

Name :Dr. Nasreen Z. Ehtesham
Designation :Scientist G (Director Grade Scientist)
University/Department/Institute :Inflammation Biology and cell signalling lab
National Institute of Pathology
Safdarjung Hospital Campus
New Delhi
Date of Birth : March 28, 1959
Sex (M/F) : Female

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Education (Post-Graduation onwards & Professional Career)

Ph.D. (1991): National Institute of Immunology, New Delhi, India
(registered at JMI)
Graduate Programme (1984) University of Alberta, Canada
M.Sc. 1981: Aligarh Muslim University
B.Sc. (Honours) 1978: Magadh University (IV rank with
Distinction)

Position and Employment: (Starting with the most recent employment):

DIRECTOR GRADE SCIENTIST (Scientist G) and **Head**, Inflammation
Biology and cell signaling lab, National Institute of Pathology (NIOp), New
Delhi, (2015- present)

SENIOR DEPUTY DIRECTOR (Scientist F) and **Head**, Inflammation
Biology and cell signaling lab, National Institute of Pathology (NIOp), New
Delhi, (2010- 2015)

Visiting Professor, Biology Laboratory, Institute of life sciences,
Hyderabad university Campus, Hyderabad (2009-2011)

DEPUTY DIRECTOR (Scientist E) and **Head**, Molecular Biology Unit, National Institute of Nutrition (NIN), Hyderabad, (2005- 2010)

Assistant Director and Head Molecular Biology Unit, National Institute of Nutrition, Hyderabad (2000-2005)

Research Scientist, International Center for Genetic Engineering and Biotechnology (ICGEB), New Delhi (1994-2000)

Invited Talks

- Invited to give lecture in the international conference on **Cellular and Molecular Mechanism of Disease process**” to be held in Kashmir from April 13-16, 2014
- Invited talk in Bioworld 2014, an International conference on **Protein structure and function** organised by IIT, Delhi on
- 10th Congress of **“Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB)”** December 2003
- University of La Reunion, France on **“Neurologic, Immunologic and metabolic aspect of chronic diseases”** December 2004
- International Centre for Diarrhoeal Disease Research, Bangladesh October 2005
- Keystone meeting on **PPAR and RXR** (2005), Whistler, BC, Canada
- Indo-Swedish Symposium on “Genomics and proteomics of Diabetes” organized by Madras Diabetes Research Foundation, Chennai. April 2006
- Institut für Molekulare Infektionsbiologie, University of Würzburg, Germany **“Pathogenesis and role of nutrition in infectious diseases”** May 2006
- 25th Biennial Conference of I.A.L. (Indian Association of Leprologists), Kanpur. November 2007
- Invited by DST, Government of Bihar to attend a meeting on **“Bihar Science Congress – 2008” May 2008.**
- **Indo French meeting on “Diabetes and Cardiovascular Disorder” organized by ICMR. January 2007**
- Attended a workshop on “Diversity to Discovery Genetic Epidemiology and Molecular Genetics – The Indian Population Diversity, endogamous Ethnic Communities” February, 2008.
- Attended a symposium on HUGO 2008 – 13th Human Genome Meeting, Hyderabad September 2008.
- Attended a meeting on Indo-German workshop on Molecular Epidemiology of Infectious Diseases with emphasis on Mycobacterium tuberculosis, November, 2008.

- Invited by ICGEB to attend a meeting on “Emerging Trends in Tuberculosis Research : Biomarkers, Drugs and Vaccine” December 2008.
- 3rd **International Congress on Prediabetes and Metabolic Syndrome**” Nice, France April, 2009
- Invited talk at **Cell Biology** meeting, Hyderabad University, 2010

List of Projects Handled (COMPLETED/ONGOING)

