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Professor (AcSIR)
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Research/ Teaching Interests:

- Discovery and Development of New Drug Entities for neurodegenerative diseases and towards promoting healthy ageing *(Research and Teaching).*
- Regulatory Toxicology Studies of New Drug Entities as per New Drugs and Clinical Trial Rules, 2019 and OECD Guidelines, under the norms of GLP. *(Research and Teaching).*
- Functional genomics and epigenetics studies, employing model system *Caenorhabditis elegans* towards identifying novel modulators of healthy ageing and neuroprotection *(Research and Teaching).*
- Responsible conduct of research including ethics in research, publication practices and data recording practices as per ethical guidelines *(Teaching).*

Institutional/ Administrative Roles and Responsibilities:

- NGCMA Trained "Study Director" for conducting regulatory toxicology studies.
- Secretary, Performance Appraisal Board (PAB), CSIR-CDRI
- Secretary, Scientific Investigation Board (SIB) CSIR-CDRI.
- Member, Academic Council, CSIR-CDRI, Lucknow
- Course Coordinator: Seminar Course, CDRI-JNU/ AcSIR PhD Programme.
- Registered PhD supervisor with Academy of Scientific and Innovative Research (AcSIR) and Jawaharlal Nehru University (JNU), New Delhi.

Key Scientific Contributions (Translational Research):

- Participated in pre-clinical development of Rapid fracture healing compound (S-007-1500), Anti-Lesihmanial compound (96/261) and bone regeneration extract of natural product *Cassia occidentalis*. (As Study Director/ Deputy Study Director).

- As "Study Director" spearheaded pre-clinical acute toxicity studies on a small molecule modulator targeting a rare histone modification towards regulation of adipogenesis (Patent filed - Patent Application No: 202111024677 dated 21 June 2021).

- Leading a team of Scientists across 4 CSIR laboratories, (CDRI, NIIST, CFTRI and NEIST) under CNS theme of "CSIR Nutraceutical Mission (2018-2020)", identified combination of four extracts towards promoting neuronal health in ageing. The combination is being studied further with an aim to develop a nutraceutical product in the space of Healthy ageing/ Neuronal health.

- As a team member of Regulatory Toxicology group, significantly contributed to establishing of GLP certified pre-clinical toxicology facility at CDRI and spearheaded Toxicology studies as Study Director.

- Our team developed a novel dual colorimetric-ratiometric fluorescent probe NAP-3 for selective detection and imaging of endogenous labile iron(III) pools in C. elegans. *(Org Lett.2014; 16(3):756-759).*

- Collaborating with chemists, our team contributed to development of a novel fluoranthene FLUN-550 as a fluorescent probe for selective staining and quantification of intracellular lipid droplets. *(Chemical Communications (Camb). 2015; 25;51(24):5001-5004)*.

- In collaboration with chemists from IIT Kanpur, we developed molecules with controlled release of hydrogen sulfide which significantly reduce ROS stress and increase dopamine levels in transgenic *C. elegans*. *(Chemical Communications (Camb). 2019; 55(68):10142-10145).*

- As Secretary of Research Council at CSIR-CDRI, coordinated various activities of institutional drug discovery and development program hence fully trained in monitoring various stages including synthesis/extraction, efficacy, PK/PD, pre-clinical toxicology, safety pharmacology /IND enabling studies of potential drug candidates.

Key Scientific Contributions (Fundamental Research):

- Studied and established role of novel genetic modulators associated with regulatory surveillance of mitochondrial quality control which play a key role in regulating stress pathways and longevity in *C. elegans.*- a contribution of relevance to aging and stress tolerance (*Life Sciences 2022; 290:120226).*

- Identified novel circular RNA molecule, circzip-2, as a modulator of effects associated with alpha synuclein aggregation - a contribution of relevance to understanding of Parkinson's disease. *(Molecular Neurobiology 2018;55(8):6914-6926).*

- For the first time, established regulatory role of a pseudogene T04B2.1 and reported that it performs non-conventional regulatory role and modulates aggregation of α- synuclein and β-amyloid proteins in *C. elegans. (Biochem Biophys Res Commun. 2021 5;539:8-14).*

- Carried out functional characterization of a novel Insulin Degrading Enzyme (IDE) named ceIDE-1 in model system *C. elegans* - a contribution of relevance to understanding of Alzheimer's disease. *(Biochim Biophys Acta. 2016 -1860(11 Pt A):2454-62).*

- Presently carrying out research towards developing efficient targets for promoting 'protein clearance', neuronal repair, neuronal reprogramming and healthy ageing.

