Mukund Bhandari, M.S., Ph.D. Candidate
Cancer Genomics Scientist, Bioinformatics Scientist, Biostatistician, Data Scientist
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KEY WORDS:

Cancer, Genomics, Multi-omics, Clinical Research, Biostatistics, Bioinformatics, Computational Biology, Machine Learning, Artificial Intelligence

SUMMARY

I have working experience in the field of cancer genomics, bioinformatics, biostatistics, clinical research, and machine learning using large datasets from sequencing platforms, clinical trials, and public data repositories such as TCGA, ICGC, NCDB, SEER etc. My previous work experience includes experimental research in cancer biology, neuroscience, protein biochemistry, structural bioinformatics, and drug discovery.

EDUCATION:

PhD 2019-current
Integrated Biomedical Science Program (IBMS)
Department of Population Health Science,
Greehey Cancer Research Institute, UTHealth San Antonio, TX

Master of Science in Biotechnology (3.78/4) 2013 to 2015
Department of Biology and Biotechnology
Stephen F. Austin State University, Nacogdoches, TX

Bachelors of Technology in Biotechnology 2007 to 2011
Department of Biotechnology, School of Science
Kathmandu University, Dhulikhel, Nepal

WORK EXPERIENCE:

Founder and President 2020- current
BIG Bioinformatics
San Antonio, Texas, USA

- Established **'BIG Bioinformatics'** to address the growing demand for bioinformatics resources.
- Served as a Founding President to structure its mission, goals, and objectives.
- Chaired executive and general meeting to initiate, plan and execute multiple Bootcamp and Workshops
- Organized **'BioInfo Talk Series'** by bringing many world-renowned Professors and Research Scientists
- Established collaborations with other Grad students, Instructors, Faculties and Grad School.

Graduate Research Assistant 2019-Current
Department of Population Health Science
Greehey Cancer Research Institute, UTHealth San Antonio, TX

- Investigate genomics, epigenomics and transcriptomics of Osteosarcoma in pediatric patients
- Establish pipelines for use in PDX in pre-clinical data analysis
- Investigate various bioinformatics analysis for collaborators and lab members

Research Associate-II 2016 to 2019

Department of Pharmacology & Toxicology,
University of Texas Medical Branch, Galveston, TX

- Conducted research to accomplish objectives of wide variety of research projects
- Studied proteins involved in transcription regulation using biochemical and biophysical techniques
- Used robotics to screen different compound libraries
- Purified protein, developed and optimized compound screening assays and instruments
- Contributed to scientific manuscripts, assisted postdoctoral in laboratory practices
- Trained undergrad, grad students and post-doctoral trainee on scientific protocol and equipment.

Research Assistant 2013 to 2016

Department of Biology and Biotechnology,
Stephen F Austin State University, Nacogdoches, TX

- Assisted to teach class, collect data for research and publication
- Conducted research on colorectal cancer cell
- Instructed BIOL 101 in undergrad biology lab and demonstrated use of laboratory equipment
- Prepared quizzes, conducted exams, evaluated test papers and recorded performance

Industrial Trainee 2010 to 2010

Quality control and R&D Department
AstraZeneca Pharma Ltd, Bengaluru, India

- Aided senior scientist in GMP, quality control and R&D department
- Participated in daily and weekly discussions and meetings and wrote reports

Industrial Trainee 2009 to 2010

Quality control and R&D Department
Carlsberg Group

- Aided senior scientist in GMP, quality control and R&D department
- Participated in daily and weekly discussions and meetings and wrote reports

RESEARCH ACTIVITIES:

PhD Lab Rotation
Department of Molecular Medicine, UTHealth San Antonio, TX, USA
Mentor: Dr. Mingjiang Xu
Research Activity: **Role of TET2 in AML**

PhD Lab Rotation
Department of Structural Biology, UTHealth San Antonio, TX, USA
Mentor: Dr. Patrick Sung
Research Activity: **BRACA1 biology in breast cancer.**

PhD Lab Rotation
Department of Microbiology and Immunology, UTHealth San Antonio, TX, USA
Mentor: Dr. Ann Griffith
Research Activity: **Isolation of T-cells from thymus and ATAC-seq**

Research Associate-II:
Department of Pharmacology & Toxicology, UTMB, Galveston, TX, USA
Mentor: Prof. Gabrielle Rudenko
Field of Study: **Neuroscience, Protein Biochemistry and Pharmacology/Therapeutics**

Graduate Research:
Department of Biology/Biotechnology, Stephen F Austin State University, Nacogdoches, TX, USA
Advisors: Dr. Beatrice Clack
Field of Study: **Cancer Biology and Therapeutics**

