CURRICULUM VITAE

TANMOY MONDAL, PhD
Assistant Professor, Department of Pediatrics and Child Health, Howard University
Adjunct Lecturer, Department of Biology, Howard University
📍 Room # 408, EE Just Hall, 415 College Street, NW, Washington DC 20059, USA
📧 Email: tanmoy.mondal@howard.edu
📞 Office: +1 (202) 806-2926; Mobile: +1 (240) 919-3264
🔗 Howard University Profile

CAREER OBJECTIVE

As an assistant professor and dedicated biomedical researcher, my goal is to advance the understanding of complex human diseases, particularly type 2 diabetes, liver diseases, allergies and neurodegenerative disorders, through clinical and molecular investigations integrating multi-omics approaches. I am passionate about combining transcriptomics, bioinformatics, and molecular biology techniques to identify early diagnostic markers and therapeutic targets. My aim is to contribute significantly to translational medicine, with a strong focus on addressing health disparities in underrepresented populations.

ACADEMIC QUALIFICATION

Degree	Board/University	Year
Postdoctoral Fellow	Howard University. USA	Present
Ph.D. Biotechnology	Maulana Abul Kalam Azad University of Technology, India	2022
M.Sc. Microbiology	West Bengal University of Technology, India	2013
B.Sc. Biotechnology	Berhampur University, India	2010

Post-Doctoral Mentors:

1. Dr. Somiranjan Ghosh
Associate Professor, Department of Pediatrics and Child Health, Howard University. USA

2. Dr. Carla Davis, MD.
Professor, Chair, Department of Pediatrics and Child Health, Howard University. USA

PhD Thesis Supervisor: Prof. Subrata Kumar Dey
Vice Chancellor, Swami Vivekananda University, Former VC, Maulana Abul Kalam Azad University of Technology. West Bengal. India
Date of PhD Thesis Defense: March 16, 2022

Title of PhD Thesis: Study of radiation induced genomic instability on mammalian cells *in-vitro*.

EMPLOYMENT

University/ Organization	Department	Designation	From	To	Job Description
Howard University	Department of Pediatrics and Child Health	Assistant Professor	10-01-2026	Present	Research, Teaching and Administrative Activities
Howard University	Department of Biology	Adjunct Lecturer	07-08-2023	Present	Undergraduate Teaching – General Biology, Evolutionary Medicine

Howard University	Department of Biology; Department of Pediatrics and Child Health	Postdoctoral Fellow	18-07-2022	9-30-2026	Genomics, Translational Biology, Metabolomics, Clinical Research
Murshidabad Medical College and Hospital	Viral Research and Diagnostics Laboratory (VRDL)	Molecular Biologist	28-07-2020	17-05-2022	Viral Sample Diagnosis and Clinical Testing

RESEARCH EXPERIENCE

Position	Place	Project Title and Project code	Duration	Project PI
Postdoctoral Fellow	Howard University USA	Molecular and Genetic Signatures of Perturbed Diabetic Pathways with Hepatitis C Virus infection and Co-morbidity Risks in African American Population (5U54MD007597-35)	2022-2024	Dr. Somiranjan Ghosh
Postdoctoral Fellow	Howard University USA	Fatty Liver Disease in African Americans (5P20CA242611-04)	2022-2024	Dr. Somiranjan Ghosh
Postdoctoral Fellow	Howard University USA	Identification of key biological pathways and sign ature genes towards the future risk of Alzheimer's Disease in African American diabetic patients (HU-RCMI-Center-ALZ-ADMIN-SUPPL)	2024-2025	Dr. Somiranjan Ghosh
Co-Investigator	Howard University USA	Understanding Pathobiology of MASLD in Diabetic African Americans (1R21MD020875-01)	2025-Present	Dr. Somiranjan Ghosh
Postdoctoral Fellow	Howard University USA	Clinical and Scientific Investigation of Food Allergies	2025-2026	Dr. Carla Davis

AREA OF SPECIALIZATION: Genomics, Transcriptome Biology, Molecular Biology, Metabolomics, Clinical Research, Radiation Biology, Antioxidants and Free radical Biology.

FELLOWSHIPS/AWARDS/ RECOGNITION

Type of Fellowship	Sponsored Agency	Time Period	Projects Worked on
Senior Research Fellows (SRF)	Council of Scientific and Industrial Research (CSIR), India	2018-2020	Study of Risk Factor Associated in Medical Diagnosis Using Radionuclide.
Research Assistance (RA)	TEQIP project	2016-2018	Study of Radiation Induced Genomic Instability on Mammalian Cells in vitro"
Junior Research Fellow (JRF)	Inter University Accelerator Centre (IUAC), Delhi, India	2013-2015	Effects of Heavy Ion Radiation on Human Cord Blood Hematopoietic Stem Cells
Independent Awards			
2026 All of Us Data Summer/ Fall School Initiative Cohort, Howard University			2026
GATE (Graduate Aptitude Test in Engineering, India)			2012, 2013
Best Poster Award	Nano Bio Con 2016 (International Conference on Nanotechnology & Biotechnology, Kolkata)		

RESEARCH PUBLICATIONS

Patent

1. Subrata Kumar Dey, **Tanmoy Mondal**, Gourkanti Chandra, Sandip Pal (2019). **A Synergistic Herbal Composition from Fermented Black Tea Having Radioprotection and Process of Preparing the Same.** (Indian Patent No. 365840).

