

Dr. Muzafar Ahmad Macha (Ph.D.)

Assistant Professor & Head

Ramalingaswami Re-Entry Fellow, DBT, Govt. of India.

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My Research Interests: Genetic/Epigenetic modification in cancer, Signal transduction mechanisms, Novel therapeutics for the treatment of Head and Neck Squamous cell carcinoma (HNSCC), Esophageal and Pancreatic Cancer; Development of Genetically Engineered Mouse models of HNSCC, Radiomics, Artificial Intelligence and Cancer.

Education

2005-2010 Ph.D. in Biochemistry, All India Institute of Medical Sciences (AIIMS), New Delhi, India (**Geeta Mittal Awardee/Gold Medal**).

2003-2005 M.Sc. in Biochemistry, Jamia Hamdard, New Delhi, India (**Gold Medalist**).

2000-2003 B.Sc. in Biology, University of Kashmir, Jammu and Kashmir, India.

Positions and Honors

Jan. 2021- Present **Head**, Watson-Crick Center for Molecular Medicine, IUST, Awantipora, Jammu and Kashmir.

Aug. 2020- Present **Assistant Professor** and **Ramalingaswami Fellow/Scientist-D**, Watson-Crick Center for Molecular Medicine, IUST, Awantipora, Jammu and Kashmir.

July 2019- Aug. 2020 **Ramanujan Fellow/Scientist D**, Dept. of Biotechnology, Central University of Kashmir, Ganderbal, Jammu and Kashmir.

July 2015- June 2019 **Assistant Professor**, Department of Biochemistry and Molecular Biology, Department of Otolaryngology-Head and Neck Surgery, University of Nebraska Medical Center (UNMC), Omaha, NE, USA.

Dec.2013-June 2015 **Senior Research Associate**, Department of Biochemistry and Molecular Biology, UNMC, Omaha, NE, USA.

Jan.2011- Nov. 2013 **Postdoctoral Research Associate**, Department of Biochemistry and Molecular Biology, UNMC, Omaha, NE, USA.

Aug.2007- Aug.2010 **Senior Research Fellow**, Department of Biochemistry AIIMS, Council of Scientific and Industrial Research (CSIR), Government of India

Aug. 2005-July 2007 **Junior Research Fellow**, Department of Biochemistry AIIMS, Council of Scientific and Industrial Research (CSIR), Government of India.

Research skills

Animal handling: Developing Genetically Engineered Mouse models ($Kras^{G12D}; Trp53^{R172H/+}; K14-CreER^{tam}$ and $p16^{-/-}; Trp53^{R172H/+}; K14-CreER^{tam}$) that recapitulate smoking and alcohol mediated HNSCC; orthotopic and subcutaneous xenograft models; **Recombinant DNA technology:** Gene cloning, bacterial culture and preparation of competent cells, Gene knockdown using siRNA/shRNA and knockout using CRISPR technology; **Protein technology:** recombinant protein expression, Immunoprecipitations, chromatin immunoprecipitation (CHIP) for DNA-protein interaction, 2D gel electrophoresis for global protein expression; **Cell culture technique:** isolation of genomic plasmid/DNA/RNA isolation, RT-PCR, Quantitative Real-time PCR (Q-PCR), cell proliferation and viability assays, invasion and motility assay, scratch assay, Immunocytochemistry, confocal microscopy, Flow cytometry (FACS) analysis, ELISA, Immunohistochemistry etc.