PUBLICATION AND PRESENTATION:

Publications available online:

1. Garg H, Whalen P, Marji H, Cooper R, Dursun F, **Bhandari M**, Khanna L, Jayakumar L, Liss MA, Svatek RS, Rodriguez R, Kaushik D, Pruthi D. "Patency outcomes of primary Inferior vena cava repair in radical nephrectomy & tumor thrombectomy" , Journal of Vascular Surgery, 2023

2. Geeta Joshi, Aditi Jain, Sabina Adhikari, Harshit Garg, **Mukund Bhandari***, "FDA approved Artificial Intelligence and Machine Learning (AI/ML)-Enabled Medical Devices: An updated 2022 landscape", medRxiv doi: https://doi.org/10.1101/2022.12.07.22283216 (corresponding Author)

3. Subash Khadka, .., **Mukund Bhandari**, Purnima Baidya, Jaishree Sijapati, Jyoti Maharjan, "Production Optimization and Biochemical Characterization of Cellulase from *Geobacillus* sp. KP43 Isolated from Hot Spring Water of Nepal", *BioMed Research International*, 2022

4. Yi Li, .., **Mukund Bhandari**, Mark A. White, Gabrielle Rudenko, Jia Zhou, "Discovery of phenanthridine analogues as novel chemical probes disrupting the binding of DNA to ΔFosB homodimers and ΔFosB/JunD heterodimers", Bioorganic & Medicinal Chemistry Letters, 2020

5. Zhou Yin, .., **Mukund Bhandari**, Mischa Machius, Eric J. Nestler, Alfred J. Robison, Gabby Rudenko, "Self-assembly of the bZIP transcription factor ΔFosB", Current Research in Structural Biology, 2020

6. Lamichhane, J;..; **Bhandari, M**; Pokhrel, S; Pokharel, A; Sohng, J. K., "Ethnopharmacological survey, Phyto-chemical screening and Antibacterial activity measurements of high altitude medicinal plants of Nepal: A bioprospecting approach", Indian Journal of Traditional Knowledge, Vol.13 (3), July 2014

7. Janardan Lamichhane,.., **Mukund Bhandari**,Sameer Pokhrel, Rupak Timilsina and Tirtha Maiya Shrestha, "Antiproliferative bioassay of extremophilic medicinal plants from Langtang Himalayan range of Nepal", J. Biomolecule Reconstruction 2012

Publications under Review:

8. Harshit Garg***, Mukund Bhandari**, Shannon Hall, Onika Noel, Furkan Dursun, Michael Liss, Dharam Kaushik, Mohamad Hassan Fakhreddine, Chethan Ramamurthy, Robert Svatek, Ahmed Mansour. A comparative analysis of radical cystectomy with perioperative chemotherapy, chemoradiation therapy or systemic therapy in patients with clinically advanced node-positive bladder cancer (cN2/N3) (under review)
9. Harshit Garg*, **Mukund Bhandari**, Monica Sridhar, Onika Noel, Furkan Dursun, Michael Liss, Dharam Kaushik, Robert Svatek, Chethan Ramamurthy, Ahmed Mansour. "Time trends in systemic

treatments and survival in patients with metastatic urothelial bladder cancer: From the era of chemotherapy to immunotherapy" (under review)

10. Harshit Garg, Philip Whalen, Akbar Minahil, **Mukund Bhandari**, Michael A. Liss, Ahmed M. Mansour, Robert S. Svatek, Dharam Kaushik, Deepak K. Pruthi, "Urine Analysis: An Often-Overlooked Marker for Renal Function in Kidney Cancer Surgery" (under review)

Conference Abstracts Published:

1. Geeta Joshi, Aditi Jain, Sabina Adhikari, Harshit Garg, **Mukund Bhandari**, "**AI and Machine Learning (AI/ML)-Enabled Medical Devices in Health Care: Trends in Cardiology**", 6th Cardio Renal Connection, San Antonio, 2023, https://www.cardiorenalconnections.org/about

2. Geeta Joshi, Aditi Jain, Sabina Adhikari, Harshit Garg, **Mukund Bhandari**, "Comprehensive analysis of the last 3 decades in novel drug approval by FDA", 6th Cardio Renal Connection, San Antonio, 2023, https://www.cardiorenalconnections.org/about