- Established a state-of-the art *C. elegans* facility at CSIR-CDRI alongwith a repository of over 90 transgenic and mutant *C. elegans* strains and ~17,000 RNAi clones. The facility has successfully helped various labs across the country with *C. elegans* strains and has significantly contributed towards generation of knowledgebase within the area of Ageing and Neurodegeneration.

Positions Held:

- Senior Principal Scientist, CSIR-CDRI, Lucknow: 27th August 2021 till date.
- Principal Scientist, CSIR-CDRI, Lucknow: 27th Aug. 2016 – 26th Aug. 2021
- Senior Scientist, CSIR-CDRI, Lucknow: 27th Aug. 2012 – 26th Aug. 2016
- Scientist, CSIR-CDRI, Lucknow: 27th Aug. 2008 – 26th Aug. 2012
- Assistant Research Scientist, MCG, USA: 1st Nov. 2007 – 31st July 2008
- Postdoctoral Associate, MCG, USA: 2nd Aug. 2003 – 30th Oct. 2007
- Research Fellow/ PhD student, CSIR-IITR: 1st Dec. 1999 – 25th July 2003

Awards, Honors and Fellowships:

- Awarded "Raman Research Fellowship" by Council of Scientific and Industrial Research, Govt. of India (2015).
- Elected Fellow of Society of Applied Biotechnology, FSAB (2012).
- Awarded "India Distinguished Visiting Fellowship" by University of Nottingham, UK (April 2010).
- Selected by Indian National Science Academy (INSA) for International Collaboration/ Exchange programme with German Research Foundation (Deutsche Forschungsgemeinschaft) (February 2010).
- Best Publication Awards to our research group and Best Thesis/ Research Scholar Awards to two of my students at CSIR-CDRI.

Research Experience: ***24 Years***

Educational Qualifications:

- **Ph.D.** (2004) in **Toxicology**, from CSIR- Industrial Toxicology Research Center and Jamia Hamdard University, New Delhi. Work carried out at: CSIR-ITRC (Council of Scientific and Industrial Research, Govt. of India), Lucknow, India.
  Title of the thesis: Expression of stress genes in transgenic Drosophila melanogaster by environmental pollutants and their role in reproductive toxicity
  Date of PhD Award: 16th March 2004
- **M.Sc.** (1999) in **Toxicology**, with ***First Division***, from Jamia Hamdard University, New Delhi, India. Major subjects: Carcinogenesis, Forensic Toxicology, Nutrition Toxicology, Elements in health and disease, Heavy metal toxicology, Biochemical mechanisms, Pesticide toxicology, Environmental toxicology.
- **B.Sc**. (1997) with ***First Division*** from University of Kashmir, Jammu and Kashmir, India. Subjects: Zoology, Chemistry and Botany.
- **Intermediate** (1992) with ***First Division*** from Jammu and Kashmir State Board of Education. Subjects: English, Biology, Physics, Chemistry.

Postdoctoral Research Experience:

Studied mechanism of anesthetic drug action employing functional genomics tools viz RNAi induced gene silencing in genetic model system *Caenorhabditis elegans*. (**Medical College of Georgia, Augusta, USA**, 2nd August 2003 – 31st July 2008).

Present position:

- Presently working as Senior Principal Scientist and Group Leader of Laboratory of Functional Genomics and Molecular Toxicology within Division of Toxicology and Experimental Medicine, Central Drug Research Institute, (Council of Scientific and Industrial Research, Govt. of India), Lucknow. (27th August 2008 till date).
- NGCMA trained "Study Director" for leading pre-clinical toxicology studies as per norms of GLP/OECD.

Advanced Trainings/ Collaborations/ Visits (International):

- Postdoctoral training at Medical College of Georgia, **USA** (2003-2008).
- Training on Bioinformatics and protein biology at 1st BIOMICS workshop, Weizmann Institute of Science, Rehovot, **Israel**. (2009).
- Advanced training at University of Nottingham, **UK**, under India Distinguished Visiting Fellowship Program (April – July 2010).
- Visit to University of Melbourne, **Australia**, as invited speaker for Genetics Society of Austral-Asia (2011).
- Invited to participate and presented paper at International conference on Molecular Neurodegeneration at Cannes, **France** (2013).
- Advanced training at Albert Ludwigs University of Freiburg, **Germany**, under Raman Research Fellowship Program (March-July 2016).
- Participated in International conference on Alzheimer's and Parkinson's disease at Vienna, **Austria** (2017).
- Collaborative visit to Eotvos Lorand University, Budapest, **Hungary**, as part of CSIR-CDRI program on international collaboration (2018).