Ongoing Research Projects

- 2023-2027 Microbiome Dysbiosis in Breast Cancer and Diabetes. Promotion of University Research and Scientific Excellence (PURSE).
- 2023-2025 Development and Characterization of Novel *in vitro* models for Gastric Cancers from Kashmiri Patients.
- 2023-2025 Artificial Intelligence based Deep Learning Model to Predict Human Papilloma Virus Infection in Head and Neck Squamous Cell Carcinoma Patients using Histopathology Images.
- 2023-2026 Development of Novel NR4A2 and NLRP3 Inhibitors using Artificial Intelligence and Computational Biology.
- 2023-2025 Artificial intelligence Based Deep Learning Model to Predict Gastric Cancer Tumor Heterogeneity and Therapeutic Response Using Histopathology Images.
- 2022-2025 Systems biology-based identification and validation of potential novel therapeutic agents for Head and Neck Squamous Cell Carcinoma.
- 2021-2025 Artificial intelligence-based deep learning model to predict oncogenic signaling pathways and risk of metastasis in HNSCC and ESCC using histopathology images.
- 2020-2025 Development and Characterization of *in vitro* Models to Identify Novel Therapeutic Targets for Esophageal Cancers.
- 2019-2025 Role of Orphan Receptor NR4A2 in the Pathogenesis Gastrointestinal Cancers: Novel role in Perineural Invasion.

Research Projects Completed

- 2017 - 2021 Development of Novel Therapeutics for Glioblastoma.
- 2017 - 2021 Development of novel Therapeutics for HNSCC: Targeting EGFR and Cyclin D1-CDK4/6 signaling Pathways in HNSCC.
- 2017 - 2021 Development and characterization of Genetically Engineered Mouse Models (GEMM) (*Kras*^{G12D}; *Trp53*^{R172H/+}; *K14-Cre*^{ERTam} and *p16*^{-/-}; *Trp53*^{R172H/+}; *K14-Cre*^{ERTam}) for HNSCC.
- 2018 - 2020 Genetic and Epigenetic Alterations in Head and Neck Cancer Disparity.
- 2017 - 2020 Pathobiological Role of Trefoil Factors in Pancreatic Cancer.
- 2015 - 2019 Targeting Glioblastoma Cancer Stem Cells.
- 2016 - 2019 Characterization and Pathological Significance of MUC4 Splice Variant (MUC4X) in Pancreatic Cancer.
- 2011 - 2015 miRNA as Biomarkers of Pancreatic Cancer Pathogenesis.
- 2012- 2015 MUC4 Regulates Cellular Senescence in HNSCC through p16/Rb Pathway.
- 2011 - 2013 Molecular mechanism of Guggulsterone induced effects in Pancreatic Cancer.
- 2005 - 2010 Molecular Basis of Suppression of Smokeless Tobacco-Associated Oral Carcinogenesis by Plant-Derived Products.
- 2004 - 2004 Isolation, characterization of Ovalbumin and development of antibodies against it.

Academic Activities

- 2024- Present Departmental Research Committee, Centre for Frontiers Research Institute for Interdisciplinary Sciences (FRISS) IUST, India.
- 2023- Present Editorial Committee, IUST.
- 2021- Present Member, Intellectual Property Rights Committee, IUST, India.
- 2021- Present Research Coordinator, IUST, India.
- 2021- Present Member, Institutional Animal Committee, IUST, India.
- 2020- Present Member, Ethical Committee, IUST, India.
- 2020- Present Chair-Departmental Purchase and Technical Committee, IUST, India.
- 2020- Present Chair-Departmental Research Committee, IUST, India.
- 2015 - 2019 Public Relations Committee, BMB, UNMC, USA.

Grant/Posters Reviewer Committee

- 2023- Present The Science Fund of The Republic of Serbia.

- 2023- Present Dutch Cancer Society (KWF Kankerbestrijding) Netherlands.
 2023- Present Biomedicine and Life Sciences, Israel Science Foundation, Israel.
 2019 - 2019 Abstract & Poster Reviewer: 50th Midwest Student Biomedical Research Forum (MSBRF), UNMC, USA.
 2017- Present Biomedical commission, Kop op tegen Kanker (stand up to Cancer), Flemish Cancer Society, Brussels.
 2015- Present Undergraduate Research Experience Program (UREP) at Qatar National Research Foundation (QNRF).