3. Harshit Garg[a], **Mukund Bhandari[b]**, Onika V. Noel[a], Furkan Dursun[a], Michael Liss[a,c], Dharam Kaushik[a,c], Robert S. Svatek[a,c], Chethan Rammamurthy, Ahmed M. Mansour[a,c,d] , "Adjuvant immunotherapy for patients with renal cell carcinoma at increased risk of recurrence following resection: A National Cancer Database Analysis", Journal of Clinical Oncology, 2023, DOI: 10.1200/JCO.2023.41.6_suppl.649

4. Onika Noel, Harshit Garg, Kennedy E Okhawere[1], **Mukund Bhandari**, Indu Sinai[1], Laura Zuluaga[1], Ronney Abaza[5], Daniel D. Eun[6], Akshay Bhandari[7], Ashok K. Hemal[8], James Porter, [9] Michael D Stifelman[3], Jihad Kaouk[2], Simone Crivellaro[4] , Craig Rogers[10], Philip *Pierorazio*, Ketan K Badani[1], Ahmed Mansour, "A Comparative Analysis of Robot-assisted Retroperitoneoscopic Partial nephrectomy (RARPN) for Anterior vs Posterior Renal tumors: A Propensity Score Matched Analysis in a Multi-Institutional Cohort ", The Journal of Urology, 2023, DOI:10.1097/JU.0000000000003293.13

5. Harshit Garg, **Mukund Bhandari**, Gilda Digman, Onika Noel, Furkan Dursun, Dharam Kaushik, Deepak Pruthi, Michael Liss,Chethan Ramamurthy, Ahmed Mansour, "Open versus minimal invasive retroperitoneal lymph node dissection: a National Cancer Database analysis" , The Journal of Urology, 2023, DOI: 10.1097/JU.0000000000003298.13

6. Harshit Garg, **Mukund Bhandari**, Monika Gasiorek, Onika Noel, Furkan Dursun, Michael Liss, Dharam Kaushik, Chethan Ramamurthy, Ahmed Mansour, "Role of adjuvant immunotherapy for patients with renal cell carcinoma at increased risk of recurrence following resection", The Journal of Urology, 2023, DOI: 10.1097/JU.0000000000003256.17

7. Harshit Garg, **Mukund Bhandari**, Monica Sridhar, Onika Noel, Furkan Dursun, Michael Liss, Dharam Kaushik, Robert Svatek, Chethan Ramamurthy, Ahmed Mansour, "Time trends in systemic treatments and survival in patients with metastatic urothelial bladder cancer: From the era of

chemotherapy to immunotherapy", The Journal of Urology, 2023, DOI: 10.1097/JU.0000000000003334.09

8. Harshit Garg, **Mukund Bhandari**, Furkan Dursun, Michael Liss, Dharam Kaushik, Mohamad Hassan Fakhreddine, Chethan Ramamurthy, Robert Svatek, Ahmed Mansour, "A comparative analysis of outcomes of radical cystectomy, concurrent chemoradiation or systemic therapy in patients with urothelial bladder cancer and advanced lymph nodal (cN2/N3) disease", Society of Urologic Oncology, SUO 2022 (https://suo-abstracts.secure-platform.com/a/gallery/rounds/15/details/2576)

9. Harshit Garg, Philip Whalen, Minahil Akbar, **Mukund Bhandari**, Michael Liss, Ahmed Mansour, Robert Svatek, Dharam Kaushik, Deepak Pruthi, "Urine analysis: An often-over-looked marker for renal function in kidney cancer surgery, Society of Urologic Oncology, SUO 2022" (https://suo-abstracts.secure-platform.com/a/gallery/rounds/15/details/2614)

10. Harshit Garg, **Mukund Bhandari**, Onika Noel, Furkan Dursun, Michael Liss, Dharam Kaushik, Chethan Ramamurthy, Ahmed M. Mansour, Utility of adjuvant immunotherapy in high-risk non-metastatic renal cell carcinoma: A real-world experience using National Cancer Database Analysis, European Urology 2023, DOI: 10.1016/S0302-2838(23)00521-3

11. Harshit Garg, Philip Whalen, Minahil Akbar, **Mukund Bhandari**, Michael Liss, Ahmed Mansour, Robert Svatek, Dharam Kaushik, Deepak Pruthi, "Urine analysis: An often-over-looked marker for renal function in kidney cancer surgery, European Urology 2023, DOI: 10.1016/S0302-2838(23)00902-8

12. Harshit Garg, **Mukund Bhandari**, Onika Noel, Furkan Dursun, Michael Liss, Dharam Kaushik, Chethan Ramamurthy, Ahmed M. Mansour, Impact of systemic treatments on overall survival in metastatic urothelial bladder cancer: A time-trend analysis, European Urology 2023, DOI: 10.1016/S0302-2838(23)00599-7

