




INSTITUTE OF HOME ECONOMICS
UNIVERSITY OF DELHI



Name	Dr Bhupender Kumar	Photograph
Designation	Assistant Professor (Biochemistry)	
E-mail	bhupender19@ihe.du.ac.in , bhupender19@gmail.com	
Educational Qualifications: MSc Biotechnology, Ph.D Life Sciences, JNU (Cancer genetics and Cancer metabolism)		
Teaching experience: 8 Years		
Subjects/Papers Taught BSc (H) Biochemistry, Semester VI – Genetic Engineering and Biotechnology (BCH C-13) BSc (H) Biochemistry, Semester V – Gene Expression and Regulation (BCH C-12) BSc (H) Biochemistry, Semester V – Concepts in Genetics (BCH C-11) BSc (H) Biochemistry, Semester IV – Gene Organisation, Replication and Repair (BCH C-9) BSc (H) Biochemistry, Semester IV – Bioinformatics (BCH SEC-4) BSc (H) Biochemistry, Semester III – Metabolism of Carbohydrate and Lipids (BCH C-5) BSc (H) Biochemistry, Semester I – Molecules of Life (BCH C-1) BSc (H) Food Technology, Semester I – Biomolecules (BCH GE-1) BSc (H) Microbiology, Semester I – Biomolecules (BCH GE-1) MSc Food and Nutrition, Semester I – Advanced Nutritional Biochemistry and Techniques-I (FNCC 102) MSc Food and Nutrition, Semester II – Advanced Nutritional Biochemistry and Techniques-II (FNCC 208) BSc (P) Home Science, Semester V – Nutritional Biochemistry (DSE)		
Awards received <ul style="list-style-type: none">• Cleared CSIR-NET for JRF and lecturership, Dec. 2007 & June 2008 examination under life sciences scheme.• Cleared DBT-JRF 2008 in Category-A		
Research Interest/Specialization Cancer biologist and human geneticist working towards establishment of precision medicine. Human Genetics, Cancer Genetics, Cancer Metabolism, NGS (Next Generation Sequencing) Data analysis		
ORCID No.		
https://orcid.org/0000-0003-3887-5040		

Scopus ID

<https://www.scopus.com/authid/detail.uri?authorId=57217717656>

Google Scholar ID

https://scholar.google.co.in/citations?user=UqyH_KkAAAAJ&hl=en

LinkedIn ID

<https://www.linkedin.com/in/bhupender-kumar-a608416a/>

Research Projects

Title	Funding agency/organization	Duration of Project

Research papers since 2010 (APA format)

1. Iqbal, MA., Siddiqui, FA., Gupta, V., Gopinath, P., Chattopadhyay, S., **Kumar B.**, Manvati, S., Chaman, N. and Bamezai, R. Insulin enhances metabolic capacities of cancer cells by dual regulation of glycolytic enzyme pyruvate kinase M2. [*Molecular Cancer* 2013, 12:72 (9 July 2013)] ISSN: 1476-4598 IF - 5.39
2. Chopra, R., Ali, S., Srivastava, A., Aggarwal, S., **Kumar B.**, Manvati, S., Kalaiarasan, P., Jena, M., and Bamezai, R. 'Mapping of PARK2 and PACRG Overlapping Regulatory Region Reveals LD Structure and Functional Variants in Association with Leprosy in Unrelated Indian Population Groups' (*PLOS Genetics* | Volume 9 | Issue 7 | 04 Jul 2013) ISSN 1553-7390 IF- 8.167
3. Iqbal, MA., Siddiqui, FA., Chaman, N., Gupta, V., **Kumar, B.**, Gopinath, P., and Bamezai, R. Missense mutations in pyruvate kinase M2 promote cancer metabolism, oxidative endurance, anchorage independence and tumor growth in a dominant negative manner *J. Biol. Chem.* 2014, vol 289(12), pages 8098-8105. Online ISSN 1083-351X IF-4.6
4. Pandita, A., **Kumar, B.**, Manvati, S., Vaishnavi, S., Singh, SK., and Bamezai, R. Synergistic combination of gemcitabine and dietary molecule(s) induces apoptosis in pancreatic cancer cells and down regulates PKM2 expression (*PLOS ONE* September 2014 | Volume 9 | Issue 9 | e107154) ISSN 1932-6203 IF-3.534
5. Manvati S., Mangalhara K., Kalaiarasan P., Chattopadhyay S., **Kumar B.**, Agarwal G., Srivastava N., Bamezai RNK. MiR-101 Induces Senescence and Prevents Apoptosis in the Background of DNA Damage in MCF7 Cells (*PLOS ONE* October 2014 | Volume 9 | Issue 10 | e111177) ISSN · 1932-6203 IF-3.534
6. Kalaiarasan, P., **Kumar, B.**, Gupta, V., Subarao N., and Bamezai, R (July 2014) In Silico Screening, Genotyping, Molecular Dynamics Simulation and Activity Studies of SNPs in Pyruvate Kinase M2. (*PLOS ONE* March 2015 Volume 10 Issue 3) ISSN · 1932-6203 IF-3.23

