# MUHAMMAD ASIF NAEEM, PhD, MPhil.

Associate Professor (BS 20)
Centre for Applied Molecular Biology (CAMB), University of the Punjab, Lahore

***CONTACT INFORMATION:***

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## *EDUCATIONAL INFORMATION*

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| 1994 – 1996 FSc (Pre-Medical) | Govt. College of Science, BISE, Multan |
| 1997 – 1999 BSc (Science) | Govt. College Bosan Road, BZU, Multan |
| 2000 – 2002 MSc (Biochemistry) | University of Arid Agriculture Rawalpindi - Pakistan. |
| 2004 – 2006 MPhil (Mol. Bio.) | CEMB, University of the Punjab, Lahore – Pakistan. |
| 2006 – 2011 PhD (Mol. Bio.) | CEMB, University of the Punjab, Lahore – Pakistan |

## *ACADEMIC & PROFESSIONAL CAREER*

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| 2003-2004 | Teaching Job | Teaching at the secondary school level |
| 2006-2009 | HEC PhD Fellow | CEMB, University of the Punjab, Lahore. |
| 2009-2011 | Assistant Research Officer | CAMB, University of the Punjab, Lahore. |
| 2012-2018 | Assistant Professor (Contract) | CEMB, University of the Punjab, Lahore. |
| 2019-2024 | Assistant Professor (TTS) | CEMB, University of the Punjab, Lahore. |
| 2024-to date | Associate Professor (BS 20) | CAMB, University of the Punjab, Lahore |

## *ADDITIONAL INTERNATIONAL TRAINING*

SEP, 2018- OCT, 2018:

International Summit of Genetics & Genomics 2018 for Advanced Course & Training at National Human Genome Research Institute (NHGRI) & National Eye Institute (NEI), National Institute of Health (NIH), Bethesda, MD USA.

## *RESEARCH GRANT COMPLETED*

**2020** **Principal Investigator of HEC NRPU project 2593 (Completed) titled "Investigating the molecular basis of Retinitis Pigmentosa"** at vision impairment lab, Centre of Excellence in Molecular Biology, University of the Punjab, Lahore.

**2018** **PAK-US HEC Project** "A Molecular Approach to Prevent Hereditary Blindness in Pakistan" was principally investigated by Prof. Dr Tayyab Husnain in Vision Impairment Lab, CEMB, Lahore.

## *ADMINISTRATIVE SERVICES*

2012- 2024 **In charge of Vision Impairment Lab, Genetic Diseases Group,** at CEMB, PU, Lahore.

2012- 2024 **PhD Research Supervisor** Supervision of PhD & MS/M. Phil Research Students of Vision Impairment Lab at Centre of Excellence in Molecular Biology, University of the Punjab, Lahore.

## ***TEACHING, TRAINING & EVALUATION EXPERIENCE***

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| 2022-2023 | **Teaching in Course of Pathophysiology of Human Diseases (CEMB-708)** to PhD session completed successfully at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore |
| 2014-2023 | **Teaching in Course of Medical Genetics (CEMB-510)** to MS/MPhil sessions completed successfully at Centre of Excellence in Molecular Biology, University of the Punjab, Lahore. |
| May 25-29, 2015 | International Training Workshop "**New Trends in Molecular Diagnosis of Genetics Diseases**" Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| Jan 18-19, 2022 | Human Resource Development (HRD) Program- 2022**. IBBB-HRD Capacity Building Workshop Series, Workshop No. 1: Exploring Resources for Literature Survey** organized by the Institute of Biochemistry, Biotechnology and Bioinformatics (IBBB), The Islamia University of Bahawalpur (IUB), Pakistan |
| Dec 09, 2020, | **Reviewer of National Journal "Advancement in Life Sciences"** at CEMB, PU, Lahore Pakistan. |
| 2013-2024 | **External Examiner for multiple candidates of MS/MPhil, MSc & BS Research Programs** at Public and Private Universities in Pakistan |