1. PPAR mediated regulation of Glucose metabolism and coronary Heart Disease: understanding the mechanism of action
Funded by ICMR
2. Development of PCR Method for detection of genetically modified foods
Funded by DBT
3. Genetic basis of resistance type II diabetes in the raica community of Rajasthan
Funded by ICMR
4. Biomedical Informatics Centre of ICMR
5. Transcriptome and proteome analyses of ALR2 and its involvement in the pathogenesis of diabetic retinopathy
Funded by DST
6. Anti inflammatory potential of n-3 polyunsaturated fatty acids in experimental ulcerative colitis : Biochemical and molecular mechanisms
Funded by DBT
7. Understanding the role of T cells in obesity and diabetes
Funded by DST
8. Virtual **Centre of Excellence** on multidisciplinary approaches aimed at interventions against Mycobacterium tuberculosis.
Center of Excellence DBT.
9. Understanding the functional role of PHLPP1 in IFN γ -mediated innate immune responses of macrophages.
Funded by DBT.
10. Understanding the role of micronutrients in *Mycobacterium tuberculosis (M.tb)* infection using guinea pig (*Caviaporcellus*) as a model
Funded by ICMR
11. Virtual **Centre of Excellence II** on multidisciplinary approaches aimed at interventions against Mycobacterium tuberculosis.
Center of Excellence DBT

Honors/Awards:

Elected **Fellow** of **The National Academy of Sciences**, India
 Elected fellow of **Andhra Pradesh Akademi of Sciences**, India
 Outstanding Work of the Year Award, NII, New Delhi 1990
Merit Scholarship, Govt. of Bihar, 1974-1976

Editorial Board Member of

Molecular and Cellular Biochemistry (Springer, Netherlands)
International Journal of Biosciences and Technology (IJBST)
International Journal of Medical Sc. and Technology (IJMST)
International Journal of Life Science and Technology (IJLST)
Gut Pathogens (Biomed Central, London)

List of membership in Scientific Institutions/Committees:

Life Member, **Nutritional Society of India**
Life Member, **Society of Biological Chemists**
Life Member of **Society of Cell Biology**, India
Member Secretary of “GM Foods Sub-committee on Biotechnology Issues”
Member, DBT Task Force on **“Biotechnological approaches on food and nutritional security”**, Ministry of Science and Technology, Govt of India
Member, ICMR Task Force on **“Molecular Cardiology and Diabetes”**. Ministry of Health, Govt of India
ICMR **Kshanika Oration Award** 2014

List of Publications:

1. Saurabh Pandey, Deeksha Tripathi, MOHD KHUBAIB, Ashutosh Kumar, Javaid Ahmad Sheikh, Gaddam Sumanlatha, Nasreen Zafar Ehtesham* and Seyed Ehtesham Hasnain
2. Khubaib M, Sheikh JA, Pandey S, Srikanth B, Bhuwan M, Khan N, Hasnain SE and **Ehtesham NZ** (2016) Mycobacterium tuberculosis Co-operonic PE32/PPE65 Proteins Alter Host Immune Responses by Hampering Th1 Response. **Frontiers in Microbiology**. 7:719.
3. Bhuwan M, Arora N, Sharma A, Khubaib M, Pandey S, Chaudhuri TK, Hasnain SE, **Ehtesham NZ**. (2016) Mycobacterium tuberculosis Virulence Factor RipA with Chaperone MoxR1 Is Required for Transport through the TAT Secretion System" **mBio**. pii: e02259
4. Pandey S, Khubaib M, Tripathi D, Sharma A, Choudhary T. K., Hasnain SE, **Ehtesham NZ** (2016) Mycobacterium tuberculosis peptidyl-prolyl isomerases also exhibit chaperone like activity in-vitro and in-vivo" **PLoS One** e0150288
5. Grover .S, Gupta P,. Kahlon PS, Goyal S, Grover A, Dalal K, Ali. S, **Ehtesham NZ**, et al (2016) Analyses of methyltransferases across the pathogenicity spectrum of different Mycobacterial species point to an extremophile connection **Journal of Molecular Biosystems**. 12: 1615
6. Rasheedi S, Suragani M, Raviprasad P, Ghosh S, Suragani RN, Ramaiah KV, **Ehtesham NZ**. (2015)Functional characterization of