Book chapter

2. Biswas TK, Chakrabarti S, Auddy B, **Tanmoy Mondal**, Pandit S, Seal T (2021.) **Pterocarpus santalinus: A Wonder Gift of Nature.** In: Mandal S.C., Chakraborty R., Sen S. (eds) Evidence Based Validation of Traditional Medicines. Springer, Singapore. https://doi.org/10.1007/978-981-15-8127-4_44

Peer Reviewed International Journal

Year 2026

3. **Tanmoy Mondal**, Duvelsaint D, Griffin K, Williams M, Johnson O, Campbell Z and Davis CM (2026) **Emerging molecular and environmental biomarkers of shrimp allergy in African Americans in the US**. Front. Allergy 7:1817101. doi: 10.3389/falgy.2026.1817101

4. Sydney I. Allison, **Tanmoy Mondal**, Christopher Loffredo, Ruth Quartey, Brent Korba, Gail Nunlee-Bland, Somiranjan Ghosh; 2616-P: **Leptin Pathway Dysregulation in African Americans with Type 2 Diabetes.** *Diabetes* 1 June 2026; 75 (Supplement_1): 2616–P. https://doi.org/10.2337/db26-2616-P

5. Noreen Z, **Tanmoy Mondal**, Johnson J, et al. **Exploring shared molecular pathways and gene signatures in type 2 diabetes mellitus and Alzheimer's disease in a Pakistani cohort.** Journal of Alzheimer's Disease Reports. 2026;10. doi:10.1177/25424823251403462

6. Christopher Krauss, Jazmine Cuffee, Narendra Banerjee, Erik Armstrong, Satyendra Banerjee, Somiranjan Ghosh, **Tanmoy Mondal**, Zahidur Abedin, Santosh Mandal, Hirendra Nath Banerjee. **An Investigation to Identify the Anti-Cancer Properties of Novel Rhenium Compounds in Prostate and Lung Cancer Cell Lines.** Journal of Biotechnology and Biomedicine. 9 (2026): 20-27. DOI:10.26502/jbb.2642-91280206

7. **Tanmoy Mondal**, Korba, B. E., Loffredo, C. A., Smith, C. I., Quartey, R., Sahota, J., Moses, G., Howell, C. D., Nunlee-Bland, G., Sherif, Z. A., & Ghosh, S. (2026). **Transcriptomic Profiling of MicroRNA and Non-Coding RNA from Whole Blood of African Americans with MASLD.** International journal of molecular sciences, 27(4), 1666. https://doi.org/10.3390/ijms27041666

Year 2025

8. Lake, B., Banerjee, A., Cuffee, J., Banerjee, N., Armstrong, E., Banerjee, S., Blount, C., Hunter, C., El-Hashash, A., Rawat, K., Adedeji, D., Ghosh, S., **Tanmoy Mondal**, Abedin, Z. and Banerjee, H. (2025) **Differential Molecular Transcriptomics and Underlying Biological Pathways between Smokers Lung Cancer (Small Cell Lung Carcinoma) in Comparison to Healthy Human Lung Cells**. Computational Molecular Bioscience, 15, 19-36. doi: 10.4236/cmb.2025.152002.

9. **Tanmoy Mondal**, J Johnson, TK Sur, CA. Loffredo, ST Cotin, J Sahota, BE Korba, G Nunlee-Blnad, S Ghosh. 2025. **Metabolic Dysfunction and Alzheimer's Disease Risks in African Americans**. Alzheimer's & Dementia. e086476. 20(S2). https://doi.org/10.1002/alz.086476

10. T Sur, **Tanmoy Mondal**, J Johnson, ST Cotin, A Neupane, G Nunlee-Bland, CA Loffredo, Z Noreen, B Korba, V Chandra, SS Jana, B Kwabi-Addo, S Sarkar, S Ghosh. **Developing Non-Invasive Molecular Markers for Early Risk Assessment of Alzheimer's Disease.** Biomarkers in Neuropsychiatry. 12, 2025, 100120.

11. **Tanmoy Mondal**, Loffredo CA, Quartey R, Moses G, Howell C, Korba BE, Nunlee-Bland G, Noreen Z, Ghosh S. **Gene Expression and Pathway Analysis in African Americans with T2DM and HCV Comorbidity**. *Diabetes* 2025;74(Supplement_1):1535-P. https://doi.org/10.2337/db25-1535-P

12. Mallick, D., Ghosh, I., **Tanmoy Mondal**, Mondal, S., Mukhopadhyay, R., Joseph, J., Ghosh, S., & Jana, S. S. (2025). **Cellular elasticity drives the mechano-adaptation against fluid shear stress.** *J Cell Sci. 2025 Nov 1;138(21):JCS264293. doi: 10.1242/jcs.264293. Epub 2025 Nov 14. PMID: 40999998.*

13. Sahota J, Ghosh S, **Tanmoy Mondal**, Simhadri J, Loffredo C, Howell C. **Conceptual Framework for Understanding the Association between Type 2 Diabetes Mellitus and Alzheimer's Disease Risks in African Americans.** Diabetes 2025;74(Supplement_1):1579-P. https://doi.org/10.2337/db25-1579-P

14. Saleem, A., Volz, A., **Tanmoy Mondal**, Loffredo, C. A., Trnovec, T., Murinova, L. P., Conka, K., Drobna, B., & Ghosh, S. (2025). **Exploring the associations between prenatal PCB exposures and gene expression: Observations from a study of newborn Slovak infants.** *Ecotoxicology and environmental safety*, *304*, 119059. Advance online publication. https://doi.org/10.1016/j.ecoenv.2025.119059

15. Haider, S., **Tanmoy Mondal**, Loffredo, C., Korba, B., Nawaz, I., Azam, M., Sur, T. and Ghosh, S. (2025) **Epidemiological Investigation on the Clinical Status of the Developmental Dyslexia and ADHD Comorbidity among School-Age Children in Pakistan.** Open Journal of Epidemiology, 15, 528-541. doi: 10.4236/ojepi.2025.153033.

