, Rohit Pappu, Ali Ellebedy, Michael Vahey, Guy Genin, Sumanth Gandra, Gregory Storch, Jennifer A. Philips, Ige George, Daved Fremont and Srikanth Singamaneni.

**Title:** Rapid, high sensitivity, digital assays for antigen detection (**Reference Number: T-019697**)

## **Selected Oral Talk, Abstract Presented in Conferences and Symposia**

**1)** I have attended, **Mycobacterial heterogeneity and host tissue tropism EMBO Symposium 2020** and **selected for the poster preview oral talk**, title “Host endomembrane damage and signaling response during TB infection” in New Delhi, India (Feb. 11, 2020 – Feb 15, 2020).

**2)** I have attended 2019 Fall Retreat **MMMP (Molecular Microbiology Microbial Pathogenesis)** and presented the poster, title “Host endomembrane damage and signaling response during TB infection” in Grafton, Illinois, USA (Sept. 12, 2019 - Sept. 13, 2019).

**3)** I have attended, **Phagocytes GRC Conference 2019** and **selected for the poster preview oral talk**, title “*Mycobacterium tuberculosis* Type VII Secretion System Effectors Differentially Impact the ESCRT Endomembrane Damage Response” in Waterville Valley, NH, US (June. 02, 2019 – June 07, 2019).

**4)** I have attended 2018 Fall Retreat **MMMP (Molecular Microbiology Microbial Pathogenesis)** and presented the poster, title “*Mycobacterium tuberculosis* Type VII Secretion System Effectors Differentially Impact the ESCRT Endomembrane Damage Response” in Grafton, Illinois, USA (Sept. 20, 2018 - Sept. 21, 2018).

**5)** I have attended, **5<sup>TH</sup> GLOBAL FORUM ON TB VACCINES** conference, 2018 and **selected for the oral talk**, title “*How EsxH Controls Host Cellular Responses to Mycobacterium tuberculosis*” in New Delhi, India (Feb. 20, 2018 – Feb. 24, 2018).

**6)** I have attended 2017 Fall Retreat **MMMP (Molecular Microbiology Microbial Pathogenesis)** and presented the poster, title “*Mycobacterium tuberculosis* EsxH impairs host Hrs by altering its cellular distribution” in Grafton, Illinois, USA (Sept. 07, 2017 - Sept. 08, 2017).

**7)** I have attended **International Society for Extracellular Vesicles (ISEV) 2017** Annual Meeting and education day in Toronto, ON, Canada (May 17, 2017 - May 21, 2017). I am also the member of ISEV society.

**8)** I have attended **World TB Day** conference on March 24, 2017 and given the **oral talk**, title “How Mtb EsxGH Controls Host Cellular Responses during infection” in School of Medicine, Washington University, Saint Louis, MO, USA.

**9)** I have attended 2017 **Keystone** Symposia Conference “New Developments in Our Basic Understanding of Tuberculosis” and also presented the poster, title “*Mycobacterium tuberculosis*

EsxH impairs host Hrs by altering its cellular distribution” Vancouver, British Columbia, Canada (Jan. 14, 2017 – Jan. 18, 2017).

**10)** I have attended 2016 **MMPC (Midwest Microbial Pathogenesis Conference)** and presented the poster, title “*Mycobacterium tuberculosis* EsxH impairs host Hrs by altering its cellular distribution” in University of Illinois at Urbana-Champaign, USA (Sept. 23, 2016 – Sept. 25, 2016).

**11)** I have attended 2016 Fall Retreat **MMMP (Molecular Microbiology Microbial Pathogenesis)** conference and presented the poster, title “Mtb EsxGH impairs host ESCRT-0 by altering its cellular distribution” in Grafton, Illinois, USA (Sept. 16, 2016 – Sept. 17, 2016).

**12)** I have attended 2014 **NCCS** Retreat and presented the poster, title “TlyA Involvement in Inflammation and Establishment of Disease” in Khandala, Pune, India.

**13)** I have attended 2012 **NCCS** Retreat and presented the poster, title “Functional Dissection of tlyAs gene products of *Mycobacterium tuberculosis* and *Helicobacter pylori*” in Jadhavgarh, Pune, India.

#### **Number of Manuscript Handle as a Reviewer in Peer Scientific Journals (Total: 21)**

- 1) Molecular and Cellular Biochemistry (7)
- 2) BMC Cell Biology (4)
- 3) BMC Molecular and Cell Biology (3)
- 4) BMC Cancer (4)
- 5) Lipids in Health and disease (2)
- 6) Cell Biology International (1)

#### **Served as an evaluator**

**1)** I have done a Mentorship Training Program from Washington university in Saint Louis. Being a member of this program, I have trained many undergraduate and graduate students toward the completion of their research goal.

**2)** I have also reviewed fellowship proposals (04) of undergraduate students, Washington University in St. Louis in 2016.

#### **Professional Memberships in Scientific Organizations**

Member of International Society for Extracellular Vesicles (ISEV) 2017.

#### **Mentions in the Social Media, Press/Media Coverage:**

**1) Wustl news release, July 1<sup>st</sup>, 2020:** Press coverage documenting that I am working with SARSCoV-2 can be found at: <https://medicine.wustl.edu/news/effort-to-screen-potential-covid-19-antiviral-drugs-underway/>

**2) I appear on the Cover page of, “The magazine of Washington University in St. Louis, November 2020 edition for my work on SARSCoV-2.**

**3) My work on SARSCoV-2 get acknowledged in the outlook magazine published by Washington University in St. Louis.**