- PeIF5B as eIF5B homologue from *Pisum sativum*. **Biochimie**.118: 36-43
7. Rahman SA, Singh Y, Kohli S, Ahmad J, **Ehtesham** NZ, et al (2015) Reply to "'Mycobacterium indicuspranii" is a strain of Mycobacterium intracellulare': "M. indicuspranii" is a distinct strain, not derived from M. intracellulare, and is an organism at an evolutionary transition point between a fast grower and slow grower. **mBio**.6pii: e00352-15.
 8. Kohli S, Singh Y, Sowpati DT, **Ehtesham** NZ, et al (2015) Human mesenchymal stem cells: New sojourn of bacterial pathogens.. **Int J Med Microbiol**. 305:322-326.
 9. Hasnain SE, O'Toole RF, Grover S, **Ehtesham** NZ. (2015) Whole genome sequencing: a new paradigm in the surveillance and control of human tuberculosis. **Tuberculosis** (Edinb). 95:91-4.
 10. Singh A, Suragani M, **Ehtesham** NZ, et al (2015) Localization of resistin and its possible roles in the ovary of a vespertilionid bat, *Scotophilus heathi*..**Steroids**.;95:17-23.
 11. Rahman SA, Singh Y, Kohli S, Ahmad J, **Ehtesham** NZ, et al (2014) Comparative analyses of nonpathogenic, opportunistic, and totally pathogenic mycobacteria reveal genomic and biochemical variabilities and highlight the survival attributes of Mycobacterium tuberculosis. **MBio**.5:e02020-14.
 12. Kolli SK, Prasad B, Babu PV, Ashfaq MA, **Ehtesham** NZ, et al (2014) TFAA/H₃PO₄ mediated unprecedented N-acylation of carbazoles leading to small molecules possessing anti-proliferative activities against cancer cells.. **Org Biomol Chem**. 12:6080-6084.
 13. Basak S, **Ehtesham** NZ, et al (2014) Detection and identification of transgenic elements by fluorescent-PCR-based capillary gel electrophoresis in genetically modified cotton and soybean..**J AOAC Int**.;97:159-65.
 14. Alamuru NP, Behera S, Butchar JP, Tridandapani S, Kaimal Suraj S, Babu PP, Hasnain SE, **Ehtesham** NZ, et al (2014) A novel immunomodulatory function of PHLPP1: inhibition of iNOS via attenuation of STAT1 ser727 phosphorylation in mouse macrophages. **J Leukoc Biol**. 95:775-783.
 15. Suragani M, Aadinarayana VD, Pinjari AB, Tanneeru K, Guruprasad L, Banerjee S, Pandey S, Chaudhuri TK, **Ehtesham** NZ (2013) Human resistin, a proinflammatory cytokine, shows chaperone-like activity.. **Proc Natl Acad Sci U S A**;110:20467-72
 16. Singh Y, Ahmad J, Musarrat J, **Ehtesham** NZ, et al (2013) Emerging importance of holobionts in evolution and in probiotics.. **Gut Pathog**.5:12. doi: 10.1186/1757-4749-5-12.
 17. Kohli S, Singh Y, Sharma K, Mittal A, **Ehtesham** NZ, et al (2012) Comparative genomic and proteomic analyses of PE/PPE multigene family of Mycobacterium tuberculosis H₃₇Rv and H₃₇Ra