Honors and Awards

- 2020 **Ramalingaswami Re-entry Fellowship** from Dept. of Biotechnology, Govt. of India.
 2019 **Ramanujan Fellowship**, Science and Engineering Research Board (SERB), Dept. of Science and Technology, Govt. of India.
 2013 **Best performance stipend** from Dept. of Biochemistry and Molecular Biology, UNMC, USA
 2012 **Best performance stipend** from Dept. of Biochemistry and Molecular Biology, UNMC, USA
 2011 **Gold Medal** from All India Institute of Medical Sciences (AIIMS), New Delhi, India for Ph.D.
 2010 **Scholar-In-Training award** from AACR to attend Advances in Cancer Research: From the Laboratory to the Clinic, Jordan.
 2010 Awarded financial assistance by the DST, Govt. of India, to attend the 8th International Symposium on Targeted Anticancer Therapies, Bethesda, MA, USA.
 2010 Educational **Scholarship award** from National Drug Development Office (NDDO) to attend the 8th international symposium on Targeted Anticancer therapies, Bethesda, MA, USA.
 2009 Awarded financial assistance by the Indian National Science Academy, India, to attend the Human Proteome Organization, Canada.
 2009 **Awarded** financial assistance by CSIR to attend Human Proteome Organization, Canada.
 2009 Young **Investigator Award** from Human Proteome Organization (HUPO), Toronto, Canada.
 2008 **Awarded** financial assistance by CSIR to attend AACR in Jerusalem, Israel.
 2007 Awarded **Senior Research Fellowship** by the Council of Scientific and Industrial Research (CSIR), New Delhi, India.
 2005 Awarded **Junior Research Fellowship** by the CSIR, New Delhi, India.
 2005 Qualified National Level Ph.D. Entrance Test of the AIIMS, New Delhi, India.
 2005 Qualified National Level Ph.D. Entrance Test, Jawaharlal Nehru Uni., New Delhi, India.
 2005 Qualified **National Eligibility Test (Dec.)** (NET) conducted by CSIR - UGC, India.
 2005 Qualified **National Eligibility Test (June)** (NET) conducted by CSIR - UGC, India.
 2005 Qualified **Graduate aptitude test for engineering** (GATE) with **98.2 percentile**, Department of Education, Ministry of Human Resource Development, Govt. of India.
 2005 **Gold Medal** from Jamia Hamdard, New Delhi, India for securing first position in my M.Sc.
 2004 Qualified **National Eligibility Test** (NET-CSIR), New Delhi, Govt. of India.
 2004 **Award of merit** from Jamia Hamdard, New Delhi, India.

Supervision of Postdocs/Undergraduate/Graduate/Ph.D./Medical Fellows

Year	Name of Candidate	Department and Institution
Postdoctoral Fellow and Medical Fellow		
2016- Present	Dr. Sanjib Chaudhary	Dept. of Biochem and Mol. Bio. UNMC, USA.
2018- 2019	Dr. Raghupathy Vengoji	Dept. of Biochem. and Mol. Bio. UNMC, USA.
2015- 2016	Dr. Asif Qazi	Dept. of Biochem. and Mol. Bio. UNMC, USA.
2014- 2016	Dr. Anery Patel	House Officer V, Int. Med DEM, UNMC, USA.
Ph.D. Students		
2023- Present	Ms. Asma Jan	Watson-Crick Centre for Molecular Medicine IUST.
2023- Present	Ms. Shaira Ismail	Watson-Crick Centre for Molecular Medicine IUST.
2022- Present	Mr. Wajid Aalam	Department of Computer Sciences, IUST.
2022- Present	Mr. Ab. Basit Ahanger	Department of Computer Sciences, IUST.
2022- Present	Mr. Ab. Nafi Ahanger	Department of Computer Sciences, IUST.
2022- Present	Mr. Mudasir A. Kumar	Watson-Crick Centre for Mol. Med. IUST.

2021- Present	Ms. Sana Khursheed	Watson-Crick Centre for Mol. Med. IUST.
2021- Present	Mr. Inam-Ul Haq	Dept. of Biotechnology CUK.
2014- 2019	Dr. Rahat Jahan	Dept. of Biochemistry and Mol. Bio. UNMC, USA.

M.Sc. Students

2023- Present	Ms. Asima	Dept. of Biochemistry, KU.
2023- Present	Ms. Uzma	Dept. of Biotechnology, CUK.
2020- 2020	Ms. Syed Ambreen	Dept. of Biotechnology, CUK.
2020- 2020	Mr. Yaqar Younis	Dept. of Biotechnology, CUK.

