

Curriculum Vitae

Date Prepared: June 2026

Name: Atrayee Bhattacharya,

Position Title: Assistant Professor

Office Address: Department of Cellular and Molecular Biology
University of Texas Health Science Center at Tyler
Tyler, Texas, USA

Home Address: 5100 Sweetbriar Lane, Tyler, Texas- 75703

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Education:

2010	B.Sc.	Microbiology	St. Joseph's College University of North Bengal India
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2012	M.Sc.	Applied Microbiology	Banaras Hindu University Varanasi India
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2014-2019	Ph.D.	Biomedical Science	University of North Dakota Grand Forks North Dakota
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Predoctoral Training:

1/2013 – 7/2014	Project Fellow	Zoology Urmi Chatterji, PhD	University of Calcutta, West Bengal, India
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Postdoctoral Training:

12/2019 – 1/2025	Postdoctoral Fellow	Medical Oncology Donald W. Kufe, MD	Dana Farber Cancer Institute, HMS, Boston, MA
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Academic Appointments:

02/2025-08/2025	Instructor	Medical Oncology	Dana Farber Cancer Institute, Boston, MA
08/2025-Present	Assistant Professor	Cellular and Molecular Biology	University of Texas Health Science Center at Tyler, Tyler, TX

Research experience

Dana Farber Cancer Institute, Harvard Medical School

Dec 2019- Jan 2025

Postdoctoral Fellow; Advisor: Donald W. Kufe, MD.

Role of MUC1-C mediated chromatin remodeling in the progression of recalcitrant cancers

- Demonstrated that MUC1-C regulates JUN and BAF-mediated chromatin accessibility, leading to maintenance of cancer stem cells in castration-resistant prostate cancer and triple-negative breast cancer models.
- Delineated multiple mechanisms by which MUC1-C intersects chronic inflammation with epigenetic reprogramming in cancer involving chromatin remodelers and long non-coding RNAs.

Role of MUC1-C in formation of nuclear bodies and biomolecular condensates

- Identified a novel role of MUC1-C in regulating the formation of nuclear bodies like paraspeckles in response to taxane-induced cellular stress.
- Delineated a mechanism by which MUC1-C regulates alternative splicing in nuclear speckles in TNBC

Investigating the role of MUC1-C in Glioblastoma (GBM)

- Identified the role of MUC1-C in promoting GBM progression and stemness.
- Demonstrated MUC1-C as a potential druggable target in GBM by studying the therapeutic efficacy of GO-203, a MUC1-C inhibitor in GBM cell models.
- Analyzed a set of 960 drugs from Enamine to identify small molecules inhibiting MUC1-C and study their therapeutic efficacy in GBM progression.

University of North Dakota School of Medicine and Health Sciences

2014-2019

Graduate student; Advisor: Archana Dhasarathy, PhD.

Molecular mechanisms involved in the epithelial-to-mesenchymal transition (EMT)

- Demonstrated the role of calcium channels in regulating EMT and its master regulators like SNAI1 and SNAI2.
- Elucidated how CTCF-mediated changes in chromatin organization in response to external stimuli can affect gene expression and the process of EMT.

Understanding the epigenetic mechanisms involved in transcriptional memory.

- Highlighted that cells remember previous exposures to environmental stimuli and pass on this memory to future generations using a TGF-Beta mediated induction of EMT as a model.
- Developed an on-plate Cut&Run technique based on modifying the original technique to study histone modification changes involved in transcriptional memory.
- Optimized ATAC-seq for cancer research

Professional Society

2021-Present	American Association for Cancer Research	Member
2022-Present	Society for Immunotherapy for Cancer (SITC)	Member

2026-Present

Cancer Genomics Consortium

Member

Report of Funded and Unfunded Projects

Past

2018 – 2020 Regulation of transcriptional memory following an EMT response.
NSF EPSCoR Predoctoral fellowship #OIA-1355466
PI (Atrayee Bhattacharya) (\$50,000)
This study aims to investigate epigenetic mechanisms involved in transcriptional memory

Current

2026- 2028. Epigenetic Reprogramming of F3 (Tissue Factor) Drives Recurrent Thrombotic Risk
American Heart Association, # 26IPA1613666
Co-Investigator (\$200,000)

Report of Local Teaching and Training:

Research Supervisory and Training Responsibilities:

2016	Brian Buckner, University of North Dakota School of Medicine Senior Chemistry Capstone Student
2016-2018	Kole Hermanson, University of North Dakota School of Medicine Undergraduate Student; Author on Manuscript/Abstract
2017-2019	Bo Lauckner, University of North Dakota School of Medicine, Undergraduate Student
2017	Kristina Griesgraber, University of North Dakota School of Medicine, Undergraduate student
2022-2023	Keyi Wang, MD, Dana Farber Cancer Institute, PhD Exchange Fellow, Author on Manuscript
2024	Caroline Abdalla, Walpole High School, Harvard CURE Program