Memberships of Editorial Boards / Scientific Societies:

- Academic Editor: PLOS ONE.
- Executive Member – Society for Alternatives to Animal Experiments, India
- Life Member – Society of Biological Chemists, India.
- Life Member – Indian Society of Cell Biology.
- Life Member – Indian Academy of Neurosciences (Treasurer, Lucknow Branch)
- Life Member – Environmental Mutagen Society of India
- Life Member – Laboratory Animal Science Association of India.

Contributions made as Group Leader:

- Spearheaded scientific team of four CSIR labs as "Nodal Scientist" under CSIR Nutraceutical mission for CNS disorders.
- Part of highest scientific body of the institute (Research Council) as its Secretary.

- Guided Ten students for successful completion of their PhD work (Two of the students awarded with “Best research scholar of the institute/Best thesis” awards).
- Presently guiding five PhD students in their PhD studies.
- Guided 16 Masters Students for their dissertations.
- Significantly contributed to the institutional activities by being member on various decision making bodies including the “Academic Council” and various advisory bodies of the institute.
- Trained as Study Director for Preclinical toxicity studies under GLP norms (Training imparted by National GLP Compliance Monitoring Authority (NGCMA) DST, Govt of India).
- Part of various institutional committees and decision making bodies.

Professional association in the capacity of Reviewer (Grants/ Manuscripts):

Funding agencies:

- Council of Scientific and Industrial Research, Govt. of India
- Department of Science and Technology, Govt. of India.
- Medical Research Council. United Kingdom
- Council of Science and Technology, Uttar Pradesh, India

Journals:

Journal of Neurochemistry, Neuroscience, Biomedicine and Pharmacotherapy, Journal of American Aging Association, Molecular Neurobiology, Biologia, Cellular and Molecular Neurobiology, Chemical Reviews, Current Science, Chemosphere, Oncotarget, Asian Pacific Journal of Cancer Prevention, Immunologic Research, Pharmacological Reports, PLOS One, Experimental Gerontology, Pharmacognosy Magazine, Pesticide Biochemistry and Physiology, CNS Neurological Disorders – Drug Targets, Toxicology International, Neuroscience Letters

Additional:

- Received extra mural funding from **Department of Science and Technology**, Government of India, for running a research project under “Cognitive Science Initiative” scheme (2013-2016)
- Served as **Nodal Officer** of CSIR sponsored Network project “Epigenetics in Health and Disease” at CDRI. (2012-2017)
- Presented research findings at Conference on “Molecular Neurodegeneration: Basic Biology and Disease Pathways” **Cannes, France** (Sep. 10-12, 2013)
- Delivered Invited lecture at “Annual meeting of Genetics Society of Austral-Asia” **University of Melbourne, Australia** (July 10-13, 2011).
- Participated in International Workshop on "Recent Trends in IP Practice and Management", held at CDRI, Lucknow. (October 5-6, 2010).

- Attended 1st BIOmics workshop and conference at Weizmann Institute of Science, **Rehovot, Israel** (August 30, 2009 – September 04, 2009).
- Participated in "Workshop on OECD Principles of Good Laboratory Practice (GLP)" jointly organized by CDRI, Lucknow and WHO-TDR GLP Network Regional Coordination (Asia), IITR, Lucknow (October 2009).
- Completed short-term training on topic entitled "Modulatory effect of *Vitis nucifera* (ethanolic extract) on Lipid Peroxidation (LPO) level and cytochrome P450 activity in rat liver *(in vitro)*" in Toxicology Department, Jamia Hamdard, New Delhi (1998).
- Completed three months summer training on topic entitled "Cadmium induced hepato- and nephro-toxicity in male wistar rats" in Metal Analysis Division, Industrial Toxicology Research Center, Lucknow (1999).