Graduate Students

2014- 2014	Mr. Jason Chien	INBRE student from the Grinnell College, Iowa, USA.
2013- 2013	Elsa Goldman	INBRE student from the Grinnell College, Iowa, USA.
2012- 2012	Nick Steiner	INBRE student from the Grinnell College, Iowa, USA.

Professional Memberships

2024	Life Member, Indian Association of Cancer Research (IACR).
2013- 2014	Active member of the International Agency for Research on Cancer (IARC).
2013- 2014	Active member of the American Society of Clinical Oncology (ASCO).
2012- 2014	Active member of the American Pancreatic Association (APA).
2011- 2022	Active member of the American Association of Cancer Research (AACR).

Editorial Assignments

2021- Present	Associate Editor	Translational Medicine Communications.
2021- Present	Associate Editor	Frontiers of Oncology, Gastrointestinal Cancer: Hepato-Pancreatic Biliary Cancers.
2020- Present	Associate Editor	Frontiers of Oncology, Gastrointestinal Cancer Section.

Editorial Board member

2024- Present	Scientific Reports
2020- Present	Molecular Diagnostics and Therapeutics International Journal of Cancer Science Research Journal of Clinical Research in Oncology Journal of Molecular Cancer Oncology Report and Reviews International Journal of Clinical Pharmacology and Toxicology (IJCPT)
2015- Present	Journal of Metabolomics International Journal of Clinical Pharmacology & Toxicology Global Journal of Cancer Therapy Jacobs Journal of Medicinal Chemistry Jacobs Journal of Molecular and Translational Medicine Jacobs Journal of Bone Marrow and Stem Cell Research Journal of Disease and Global Health International Journal of Preventive Medicine Research International Journal of Genetics and Cancer International Journal of Austin Biology Cancer Translational Medicine
2013- Present	Webmed Central OMICS Group International - eBooks International Journal of Medicine and Public Health

Reviewer

From	To	Journal Name
2024	Present	Technology in Cancer Research & Cancer Investigation Treatment

		BMC Gastroenterology Biomolecules and Biomedicine Experimental Cell Research BMC Genomics Expert Reviews in Mol. Med. BMC Oral Health Clinical Epigenetics Clinical and Experimental Obstetrics & Gynecology	Cancer Reports Cellular Oncology Int. Journal of Cancer Cancer Biology & Therapy J. of Chemotherapy Seminars in Cancer Biology
2023	Present		
2021	Present	Int. Immunopharmacology Molecular Biology Reports Signal Transduction & Targeted Therapy	Cancer Communications Scientific Reports BMC Bioinformatics
2019	Present	Molecular Carcinogenesis OncoTargets and Therapy	Theranostics
2018	Present	Oxidative Medicine & Cellular Longevity Cellular Physiology & Biochemistry Biomedicine & Pharmacotherapy Asian Pacific J. of Cancer prevention Cell Physiol. Biochem.	Int. J. of Radiation Biology Reproductive Toxicology Life Science Food and Function
2017	Present	International J. of Oncology	
2016	Present	European J. of Pharmacology	
2015	Present	J. of Cancer Res. and Therapeutic Oncol. J. of Cancer Therapy Oncotarget General Physiology and Biophysics Int. J. of Medical Sciences	J. of Translational Medicine J. of Hazardous Materials J. of Biomarker J. of Can. Met. & Treatment BMC Cancer
2014	Present	Molecules	J. of Cellular Physiology
2013	Present	J. of antioxidants and free radicals Toxicology Mechanisms and Methods	Molecular Cancer
2011	Present	PLOS One.	

Peer-reviewed Publications (95).