## ***SYMPOSIA/CONFERENCE ACTIVITIES***

### Member of the Organizing Committee

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| March 28, 2012 | Symposium on "**Applications of Biotechnology in Health & Agriculture**". Department of Bioinformatics and Biotechnology, Government College University, Faisalabad (Pakistan) sponsored by Technical Expert Network, Singapore. www.ten-world.com |
| Dec 19-21, 2018 | 3rd international symposium on "**Advances in Molecular Biology of Plants and Health Sciences**" organized by the Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| Dec 23-24, 2021 | 4th international symposium on "**Advances in Molecular Biology of Plants and Health Sciences**" at the Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| Dec 14-15, 2022 | "**International Conference on Plant Molecular Biology (ICPMB)**" organized by and held at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| March 1-2, 2023 | "**International Conference on Trends and Challenges in Health Sciences**" held at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |

### Certificate Of Participation

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| April 25, 2013. | "**DNA Day**" and "**NAYS Emerging Ideas Conference**" Jointly organized by the National Academy of Young Scientists (NAYS) and Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. www.cemb.edu.pk |
| November 10, 2014 | "**World Science Day for Peace and Development 2014**". Organized by the International Centre for Chemical & Biological Sciences, The University of Karachi & National Academy of Young Scientists (NAYS) for **an online lecture by Prof. Dr Atta-ur-Rahman** at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |

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| March 30-31, 2015 | "**International Symposium on Genetics Diseases**" organized by Shaheed Zulfiqar Ali Bhutto Medical University, PIMS Islamabad, Pakistan. |
| Dec 29-31, 2015 | "**International Symposium on Advances in Molecular Biology of Plants and Health Sciences**" organized by Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| May 25-29, 2015 | International Training Workshop "**New Trends in Molecular Diagnosis of Genetics Diseases**" at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| October 03, 2019 | Scientific Symposium on "**Brain, Neurogenetics and Regenerative Medicine**" Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| Nov 06-08, 2019 | International Conference "**Recent Innovations in Molecular Sciences**" Organized by the University of the Punjab, Lahore - Pakistan. |
| Jan 18-19, 2022 | Human Resource Development (HRD) Program- 2022. **IBBB-HRD Capacity Building Workshop Series, Workshop No. 1: Exploring Resources for Literature Survey** organized by Institute of Biochemistry, Biotechnology and Bioinformatics (IBBB), The Islamia University of Bahawalpur (IUB), Pakistan |
| Mar 28-29, 2022 | "**Thinking, Planning and Implementing Innovation Research Ideas"** organized by the Institute of Biochemistry, Biotechnology and Bioinformatics (IBBB), The Islamia University of Bahawalpur (IUB), Pakistan. |
| January 23, 2023 | "**Awareness Seminar on GM Soybean and Potential of Soybean Cultivation in Pakistan**" held at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |
| Feb 28-29, 2024 | "**International Conference on Current Trends, Prospects and Opportunities in Vaccine Research**" held at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. |

***FIELDS OF EXPERTISE***

- **Electroretinography (ERG) and fundoscopy** performed on affected or unaffected individuals for the diagnosis of various Hereditary Retinal Diseases at CEMB, PU, Lahore.
- **Genotyping and sequencing of DNA from Human Genome** for Linkage as well as Mutation findings in reported/candidate genes in Vision Impairment Laboratory, CEMB, PU, Lahore.
- **Whole Exome Sequencing & Next Generation Sequencing** for unsolved phenotype of the families by finding variant analysis of Novel Candidate gene, CEMB, PU, Lahore.
  • **Bioinformatics tools** for Exome data analysis and Swiss-Model PDB viewer for Modelling of Proteins, sequence alignments and Databases. (Genome Browser, Ensemble, HGMD, etc.)
- **Cyrillic for pedigree drawings** for inheritance pattern and **Easy linkage software**, Lod Score calculation for linkage analysis.
- Good grant writing, reading and evaluating skills along with a handful of knowledge of Genetic Disorders.