Experimental Techniques Known:

- Reporter gene assay by *in situ* histochemical staining for β-galactosidase activity.
- Quantitative biochemical assay for β-galactosidase activity.
- Immunohistochemistry, SDS-PAGE, Western blotting and hybridization.
- Biochemical assays (GST, GPT, GOT, Catalase, LPO, Superoxide Dismutase, Alkaline Phosphatase, Acetyl Choline Esterase, Na^+ K^+ ATPase, Cyt.P450).
- TUNEL staining; Comet assay.
- Isolation of DNA, RNA from *Drosophila* and *C. elegans* tissues.
- PCR, RT-PCR, Quantitative Real Time PCR.
- RNAi induced gene silencing.
- Transgenic technology (Constructing GFP tagged transgenic strains).
- DNA fragmentation assay by Agarose Gel Electrophoresis.
- Acridine orange staining for studying apoptosis; Dye exclusion test.
- Hemato-toxicology, Histology, Fluorescence Microscopy, Confocal microscopy.
- Metal analysis in tissue samples using AAS/AES.
- Handling and maintenance of fruit flies *(Drosophila)* and nematodes *(C. elegans).*

Information Technology

- Proficiency of working with genomic databases *Flybase* and *Wormbase*.
- Proficiency of working with web based bioinformatics tools viz Pathway Studio and n-Browse.
- Working efficiency in SigmaStat, SigmaPlot, Endnote, MS Word, MS Excel and MS PowerPoint.

Thesis Supervised:

PhD Theses successfully completed: 10
Ongoing PhD theses: 6
Masters Dissertations guided: 16

Research publications:

Total number of publications: 75

1. Khan S, Raj D, Sahu S, Naseer A, Singh NC, Kumari S, Ishteyaque S, Sharma J, Lakra P, Mugale MN, Trivedi AK, Srivastava M, Chandra T, Bhosale V, Barthwal MK, Gupta SK, Mitra K, **Aamir Nazir**, Ghoshal UC, Lahiri A.(2023) CLUH functions as negative regulator of inflammation in human macrophages and determines ulcerative colitis pathogenesis. ***Journal of Clinical Investigation - Insight.*** 2023 May 4:e161096. doi: 10.1172/jci.insight.161096. PMID: 37140992. **(Impact factor 9.48).**

2. Bhat SA, Ahamad S, Dar NJ, Siddique YH, **Aamir Nazir** (2023) The Emerging Landscape of Natural Small-molecule Therapeutics for Huntington's Disease. ***Current Neuropharmacology*** 2023;21(4):867-889. **(Impact factor 7.70).**

3. Bhattacharya Aditya; Chatterjee, Sourav; Bhaduri, Utsa; Singh, Akash; Vasudevan, Madavan; Sashidhara, Koneni; Guha, Rajdeep; **Aamir Nazir;** Rath, Srikanta; Natesh, Nagashayana and Tapas K. Kundu (2022). Butyrylation meets adipogenesis - probed by p300 catalyzed acylation specific small molecule inhibitor: Implication in anti-obesity therapy. ***Journal of Medicinal Chemistry.*** 22;65(18):12273-12291 **(Impact factor 8.03).**

4. Ali R, Hameed R, Chauhan D, Sen S, Wahajuddin M, **Aamir Nazir**, Verma S. (2022). Multiple Actions of H2S-Releasing Peptides in Human β-Amyloid Expressing C. elegans. ***ACS Chemical Neuroscience*** 13(23):3378-3388. doi: 10.1021/ acschemneuro.2c00402. PMID: 36351248. **(Impact factor 5.78).**

5. Arunabh Sarkar; Lalit Kumar; Rohil H; Shamsuzzama Ansari; **Aamir Nazir*** (2022) Multiple checkpoints of protein clearance machinery are modulated by a common microRNA, miR-4813-3p, through its putative target genes: Studies employing transgenic *C. elegans* model. ***Biochim. Biophys. Acta - Molecular Cell Research*** 1869(12):119342 **(Impact factor 5.01).**

6. Sarkar A, Hameed R, Mishra A, Bhatta RS, **Aamir Nazir*** (2022) Genetic modulators associated with regulatory surveillance of mitochondrial quality control, play a key role in regulating stress pathways and longevity in C. elegans. ***Life Sciences*** 290:120226. **(Impact factor 6.70).**

7. Srividya K, Mir SS, Thiyagarajan S, **Aamir Nazir*** (2021) Dietary factors and SARS-CoV-2 contagion: in silico studies on modulation of viral and host proteins by spice actives. ***J Biomol Struct Dyn.*** 13:1-12. 40(21):10771-10782. doi: 10.1080/07391102.2021.1948448. PMID: 34256681. **(Impact factor 5.23).**