Teaching of Students in Courses

University of North Dakota (UND) School of Medicine Courses

2016	Microbiology and Immunology students	UND School of Medicine Nursing 2-hr sessions per wk for 16 weeks
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Cold Spring Harbor Laboratory Courses

2017	Expression, Purification & Analysis of Protein	Cold Spring Harbor Laboratories 8 hr session
	PhD students and postdoctoral fellows	

Dana Farber Cancer Institute

2022-2023	Harvard CURE program journal club facilitator High School and Undergraduate students	Dana Farber Cancer Institute 1.5 hr session per week for 8 weeks
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Report of Regional, National and International Invited Teaching and Presentations

Oral Presentations

2015	Biomedical Sciences Departmental Retreat, University of North Dakota Grand Forks, ND	<i>Role of CTCF in EMT</i> Atrayee Bhattacharya , Junguk Hur and Archana Dhasarathy
2015	Biomedical Sciences Departmental Seminar, University of North Dakota Grand Forks, ND	<i>Looping to move role of CTCF protein in epithelial to mesenchymal transition</i> Atrayee Bhattacharya , Junguk Hur and Archana Dhasarathy
2016	North Dakota Academy of Science Annual Meeting Fargo, ND	<i>Looping to mve: role of CTCF protein in epithelial to mesenchymal transition</i> Atrayee Bhattacharya , Junguk Hur and Archana Dhasarathy
2018	North Dakota Academy of Science Annual Meeting Grand Forks, ND	<i>Mechanisms of Epigenetic memory after an EMT response</i> Atrayee Bhattacharya , Danielle Perley, Adam Schiedegger and Archana Dhasarathy
2019	North Dakota Academy of Science Annual Meeting Grand Forks, ND	<i>Regulation of Transcriptional Memory following an EMT response</i> <i>Atrayee Bhattacharya, Danielle Perley, Adam Schiedegger and Archana Dhasarathy</i>
2022	AACR Cancer Epigenomics Meeting Washington DC	<i>MUC1-C regulates chromatin remodeling and the CSC state in human cancers.</i> Atrayee Bhattacharya , Atsushi Fushimi, Nami Yamashita, Tao Liu and Donald Kufe
2022	Immuno-Oncology Translational Network (IOTN) Fall Meeting	<i>MUC1-C is a target for reversing immune evasion and resistance to immunotherapies</i> Atrayee Bhattacharya and Donald Kufe

Poster Presentations

2016	Annual Short Course on experimental models of human cancer Jackson Labs Bar Harbor, ME	<i>Role of CTCF in EMT</i> Atrayee Bhattacharya , Junguk Hur and Archana Dhasarathy
2016	North Dakota EPSCOR Meeting Grand Forks, ND	<i>Role of CTCF in EMT</i> <i>Atrayee Bhattacharya, Junguk Hur and Archana Dhasarathy</i>

2017	The EMT International Association (TEMTIA) Meeting, VII	<i>Looping to move role of CTCF protein in epithelial to mesenchymal transition</i>
	MD Anderson Cancer Research Center Houston, TX	<i>Atrayee Bhattacharya, Junguk Hur and Archana Dhasarathy</i>
2018	5th Annual UND Epigenetics Symposium Grand Forks, ND	<i>Mechanisms of Epigenetic memory after an EMT response</i> <i>Atrayee Bhattacharya, Danielle Perley, Adam Schiedegger and Archana Dhasarathy</i>
2017	American Society of Biochemistry and Molecular Biology (ASBMB) Annual Meeting Chicago, IL	<i>Role of CTCF in EMT</i> Atrayee Bhattacharya, Junguk Hur and Archana Dhasarathy
2019	Epigenetics and human diseases Keystone Symposium Banff, Alberta	<i>Transcriptional Memory following an EMT response</i> Atrayee Bhattacharya, Danielle Perley, Adam Schiedegger and Archana Dhasarathy
2026	San Antonio Breast Cancer Symposium San Antonio, Texas	<i>The MIC-MYC axis reprograms Alternative Splicing Networks in Triple Negative Breast cancer</i> Atrayee Bhattacharya and Donald Kufe

Report of Scholarship

* Denotes equal authorship contribution

Denotes co-corresponding author

Peer-Reviewed Scholarship in print :

Selected Research Investigations

Bhattacharya A, Hur J and Dhasarathy A. The role of CCCTC binding factor (CTCF) in epithelial to mesenchymal transition (EMT). The FASEB Journal, April 2017.