1. Abdulla , Sadida HQ, Jerobin J, Elfaki I; Mir R; Mirza S; Singh M, **Macha MA**, Uddin S, Fakhro K, Akil AAS, Bhat AA (2024). Unraveling Molecular Interconnections and Identifying Potential Therapeutic Targets of Significance in Obesity-Cancer Link . Submitted to **Journal of the National Cancer Center**.
2. Majeed T, Aalam SW, Masoodi TA,Ahanger AB, Misra D, Nayyar V, Khan MA, Bhat AA, Bhat MR, **Macha MA***, Assad A* (2024). Development of Attention-based Deep Learning Model to Predict Head and Neck Squamous Cell Carcinoma Metastasis from Histopathological Images. **Submitted to Journal of Translational Medicine**
3. Mehraj U, Verma S, Shah R, Qadri R, Kumar R, **Macha MA**, Wani NA, Bhat AA (2024). Beyond Chemotaxis: Exploring the Multifaceted Role of CXCL12-CXCR4/CXCR7 in Breast Cancers. Submitted to **Cellular Oncology**.
4. Hamid S, Masoodi T, Bhat BA, Khan MS , Singh M, Almotairi R, Akil AAS, Bhat AA, **Macha MA** (20204). Comprehensive Bioinformatics analysis revealed Prognostic Significance and Tumor Immune Infiltration Correlation of NR4A Family Genes in Kidney Renal Papillary Cell Carcinoma. **(Under preparation)**.
5. Shahab, Hamid S, Masoodi T, Akil AAAS, **Macha MA**, Bhat AA (2024). Prognostic Significance and Immune Infiltration Patterns Related to Claudin Heterogeneity in Pancreatic Ductal Adenocarcinoma Patients **(Under preparation)**.