8. Das SS, Sarkar A, Chabattula SC, Verma PRP, **Aamir Nazir**, Gupta PK, Ruokolainen J, Kesari KK, Singh SK. (2022) Food-Grade Quercetin-Loaded Nanoemulsion Ameliorates Effects Associated with Parkinson's Disease and Cancer: Studies Employing a Transgenic C. elegans Model and Human Cancer Cell Lines. ***Antioxidants (Basel).*** 2022 Jul 15;11(7):1378. doi: 10.3390/antiox11071378. **(Impact factor 7.67).**

9. Hasan A, Rizvi SF, Parveen S, Pathak N, **Aamir Nazir,** Mir SS. (2022) Crosstalk Between ROS and Autophagy in Tumorigenesis: Understanding the Multifaceted Paradox. ***Frontiers in Oncology*** 12:852424. doi: 10.3389/fonc.2022.852424. eCollection 2022. **(Impact factor 5.73).**

10. Sarkar A and **Aamir Nazir*** (2022) Carrying Excess Baggage Can Slowdown Life: Protein Clearance Machineries That Go Awry During Aging and the Relevance of Maintaining Them. ***Mol Neurobiol.*** 59(2):821-840. doi: 10.1007/s12035-021-02640-2. PMID: 34792731. **(Impact factor 5.68).**

11. Naseer A, Mir SS, Takacs-Vellai K, **Aamir Nazir*** (2021) Sirtuins and Autophagy in Age-Associated Neurodegenerative Diseases: Lessons from the C. elegans Model. **Int J Mol Sci.** 12;22(22):12263. doi: 10.3390/ijms222212263. PMID: 34830158. **(Impact factor 6.20).**

12. Mugale MN, Shukla S, Chourasia MK, Hanif K, **Aamir Nazir** et al. (2021). Regulatory safety pharmacology and toxicity assessments of a standardized stem extract of Cassia occidentalis Linn. in rodents. **Regul Toxicol Pharmacol.** 123:104960. doi: 10.1016/j.yrtph.2021. 104960. PMID: 34022260 **(Impact factor 3.59).**

13. Shukla S, Srividya K, **Aamir Nazir*** (2021) Not a piece of junk anymore: Pseudogene T04B2.1 performs non-conventional regulatory role and modulates aggregation of α- synuclein and β-amyloid proteins in *C. elegans.* **Biochem Biophys Res Commun.** 5;539:8-14. doi: 10.1016/j.bbrc.2020.12.029. PMID: 33412418. **(Impact factor 3.32).**

14. Haque R, Kumar L, Sharma T, Fatima S, Jadiya P, Siddiqi MI and **Nazir A*** (2020) Human insulin modulates α-synuclein aggregation via DAF-2/DAF-16 signalling pathway by antagonising DAF-2 receptor in *C. elegans* model of Parkinson's disease **Oncotarget** 2020; 11:634-649. **(Impact factor 5.16).**

15. Saskői É, Hujber Z, Nyírő G, Likó I, Mátyási B, Petővári G, Mészáros K, Kovács AL, Patthy L, Supekar S, Fan H, Sváb G, Tretter L, Sarkar A, **Aamir Nazir**, Sebestyén A, Patócs A, Mehta A, Takács-Vellai K. (2020) The SDHB Arg230His mutation causing familial paraganglioma alters glycolysis in a new

Caenorhabditis elegans model. **Disease Models and Mechanisms** 2020 Aug 28;dmm.044925.doi:10.1242/dmm.044925. **(Impact factor 5.73).**

16. Bora PK, Kemprai P, Barman R, Das D, **Aamir Nazir**, Saikia SP, Banik D, Haldar S. (2020). A sensitive 1 H NMR spectroscopic method for the quantification of capsaicin and capsaicinoid: morpho-chemical characterisation of chili land races from northeast India. **Phytochemical Analysis** 2020 Mar 31. doi: 10.1002/pca.2934. (Impact factor 3.02).

17. Hasan A, Haque E, Hameed R, Maier PN, Irfan S, Kamil M, **Aamir Nazir**, Mir SS. (2020). Hsp90 inhibitor gedunin causes apoptosis in A549 lung cancer cells by disrupting Hsp90:Beclin-1:Bcl-2 interaction and downregulating autophagy. **Life Sciences** . 2020 Sep 1;256:118000. doi: 10.1016/j.lfs.2020.118000. Epub 2020 Jun 22. **(Impact factor 6.70).**

18. Ali R, Pal HA, Hameed R, **Nazir A***, Verma S*, (2019) Controlled release of hydrogen sulfide significantly reduces ROS stress and increases dopamine levels in transgenic *C. elegans.* (*****Corresponding Authors) **Chemical Communications (Camb).** 2019 Sep 4; 55(68):10142-10145. **(Impact factor 6.16).**