16. **Tanmoy Mondal**, Smith CI, Loffredo CA, Quartey R, Howell C, Korba B, Sherif ZA, Nunlee-Bland G, Rucker LR, Moses G, Ghosh S. **Transcriptomic Regulation of E2F1 in MASLD Progression in African Americans.** *Hepatology.* 82(S1):S1-S2308, October 2025. DOI: 10.1097/HEP.0000000000001493

17. Noreen Z, **Tanmoy Mondal**, Moghekar A, Nunlee-Blnad G, Ghosh SG. **Chronic Type 2 Diabetes and Future Risks of Alzheimer's Disease in Southeast Asian population.** Alzheimers Dement. 2025;21(Suppl 7):e108679. Published 2025 Dec 23. doi:10.1002/alz70861_108679

<u>Year 2024</u>

18. **Tanmoy Mondal,** Noreen Z, Loffredo CA, Johnson J, Bhatti A, Nunlee-Bland G, Quartey R, Howell CD, Moses G, Nnanabu T, Cotin ST, Clark M, Chandra V, Jana SS, Kwabi-Addo B, Korba BE, Shahzad S, Bhatti MF, Ghosh S. **Transcriptomic Analysis of Alzheimer's Disease Pathways in a Pakistani Population.** *J Alzheimers Dis Rep.* 2024 Mar 19;8(1):479-493.

19. S Haider, **Tanmoy Mondal**, I Nawaz, M Azam, S Ghosh. **Genetic Variants Linked to Dyslexia Co-Morbid ADHD: A Case Study of a Pakistani Outpatient**. (2024). Journal of Population Therapeutics and Clinical Pharmacology, 31(9), 2698-2711. https://doi.org/10.53555/rd5d9s46

Year 2023

20. **Tanmoy Mondal**, Smith CI, Loffredo CA, Quartey R, Moses G, Howell CD, Korba B, Kwabi-Addo B, Nunlee-Bland G, R. Rucker L, et al. **Transcriptomics of MASLD Pathobiology in African American Patients in the Washington DC Area†**. International Journal of Molecular Sciences. 2023; 24(23):16654.

21. Noreen Z, **Tanmoy Mondal**, Loffredo CA, Nunlee-Blnad G, et al. **Similarities in Pathobiology of Alzheimer's Disease and Type 2 Diabetes Mellitus: A Proof of Concept by a Case Study.** *Alzheimers Dement*. 2023; **19**(Suppl.1): e062039.

22. Cagle, E., Lake, B., Banerjee, A., Cuffee, J., Banerjee, N., Gilmartin, D., Liverman, M., Brown, S., Armstrong, E., Bhattacharya, S., Ghosh, S., **Tanmoy Mondal**. and Banerjee, H. (2023) **Analysis of Differential Gene Expression and Core Canonical Pathways Involved in the Epithelial to Mesenchymal Transition of Triple Negative Breast Cancer Cells by Ingenuity Pathway Analysis.** *Computational Molecular Bioscience*, 13, 21-34.

23. **Tanmoy Mondal**, Smith CI, Loffredo CA, Quartey R, et al. **Key gene validation in hepatic fibrosis and hepatocellular carcinoma in African Americans with NAFLD.** The Liver Meeting: Boston, Massachusetts Nov 10-14, 2023. (2023). Hepatology, 78(S1), S1–S2154. https://doi.org/10.1097/HEP.0000000000000580

Year 2022

24. **Tanmoy Mondal**, Loffredo CA, Simhadri J, Nunlee-Bland G, et al. **Insights on the pathogenesis of type 2 diabetes as revealed by signature genomic classifiers in an African American population in the Washington, DC area.** *Diabetes Metab Res Rev*. 2022 Nov 4:e3589.

25. Simhadri, J., Loffredo, C., **Tanmoy Mondal**, Noreen, Z., Nnanabu, T., et al. (2022) **Correlates and Covariates of Type 2 Diabetes in an African American Population in the Washington DC Area.** *Open Journal of Epidemiology*, 12, 431-448. doi: 10.4236/ojepi.2022.124035.

26. Arif, M.; **Tanmoy Mondal**; Majeed, A.; Loffredo, C.A.; et al. **Peroxisome Proliferator-Activated Receptor-α (PPARα) Expression in a Clinical Population of Pakistani Patients with Type 2 Diabetes and Dyslipidemia.** *Int. J. Mol. Sci*. 2022, 23, 10847.

27. **Tanmoy Mondal,** Loffredo CA, Trnovec T, Palkovicova Murinova L, et al. **Gene expression signatures in PCB-exposed Slovak children in relation to their environmental exposures and socio-physical characteristics.** *Environ Sci Pollut Res Int*. 2022 Aug;29(40):60531-60541.