***INTERNATIONAL PUBLICATIONS (Impact Factor = 129.642)***

1. Muhammad Iqbal, **Muhammad Asif Naeem,** S. Amer Riazuddin, Shahbaz Ali, Tahir Farooq, Zaheeruddin A. Qazi, Shaheen N. Khan, Tayyab Husnain, Saima Riazuddin, Paul A. Sieving, J. Fielding Hejtmancik, Sheikh Riazuddin. Pathogenic mutations in ***TULP1*** are associated with Retinitis pigmentosa in consanguineous Pakistani families. ***Arch Ophthalmol.*** 2011; 129 (10): 1351-1357. http://doi.org/10.1001/archophthalmol.2011.267.
2. **Muhammad Asif Naeem**, Venkata R. M. Chavali, Shahbaz Ali, Muhammad Iqbal, Saima Riazuddin, Shaheen N. Khan, Tayyab Husnain, Paul A. Sieving, Radha Ayyagari, Sheikh Riazuddin, J. Fielding Hejtmancik, and S. Amer Riazuddin. ***GNAT1*** Associated with Autosomal Recessive Congenital Stationary Night Blindness. ***Invest Ophthalmol Vis Sci.*** 2012 Mar 13; 53(3): 1353-61. http://doi.org/10.1167/iovs.11-8026.
3. Emma M. Jenkinson, Atteeq U. Rehman, Tom Walsh, Jill Clayton-Smith, Kwanghyuk Lee, Robert J. Morell, Meghan C. Drummond, Shaheen N. Khan, **Muhammad Asif Naeem**, Bushra Rauf, Neil Billington, Julie M. Schultz, Jill E. Urquhart, Ming K. Lee, Andrew Berry, Neil A. Hanley, Sarju Mehta, Deirdre Cilliers, Peter E. Clayton, Helen Kingston, Miriam J. Smith, Thomas T. Warner, University of Washington Center for Mendelian Genomics, Graeme C. Black, Dorothy Trump, Julian R.E. Davis, Wasim Ahmad, Suzanne M. Leal, Sheikh Riazuddin, Mary-Claire King, Thomas B. Friedman, and William G. Newman. Perrault Syndrome Is Caused by Recessive Mutations in ***CLPP***, Encoding a Mitochondrial ATP-Dependent Chambered Protease. ***Am J Hum Genet.*** 2013, 92: 605-613. http://doi.org/10.1016/j.ajhg.2013.02.013
4. Firoz Kabir, Shagufta Naz, S. Amer Riazuddin, **Muhammad Asif Naeem**, Shaheen N. Khan, Tayyab Husnain, Javed Akram, Paul A. Sieving, J. Fielding Hejtmancik, Sheikh Riazuddin. Novel Mutations in ***RPE65*** Identified in Consanguineous Pakistani Families with Retinal Dystrophies. ***Mol. Vis.*** 2013; 19:1554-1564. PMID: 23878505
5. David Li, Chongfei Jin, Xiaodong Jiao, Lin Li, Tahmina Bushra, **Muhammad Asif Naeem**, Nadeem H. Butt, Tayyab Husnain, Paul A. Sieving, Sheikh Riazuddin, S. Amer Riazuddin, and J. Fielding Hejtmancik. ***AIPL1*** is implicated in the pathogenesis of two cases of autosomal recessive retinal degeneration. ***Mol. Vis.*** 2014; 20:1-14. PMID: 24426771
6. Maranhao B, Biswas P, Duncan JL, Branham KE, Silva GA, **Muhammad Asif Naeem**, Khan SN, Riazuddin S, Hejtmancik JF, Heckenlively JR, Riazuddin SA, Lee PL, Ayyagari R. ExomeSuite: Whole exome sequence variant filtering tool for rapid identification of putative disease-causing SNVs/indels. ***Genomics*** 2014 Mar 3. 103(23): 169-176. http://doi.org/10.1371/journal.pone.0136561.
7. Daud S, Shahzad S, Shafique M, Bhinder MA, Niaz M, **Muhammad Asif Naeem**, Azam M, Rehman Z, Husnain T. (2014). Optimization and Validation of PCR protocol for three Hypervariable Regions (***HVI, HVII and HVIII***) in Human Mitochondrial DNA. ***Adv. Life Sci.,*** 1(3) pp. 165-170. https://www.als-journal.com/articles/vol1issue3/Optimization_validation_PCR_protocol_hypervariable_mtDNA_regions.pdf
8. Ali S, Khan SY, **Muhammad Asif Naeem**, Khan SN, Husnain T, Riazuddin S, Ayyagari R, Riazuddin S, Hejtmancik JF, Riazuddin SA. Phenotypic Variability Associated with the D226N Allele of ***IMPDH1***. ***Ophthalmology***. 2015 Feb; 122(2):429-31. http://doi.org/10.1016/j.ophtha.2014.07.057.
9. Khan SY, Ali S, **Muhammad Asif Naeem**, Khan SN, Husnain T, Butt NH, Qazi ZA, Akram J, Riazuddin S, Ayyagari R, Hejtmancik JF, Riazuddin SA. Splice-site mutations identified in ***PDE6A*** are responsible for retinitis pigmentosa in consanguineous Pakistani families. ***Mol Vis.*** 2015 Aug 18; 21:871-82. PMID: 26321862
10. Maranhao B, Biswas P, Gottsch AD, Navani M, **Muhammad Asif Naeem**, Suk J, Chu J, Khan SN, Poleman R, Akram J, Riazuddin S, Lee P, Riazuddin SA, Hejtmancik JF, Ayyagari R. Investigating the Molecular Basis of Retinal Degeneration in a Familial