6. Hamid S, Masoodi T, Sadida HQ, Khan MS, Ahmed I, Kumar R, Singh M, Alatiwi HE, Tayeb FJ, Akil AAS, Batra SK, Ajaz A. Bhat, ***Macha MA*** (2024). Comprehensive Pan-Cancer Analysis Reveals Mucin Genes as Key Biomarkers in Cancer Diagnosis and Survival. **[§]Corresponding author.** **Submitted to Translational Oncology.**
7. Khurshid S, Shahab U, Hamid S, Masoodi TA, Khan MS, Abeer I, Albalawi IA, Bedaiwi RI, Akil AAS, Ajaz A. Bhat, ***Macha MA*** (2024). Integrating Network Analysis with Differential Expression to Uncover Therapeutic and Prognostic Biomarkers in Esophageal Squamous Cell Carcinoma. Under Review in **Frontiers on Molecular Biosciences.** **[§]Corresponding author.**
8. Bhat MR, Ahangar AB, Aalam SW, Assad A, ***Macha MA*** (2024). Assessing Glioma Grading with Self-Attention: Comparative Analysis of the diagnostic potential of different MRI Sequences. Submitted to **International Journal of Systems Assurance Engineering and Management.**
9. Dar AU, Ahanger AB, Rasool M, Singh M, Assad A, ***Macha MA***, Aalam SW, Ahanger AN (2024). Applications of Artificial Intelligence and Digital Holography in Biomedical Microscopy. Submitted to **International Journal of Systems Assurance Engineering and Management.**
10. Shiekh IA, Mohd B, ***Macha MA*** (2024). Pyrethroids and reproductive function: some endocrine disrupting perspectives from molecular simulations. Submitted to **Toxicology and Industrial Health.**
11. Kumar MA, Baba S, Khan IR, Nisar S, Mir R, Almasoudi KS, Almotairi R, Moawadh MS, Algehainy N, Elfaki I, Akil AAS, Mirza S, Bhat AA[§], ***Macha MA***[§] (2023). Long non-coding RNA Mediated Glutamine Metabolism during Cancer Development and Progression. **Submitted to Nature Communication.** **[§]Corresponding author.**
12. Nisar S, Hashem S, Masood T, Khatoun S, Akil AAS, Korashy H, Uddin S, ***Macha MA***[§], Rahman MDM, Haris M, Abou-Saleh H, Bhat AA[§] (2023). Diosmetin induces apoptosis and inhibition of epithelial-mesenchymal transition in colorectal cancer cells. Submitted to **Biochemical Pharmacology.**
13. Abdulla A, Sadida HQ, Marzooqi SA, Jerobin J, ***Macha MA***, Dhawan P, Fakhro K, Akil AAS, Bhat AA (2023). Obesity and Cancer: Molecular Interconnections and Potential therapeutic targets. Submitted to **Molecular Metabolism.**
14. Baba SK, Masoodi T, Ganaie AA, Singh M, Zahoor S, Uddin S, Akil AAS, Mirza S[§], Bhat AA[§], ***Macha MA***[§] (2023). Exploring the Potential and Challenges of Immune Checkpoint Inhibitors in Personalized Cancer Treatment: From Mechanisms to Clinical Application and Future Prospects **Cancer Communication.** **[§]Corresponding author.**
15. Chaudhary S, Ganguly K, Pothuraju R, Lakshmanan I, Wang HJ, Cox JL, Nasser MW, [§]Ganti AK, [§]Batra SK, ***Macha MA*** (2023). NR4A2 induces Perineural Invasion in Pancreatic and Head and Neck Squamous Cell Carcinoma via CXCL5/CXCR2 Signaling Axis. Submitted to **Signal Transduction and Therapeutic Targeting.** **[§]Corresponding author.**
16. Masoodi T[#], Ahmed Ikhlak, Hashem S, Khurshid S, Mohi ud din R, Mishra D, Shiekh ZA, Besina S, Reddy R, Rifai WE, Singh M, Akil AAS, Uddin S, Haris M[§], ***Macha MA***[§] and Bhat AA[§] (2023). Identification of Novel Immune-Related lncRNA Signature in Gastric Adenocarcinoma through Integrated Transcriptomic Analysis. Submitted to **Journal of Experimental & Clinical Cancer Research.** **[§]Corresponding author.**
17. Bhat GR, Sethi I, Shah R, Hashem S, Jamwal RS, Goswami A, Mirza S, Akil AAS, ***Macha MA***, Uddin S, *Kumar R, *Bhat AA (2023). MicroRNA's diverse role in lung cancer, from molecular mechanisms to therapeutic potential. Submitted to **Genes & Diseases.**
18. Jamwal RS, Sharma B, Bhardwaj S, Minerva, Shah R, Ahmed I, ***Macha MA***, Akil AAAS, Bhat A, Kumar R, Bhat AA (2024). Novel LPAR6 and RB1 Variants Identified as Cause of Hypotrichosis 8 and Increased Cancer Susceptibility. Under Review with **Genes.**
19. Dagar G, Gupta A, Shankar A, Chauhan RC, ***Macha MA***, Bhat AA, Das D, Goyal R, Bhorival S, Pandita TK, Prasad CP, Sarkar PS, Pandita T and Singh M (2024). Probing into the future world of Oncology: Combining Radiation therapy with immunotherapy. **Frontiers of Molecular Biosciences.**
20. Rasool I, Hussain A, Assad A, Masoodi TA, Bhat MR, ***Macha MA*** (2024). A weakly supervised deep learning approach for guiding ovarian cancer treatment in prognosis: gigapixel histopathology analysis for personalized therapeutic response. **Int J Syst Assur Eng. Manag.** doi.org/10.1007/s13198-024-02390-z

