



Dr. Lata Singh, Ph.D.

Designation: Scientist-II

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Personal Statement:

I work as a molecular biologist. My research in the past 10 years has focused on molecular biology/pathology of retinoblastoma and other ocular tumors. I have joined as a **Scientist-II** in the Department of Pediatrics, All India Institute of Medical Sciences, New Delhi, INDIA in August 2020.

I have finished my postdoctoral fellowship at **University of California, Irvine, USA**. The title of my project was '**Using Human personalized' CYBRIDS to identify drugs/agents that can regulate CLL Mitochondrial dysfunction**'. My overall research interests were to characterize the mitochondria and cellular defects in cybrids with mitochondria from patients with chronic lymphocytic lymphoma and investigate the responses of cancer drugs on these cybrid models.

I completed my Ph.D. Thesis under the supervision of **Prof. Seema Kashyap in the Department of Ocular Pathology, Dr. R. P. Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi**. My Ph.D. research was on mitochondrial biology of intraocular childhood tumor, commonly known as Retinoblastoma. The title of my Ph.D. thesis was 'Molecular Analysis of Mitochondrial Genes Associated with Tumorigenesis in Retinoblastoma.'

I have finished my **National Post-Doctoral Fellowship (N-PDF), SERB, DST from Jamia Millia Islamia and All India Institute of Medical Sciences**. My project was entitled '**Targeting PD-1/PD-L1 Pathway gene in Tumor Microenvironment: New Immunotherapeutic Paradigm for Retinoblastoma and Ocular Malignancies**'. I completed this work with Prof. Moshahid Alam Rizvi (Cancer Biologist, Jamia Millia Islamia, INDIA) and Prof. Seema Kashyap (Pathologist, AIIMS, INDIA). My research focused mainly on expression patterns of cytotoxic T lymphocyte-associated antigen 4 (CTLA-4), Programmed death-1 (PD-1) and its ligands PD-L1/PD-L2 in different ocular malignancies, including Retinoblastoma, Uveal melanoma, Sebaceous gland carcinoma, Squamous cell carcinoma and Ocular lymphoma using immunohistochemistry, Real-Time PCR, tissue culture, flow cytometry, western blotting, and ELISA assays.

Broad Area of Research: Pediatric Oncology, Pediatric Rheumatology, Ocular Oncology, Pediatric Diseases

Book Chapters:

1. Chaudhuri Z, Vanathi M, editors. Postgraduate Ophthalmology, Two Volume Set. 2nd Edition 2020. Jaypee Publishers. ISBN: 9789389587333. Pages: 3300. India. Seema Kashyap, **Lata Singh**. Chapter Title: Ocular Pathology.
2. **Lata Singh** and Mithalesh Kumar Singh. "Mitochondria and Eye." In Mitochondrial Diseases. IntechOpen, 2021.

Key Publications:

- 1) **Singh L**, Atilano SR, Jager MJ, Kenney MC. Mitochondrial DNA Polymorphisms and Biogenesis Genes in Primary and Metastatic Uveal Melanoma Cell Lines. Volumes 256–257, August 2021, Pages 91-99. Accepted in Cancer Genetics 2021.
- 2) **Singh L**, Singh MK, Rizvi MA, et al. Prognostic significance of immune checkpoints in the tumour- stromal microenvironment of sebaceous gland carcinoma. *Br J Ophthalmol*. 2020; bjophthalmol- 2019-315490.doi:10.1136/bjophthalmol-2019-315490
- 3) **Singh L**, Singh MK, Rizvi MA, et al. Clinical relevance of the comparative expression of immune checkpoint markers with the clinicopathological findings in patients with primary and chemoreduced retinoblastoma. *Cancer Immunol Immunother*. 2020; 69(6):1087-1099.
- 4) **Singh L**, Singh MK, Kenney MC, Jager MJ, Rizvi MA, Meel R, Lomi N, Bakhshi S, Sen S, Kashyap S. Prognostic significance of PD-1/PD-L1 expression in uveal melanoma: correlation with tumor-infiltrating lymphocytes and clinicopathological parameters. *Cancer Immunol Immunother*. 2020 Nov 2.
- 5) Salimiaghdam N, Singh L, Schneider K, Chwa M, Atilano SR, Nalbandian A, Limb GA, Kenney MC. Effects of fluoroquinolones and tetracyclines on mitochondria of human retinal MIO-M1 cells. *Exp Eye Res*. 2022 Jan;214:108857. doi: 10.1016/j.exer.2021.108857. Epub 2021 Nov 29. PMID: 34856207.
- 6) Salimiaghdam N, **Singh L**, Schneider K, Nalbandian A, Chwa M, Atilano SR, Bao A, Kenney MC. Potential adverse effects of ciprofloxacin and tetracycline on ARPE-19 cell lines. *BMJ Open Ophthalmol*. 2020 Jul 21;5 (1): e000458.
- 7) Navarosh J, Pushker N, Xess I, **Singh L**, Bajaj MS, Kashyap S, Thakar A. Correlation of Serum Galactomannan Antigen with Diagnosis and Response to Voriconazole in Orbital/Sino-orbital Invasive Aspergillosis. *Int Ophthalmol*. 2021 Jun 10. doi: 10.1007/s10792-021-01848-4.
- 8) Jha J, Singh MK, **Singh L**, Pushker N, Lomi N, Meel R, Chosdol K, Sen S, Bakhshi S, Kashyap S. Association of TYRP1 with hypoxia and its correlation with patient outcome in uveal melanoma. *Clin Transl Oncol*. 2021 Apr 3.
- 9) Kashyap S, Singh MK, Jha J, **Singh L**, Pushker N, Sen S, Venkatesh P, Meel R, Lomi N. Prognostic impact of HERC2 protein and pink-eyed dilution protein in uveal melanoma. *Hum Cell* 2020 Jul 19. doi:10.1007/s13577-020-00397-9
- 10) Kashyap S, **Singh L**, Kumar N, Singh MK, Pushker N, Sen S, Lomi N, Meel R, Chawla B, Bakhshi S. Combined association of Massive choroidal and Optic nerve invasion as a prognostic relevance in Primary Retinoblastoma: A 10 year study. *Asia Pac J Clin Oncol*. 2020 Jul 25.
- 11) Singh MK, **Singh L**, Chosdol K, et al. Differential expression of p52 and RelB proteins in the

metastatic and non-metastatic groups of uveal melanoma with patient outcome. J Cancer Res Clin Oncol. 2019;145(12):2969-2982.

- 12) **Singh L**, Saini N, Pushker N, Bakhshi S, Sen S, Nag TC, Kashyap S. Mutational Analysis of the Mitochondrial DNA Displacement-Loop Region in Human Retinoblastoma with Patient Outcome. Pathol Oncol Res. 2019;25(2):503-512
- 13) **Singh L**, Kashyap S. Review Article: Update on the pathology of Retinoblastoma. Int J Ophthalmol. 2018; 11(12):2011-2016