https://www.fasebj.org/doi/abs/10.1096/fasebj.31.1_supplement.593.8

Bhattacharya A, Kumar J, Hermanson K, Sun Y, Qureshi H, Perley D, Scheidegger A, Singh B and Dhasarathy A. The calcium channel ORAI3 mediates SNAIL expression during TGF- β induced EMT. Oncotarget. 2018; 9:29468-29483. <https://doi.org/10.18632/oncotarget.25672>

Claycombe-Larson K, Dhasarathy A, Bundy A, **Bhattacharya A**, Darland D, Hur J, Perley D, Johnson L, Ruston M, Roemmich J. RBMS1 Methylation and mRNA Expression Are Differentially Regulated in Placenta Tissue from Obese Women. https://academic.oup.com/cdn/article/3/Supplement_1/nzz048.P11-131-19/5517822

Masayuki Hagiwara, Yota Yasumizu, Nami Yamashita, Hasan Rajabi, Atsushi Fushimi, Mark Long, Wei Li, **Atrayee Bhattacharya**, Rehan Ahmad, Mototsugu Oya, Song Liu, and Donald Kufe. MUC1- C activates the BAF (mSWI/SNF) complex in prostate cancer stem cells. Cancer Research. 2020; 10.1158/0008-5472.CAN-20-2588. <https://cancerres.aacrjournals.org/content/81/4/1111>

Hagiwara M, Fushimi A, Yamashita N, **Bhattacharya A**, Rajabi H, Long MD, Yasumizu Y, Oya M, Liu S, Kufe D. MUC1-C activates the PBAF chromatin remodeling complex in integrating redox balance with progression of human prostate cancer stem cells. Oncogene. 2021 Jun 23. PMID: [34163028](https://pubmed.ncbi.nlm.nih.gov/34163028/).

Nishat Fatima, Syed S. Baqri, **Atrayee Bhattacharya**, Nii K. Koney , Kazim Husain , Ata Abbas , Rais A. Ansari. Role of Flavonoids as Epigenetic Modulators in Cancer Prevention and Therapy. Frontiers in genetics. (<https://doi.org/10.3389/fgene.2021.758733>)

Atrayee Bhattacharya, Atsushi Fushimi, Nami Yamashita, Masayuki Hagiwara, Yoshihiro Morimoto, Hasan Rajabi, Mark Long, Maha Abdulla, Rehan Ahmad, Kelly Street, Song Liu, Tao Liu, and Donald Kufe. MUC1-C dictates JUN and BAF-mediated chromatin remodeling at enhancer signatures in cancer stem cells. <https://mcr.aacrjournals.org/content/early/2022/01/12/1541-7786.MCR-21-0672.1>

Nami Yamashita; Atsushi Fushimi; Yoshihiro Morimoto; **Atrayee Bhattacharya**; Masayuki Hagiwara; Masaaki Yamamoto; Tsuyoshi Hata; Geoffrey I Shapiro; Mark D Long; Song Liu; Donald Kufe. Targeting MUC1-C Suppresses Chronic Activation of Cytosolic Nucleotide Receptors and STING in Triple-Negative Breast Cancer. Cancers. 2022 <https://www.mdpi.com/20726694/14/11/2580>

Nami Yamashita, Henry Withers, Yoshihiro Morimoto, **Atrayee Bhattacharya**, Naoki Haratake, Tatsuaki Daimon, Atsushi Fushimi, Ayako Nakashoji, Aaron R Thorner, Emily Isenhardt, Spencer Rosario, Mark D Long, Donald Kufe. MUC1-C integrates aerobic glycolysis with suppression of oxidative phosphorylation in triple-negative breast cancer stem cells. <https://www.sciencedirect.com/science/article/pii/S2589004223022459>

Mikhala Cooper, Atrayee Ray , **Atrayee Bhattacharya** , Archana Dhasarathy , Motoki Takaku ATAC-seq Optimization for Cancer Epigenetics Research. Journal of Visualized Experiments-2022 <https://pubmed.ncbi.nlm.nih.gov/35848835/>

Masayuki Hagiwara, Atsushi Fushimi, **Atrayee Bhattacharya**, Nami Yamashita, Yoshihiro Morimoto, Mototsugu Oya, Henry G Withers, Qiang Hu, Tao Liu, Song Liu, Kwok K Wong, Mark D Long, Donald Kufe. MUC1-C integrates type II interferon and chromatin remodeling pathways in immunosuppression of prostate cancer. *OncImmunology* 11 (1) , 2029298. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8812775/>

Atrayee Bhattacharya, Atsushi Fushimi, Keyi Wang, Nami Yamashita, Yoshihiro Morimoto, Satoshi Ishikawa, Tatsuaki Daimon, Tao Liu, Song Liu, Mark Long, Donald Kufe. MUC1-C intersects chronic inflammation with epigenetic reprogramming by regulating the set1a compass complex in cancer progression. <https://www.nature.com/articles/s42003-023-05395-9>