Year 2021

28. **Tanmoy Mondal**, Nautiyal A, Ghosh S, Loffredo CA, Saha C, Mitra D, Dey SK. (2021) **An evaluation of DNA double strand break formation and excreted guanine species post whole-body PET/CT procedure.** *J Radiat Res*; 62(4): 590–599. doi: 10.1093/jrr/rrab025.

29. Nautiyal A, **Tanmoy Mondal**, Goel A, Dey SK, Mitra D. (2021) **Biological Effects Associated with Internal and External Contamination of Diagnostic Nuclear Medicine Sources: An *In vitro* Study**. *Indian J Nucl Med*; 36(3): 288–292.

30. Nautiyal A, **Tanmoy Mondal**, Manu, Kaushik A, Goel A, Dey SK, Mitra D (2021). **Significant reduction of radiation dose and DNA damage in Whole-Body PET/CT study without compromising diagnostic image quality**. *Journal of Radiation Research and Applied Sciences*. 14(1):358-368.

31. Nautiyal A, **Tanmoy Mondal**, Mitra D, Goel A, Dey SK, Kaushik A (2021). **A simple and novel approach to estimate organ cumulative activities and internal absorbed doses using external measurement for ^{18}F-FDG positron emission tomography.** *Radiat Prot Dosimetry.* 196(3-4):141-152.

Year 2020

32. Seal T, Chaudhuri K, Pillai B, Chakrabarti S, Auddy B, **Tanmoy Mondal** (2020). **Wild edible plants of Meghalaya State in India: Nutritional, minerals, anti-nutritional, vitamin content and toxicity studies.** *Phcog Mag*. 16:S142-51.

33. Seal T, Chaudhuri K, Pillai B, Chakrabarti S, **Tanmoy Mondal,** Auddy B (2020). **Evaluation of antioxidant activities of various solvent extracts of Litsea cubeba fruits, toxicity studies and its DNA damage protective effects.** *Heliyon.* 6 e03637.

Year 2019

34. **Tanmoy Mondal**, Nautiyal A, Agrawal M, Mitra D, Goel A, Dey SK. (2019) **^{18}F-FDG induced DNA damage, chromosomal aberration, and toxicity in V79 lung fibroblast cells.** *Mutat Res Gen Tox En* 847 503105.

35. Nautiyal A, **Tanmoy Mondal**, Mukherjee A, Mitra D, Kaushik A, Goel HC, Goel A, Dey SK. (2019) **Quantification of DNA damage in patients undergoing non-contrast & contrast enhanced whole body PET/CT investigations using comet assay and micronucleus assay.** *Int J Radiat Biol;* 95(6):710-719.

Year 2018

36. **Tanmoy Mondal**, Nautiya A, Patwari A, Amenti, Mitra D, Goel A, Dey SK. (2018) **DNA double strand breaks, repair and apoptosis following 511 keV γ -rays exposure using 18 Fluorine positron emitter: An *in-vitro* study.** *Biomed. Phys. Eng. Express* **4** 065023.

Year 2017

37. **Tanmoy Mondal**, Pal S, Dey SK. (2017) **Quercetin Mediated Inhibition of Hydrogen Peroxide-induced Genomic DNA Damage and Toxicity.** *Journal of Biologically Active Products from Nature*. 7:3, 200-213.

38. Chigurupati H, Auddy B, Biyani M, Chakrabarti S, Pandit S, Biswas TK, **Tanmoy Mondal**, Sidney J. Stohs. (2017) **Antioxidant and DNA protective effects of NTX, a proprietary glycyrrhizin/D-mannitol product, in association with alcohol consumption: A randomized, placebo-controlled, double-blind, crossover study.** *Journal of Functional Foods* 34 28-35.

Year 2015

39. **Tanmoy Mondal**, Pal S, Dey SK. (2015) **Fermented black tea ameliorates gamma radiation induced cellular and DNA damage in human blood lymphocytes.** *International Journal of Biotechnology Research*. 3(4), 055-064.

ABSTRACTS AND PRESENTATION

- Jordan Benson, **Tanmoy Mondal,** Carla M. Davis. **Characterizing Population-Specific Genetic Variants in Susceptibility to Anaphylaxis within the All of Us Research Program.** Howard University research Month. 2026

- **Tanmoy Mondal**, Coleman I Smith, Christopher A. Loffredo, Ruth Quartey, Charles Howell, Brent Korba, Zaki A Sherif, Gail Nunlee-Bland, Gemeyel Moses, Somiranjan Ghosh. **Non-Coding RNA Regulation of TGFB1–E2F Signaling in MASLD**. 2026 RCMI Consortium National Conference. Bethesda, MD. July 19-22.

- Jasneet Sahota; L Berry; **Tanmoy Mondal**; CI Smith; C A Loffredo; B Korba; CD Howell; G Nunlee-Bland; G Moses; S Ghosh. **Transcriptomic Profiling and Analysis of E2F1 Polymorphisms in African Americans with MASLD.** 2026 RCMI Consortium National Conference. Bethesda, MD. July 19-22.

- Somiranjan Ghosh, **Tanmoy Mondal**, Zarish Noreen, Abhay Maghekar, Gail Nunlee-Bland, Vijay Chandra. **Cross-Population Alzheimer's Disease Risk in Chronic Type 2 Diabetes**. 2026 RCMI Consortium National Conference. Bethesda, MD. July 19-22.