- reveal novel and interesting differences with implications in virulence. **Nucleic Acids Res.** 40:7113-22.
18. Tyagi A, Kumar U, Reddy S, Santosh VS, Mohammed SB, **Ehtesham** NZ, *et. al.* (2012) Attenuation of colonic inflammation by partial replacement of dietary linoleic acid with α -linolenic acid in a rat model of inflammatory bowel disease.. **Br J Nutr.** 108:1612-22.
 19. Suragani M, Rasheedi S, Hasnain SE, **Ehtesham** NZ (2011) The translation initiation factor, PeIF5B, from *Pisumsativum* displays chaperone activity.. **BiochemBiophys Res Commun.** 414:390-396.
 20. Alvi A, Ansari SA, **Ehtesham** NZ, *et. al.* (2011) Concurrent proinflammatory and apoptotic activity of a *Helicobacter pylori* protein (HP986) points to its role in chronic persistence.. **PLoS One.** 2011;6(7):e22530.
 21. **Ehtesham** NZ, *et. al.* (2011) Treatment end point determinants for pulmonary tuberculosis: human resistin as a surrogate biomarker. **Tuberculosis** (Edinb). 91:293-299.
 22. Hasnain SE, Banerjee S, **Ehtesham** NZ (2011) Translating advances in genomic research into clinical practice: the challenges ahead..**Med PrincPract.** ;2:392-394.
 23. Banerjee S, Farhana A, **Ehtesham** NZ, *et. al.* (2011) Iron acquisition, assimilation and regulation in mycobacteria.. **Infect Genet Evol.** 11:825-838.
 24. Rasheedi S, Suragani M, Haq SK, Sachchidanand, Bhardwaj R, Hasnain SE, **Ehtesham** NZ. (2010) Expression, purification and ligand binding properties of the recombinant translation initiation factor (PeIF5B) from *Pisumsativum*. **Mol Cell Biochem.**;344:33-41.
 25. Singh AK, Battu A, Mohareer K, Hasnain SE, **Ehtesham** NZ (2010) Transcription of human resistin gene involves an interaction of Sp1 with peroxisome proliferator-activating receptor gamma (PPARgamma)..**PLoS One.** 29;5(3):e9912.
 26. Rasheedi S, Suragani M, Haq SK, Ghosh S, **Ehtesham** NZ, *et. al.* (2010) Characterization of LEF4 ligand binding property and its role as part of baculoviral transcription machinery..**Mol Cell Biochem.** 333:83-89.
 27. Haseeb A, Iliyas M, Chakrabarti S, Farooqui AA, Naik SR, Ghosh S, Suragani M, **Ehtesham** NZ. (2009) Single-nucleotide polymorphisms in peroxisome proliferator-activated receptor gamma and their association with plasma levels of resistin and the metabolic syndrome in a South Indian population. **J Biosci.** 34:405-14.
 28. Rasheedi S, Suragani M, Haq SK, Ghosh S, **Ehtesham** NZ, *et. al.* (2009) Biophysical characterization and unfolding of LEF4 factor of RNA polymerase from AcNPV..**Biopolymers.** 91:574-582.
 29. Ibrahim A; Ghafoorunissa, Basak S, **Ehtesham** NZ. (2009) Impact of maternal dietary fatty acid composition on glucose and lipid metabolism in male rat offspring aged 105 d. **Br J Nutr.** 102:233-41