19. Ejazul Haque, Mohd Kamil, Adria Hasan, Safia Irfan, Saba Sheikh, Aisha Khatoon, **Aamir Nazir**, Snober S Mir, (2019). Advanced glycation end products (AGEs), protein aggregation and their cross talk: new insight in tumorigenesis, **Glycobiology**; 30(1): 49–57. **(Impact factor 4.19).**

20. Pradeep Kumar, Kavita Rawat, Tanuj Sharma, Sushila Kumari, Reshu Saxena, Balawant Kumar, Tanvi Baghel, Tayyaba Afshan, Mohammad Imran Siddiqi, **Aamir Nazir**, Jimut Kanti Ghosh, Raj Kamal Tripathi, (2019). HIV-1 Nef physically associate with CAMKII δ – ASK-1 complex to inhibit p38MAPK signalling and apoptosis in infected cells, **Life Sciences**; 224:263-273. **(Impact factor 6.70).**

21. Kumar L, Shamsuzzama, Jadiya P, Haque R, Shukla S, **Aamir Nazir*.** (2018) Functional Characterization of Novel Circular RNA Molecule, circzip-2 and Its Synthesizing Gene zip-2 in *C. elegans* Model of Parkinson's Disease. **Mol Neurobiol.** 2018 Aug;55(8):6914-6926. **(Impact factor 6.19).**

22. Jadiya P, Mir SS, **Aamir Nazir***. (2018) Osmotic stress induced toxicity exacerbates Parkinson's associated effects via dysregulation of autophagy in transgenic *C. elegans* model. **Cell Signaling**; 45:71-80. **(Impact factor 4.19).**

23. Ejazul Haque, Mohd Kamil, Safia Irfan, Saba Sheikh, Adria Hasan, **Aamir Nazir**, Snober S. Mir, (2018). Blocking mutation independent p53 aggregation by emodin modulates autophagic cell death pathway in lung cancer, **The**

International Journal of Biochemistry & Cell Biology; 96:90-95. **(Impact factor 3.14).**

24. Umeshkumar Vekariya, Reshu Saxena, Poonam Singh, Kavita Rawat, Balawant Kumar, Sushila Kumari, Saurabh Kumar Agnihotri, Supinder Kaur, Rekha Sachan, **Aamir Nazir**, Smrati Bhadauria, Monika Sachdev, Raj Kamal Tripathi, (2018). HIV-1 Nef-POTEE; A novel interaction modulates macrophage dissemination via mTORC2 signaling pathway**, Life Sciences**; 214:158-166. **(Impact factor 3.448).**

25. Pragati Kushwaha, Soobiya Fatima, Akanksha Upadhyay, Sampa Gupta, Sudha Bhagwati, Tanvi Baghel, M.I. Siddiqi**, Aamir Nazir**, Koneni V. Sashidhara (2019) Synthesis, biological evaluation and molecular dynamic simulations of novel Benzofuran-tetrazole derivatives as potential agents against Alzheimer's disease, **Bioorganic & Medicinal Chemistry Letters**; 29(1) **(Impact factor 2.44)**

26. Saima Lalit Kumar Aditya G. Lavekar Tanuj Sharma Shamsuzzama Danish Equbal Mohammad Imran Siddiqi, Arun K. Sinha, **Aamir Nazir*** (2018) Chemo-Biocatalytic Oxidative Condensation of Natural Arylpropene with 2-Aminobenzothiazole into Schiff-Bases as Potent Anti-Amyloid Agents: Studies Employing Transgenic *C. elegans*. **Chemistry Select** 3(12): 3539-3547.

27. Vikram Singh, Kundan Singh, Shachi Mishra, Tanvi Baghel, Soobiya Fatima, Aijaz A John, Navodayam Kalleti, Divya Singh, **Aamir Nazir**, Srikanta Rath and Atul Goel (2018) Biocompatible Fluorescent Carbon Quantum Dots from Beetroot Extract for in vivo Live Imaging in *C. elegans* and BALB/c Mice. **J. Mater. Chem. B**, DOI: 10.1039/C8TB00503F **(Impact factor 4.54)**.