Cohort of Pakistani Decent by Exome Sequencing. ***PLoS One***. 2015 Sep 9; 10(9): e0136561. http://doi.org/10.1371/journal.pone.0136561.

11. **Muhammad Asif Naeem**, Gottsch AD, Ullah I, Khan SN, Husnain T, Butt NH, Qazi ZA, Akram J, Riazuddin S, Ayyagari R, Hejtmancik JF, Riazuddin SA. Mutations in ***GRM6*** were identified in consanguineous Pakistani families with congenital stationary night blindness. ***Mol Vis.*** 2015 Oct 31; 21:1261-71. PMID: 26628857
12. Biswas P, Chavali VR, Agnello G, Stone E, Chakarova C, Duncan JL, Kannabiran C, Homsher M, Bhattacharya SS, **Muhammad Asif Naeem**, Kimchi A, Sharon D, Iwata T, Riazuddin S, Reddy GB, Hejtmancik JF, Gerogiou G, Riazuddin SA, Ayyagari R. A missense mutation in the ***ASRGL1*** gene is involved in causing autosomal recessive retinal degeneration. ***Hum Mol Genet.*** 2016 Jun 15;25(12):2483-2497. http://doi.org/10.1093/hmg/ddw113.
13. Firoz Kabir, Inayat Ullah, Shahbaz Ali, Alexander D.H. Gottsch, **Muhammad Asif Naeem**, Muhammad Zaman Khan, Shaheen N. Khan, Javed Akram, Sheikh Riazuddin, Radha Ayyagari, J. Fielding Hejtmancik, S. Amer Riazuddin. Loss of function mutations in ***RP1*** is responsible for retinitis pigmentosa in consanguineous familial cases. ***Mol Vis.*** 2016 Jun 10;22: 610-25. PMID: 27307693
14. Inayat Ullah, Kabir F, Iqbal M, Gottsch CB, **Muhammad Asif Naeem**, Assir MZ, Khan SN, Akram J, Riazuddin S, Ayyagari R, Hejtmancik JF, Riazuddin SA. Pathogenic mutations in ***TULP1*** responsible for retinitis pigmentosa identified in consanguineous familial cases. ***Mol Vis.*** 2016 Jul 16; 22:797-815. PMID: 27440997
15. Rauf B, Irum B, Kabir F, Firasat S, **Muhammad Asif Naeem**, Khan SN, Husnain T, Riazuddin S, Akram J, Riazuddin SA. A spectrum of ***CYP1B1*** mutations associated with primary congenital glaucoma in families of Pakistani descent. ***Hum Genome Variation,*** 2016 Aug 4; 3:16021. http://doi.org/10.1038/hgv.2016.21.
16. Irum B, Khan SY, Ali M, Kaul H, Kabir F, Rauf B, Fatima F, Nadeem R, Khan AO, Al Obaisi S, **Muhammad Asif Naeem**, Nasir IA, Khan SN, Husnain T, Riazuddin S, Akram J, Eghrari AO, Riazuddin SA. Mutation in ***LIM2*** Is Responsible for Autosomal Recessive Congenital Cataracts. ***PLoS One.*** 2016 Nov 4;11(11): e0162620. http://doi.org/10.1371/journal.pone.0162620.