- **Tanmoy Mondal**, Maia Pohlhaus, Christopher A. Loffredo, Brent E. Korba, Ruth Quartey, Gemeyel Moses, Charles Howell, Gail Nunlee-Bland, Lucy Berry, Somiranjan Ghosh. **Understanding Noncoding RNAsin African American Patients with Type 2 Diabetes Mellitus and Hepatitis C Virus.** Cell Symposia: Precision genomics for human health. September 17–19, 2025 | Paradise Point, San Diego, CA, USA

- Osborne M, **Tanmoy Mondal**, Smith CI, Loffredo CA, Quartey R, Howell C, Korba B, Sherif ZA, Nunlee-Bland G, Rucker LR, Moses G, Ghosh S. **Impact of PNPLA3 RS738409 Variant on IL-6 Mediated Inflammation in African Americans with MASLD.** *Hepatology.* 82(S1):S1-S2308, October 2025. DOI: 10.1097/HEP.0000000000001493

- **Tanmoy Mondal**; CA Loffredo; R Quartey; G Moses; C Howell; BE Korba; G Nunlee-Bland; Z Noreen; JJ Simhadri; S Ghosh. **HCV Infection and Diabetes Comorbidity Risks in African Americans.** RCMI Coordinating Center Conference 2025. Bethesda MD, US.

- Tanmoy Mondal, CA. Loffredo, R Quartey, G Moses, C Howell, B Korba, G Nunlee-Bland, S Ghosh. **Gene Expression and Pathway Analysis in African Americans with T2DM and HCV Co-Morbidity.** ADA Meetings 2025. Chicago, US

- **Tanmoy Mondal**, Jheannelle Johnson, Tapas K. Sur, Christopher A. Loffredo, Sharleine Cotin, Jasneet Sahota, Charles D. Howell, Brent Korba, Gail Nunlee-Bland, Somiranjan Ghosh. **Metabolic Dysfunction and Alzheimer's Disease Risks in African Americans.** AAIC 2024, Philadelphia, USA

- **Tanmoy Mondal**, Christopher A. Loffredo, Coleman I Smith, Ruth Quartey. et al. **Key Biological Pathways of Non-Alcoholic Fatty Liver Disease in African Americans.** CUHDRI Inaugural Conference April 3 - 4, 2023 Morgan State University, Baltimore, MD

- **Tanmoy Mondal**, CD Howell, B Korba, G Nunlee-Bland, et al. **TGF-β1 Signaling Pathways in Progression Non-Alcoholic Fatty Liver Disease in African Americans.** RCMI Consortium National Conference 2023. Bethesda MD, US.

- **Tanmoy Mondal**, CI Smith, C A Loffredo, B Korba, CD Howell, G Nunlee-Bland, J Johnson, J Sahota, G Moses, S Ghosh. **TGF-β1 & E2F1 Signaling Pathways in MASLD African Americans.** XULA Health Disparities Conference 2024. New Orleans, Louisiana.

- **Tanmoy Mondal**, Loffredo CA, Smith CI, Quartey R, S Ghosh et al. **NAFLD Pathobiology in African American Patents in The Washington Dc Area**. AASLD The Liver Meeting, Washington, DC, USA. 2022

- **Tanmoy Mondal**, Nautiyal A, Kaushik A, Mitra D, Goel A, Dey SK. **Repeated irradiation of Fluorine-18 enhances biological and biochemical changes in cells: an *in-vitro* prospect study.** SNMICON 2018. Indian Journal of Nuclear Medicine. Volume 33. Abstract Supplement Issue. December 2018. ESCI indexed.

- **Tanmoy Mondal**, Nautiyal A, Kaushik A, Mitra D, Goel HC, Goel A, Dey SK. (2018). **Comparative study of DNA damage in V79 cell line after prolong Fluorine-18 exposure with comet assay and γH2AX assay.** ICRB 2018. NUJHS vol. 8, Special Issue, October 2018, ISSN 2249-7110.

- **Tanmoy Mondal**, Nautiyal A, Mitra D, Dey SK. **Influence of non-ionic Computed Tomography (CT) contrast agent in DNA double strand breaks (DSBs) formation using Fluorine-18 (^{18}F) gamma ray exposure on V79 cancer cell line.** (February 2018) Conference: 2nd Annual Conference of Nuclear Medicine Physicists Association of India. At: Mumbai.

- **Tanmoy Mondal**. Nautiyal A, Saha C and Dey SK **Study of DNA Damage and Cellular Toxicity at Diagnostic Level of Radiation by ^{18}F-FDG** 4th Regional Science & Technology Congress, 2019 Medical Science 282.

- **Tanmoy Mondal**, Nautiyal A, Patwari A, Amenti, Dey SK, Mitra D. (February 2017). **Study of genotoxicity factors associated with ^{18}F mediated diagnosis, an *in-vitro* approach.** Conference: 1st Annual Conference of Nuclear Medicine Physicists Association of India (NMPAICON 2017). Kolkata.

- **Tanmoy Mondal**, Dey SK (2016). **Green tea kombucha, a good source of natural antioxidant and a probable radioprotector.** Conference: 1st International Conference on Nano Technology and Biotechnology (Nano Bio Con 2016), Kolkata.