7. **Kumar, B.**, and Bamezai, RNK. Moderate DNA damage promotes metabolic flux into PPP via PKM2 Y-105 phosphorylation: a feature that favours cancer cells. (August 2015, Volume 42, Issue 8, pages 1317–1321 **Molecular Biology Reports**) ISSN 1573-4978 IF-2.024
8. **Kumar, B.**, Iqbal, MA., Singh, RK., and Bamezai, RNK. Resveratrol inhibits TIGAR to promote ROS induced apoptosis and autophagy. (Volume 118, November 2015, Pages 26-35, **Biochimie**) ISSN 0300-9084 IF-2.96
9. Naseem A., Bhat ZI., Kalaiarasan P., **Kumar B.**, Gandhi G and Rizvi MMA. Genetic and epigenetic alterations affecting PARK-2 expression in cervical neoplasm among North Indian patients. (Volume: 39 issue: 6, **Tumor Biology June 2017**) ISSN: 1010-4283 (Print) IF-3.65
10. **Kumar B***., Bhat ZI*, Bansal S, Saini S, Naseem A, Wahabi K, Burman A, Trilok-Kumar G, Saluja SS and Rizvi MMA. Association of mitochondrial copy number variation and T16189C polymorphism with colorectal cancer in North Indian population. (Volume: 39 issue: 11, **November 2017, Tumor Biology**) ISSN: 1010-4283 (Print) IF-3.65
11. **Kumar, B.** Fisetin synergizes with gemcitabine and inhibits viability of MIA PaCa-2 pancreatic cancer cells. **Research Reports, March 2018, 1 (1) ISSN 2471-5689 (online)**
12. **Kumar, B.** Resveratrol inhibits expression of cancer specific PPP enzyme TKTL1. (Vol. 11, issue 6, June 2018, 1-4, **Asian Journal of Pharmaceutical and Clinical Research**) ISSN 0974-2441 **Print**
13. Kumari, T., Vachher, M., Bansal, S., Bamezai, RNK and **Kumar, B.** Meta-analysis of mitochondrial T16189C polymorphism for cancer and Type 2 diabetes risk. (Volume 482, July 2018, Pages 136-143, **Clinica Chimica Acta**) ISSN 0009-8981 **Print IF-2.9**
14. Kumari, T and **Kumar, B.** High-mobility group box 1 protein (HMGB1) gene polymorphisms and Cancer susceptibility: A comprehensive meta-analysis (Volume 483, August 2018, Pages 170–182, **Clinica Chimica Acta**) ISSN 0009-8981 **Print IF-2.9**
15. Bhat ZI*., **Kumar, B***., Bansal, S., Naseem, A., Tiwari, RR., Sharma, GD and Rizvi MMA. Association of PARK2 promoter polymorphisms and methylation with colorectal cancer in North Indian population. (Volume 682, January, 2019, Pages 25–32, **GENE**) ISSN 0378-1119 **IF 2.6**
16. Naseem, A., Bhat, ZI., Kalaiarasan, P., **Kumar B.**, Hafez, Z., Wahabi, K., Tiwari, R., Gandhi, G and Rizvi, MMA. Assessment of Epigenetic alterations and in-silico analysis of Mutation affecting PTEN expression among Indian cervical cancer patients (Volume 120, Issue 9, September 2019, Pages 15851-15866, **Journal of Cellular Biochemistry**) ISSN 1097-4644 **Online IF-3.44**
17. Vachher, M., Arora, K., Burman, A and **Kumar, B.** NAMPT, GRN and SERPINE1 signature as predictor of disease progression and survival in gliomas. (Volume 121, Issue 4, April 2020, Pages 3010-3023, **Journal of Cellular Biochemistry**) ISSN 1097-4644 **Online IF-4.4**