17. Inayat Ullah, Firoz Kabir, Gottsch CB, **Muhammad Asif Naeem**, Guru AA, Ayyagari R, Khan SN, Riazuddin S, Akram J, Riazuddin SA. Mutations in ***phosphodiesterase 6*** identified in familial cases of retinitis pigmentosa. ***Hum Genome Variation,*** 2016 Nov 17; 3:16036. http://doi.org/10.1038/hgv.2016.36.
18. Irum B, Khan SY, Ali M, Daud M, Kabir F, Rauf B, Fatima F, Iqbal H, Khan AO, Al Obaisi S, **Muhammad Asif Naeem**, Nasir IA, Khan SN, Husnain T, Riazuddin S, Akram J, Eghrari AO, Riazuddin SA. Deletion at the ***GCNT2*** Locus Causes Autosomal Recessive Congenital Cataracts. ***PLoS One.*** 2016 Dec 9;11(12): e0167562. http://doi.org/10.1371/journal.pone.0173719.
19. Chen J, Wang Q, Cabrera PE, Zhong Z, Sun W, Jiao X, Chen Y, Govindarajan G, **Muhammad Asif Naeem**, Khan SN, Ali MH, Assir MZ, Rahman FU, Qazi ZA, Riazuddin S, Akram J, Riazuddin SA, Hejtmancik JF. Molecular Genetic Analysis of Pakistani Families with Autosomal Recessive Congenital Cataracts by Homozygosity Screening. ***Invest Ophthalmol Vis Sci.*** 2017 Apr 1;58(4):2207-2217. http://doi.org/10.1159/000520895.
20. Li L, Chen Y, Jiao X, Jin C, Jiang D, Tanwar M, Ma Z, Huang L, Ma X, Sun W, Chen J, Ma Y, M'hamdi O, Govindarajan G, Cabrera PE, Li J, Gupta N, **Muhammad Asif Naeem**, Khan SN, Riazuddin S, Akram J, Ayyagari R, Sieving PA, Riazuddin SA, Hejtmancik JF. Homozygosity Mapping and Genetic Analysis of Autosomal Recessive Retinal Dystrophies in 144 Consanguineous Pakistani Families. ***Invest Ophthalmol Vis Sci.*** 2017 Apr 1;58(4):2218-2238. http://doi.org/10.1167/iovs.17-21424.
21. Biswas P, Duncan JL, Ali M, Matsui H, **Muhammad Asif Naeem**, Raghavendra PB, Frazer KA, Arts HH, Riazuddin S, Akram J, Hejtmancik JF, Riazuddin SA, Ayyagari R.

A mutation in ***IFT43*** causes non-syndromic recessive retinal degeneration. ***Hum Mol Genet.*** 2017 Dec 1;26(23): 4741-4751. http://doi.org/10.1093/hmg/ddx356.

22. Li L, Jiao X, D'Atri I, Ono F, Nelson R, Chan CC, Nakaya N, Ma Z, Ma Y, Cai X, Zhang L, Lin S, Hameed A, Chioza BA, Hardy H, Arno G, Hull S, Khan MI, Fasham J, Harlalka GV, Michaelides M, Moore AT, Coban Akdemir ZH, Jhangiani S, Lupski JR, Cremers FPM, Qamar R, Salman A, Chilton J, Self J, Ayyagari R, Kabir F, **Muhammad Asif Naeem**, Ali M, Akram J, Sieving PA, Riazuddin S, Baple EL, Riazuddin SA, Crosby AH, Hejtmancik JF. Mutation in the intracellular chloride channel ***CLCC1*** associated with autosomal recessive retinitis pigmentosa. ***PLoS Genet.*** 2018 Aug 29;14(8): e1007504. http://doi.org/10.1371/journal.pgen.1007504.