- Saimoen Anderson, Miranda Newheart, **Tanmoy Mondal**, Tapas Kumar Sur, Somiranjan Ghosh. **Decoding Latent Autoimmune Disease (LADA) in African American Adults: A Comprehensive Study on the Role of PFKFB3 Gene and Pathway's T2DM Patient**. 18th Annual Undergraduate Research Conference 2024. Virginia State University.

- Miracle Gabriels, **Tanmoy Modal**, Somiranjan Ghosh. **Role of E2F1 Signaling Pathways in Progression of MASLD in African Americans: An Ethnicity Based Comparative Study**. 18th Annual Undergraduate Research Conference 2024. Virginia State University.

- Armani Clay, **Tanmoy Mondal**, Tapas Sur, Somiranjan Ghosh. **The Immerging Concept of Type 3 Diabetes: Why African Americas Matters.** 18th Annual Undergraduate Research Conference 2024. Virginia State University.

- Tapas Kumar Sur; **T Mondal**; Z Noreen; J Johnson; CA Loffredo; B Korba; ST Cotin; G Nunlee-Bland; S Sarkar; S Ghosh. **EARLY MARKERS IN ASSESSING THE RISK OF ALZHEIMER'S DISEASE**. RCMI Coordinating Center Conference 2024. Bethesda MD, US.

- Jasneet Sahota, Miracle S Gabriels, **Tanmoy Mondal**, Coleman I. Smith, Christopher A. Loffredo, Brent Korba, Charles D. Howell, Gail Nunlee-Bland, Leanna R. Rucker, Gemeyel Moses, Somiranjan Ghosh. **Ethnicity Based Similarities and Differences of Global Transcriptomic Profiles among MASLD Patients by Ingenuity Pathway Analysis (IPA).** 18th Annual Undergraduate Research Conference 2024. Virginia State University.

- S. HAIDER; T. Mondal; CA Loffredo; B Korba; M. Azam; S. Ghosh. **Transcriptomes of Pakistani Children with Dyslexia And ADHD.** RCMI Coordinating Center Conference 2024. Bethesda MD, US.

- Jasneet Sahota; Miracle S Gabriels; **Tanmoy Mondal**, Coleman I. Smith, Christopher A. Loffredo, Brent Korba, Charles D. Howell, Gail Nunlee-Bland, Leanna R. Rucker, Gemeyel Moses, Somiranjan Ghosh. **SIGNALING PATHWAY DIFFERENCES IN MASLD AFRICAN AMERICANS.** RCMI Coordinating Center Conference 2024. Bethesda MD, US.

TECHNICAL SKILLS

Laboratory Skills

- Ability to critically analyze transcriptomic gene expression (microarray) data in a multi-ethnic population cohort.
- Worked on development of early disease biomarkers in a using TaqMan™ Low Density Array (TLDA) data, through a population-based studies.
- Hands-on experience on viral load quantification (COVID-19), viral sample collection, patient sample management in a large scale.
- Conduct training and supervising laboratory people involved in COVID-19 testing.
- Collection, Isolation, and culture mononuclear cells from blood. Laboratory handling various cell lines (suspended and adherent) that are K562, V79, HeLa, HepG2.
- Handling radioisotopes like Fluorine-18, Technetium 99m, Iodine 131 and conducting experiments at low dose radiation.
- Chromosome preparation, staining, counting and detection of abnormal chromosome from karyogram. Handling of human patient sample (Blood, Urine etc.) and flexible to perform different type of assay techniques - cell viability (MTT), genotoxicity (micronuclei assay), DNA double strand breaks (Comet assay, Gamma H2AX assay).
- Analyzing low dose radiation induced toxicity by analyzing Cell cycle, DNA index, frequency of polyploidy, Cell apoptosis and necrosis. Immunofluorescence staining with Gamma H2AX, DAPI for nucleus, JC1 for mitochondria and other florescent stain like EtBr, PI, Hoechst 33342.
- Working with polyphenols, tea extract and measuring antioxidants, radio-protective property.
- Experienced various techniques e.g., Isolation of DNA, RNA, Protein, Gel Electrophoresis (SDS-PAGE), RFLP, RAPD, Western blotting, PCR, RT-PCR, FACS analysis.

Software Skills

- Ikaros™ Karyotyping Platform for chromosome analysis, CaspLab & Opencomet for DNA damage quantification, ImageJ for image processing and analyzing. GrapPad Prism, SPSS, Patients based case control, Cross- Sectional and Cohort analysis. Significance of randomized Samples and power analysis.
- QIAGEN Ingenuity Pathway Analysis
- Transcriptome Analysis Console (TAC) by Tharmo Fisher Scientific.