28. Nitin H. Andhare, Yogesh Thopate, Shamsuzzama, Lalit Kumar, Tanuj Sharma, M.I. Siddiqi, Arun K.Sinha, **Aamir Nazir*** (2018) A facile tandem double-dehydrative-double-Heck olefination strategy for pot-economic synthesis of (E)-distyrylbenzenes as multi-target-directed ligands against Alzheimer's disease employing *C. elegans* model. **Tetrahedron** 74;14(5): 1655-1667. **(Impact factor 2.65).**

29. Fatima, S., Shukla, S. & **Nazir, A.*** (2018). *C.el* Phosphatome: A Catalogue of Actual and Pseudo Phosphatases Based on In-Silico Studies in *Caenorhabditis elegans*. **Protein J.** 2018; 37, 572–580. **(Impact factor 1.029).**

30. Shamsuzzama, Kumar L, **Nazir A.*** (2017) Modulation of Alpha-synuclein Expression and Associated Effects by MicroRNA Let-7 in Transgenic *C. elegans*. **Front Mol Neurosci**; 10:328. **(Impact factor 5.07)**.

31. Kamil M, Haque E, Irfan S, **Nazir A**, Lohani M and Mir SS. (2017) ER chaperone GRP78 regulates autophagy by modulation of p53 localization. **Front Biosci (Elite Ed)**;9:54–66. **(Impact factor 2.34)**.

32. Kumar L, Shamsuzzama, Haque R, Baghel T, **Nazir A.*** (2016) Circular RNAs: the Emerging Class of Non-coding RNAs and Their Potential Role in Human Neurodegenerative Diseases. **Mol Neurobiol**. 54(9):7224-7234. doi: 10.1007/s12035-016-0213-8. **(Impact factor 6.19)**.

33. Jadiya P, Fatima S, Baghel T, Mir SS, **Nazir A.*** (2016) A Systematic RNAi Screen of Neuroprotective Genes Identifies Novel Modulators of Alpha-Synuclein-Associated Effects in Transgenic *Caenorhabditis elegans*. **Mol Neurobiol**. 2016 Nov;53(9):6288-6300. **(Impact factor 6.19)**.

34. Haque R, **Nazir A.*** (2016) Identification and functional characterization of a putative IDE, C28F5.4 (ceIDE-1), in Caenorhabditis elegans: Implications for Alzheimer's disease. **Biochim Biophys Acta**. 2016 Nov;1860(11 Pt A):2454-62. **(Impact factor 5.08).**

35. Kumar L, Shamsuzzama, Haque R, Baghel T, **Nazir A.*** (2016) Circular RNAs: the Emerging Class of Non-coding RNAs and Their Potential Role in Human Neurodegenerative Diseases. **Mol Neurobiol**. 2016 Oct 29 **(Impact factor 5.28).**

36. Kumar M, Kaur S, **Nazir A**, Tripathi RK (2015) HIV-1 Nef binds with human GCC185 protein and regulates mannose 6 phosphate receptor recycling. **Biochem Biophys Res Commun**. 2016 May 20;474(1):137-45**. (Impact factor 2.56).**

37. Supinder Kaur and **Aamir Nazir*** (2015) Potential role of protein stabilizers in amelioration of Parkinson's disease and associated effects in transgenic *Caenorhabditis elegans* model expressing alpha-synuclein. **RSC Advances** DOI: 10.1039/C5RA13546J **(Impact factor 3.84).**

38. Nagarajan A, Bodhicharla R, Winter J, Anbalagan C, Morgan K, Searle M, **Aamir Nazir**, Adenle A, Fineberg A, Brady D, Vere K, Richens J, O'Shea P, Bell D, de-Pomerai D. (2015) A Fluorescence Resonance Energy Transfer Assay For Monitoring α-Synclein Aggregation In A Caenorhabditis elegans Model For Parkinson's Disease. **CNS Neurol Disord Drug Targets**. 2015 Aug 21. PMID: 26295817 **(Impact factor 3.81).**

39. Shamsuzzama, Kumar L, Haque R, **Aamir Nazir***. (2015). Role of MicroRNA Let-7 in Modulating Multifactorial Aspect of Neurodegenerative Diseases: an Overview. **Molecular Neurobiology** 2015 Apr 1. PMID: 25823513. **(Impact factor 5.28).**

40. Goel A, Umar S, Nag P, Sharma A, Kumar L, Shamsuzzama, Hossain Z, Gayen JR, **Aamir Nazir***. (2015). A dual colorimetric-ratiometric fluorescent probe NAP-3 for selective detection and imaging of endogenous labile iron(III) pools in *C. elegans*. **Chemical Communications (Camb).** 2015 Mar 25;51(24):5001-4. PMID: 25633904 **(Impact factor 6.83)**.