18. Iqbal, MA., Siddiqui, S., Rehman, AU., Siddiqui, FA., Singh, P., **Kumar, B** and Saluja, D. Multiomics integrative analysis reveals antagonistic roles of CBX2 and CBX7 in metabolic reprogramming of breast cancer. (Volume 15, Issue 5, May 2021, Pages 1450-1465. **Molecular Oncology (FEBS PRESS) ISSN 1878-0261 IF- 6.5**

19. Bhat, ZI., Naseem, A., **Kumar B.**, Kalaiarasan, P., Tiwari, R., Sharma, GD and Rizvi, MMA. Association of PARK-2 non-synonyms polymorphisms and their *in-silico* validation among North Indian colorectal patients. (Accepted, August 2021, Journal of Gastrointestinal cancer) **ISSN 1941-6628**

Book chapters published/edited

1. Gupta, V., Iqbal, MA., **Kumar, B** and Bamezai, RNK. (2015) **Tumor cell metabolism- Pathways, Regulation and Biology. Chapter 6** Pyruvate Kinase M2: A Metabolic Tuner. <http://www.springer.com/biomed/cancer/book/978-3-7091-1823-8> **ISBN 978-3-7091-1823-8**
2. Gopinath, P., Iqbal, MA., Gupta, V., **Kumar, B** and Bamezai, RNK. **Encyclopedia of Signaling Molecules, 2nd Edition (2017) – Chapter PKM2.** https://link.springer.com/referenceworkentry/10.1007%2F978-3-319-67199-4_101893 **ISBN 978-1-4939-6799-5 (Print)**

Association with Professional Societies

Member of society

- Indian Society of Human Genetics (Life Member)
- Indian Association of Cancer Research (Life Member)

Editorial Board Member

- World Journal of Diabetes (2018-2021)

Reviewer

- World Journal of Gastroenterology
- Research Reports
- GENE

Any other

Short course/FDP/Workshop

- Completed two weeks workshop with grade A on “Tools and Techniques in Statistical Analysis” from Acharya Narayan Dev College, University of Delhi, held during 6-19th April, 2021
- Completed two weeks FDP on “Quantitative methods for data analysis” from Ramanujan college TLC of MHRD under PMMMNTT, University of Delhi, held during 12-25th August, 2020.

- Completed two weeks FDP on “Advanced Concepts on Developing MOOCs” from Ramanujan college TLC of MHRD under PMMMNMTT, University of Delhi, held during 2-17th July, 2020.
- Completed a short workshop and course (Genome Biology-2020) at IISER TVM where instructors from EMBL taught on NGS sequencing (Oxford NANOPORE MinIon and Illumina). In this course I learnt how to generation of nanopore sequencing data, full genome assembly, analysis of SNPs, structural variants and other alterations, held during 10-17th January, 2020)
- Completed one day Faculty Empowerment Workshop entitled “National Workshop on Computational Chemistry and Molecular Modelling” organized by Guru Angad Dev TLC of MHRD under PMMMNMTT at SGTB Khalsa college, University of Delhi, on 23rd March, 2018.