30. Ahmed N, **Ehtesham** NZ, *et. al.* (2009) Ancestral Mycobacterium tuberculosis genotypes in India: implications for TB control programmes. **Infect Genet Evol.** 9:142-146.
31. Aruna B, Islam A, Ghosh S, Singh AK, Vijayalakshmi M, Ahmad F, **Ehtesham** NZ (2008) Biophysical analyses of human resistin: oligomer formation suggests novel biological function.. **Biochemistry.** 47:12457-66.
32. Tundup S, Pathak N, Ramanadham M, Mukhopadhyay S, Murthy KJ, **Ehtesham** NZ, *et. al.* (2008) The co-operonic PE25/PPE41 protein complex of Mycobacterium tuberculosis elicits increased humoral and cell mediated immune response.. **PLoS One.**;3(10):e3586.
33. Farhana A, Kumar S, Rathore SS, Ghosh PC, **Ehtesham** NZ, *et. al.* (2008) Mechanistic insights into a novel exporter-importer system of Mycobacterium tuberculosis unravel its role in trafficking of iron.. **PLoS One.**7;3(5):e2087.
34. Rasheedi S, Ramachandran A, **Ehtesham** NZ, *et. al.* (2007) Biochemical characterization of Sf9 Sp-family-like protein factors reveals interesting features.. **Arch Virol.** 152:1819-1828.
35. Rasheedi S, Ghosh S, Suragani M, Tuteja N, Sopory SK, Hasnain SE, **Ehtesham** NZ (2007) Pisumsativum contains a factor with strong homology to eIF5B.. **Gene.** 399:144-151.
36. Boddupalli CS, Ghosh S, Rahim SS, Nair S, **Ehtesham** NZ, *et. al.* (2007) Nitric oxide inhibits interleukin-12 p40 through p38 MAPK-mediated regulation of calmodulin and c-rel.. **Free Radic Biol Med.** 42:686-97.
37. Suragani RN, Ghosh S, **Ehtesham** NZ, *et. al.* 2006) Expression and purification of the subunits of human translational initiation factor 2 (eIF2): phosphorylation of eIF2 alpha and beta. **Protein Expr Purif.** 47:225-33.
38. Kumar PA, Haseeb A, Suryanarayana P, **Ehtesham** NZ, *et. al.* (2005) Elevated expression of alphaA- and alphaB-crystallins in streptozotocin-induced diabetic rat.. **Arch BiochemBiophys.** 444:77-83.
39. Suragani RN, Kamindla R, **Ehtesham** NZ, *et. al.*(2005) Interaction of recombinant human eIF2 subunits with eIF2B and eIF2alpha kinases. **BiochemBiophys Res Commun.** 338:1766-72
40. Silswal N, Singh AK, Aruna B, Mukhopadhyay S, Ghosh S, **Ehtesham** NZ. (2005) Human resistin stimulates the pro-inflammatory cytokines TNF-alpha and IL-12 in macrophages by NF-kappaB-dependent pathway. **BiochemBiophys Res Commun.** ;334:1092-101.
41. Saravanan N, Haseeb A, **Ehtesham** NZ, *et. al.* (2005) Differential effects of dietary saturated and trans-fatty acids on expression of genes associated with insulin sensitivity in rat adipose tissue.. **Eur J Endocrinol.** 153:159-65.

42. Nasirudin KM, **Ehtesham** NZ, *et. al.* (2005) The Gly-Arg-rich C-terminal domain of pea nucleolin is a DNA helicase that catalytically translocates in the 5'- to 3'-direction.. **Arch BiochemBiophys.** 434:306-15.
43. Ghosh S, Rasheedi S, Rahim SS, Banerjee S, Choudhary RK, Chakhaiyar P, **Ehtesham** NZ, *et. al.* (2004) Method for enhancing solubility of the expressed recombinant proteins in Escherichia coli.. **Biotechniques.** 37:418, 422-3.
44. Choudhary RK, Pullakhandam R, **Ehtesham** NZ, *et. al.* (2004) Expression and characterization of Rv2430c, a novel immunodominant antigen of Mycobacterium tuberculosis. **Protein Expr Purif.** 36:249-253.
45. Raghu P, Ghosh S, Soundarya K, Haseeb A, Aruna B, **Ehtesham** NZ (2004) Dimerization of human recombinant resistin involves covalent and noncovalent interactions.. **BiochemBiophys Res Commun.** 313:642-6.
46. Aruna B, Ghosh S, Singh AK, Mande SC, Srinivas V, Chauhan R, **Ehtesham** NZ. (2003) Human recombinant resistin protein displays a tendency to aggregate by forming intermolecular disulfide linkages. **Biochemistry.** 42:10554-9.
47. Phan TN., **Ehtesham** NZ., *et. al.* (2003) A novel nuclear DNA helicase with high specific activity from *Pisumsativum* catalytically translocates in the 3'-5' direction **European Journal of Biochemistry** 270:1735-1745.
48. **Ehtesham, NZ.** (2002) Does resistin resist insulin? **Current Science** 83:1190-1091.
49. **Ehtesham, NZ.** (2001) Molecular link between diabetes and obesity: The resistin story. **Current Science** 80:1369-1371.
50. Gaikwad, A., **Ehtesham, NZ.**, Hop *et. al.* (2001) Functional analyses of pea chloroplast DNA polymerase and its accessory proteins. In: **Signal Transduction in Plants: Current Advances**, S.K Sopory, R.Oelmueller, S.C. Maheshwari, eds, Kluwer Academic/Plenum Publisher, New York, London 309
51. Ghosh, S., Singh, AK.,Aruna, B, Mukhopadhyay, S. and **Ehtesham, NZ.** (2003) The genomic organization of mouse resistin reveals major differences from the human resistin: Functional Implications **Gene** 305:27-34.
52. Pham, XH., Reddy, MK., **Ehtesham, NZ.**, *et. al.*. (2000) A multifunctional DNA helicase from *Pisumsativum* stimulates topoisomerase I activity. **Plant Journal** 24:219-229
53. **Ehtesham** NZ, *et. al.*. (1999) Calnexin from Pisumsativum: cloning of the cDNA and characterization of the encoded protein. **DNA Cell Biol.** 18:853-62.
54. Ali, S., Ansari, S., **Ehtesham, NZ.**, Azfer *et. al.* (1998) Analysis of the evolutionarily conserved repeat motifs in the genome of the highly

