

Dr. Neeraj Kumar

Contact Details:

Scientist-II

Department of Reproductive Biology,
All India Institute of Medical Sciences
New Delhi,
Email: drnkirwal@gmail.com
Mb: 011-2659-3945

Qualifications:

- **Ph.D.** (Medical Biochemistry), University of Delhi, Delhi
- **M.Sc** (Biochemistry), Kurukshetra University, Kurukshetra.

Past Positions:

- Assistant Professor, Central University of Punjab, Bathinda, Punjab (Aug 07, 2015 to Oct 13, 2016).
- Postdoc, National Institute of Immunology, Delhi, (Apr 24, 2010 to Aug 06, 2015).

Training:

- Next Generation Sequencing (NGS)-Illumina GAIIx (ChIP-seq, RNA-seq & miRNA-seq)
 - Trained to work on nematode model system *Caenorhabditis elegans*
 - Multiplex ligation-dependent probe amplification (MLPA)
 - DNA sequencing by ABI automated sequencer
 - GC- for lipid profiling (quantification of free fatty acids)
 - FACS for identification of immune cells
- Various modern molecular biology techniques**

2) Service going to offer

- Development of diagnostic kits based on recent molecular biology techniques for various reproductive genetic disorders
- Establishment of NGS facility at reproductive biology, AIIMS
- Execution of Research projects funded by extramural and intramural agencies
- Training students for M.Sc, Ph.D. degree Programs

3) Research interest:

- Understanding the role of Insulin Signalling on Reproductive Aging by using *C. elegans* as model system
- Deciphering the role of HDACi on Healthy Aging
- Role of Oxidative stress & RNA binding Proteins in early embryo development

4) Current Lab Members:

- Ms. Neha Kaushik (Ph.D. Student)
- Ms. Soumya Rastogi (JRF)
- Mr. Jitendar Kumar (M.Sc. Student)
- Mr. Moses Jala (M.Sc. Student)

5) Past Lab Members:

- Mr. Amir Faraz (DBT-JRF)
- Ms. Tannu Bhagchandani (JRF)-Pursuing Ph.D. at JNU
- Ms. Priyanka Nagar (M.Sc. student)-Pursuing Ph.D at JNU

6) Project:

- DST approved “HDAC inhibitor(s) mediated genome-wide dynamics of healthy aging in *Caenorhabditis elegans*” (~50 Lakh)
- DBT supported project entitled, “Elucidating health-span regulatory modules by genome-wide combinatorial effects of transcription factors downstream of insulin signaling” (~50 Lakh).
- To elucidate the oxidative stress mediated regulation of turnover and translation regulatory mRNA binding proteins (TTR-RBPs) during embryo development-Intramural

7) Publication List:

- **Kumar N**, Mukhopadhyay A (2019) Using ChIP-Based Approaches to Characterize FOXO Recruitment to its Target Promoters. *Methods Mol Biol.* 1890:115-130. (DOI: 10.1007/978-1-4939-8900-3_10).
- Choudhury AR, Gupta S, Chaturvedi PK, **Kumar N**, Pandey D. Mechanobiology of cancer stem cells and their niche. *Cancer Microenviron*, 2019 (doi: 10.1007/s12307-019-00222-4)
- Choudhury AR, **Kumar N**, Sandeep K, Pandey D. Stem cell repertoire in the prostate epithelium. *J Stem Cell Res Ther*, 2019; 5(2): 44-46. (doi: 10.15406/jsrt.2019.05.00133:)
- **Kumar N**, Pandey D., Halder A. (2018) Preventive, Diagnostic and Therapeutic Applications of Baculovirus Expression Vector System. In: Kumar D., Gong C. (eds) *Trends in Insect Molecular Biology and Biotechnology*. Springer, Cham
- Choudhury AR, **Kumar N**, Sandeep K, Pandey D*. Biotechnological Potential of Stem Cells. *J Stem Cell Res Ther*, 2017; 3(1): 212-219. (doi: 10.15406/jsrt.2017.03.00090:)
- Singh A, Kumar K, **Kumar N**, Chaudhary DP, Pandey D*. Protein purification: Basic principles and techniques. In: Bhatt AK, Bhatia RK, Bhalla TC (Eds). *Basic Biotechniques for Bioprocess and Bioentrepreneurship*. Elsevier Inc. (Chapter Submitted)
- **Kumar N***, Jain V, Singh A, Jagtap U, Verma S, Mukhopadhyay A. Genome-wide endogenous DAF-16/FOXO recruitment dynamics during lowered insulin signalling in *C. elegans*. *Oncotarget*, 2015 Dec 8;6(39):41418-33 (Impact Factor-6.36)

- Singh A, **Kumar N**, Matai L, Jain V, Garg A, Mukhopadhyay A. A chromatin modifier integrates insulin/IGF-1 signalling and dietary restriction to regulate longevity. *Aging Cell*, 2016 Aug;15(4):694-705 (Impact Factor-6.34)
- Pandit A, Jain V, **Kumar N**, Mukhopadhyay A. PHA-4/FOXA-regulated microRNA feed forward loops during *Caenorhabditis elegans* dietary restriction. *AGING*, 2014 Oct; 6 (10):835-855 (Impact Factor-6.43)
- **Kumar N**, Taneja KK, Kalra V, Behari M, Aneja S, Bansal SK. Genomic profiling identifies novel mutations and SNPs in *ABCD1* gene: A molecular, biochemical and clinical analysis of X-ALD cases in India. *PLoS ONE*. 2011 Sep; 6(9) e25094. (Impact factor- 3.53)
- **Kumar N**, Taneja KK, Kumar A, Kalra V, Bansal SK. Novel Mutation in ATP-Binding domain in *ABCD1* gene in Adrenoleukodystrophy. *J. Genet.* 2010 Dec; 89 (4):473-77 (Impact factor-1.09)
- **Kumar N**, Taneja KK, Kalra V, Behari M, Aneja S, Bansal SK. Novel human pathological mutations. Gene symbol: *ABCD1*. Disease: Adrenoleukodystrophy (abstract). *Hum Genet.* 2009 Aug;126(2):344 (5 year impact factor-5.047)
- **Kumar N**, Shukla P, Taneja KK, Kalra V, Bansal SK. De Novo *ABCD1* Gene Mutation in an Indian Patient with Adrenoleukodystrophy. *Pediatr Neurol*, 2008 Oct; 39: 289-292. (Impact factor-1.671)