



## Dr. PARUL MEHROTRA

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KSBS, IIT Delhi.



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## RESEARCH INTERESTS

- Immuno-metabolism
- Host-pathogen interactions
- Macrophage biology
- Efferocytosis
- Intra-cellular communication
- Subcellular metabolite distribution

## Professional Profile

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### April 2023- Assistant Professor

Present

*Kusuma School of Biological Sciences, IIT Delhi*

- Deciphering the immunological influence of cell death in modulating *M.tuberculosis* infections.
- Understanding the implications of the metabolite subcellular compartmentalization in macrophage infection resistance and aging related inflammation/senescence.

### June 2017- FWO – Senior post-doctoral fellow

March 2023

*Centre for Inflammation Research- VIB, Gent, Belgium*

- Elucidating the immune-metabolic aspect of efferocytosis and expanding the implications to bacterial infections and inflammasome biology.
- Understanding cell death mediated communication and the ensuing tissue remodelling .

### Nov 2015- Post-Doctoral Scientist

June 2017

*Max Planck Institute for Biology of Aging, Cologne, Germany*

- Elucidated the role of the ageing biomarker Fibrillarlin, in bacterial infection resistance
- Screened for the role played by mitochondrial solute carriers in the biology of Aging.

### Nov 2009- Council for Scientific and Industrial research (CSIR) – Junior/Senior Research fellowship

Nov 2014

*PhD: International Centre for Genetic Engineering and Biotechnology(ICGEB), India*

- Elucidating the metabolic flux alterations in *M.tuberculosis* infected immune cells and the implications on infection outcome in diabetic patients.
- Identified and experimented on druggable host-metabolic choke points and solute carrier proteins for *M.tuberculosis* infection clearance.

### July 2007- Masters of Biochemistry

June 2009

*Department of Biochemistry, University of Delhi, South campus, India*

- Developed Phage display library and based a sandwich ELISA on it for the detection of secreted *M.tuberculosis* antigens for rapid diagnosis in culture isolates

## Education

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### June 2009- PhD: Immuno-metabolic network perturbation during *M.tuberculosis* infections

Dec 2014

*International Centre for Genetic Engineering and Biotechnology(ICGEB), India*

### July 2007- Masters of Biochemistry (Score: 70%)

June 2009

*Department of Biochemistry, University of Delhi, South campus, India*

### July 2004- Bachelors of Biochemistry-(Honours) (Score: 78.5%)

June 2007

*Deshbandhu college, University of Delhi, South campus, India*

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2. Maschalidi, S. , [Mehrotra, P.](#), Keçeli, B.N. , Cleene, H.D., Lecomte, K., Cruyssen, R.V.D, Janssens, P., Pinney, J., Loo G.V., Elewaut, D., Massie, A., Hoste, E., Ravichandran, K.S. Targeting SLC7A11 improves efferocytosis by dendritic cells and wound healing in diabetes. (2022) **Nature** 606, 776-784
3. Medina, C.B., [Mehrotra, P.](#), Arandjelovic, S., Perry, J.S.A., Guo, Y., Morioka, S., Barron, B., Walk, S.F., Ghesquière, B., Krupnick, A.S., Lorenz, U., Ravichandran, K.S., Metabolites released from apoptotic cells act as tissue messengers. (2020) **Nature** 580, 130–135
4. Catrysse, L\*, Maes, B.\* , [Mehrotra, P.](#) et.al A20 deficiency in myeloid cells protects mice from diet-induced obesity and insulin resistance due to increased fatty acid metabolism. (2021) **Cell Reports** 36, 1090748
5. Anderson, C.J., Medina, C.B., Barron B.J., Karvelyte L., Aaes T.L., Lambertz I., Perry J.S.A, [Mehrotra, P.](#) et.al. Microbes exploit death-induced nutrient release by gut epithelial cells. **Nature** (2021). 596, 262-267
6. Tiku, V.,\* Kew, C.,\* [Mehrotra, P.\\*](#) , Ganesan, R. , Robinson, N., Antebi, A., Nucleolar Fibrillarin is an evolutionarily conserved regulator of bacterial pathogen resistance. (2018), **Nature Communications**, 9, 3607.
7. Das, N.P., [Mehrotra, P.](#), Mishra, A., Bairagi, N., Chatterjee, S. Calcium dynamics in cardiac excitatory cells and non-excitatory cells and the role of gap-junctions (2017) **Mathematical Biosciences** 289:51-68.
8. Tyagi, G., [Mehrotra, P.](#), Agarwal, S., Mehrotra, R., DNA interacting Molecules and Cancer Treatments. **Encyclopaedia of Physical Organic Chemistry**, (2016)
9. [Mehrotra, P.\\*](#), Jamwal V.S.\*, Najmuddin, M.S., Sinha, N., Siddiqui, Z., Manivel, V., Chatterjee, S., Rao, K.V.S. Pathogenicity of Mycobacterium tuberculosis is expressed by regulating metabolic thresholds of the host macrophage. (2014) **PLoS Pathogens**, 10, e1004265.
10. Jamwal, V.S.\*, [Mehrotra, P.\\*](#), Singh, S., Siddiqui, Z., Basu, A., Rao, K.V.S. Mycobacterial escape from macrophage phagosomes to the cytoplasm represents an alternate adaptation mechanism. (2016) **Scientific Reports**,6:23089.
11. [Mehrotra, P\\*](#), Najmuddin M.S., Rao K.V.S. 13 C Kinetic Labeling and Extraction of Metabolites from Adherent Mammalian Cells. (2015) **Bio-protocols**, Volume 5, Issue 8.
12. [Mehrotra P.\\*](#), Rao, K.V.S., Chatterjee S. A mathematical model predicting host mitochondrial pyruvate transporter activity to be a critical regulator of Mycobacterium tuberculosis pathogenicity (2017) **Biosystems** 155:1-9.