Tatsuaki Daimon, **Atrayee Bhattacharya**, Keyi Wang, Naoki Haratake, Ayako Nakashoji, Hiroki Ozawa, Yoshihiro Morimoto, Nami Yamashita, Takeo Kosaka, Mototsugu Oya, Donald W Kufe. MUC1-C is a target of salinomycin in inducing ferroptosis of cancer stem cells. <https://www.nature.com/articles/s41420-023-01772-9>

Keyi Wang*, **Atrayee Bhattacharya***, Naoki Haratake, Tatsuaki Daimon, Ayako Nakashoji, Hiroki Ozawa, Bo Peng, Wei Li, Donald Kufe. XIST and MUC1-C form an auto-regulatory pathway in driving cancer progression. *Cell Death and Disease*. <https://pubmed.ncbi.nlm.nih.gov/38740827/>

Ayako Nakashoji, Naoki Haratake, **Atrayee Bhattacharya**, Weipu Mao, Kangjie Xu, Keyi Wang, Tatsuaki Daimon, Hiroki Ozawa, Keisuke Shigeta, Atsushi Fushimi, Nami Yamashita, Yoshihiro Morimoto, Mototsugu Shimokawa, Shin Saito, Ann Marie Egloff, Ravindra Uppaluri, Mark D Long, Donald Kufe. Identification of MUC1-C as a Target for Suppressing Progression of Head and Neck Squamous Cell Carcinomas. <https://aacrjournals.org/cancerrescommun/article/4/5/1268/745336>

Atrayee Bhattacharya, Keyi Wang, Johany Penailillo, Chi Ngai Chan, Atsushi Fushimi, Nami Yamashita, Tatsuaki Daimon, Naoki Haratake, Hiroki Ozawa, Ayako Nakashoji, Keisuke Shigeta, Yoshihiro Morimoto, Masaaki Miyo, Donald W Kufe . MUC1-C regulates NEAT1 lncRNA expression and paraspeckle formation in cancer progression. <https://www.nature.com/articles/s41388-024-03068-3>

Haratake, Naoki, Hiroki Ozawa, Yoshihiro Morimoto, Nami Yamashita, Tatsuaki Daimon, **Atrayee Bhattacharya**, Keyi Wang, Ayako Nakashoji, Hideko Isozaki, Mototsugu Shimokawa, Chie Kikutake, Mikita Suyama, Asato Hashinokuchi, Kazuki Takada, Tomoyoshi Takenak, Tomoharu Yoshizumi, Tetsuya Mitsudomi, Aaron N. Hata, Donald Kufe. **MUC1-C Is a Common Driver of Acquired Osimertinib Resistance in NSCLC**. *Journal of Thoracic Oncology*, Volume 19, Issue 3, 434 – 450. [https://www.jto.org/article/S1556-0864\(23\)02348-1/fulltext](https://www.jto.org/article/S1556-0864(23)02348-1/fulltext)

Nakashoji A, **Bhattacharya A**, Ozawa H, Haratake N, Shigeta K, Fushimi A, Yamashita N, Matsui A, Kure S, Kameyama T, Takeuchi M. MUC1-C dependency in drug-resistant HR+/HER2– breast cancer identifies a new target for antibody-drug conjugate treatment. *NPJ Breast Cancer*. 2025 Apr 26;11(1):39.

Haratake N, Takamori S, Isozaki H, Shigeta K, Kikutake C, Ozawa H, **Bhattacharya A**, Nakashoji A, Suyama M, Takenaka T, Yoshizumi T. Activation of APOBEC3 cytidine deaminases and endogenous retroviruses is integrated by MUC1-C in NSCLC cells. *Cell Death Discovery*. 2025 Aug 8;11(1):372.

Shinkichi Takamori*, Naoki Haratake*, **Atrayee Bhattacharya**^{*#} Chie Kikutake, Hiroki Ozawa, Keisuke Shigeta, Ayako Nakashoji, Hideko Isozaki, Mototsugu Shimokawa, Mikita Suyama, Asato Hashinokuchi, Kazuki Takada, Tomoyoshi Takenaka, Kenichi Taguchi, Masafumi Yamaguchi, Tomoharu Yoshizumi, Aaron N. Hata, and Donald Kufe[#]. MUCIN 1 confers inflammatory memory of tyrosine kinase inhibitor resistance in non-small cell lung cancer. **DOI:** 10.1038/s41392-025-02482-7, SIGTRANS-19707.

Thesis

Bhattacharya, Atrayee, "Interplay Between Environmental Signals and Chromatin Remodeling During The Process Of Epithelial To Mesenchymal Transition (EMT)" (2019). *Theses and Dissertations*. 2836.
<https://commons.und.edu/theses/2836>