CONFERENCE / SEMINAR / WORKSHOPS

Conference / Seminar / Workshops	Date
Trends in Electron Microscopy in Frontier Science	March 24, 2011
Workshop on Intellectual Property Rights. Organized by: Patent Information Centre, West Bengal State Council of Science & Technology (WBSCST), Technology Information, Forecasting and Assessment Council (TIFAC) and Ekta Incubation Centre, WBUT	August 17-18, 2010
"ANVESHAN"-Student Research Convention 2012-2013	January 28- 30, 2013
3rd National School on Radiation Biology, Venue: Inter-University Accelerator Centre (IUAC), New Delhi	November 25-29, 2013
2 Day Workshop on Corporate Communication. Organized by: MAKAUT, Sponsored by: TEQIP-II	May 30-31, 2016
Sumer workshop n Bioprocess Engineering Lectures and Laboratory 2016, Organized by: Department of Biotechnology (IIT Madras)	June 27, 2016
National level workshop on "STATISTICS IN BIOLOGY", Organized by: Department of Biotechnology (MAKAUT AND TEQIP II)	September 29, 2016
NANOBIOCON, TEQIP II WBUT SPONSORED 1ST International Conference on Nanocomputing and Nanobiotechnology, Organized by: MAKAUT, WB	October 3-5, 2016
Short course on Writing Academic Publication, Organized by: (IIT Gandhinagar)	March 16-18, 2017
2 Day Seminar on Cancer Diagnosis and Therapy, organized by: MAKAUT, WB, Sponsored by: TEQIP II	March 30-31, 2017
AASLD The Liver Meeting, Washington, DC, USA	Nov 04-08, 2022
2023 RCMI Consortium National Conference, Bethesda, MD	April 12-14, 2023
AASLD The Liver Meeting, Boston, USA	Nov, 2023
2024 RCMI Consortium National Conference, Bethesda, MD	April, 2024
Alzheimer's Association International Conference (AAIC), Philadelphia, USA	July, 2024
2025 RCMI Consortium National Conference, Bethesda, MD, USA	March, 2025
AASLD The Liver Meeting, Washington, DC, USA	Nov 7-11, 2025
Cell Symposia: Precision genomics in human health 2025, San Diego, USA	Sep 17-19, 2025
85th Scientific Sessions of the American Diabetes Association® (ADA)	June 20-23, 2025
American Academy of Allergy, Asthma & Immunology: AAAAI Annual Meeting, Philadelphia, USA	Feb 27-March 2, 2026
RCMI Consortium National Conference. Bethesda, MD.	July 19-22. 2026

PRESENT RESEARCH HIGHLIGHTS

My research focuses on the intersection of metabolic diseases, liver disorders, and neurodegenerative conditions, particularly within underrepresented populations such as African Americans and South Asians. My work employs multi-omics approaches, including transcriptomics, microRNA profiling, and pathway analysis, to understand disease pathogenesis, identify early diagnostic biomarkers, and uncover therapeutic targets.

Key Highlights:

1. **Blood-Based Transcriptomic Biomarkers in MASLD and Type 2 Diabetes:**
   - Leading a multi-institutional study (RCMI Pilot Project) on non-invasive blood transcriptome analysis to predict the progression of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in diabetic African Americans.
   - Applying TaqMan™ Low-Density Arrays and Ingenuity Pathway Analysis (IPA) to identify and validate molecular signatures correlated with fibrosis and hepatocellular carcinoma risk.

2. **Alzheimer's Disease and Type 2 Diabetes Link in African American Populations:**
   - Published and ongoing studies on shared transcriptomic signatures and perturbed molecular pathways in Alzheimer's Disease and Type 2 Diabetes.
   - Co-authored impactful publications in *Alzheimer's & Dementia*, *Biomarkers in Neuropsychiatry*, and *Journal of Alzheimer's Disease Reports* highlighting ethnic-specific risks and markers.

3. **E2F1 Pathway in MASLD Progression:**
   - Currently co-leading a pending NIH R21 proposal exploring the transcriptomic regulation of E2F1 and its role in hepatic fibrosis and HCC progression in African Americans.
   - Presented key findings on E2F1 and TGF-β1 signaling at major national conferences (e.g., AASLD, RCMI, XULA).

4. **MicroRNA and Non-Coding RNA Profiles in MASLD:**
   - Reported, a study profiling whole blood microRNA and ncRNA in African Americans with MASLD, offering a foundation for early detection tools.

5. **Environmental Epigenomics:**
   - Investigating gene expression alterations in PCB-exposed Slovak infants to understand the impact of prenatal environmental exposures on long-term metabolic health.

6. **Clinical and Scientific Investigation of Food Allergies:**
   - Food allergy research integrating clinical, immunological, genetic, and multi-omics approaches to identify biomarkers and improve diagnosis, risk prediction, and personalized management in diverse and understudied populations.

TEACHING EXPERIENCES

I have had the privilege of teaching both in the United States and India, engaging undergraduate students in diverse subjects of biological disciplines.

Adjunct Lecturer
Department of Biology, Howard University, Washington, D.C., USA (**August 2023 – Present**)
Teaching Modality: Hybrid

- Currently teaching two undergraduate-level courses:
    1. *General Biology (BIOL003)* (3 credits; class size ~50) and
    2. *Evolutionary Medicine Lecture/Lab – Advanced* (4 credits; class size ~40).
- Responsibilities include developing and delivering lectures, laboratory practical, designing assessments, leading discussions, and mentoring students in both foundational and advanced topics in biology and human evolutionary health.