13. Harshit Garg, **Mukund Bhandari**, Furkan Dursun, Dharam Kaushik, Deepak K.Pruthi, Michael liss, Robert S. Svatek, Ahmed M. Mansour, A comparative analysis of open vs minimal invasive lymph node dissection for testicular cancer using National Cancer Database, European Urology '23,DOI:10.1016/S0302-2838(23)00798-4

14. Harshit Garg[a], **Mukund Bhandari[b]**, Furkan Dursun[a], Michael Liss[a,c], Dharam Kaushik[a,c], Robert S. Svatek[a,c], Ahmed M. Mansour[a,], Comparison of contemporary treatment strategies for locally advanced (stage IIIB) urothelial bladder cancer using National Cancer Database, European Urology, 2023, DOI: 10.1016/S0302-2838(23)01340-4

15. **Bhandari, M**., Lockwood H., and Clack B., Induction of Apoptosis in DLD-1 Colorectal Cancer Cells using water soluble compounds from Rumex Crispus. The FASEB Journal vol 30.1. April 2016, (https://faseb.onlinelibrary.wiley.com/doi/abs/10.1096/fasebj.30.1_supplement.1090.10)

16. **Bhandari, M** and Clack, B., Extraction of Anti-Cancer Water Soluble Compounds from *Rumex Crispus*. FASEB, 2015 (https://faseb.onlinelibrary.wiley.com/doi/abs/10.1096/fasebj.29.1_supplement.897.30)

Oral Presentation at Conferences:

1. **Mukund Bhandari**[1*], Funan He[1], Anna Rogojina[1], Abhik M Bandyopadhyay[1], Zhao Lai[1,2], Gail Tomlinson[1,2], Siyuan Zheng[1,2], Yidong Chen[1,2], Peter Houghton[1,2], Xiaojing Wang[1,2], "Benchmarking Mouse Contamination Removing Protocols in Patient-Derived Xenografts Genomic Profiling" San Antonio Pediatric Cancer Symposium, Feb 2023
2. **Mukund Bhandari**[1*]**,** Funan He[1], Anna Rogojina[1], Abhik M Bandyopadhyay[1], Zhao Lai[1,2], Gail Tomlinson[1,2], Siyuan Zheng[1,2], Yidong Chen[1,2], Peter Houghton[1,2], Xiaojing Wang[1,2], "Genomic Profiling of Patient-Derived Xenografts" Greehey Children Cancer Research Institute, Nov 10, 2022
3. **Mukund Bhandari,** Beatrice Clack, "Extraction of Anti-Cancer Water Soluble Compounds from *Rumex crispus*." Experimental Biology 2015, Boston, USA
4. **Mukund Bhandari,*** Beatrice Clack, "Induction of Apoptosis in DLD-1 Colorectal Cancer Cells using water soluble compounds from Rumex Crispus", Experimental Biology 2016, California, USA
5. **Mukund Bhandari*,** Beatrice Clack, "Extraction of Anti-Cancer Water Soluble Compounds from *Rumex crispus*.", Bright Ideas Conference, April 29, 2015, SFA State University, Nacogdoches, Texas

HONORS AND AWARDS:

2015 Graduate or Postdoctoral Travel Award
American Society of Biochemistry and Molecular Biology (ASBMB), Boston, USA

SCIENTIFIC PEER REVIEWER:

Peer-Reviewed 41 papers for 11 different journals

STEM JUDGING:

Invited Judge, 2023 Research Showcase, St. Mary University
Invited Judge, 2023 Alamo Regional Science and Engineering Fair (ARSEF)
Invited Judge, 2022 Jay Science and Engineering Academy (SEA)
Invited Judge, 2021 Almo Reginal Science and Engineering Fair (ARSEF)
Invited Judge, 2021 Jay Science and Engineering Academy (SEA)

MEMBERSHIPS/PARTICIPATION IN SCIENTIFIC SOCIETIES:

Member, American Association for Cancer Research
Member, American Society of Biochemistry and Molecular Biology
Gulf Coast Consortia for Quantitative Biomedical Sciences
Sealy Center for Structural Biology and Molecular Biology

COMMITTEE RESPONSIBILITIES/INVOLVEMENT:

Vice President, GSIC, UTHealth San Antonio	2010-2020
Invited Speaker, TEDx Youth at The Woodlands	04/2019
Secretary, Biotech Club, Stephen F Austin State University	08/2014-08/2015