Workshops and lectures at IHE as organizer/resource person

- Participated in the Faculty Development Program “Online teaching using Google classroom and Google meet”, organized by the Website and Automation Committee & Department of Microbiology on 22nd August, 2020.
- Organized and attended Hands-on-National Workshop on “MOODLE- An online learning management system” organized by Department of Biochemistry 1-5th July, 2020.
- Workshop on “PCR & ELISA”, 7th Feb 2019
- Workshop on “Introduction to Clinical Biochemistry”, 27 & 28th August 2018
- Symposium on “Replacing regulatory experiments on Animals” with PETA India, 26-27 October 2017.
- Workshop on “Introduction to Clinical Biochemistry” 12th & 13th September 2017
- Workshop on “PCR & ELISA”, 7th April 2017
- Workshop on “Introduction to Clinical Biochemistry”, 1st & 2nd September 2016
- Workshop on “Autodocking part II”, 29th February 2016
- Plenary lecture & workshop on “Autodocking”, 29th January 2016.

Molecular and Biochemical techniques handled

- MS-OFFICE, Graphpad-PRISM, SPSS, Adobe illustrator, linux and R-programming for statistical analysis.
- Familiar with microarray, RNAseq data analysis, genome assembly and variant calling.
- Genomic DNA, plasmid DNA, RNA, and protein isolation and quantification.
- PCR, gradient PCR (Bio-Rad), Reverse transcriptase PCR, Real time PCR (ABI 7500), PCR based gene editing and mutagenesis, gene cloning, RFLP, Automated Sanger’s sequencing (ABI PRISM 3130xl) and Sequenom MassARRAY iPLEX.
- Agarose gel electrophoresis (DNA), Polyacrylamide gel electrophoresis (DNA and protein), protein purification by affinity chromatography (His-tag, GST-tag, ion exchange), paper chromatography (nucleic acid), TLC (amino acids and lipids), Western and Southern blotting.
- Handled simple light microscopes and fluorescence microscope, colorimeters, single beam and double beam spectrophotometer, UV-spectrophotometer (SHIMADZU), NanoDrop 2000 spectrophotometer (Thermo), Flow cytometer (FACS).
- Enzyme activity assays, density gradient centrifugation, biochemical assay from blood and serum. Biochemical identification and quantification of different biomolecules (sugars, nucleic acids, proteins and lipids). Buffer preparations, pH-meter handling.

- Mammalian cell culture - routine maintenance and handling of HeLa, MCF-7, MDA-MB231, H1299 cell line, transfection, electroporation, MTT assay, drug treatment, Apoptosis.
- E. coli and Yeast culture, maintenance, DNA cloning, conjugation, transformation, protein expression, purification, growth curve and Yeast two hybrid.
- Mouse handling, antibody production in mouse, Drosophila culture handling and maintenance, Drosophila genetics.

Post Ph.D Research experience

- Currently working as faculty and independent researcher at *Department of Biochemistry, Institute of Home Economics, University of Delhi* and worked in collaboration at *Department of Biosciences, Jamia Millia Islamia*, and at *National Centre of Applied Human Genetics, School of Life Sciences, Jawaharlal Nehru University New Delhi, India, 2015 onwards.*
- During this period, I have published 4 research articles as *corresponding author* and 3 as first author in *peer reviewed international journals.*
- Performed systematic review and meta-analysis with SNP data.
- Literature searched SNPs associated with Cancer and T2D. Standardized and validated PCR RFLP,
- Interpreted and statistically analyzed the genotyping data using SPSS and R.
- Predicted the risk of developing Cancer in patients carrying polymorphisms in background with other risk factors.
- Multi-omics analysis and Machine learning analysis of TCGA, METABRIC and CCLE data using R
- Labeled, isolated and quantified DNA from sample for downstream molecular experiments.