- endangered central Indian barasingha *Cervus duvaucelibranderi*. **Gene** 223:361-367.
55. Raina, A., Sulaiman, IM., **Ehtesham, NZ.**, *et. al.* (1996) Characterization of a human alphoid satellite DNA sequence: Potential use in assessing genetic diversity in Indian populations. **Gene** 173: 247-250.
 56. **Ehtesham, NZ.**, *et. al.* (1995) Highly repetitive DNA sequence elements from *Orseolia oryzae* (Wood Mason) discriminate between the Indian isolates of the Asian rice gall midge and the paspalem midge. **Electrophoresis** 16: 1762-1765.
 57. Sulaiman, IM., **Ehtesham, NZ.** *et. al.* (1995) A multicopy DNA sequence from *M. simplicifolia* discriminates between the different species of this endangered Himalayan poppy. **Gene** 156:223-227
 58. **Ehtesham, NZ.**, *et. al.* (1995) Characterization of DNA sequence that detects repetitive DNA elements in the Asian rice gall midge (*Orseolia oryzae*) genome: potential use in DNA fingerprinting of biotypes. **Gene** 153: 179-183.
 59. Hasnain, SE., Nakhai, B., **Ehtesham, NZ.**, *et. al.* (1994) β subunit of hCG hormone and firefly luciferase simultaneously synthesized in insect cells using a recombinant baculovirus are differentially expressed and transported. **DNA & Cell Biology** 13:275-282.
 60. **Ehtesham, NZ.** *et. al.* (1992) A multilocus probe for DNA fingerprinting based on chi-like sequences. **Advances in Forensic Haemogenetics** 4:137-140
 61. **Ehtesham, NZ.**, *et. al.* (1992) A novel probe for human DNA fingerprinting based on chi-like sequences. **Gene** 111:261-263
 62. **Ehtesham, NZ.** *et. al.* (1991) Direct in-gel hybridization without blotting, using nick-translated cloned DNA probe. **BioTechniques** 11:718-722.
 63. **Ehtesham, NZ.**, *et. al.* (1991) Complete nucleotide sequence of a human satellite DNA useful in DNA fingerprinting. **Gene** 98:301-302
 64. Jha, PK., **Ehtesham, NZ.**, *et. al.* (1991) Intracellular trafficking of proteins in insect cells and larvae infected with recombinant baculovirus. **Journal of Cellular Biochemistry** 15:197
 65. **Ehtesham, NZ.**, *et. al.* (1990) Molecular cloning of human satellite DNA sequences and their use in detecting DNA polymorphism. **Indian Journal of Biochemistry & Biophysics** 27:275-279.
 66. Guiltinan, MJ., Schelling, ME., **Ehtesham, NZ.**, *et. al.* (1988) The nucleolar RNA binding protein B-36 is highly conserved among plants. **European Journal of Cell Biology** 46:547-553.