23. Biswas P, **Muhammad Asif Naeem,** Ali MH, Assir MZ, Khan SN, Riazuddin S, Hejtmancik JF, Riazuddin SA, Ayyagari R. Whole-Exome Sequencing Identifies Novel Variants that Co-segregates with Autosomal Recessive Retinal Degeneration in a Pakistani Pedigree. ***Adv Exp Med Biol.*** 2018; 1074:219-228. http://doi.org/10.1007/978-3-319-75402-4_27.

24. Khan SY, Kabir F, M'Hamdi O, Jiao X, **Muhammad Asif Naeem,** Khan SN, Riazuddin S, Hejtmancik JF, Riazuddin SA. Whole genome sequencing data for two individuals of Pakistani descent. ***Sci Data.*** 2018 Sep 11; 5: 180174. http://doi.org/10.1038/sdata.2018.174.

25. Jiao X, Khan SY, Kaul H, Butt T, **Muhammad Asif Naeem,** Riazuddin S, Hejtmancik JF, Riazuddin SA. Autosomal recessive congenital cataracts linked to ***HSF4*** in a consanguineous Pakistani family. ***PLoS One.*** 2019 Dec 9;14(12): e0225010. http://doi.org/10.1371/journal.pone.0225010.

26. Khan R, Shabbir RMK, Raza I, Abdullah U, **Muhammad Asif Naeem**, Ahmed A, Malik S, Hu Z, Xia K. A founder ***RDH5*** splice site mutation leads to retinitis punctata albescence in two inbred Pakistani kindreds. ***Ophthalmic Genetics*** 2020 Feb; 41 (1), 7-12. http://doi.org/10.1080/13816810.2019.1709124.

27. Rauf B, Irum B, Khan SY, Kabir F, **Muhammad Asif Naeem**, Riazuddin S, Ayyagari R, Riazuddin SA. Novel mutations in ***LTBP2*** identified in familial cases of primary congenital glaucoma. ***Molecular Vision*** 2020 Feb 24; 26, 14. PMID: 32165823

28. Iqbal H, Khan SY, Zhou L, Irum B, Ali M, Ahmed MR, Shahzad M, Ali MH, **Muhammad Asif Naeem**, Riazuddin S, Hejtmancik JF, Riazuddin SA. Mutations in ***FYCO1*** identified in families with congenital cataracts. ***Molecular Vision*** 2020 Apr 28; 26, 334. PMID: 32355443

29. Nadeem R, Kabir F, Li J, Gradstein L, Jiao X, Rauf B, **Muhammad Asif Naeem**, Assir MZ, Riazuddin S, Ayyagari R, Hejtmancik JF, Riazuddin SA. Mutations in ***CERKL*** and ***RP1*** cause retinitis pigmentosa in Pakistani families. ***Human Genome Variation*** 2020 May 12; 7 (1), 1-4. http://doi.org/10.1038/s41439-020-0100-8.

30. Khan SY, Ali M, Lee MW, Ma Z, Biswas P, Khan AA, **Muhammad Asif Naeem**, Riazuddin S, Riazuddin S, Ayyagari R, Hejtmancik JF, Riazuddin SA. Whole genome sequencing data of multiple individuals of Pakistani descent. ***Scientific Data*** (2020) Oct 13; 7(1): 350. http://doi.org/10.1038/s41597-020-00664-2.