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Patents filed:

1. Goel, S. Umar, P. Nag, **Aamir Nazir**, L. Kumar, Shamsuzzama, J. R. Gayen, and Z. Hossain, Substituted Naphtho[2,1-*b*][1,10]-phenanthroline-based fluorescent dyes and application thereof. PCT/IN2015/000076, dated 09 Feb 2015.
2. Tapas K. Kundu, A. Bhattacharya, S. Chatterjee, KV Sashidhara, SP Singh, PR Mishra, **Aamir Nazir** and Rajdeep Guha Small molecule modulator targeting a rare histone modification, regulation of adipogenesis and pharmaceutical formulation thereof. Patent Application No: 202111024677 dated 21 June 2021.

Technology Transferred:

CDRI 219-C002 (*Cassia occidentalis*) for bone regeneration and mitigation of corticosteroid-induced osteoporosis

Industry: M/s Pharmanza Herbal Pvt. Ltd, Gujarat; Date of Technology Transfer: 10-14 Feb 2020.

Inventors: Dr. Naibedya Chattopadhyay (Endocrinology), Dr. Rakesh Maurya and Dr. T. Narender (Natural Product Chemists), Dr. Brijesh Kumar and Dr. Sanjeev Kanojiya (Analytical Chemists), Dr. Prabhat R. Mishra, Dr. Jiaur R. Gayen Dr. Manish Chaurashia and Dr. Anil Dwivedi (Pharmaceutics), Dr. Divya Singh (Endocrinology), Dr. Sabyasachi Sanyal and Dr. Arun K. Trivedi (Biochemistry), Dr. Kamal R. Araya and Vineeta Tripathi (Plant Taxonomy), Dr. Sharad Sharma, Dr. Madhav Mugale, Dr. Smrati Bhadauria, Dr. Srikanta Rath, Dr. RK Tripathi, Dr. Aamir Nazir and Dr. Sarika (Toxicology), Dr. Manoj Barthwal, Dr. Kashif Hanif, Dr. Shubha Shukla, Dr. J. Kumaravelu (Pharmacology), Dr. PK Shukla, Dr. KK Srivastava, Dr Sidharth Chopra (Microbiology), Naseem Ahmed Siddiqui (BD), Dr.Sripathi Rao Kulkarni (IP).

Contribution to Drug Development:

- CDRI 96/261, a synthetic compound as Anti-leishmanial Agent

  Role: Carried out Regulatory Toxicology Studies
- CDRI S-007-1500, a synthetic compound as Rapid Fracture Healing Agent

  Role: Carried out Regulatory Toxicology Studies
- CDRI N-020-003, a natural compound for regulation of adipogenesis

  Role: Carried out Regulatory Toxicology Studies
- CDRI S-016-1348, a peptidomimetic against Colon Cancer

  Role: Carried out Regulatory Toxicology Studies
- CDRI 4655-EF, a phytopharmaceutical against Anti-hypertriglyceridemia

  Role: Carried out Regulatory Toxicology Studies
- CDRI NMITLI-PHPL, a phytopharmaceutical for bone health

  Role: Carried out Regulatory Toxicology Studies

Overview of Current Research Activities:

My laboratory (The Laboratory of Functional Genomics and Molecular Toxicology) in the Division of Toxicology and Experimental Medicine, CSIR-CDRI, aims at working along the following research trajectories:

- Screening of synthetic, nutraceutical and phytopharmaceutical entities for their activity against age associated neurodegenerative diseases, employing genetic model system *C. elegans* expressing "human" proteins, thus of direct relevance to human disease conditions – the objective being targeting multi-factorial aspect of the NDs.
- We make use of genetic and pharmacological interventions including RNAi induced gene silencing, transgene constructs (GFP/YFP), Transcriptome analysis, micro RNA expression studies and associated aspects related to protein aggregation, cellular signaling and neuronal cell death, towards deciphering the mechanistic aspects behind NDs.
- Within the domain of drug development, I am involved in pre-clinical toxicology studies, as a GLP trained Study Director. I have been involved in various Acute toxicity (rats and mice), Dose Range Finding, 28 day repeat dose and 90 day repeat dose toxicity studies of NCEs and phytopharmaceuticals.
- We are maintaining a repository of 90+ transgenic and knockout mutant strains of *C. elegans* and an RNAi library of ~17,000 bacterial clones required for silencing 85% of the genome of *C. elegans*.

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