Guest Faculty

Department of Environmental Science, Maulana Abul Kalam Azad University of Technology, India. (**2021 – 2022)**

Teaching Modality: Hybrid

- Taught *Environmental and Sustainable Development* and *Environmental Science*, with a commitment of 32 class hours per month for each course (class size ~50).
- Contributed to curriculum delivery, promoted sustainability awareness, and integrated practical examples relevant to ecological and environmental challenges in India

MENTORED GRADUATE AND UNDERGRADUATE STUDENTS

- **Independent Investigator Dissertation Work:** Total no.17
- **Federal Work Study Program:** Total no.3
- **Minority Science and Engineering Improvement Program:** Total no.3
- **International Graduate Students:** Total no. 1
- **High School Students for Summer Internship:** Total no.4
- **MS Dissertation Work:** Total No. 7

Students Made Significant Impact and Positioned

Undergraduate Students (Independent Investigator Program)	
Ms. Jheannelle Johnson	Ms. Jheannelle Johnson Received NDCF fellowship at Stanford University School of Medicine, selected as the winner of the Rising Black Scientist Award for Cell Press 2025.
Ms. Sydney Allison	Received best Poster presentation award at conference at Virginia State University 2026
Ms. Saimoen Anderson	Accepted into Stony Brook University BME M.S. Program; accepted for the GAANN Fellowship at Stony Brook University
Ms. Jasneet Sahota	Received best presentation award at conference at Virginia State University 2024
Ms. Ekbal Djibril	Received DOJO Grant 2024
Ms. Miracle Gabriels	Received best presentation award at conference at Virginia State University 2024
High School Students for Summer Internship Program	
Ms. Marika Clark	Echols Scholar and College Science Scholar at the University of Virginia 2023
Ms. Peyton Austin	Accepted into Northwestern University for Undergraduate Program 2024

SCIENTIFIC APPOINTMENTS AND PROFESSIONAL SOCIETY MEMBERSHIP

2026 – Present Member, American Academy of Allergy, Asthma & Immunology
2026 – Present Member, Sigma XI, The Scientific Research Honor Society
2023 – Present Member, American Association for the Study of Liver Diseases
2023 – Present American Diabetes Association
2023 – Present Member, Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART)
2020 – 2022 Molecular Biologist, Murshidabad Medical College and Hospital, India
2020 – 2022 Member, State Molecular Biologist Association, India
2016 – 2018 TEQIP Research Assistant, Maulana Abul Kalam Azad University of Technology, India

INVITED GUEST SPEAKER

1. Diversity In Cancer Research Seminar: **Nonalcoholic Fatty Liver Disease (NAFLD) In African Americans: A Quick Look.** May 17, 2023. Organized by: American Cancer Society and Howard University. Washington DC, USA

2. IPA Pathway Hands on Training and Workshop: **Ingenuity Pathway Analysis (IPA): Tools to Discovery of Disease and Disorder Development.** October 23-25, 2024. Organized by Elizabeth City State University, Elizabeth City, NC, USA

3. Howard University, Fall 2026 Biology Department Seminar: **Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in African Americans: From Molecular Signatures to Blood-Based Biomarkers.** September 16, 2026

JOURNAL REVIEWER

1. ***Diabetology* –** Publisher MDPI
2. ***Journal of Clinical Medicine* -** Publisher MDPI
3. ***Journal of Alzheimer's Disease* –** IOS Press
4. ***Journal of Alzheimer's Disease Reports* –** IOS Press
5. ***International Journal of Molecular Sciences* –** Australian Society of Plant Scientists (ASPS), Epigenetics Society, European Calcium Society (ECS), European Chitin Society (EUCHIS), Spanish Society for Cell Biology (SEBC) affiliated Journal, Published by MDPI
6. ***Nature Scientific Reports*-** Springer Nature
7. ***Healthcare* –** Ocular Wellness & Nutrition Society (OWNS) affiliated Journal, Published by MDPI
8. ***Biochemical Genetics* -** Publisher Springer
9. **Frontiers in Immunology -** Frontiers

JOURNAL EDITORIAL MANAGER

1. Histology and Histopathology

RESEARCH SUPPORT

Extramural Research Grants

Current

- National Institute of Health (NIH)-NIMHD/R21-Type (Exploratory Project) – 2025-2027 Cycle
  Project Number: 1R21MD020875-01
  Title: Understanding Pathobiology of MASLD in diabetic African Americans.
  Role: Co-investigator

Pending (Under Review)

- National Institute of Health (NIH)-NIMHD/R01 - 2026-2031 Cycle
  Title: A Whole-Blood Transcriptomic Window into the Pathogenesis of Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD).
  Role: Co-investigator

Applied Project

- Research Centers in Minority Institutions (RCMI) Pilot Project 2023-2024 cycle:
  Title: Predictive Prognosis of NAFLD by Blood Transcriptome in Diabetic African Americans
  PI: Dr. Tanmoy Mondal (Howard University, USA) and Dr. Pilhwa Lee (Morgan State University, USA)
  Date: February 2023

- Howard University Investigator Development Program: Application for HU-RCMI-Investigator Development Core (IDC) Research Grants-2024-2025
  Title: Predictive Prognosis of NAFLD by Blood Transcriptome in Diabetic African Americans
  PI: Dr. Tanmoy Mondal Date: June 2024

- National Institute of Health (NIH)-NIMHD/R21-Type (Exploratory Project) - 2025-2027 Cycle
  Title: Transcriptomic Regulation of E2F1 in MASLD Progression in African Americans.
  Role: Research Scientist/Co-investigator

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/dr.%20tanmoy.mondal.1/bibliography/public/

Declaration

I hereby declare that the statements made by me in / the above form are true, complete, and correct to the best of my knowledge and belief.

Place: Maryland, USA

Dr. Tanmoy Mondal