31. Ali M, Khan SY, Rodrigues TA, Francisco T, Jiao X, Qi H, Kabir F, Irum B, Rauf B, Khan AA, Mehmood A, **Muhammad Asif Naeem**, Assir MZ, Ali MH, Shahzad M, Abu-Amero KK, Akram SJ, Akram J, Riazuddin S, Riazuddin S, Robinson ML, Baes M, Azevedo JE, Hejtmancik JF, Riazuddin SA. A missense allele of ***PEX5*** is responsible for the defective import of PTS2 cargo proteins into peroxisomes. ***Hum Genet.*** 2021 Apr;140(4):649-666. http://doi.org/10.1007/s00439-020-02238-z.

32. Azhar Baig HM, Ansar M, Iqbal A, **Muhammad Asif Naeem**, Quinodoz M, Calzetti G, Iqbal M, Rivolta C. Genetic analysis of consanguineous Pakistani families with congenital stationary night blindness. ***Ophthalmic Res.*** 2022;65(1):104-110. Epub 2021 Nov 15. http://doi.org/10.1159/000520895.

33. Ma Y, Wang X, Shoshany N, Jiao X, Lee A, Ku G, Baple EL, Fasham J, Nadeem R, **Muhammad Asif Naeem**, Riazuddin S, Riazuddin SA, Crosby AH, Hejtmancik JF. CLCC1 c. 75C>A Mutation in Pakistani Derived Retinitis Pigmentosa Families Likely Originated with a Single Founder Mutation 2,000-5,000 Years Ago. ***Front Genet.*** 2022 Mar 22; 13: 804924. http://doi.org/10.3389/fgene.2022.804924.

34. Iqbal A, Naz S, Kaul H, Sharif S, Khushbakht A, **Muhammad Asif Naeem**, Iqtedar M, Kaleem A, Firasat S, Manzoor F. Mutational analysis in sodium-borate cotransporter ***SLC4A11*** in consanguineous families from Punjab, Pakistan. ***PLoS One.*** 2022 Aug 29;17(8): e0273685. http://doi.org/10.1371/journal.pone.0273685.

35. Irum B, Kabir F, Shoshany N, Khan SY, Rauf B, **Muhammad Asif Naeem**, Qaiser TA, Riazuddin S, Hejtmancik JF, Riazuddin SA. A genomic deletion encompassing ***CRYBB2-CRYBB2P1*** is responsible for autosomal recessive congenital cataracts. ***Hum Genome Var.*** 2022 Sep 8; 9(1): 31. http://doi.org/10.1038/s41439-022-00208-7.

36. Rauf B, Khan SY, Jiao X, Irum B, Ashfaq R, Zehra M, Khan AA, **Muhammad Asif Naeem**, Shahzad M, Riazuddin S, Hejtmancik JF, Riazuddin SA. Next-generation whole exome sequencing to delineate the genetic basis of primary congenital glaucoma. ***Sci Rep.*** 2022 Oct 14;12(1):17218. http://doi.org/10.1038/s41598-022-20939-5.

37. Riaz S, Sethna S, Duncan T, Muhammad Asif Naeem, Redmond TM, Riazuddin S, Riazuddin S, Carvalho LS, Ahmed ZM. Dual AAV-based PCDH15 gene therapy achieves sustained rescue of visual function in a mouse model of Usher syndrome 1F. Mol Ther. 2023 Dec 6;31(12):3490-3501. http://doi.org/10.1016/j.ymthe.2023.10.017.

***REFERENCES***

1. **Prof. Dr. SHEIKH RIAZUDDIN (Professor Emeritus)**
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2. **SHEIKH AMER RIAZUDDIN (Associate Professor)**
   The Wilmer Ophthalmological Institute, The Johns Hopkins University, School of Medicine, 600 N. Wolfe Street, Maumenee # 809 Baltimore, MD 21287 USA. Tel: +1410-955-3656. Email: riazuddin@jhmi.edu
3. **Prof. Dr. YASIR ZAHOOR (Professor)**
   Institute of Biochemistry & Biotechnology, University of Veterinary & Animal Sciences, Lahore, Pakistan. Tel: +92-42-99211449-450 ext: 347. Cell: +92-333-4484580. Email: yasir.zahoor@uvas.edu.pk