21. Chauhan R, Malhotra L, Gupta A, Dagar G, Mendiratta M, Masoodi T, Hashem S, Al Marzooqi S, Das D, Uddin S, Ethayathulla AS, ***Macha MA***, Akil AA, Sahoo RK, Rai E, Bhat AA and Singh M (2023). Bergenin inhibits the growth of human cervical cancer cells by decreasing Galectin-3 and MMP-9 expression. **Scientific Reports**. **3;14(1):15287**. [PMID: 38961106](#).
22. Shah A, Jahan R, Kisling SG, Atri P, Natarajan G, Nallasamy S, Cox JL, ***Macha MA***, Sheikh I, Ponnusamy MP, Kumar S, Batra SK (2024). Secretory Trefoil Factor 1 (TFF1) promotes gemcitabine resistance through chemokine receptor CXCR4 in Pancreatic Ductal Adenocarcinoma. **Cancer Letters**. **2:217097**. [PMID: 38964729](#).
23. Ahangar AB, Aalam SW, Assad A, ***Macha MA***[§], Bhat MR[§] (2024). Assessing glioma grading with self-attention: comparative analysis of the diagnostic potential of different MRI sequences. **Int J Syst Assur Eng. Manag.** **§Corresponding author**. doi.org/10.1007/s13198-024-02401-z
24. Chauhan R, Gupta A, Dagar G, Sharma S, Sadida HQ, Hashem S, Verghese AM, Tanwar M, ***Macha MA***, Uddin S, Akil AAS, Pandita TK, Bhat AA, Singh M (2024). Role of lamins in cellular physiology and cancer. **Advances in Protein Chemistry and Structural Biology**.
25. Khan IR, Sadida HQ, Hashem S, Singh M, ***Macha MA***, Akil AAS, Khurshid I[§] and Bhat AA[§] (2024). Therapeutic Implications of Signaling Pathways and Tumor Microenvironment Interactions in Esophageal Cancer. **Biomedicine & Pharmacotherapy**. **5;176:116873**. [PMID: 38843587](#).
26. Ahangar AB, Aalam SW, Assad A, ***Macha MA***[§], Bhat MR[§] (2024). AlzhiNet: An Explainable Self-Attention Based Classification Model to Detect Alzheimer from 3D Volumetric MRI Data. Accepted in **Int J Syst Assur Eng. Manag.** **§Corresponding author**. doi.org/10.1007/s13198-024-02377-w
27. Aalam SW, Ahanger AB, Assad A, ***Macha MA***[§], Bhat MR[§] (2024). Noninvasive prediction of metastasis in esophageal cancer using ensemble-based feature selection. **Int J Syst Assur Eng Manag**, **Page 1-11**. doi.org/10.1007/s13198-024-02327-6
28. Aalam SW, Ahanger AB, Majeed T, Ahange AN, Masoodi TA, Bhat AA, Assad A, ***Macha MA***[§], Bhat MR[§] (2024). Deep Learning-Based Identification of Esophageal Cancer Subtypes through Analysis of High-Resolution Histopathology Images. **Front. Mol. Biosci.** **11:1346242** **§Corresponding author**. [PMID: 38567100](#).
29. Bhat GR, Sethi I, Sadida HQ, Rah B, Mir R, Algehainy N, Albalawi IA, Masoodi T, Subbaraj GK, Jamal F, Singh M, Kumar R, ***Maha MA***, Uddin S, Akil AAS, Haris M, Bhat AA (2024). Cancer Cell Plasticity: From Cellular, molecular, and Genetic Mechanisms to Tumor Heterogeneity and Drug Resistance. **Cancer and Metastasis Reviews**. **43(1):197-228** [PMID: 38329598](#).
30. Kumar MA, Baba SK, Sadida HQ, Marzooqi SA, Jerobin J, Altemani FH, Algehainy N, Alanazi MA, Rakesh Kumar R, Akil AAS, ***Macha MA***, Rashid Mir*, Bhat. AA* (2024). Extracellular vesicles as tools and targets in therapy for diseases. **Signal Transduction and Targeted Therapy**. **5;9(1):27**. [PMID: 38311623](#).
31. Jan N, Sofi S, H Qayoom H, Shabir A, Haq BU, ***Macha MA***, Mir MA (2024). Metronomic chemotherapy and drug repurposing: a paradigm shift in oncology. **HELIYON**. **14;10(3):e24670**. [PMID: 38314272](#).
32. Gupta A, Dagar G, Das D, Chakraborty A, Haque S, Prasad CP, Singh A, Bhat AA , ***Macha MA***, Benali M, Saini KS, Previs RA, Saini D, Saha D, Dutta P, Bhatnagar AR, Darswal M, Shankar A, Mishra A, Singh M (2023). CAR-T Cell Therapy in Multiple Myeloma: B Cell Maturation Antigen (BCMA) and Beyond. **Vaccines (Basel)**. **16;11(11):1721**. [PMID: 38006053](#).
33. Sadida HQ, Abdulla A, Marzooqi SA, Hashem S, ***Macha MA***; Akil AAS, Bhat AA (2023). Epigenetic Modifications: Key Players in Cancer Heterogeneity and Drug Resistance. **Transl Oncol**. **2023 4;39:101821**. [PMID: 37931371](#).
34. Bhat GR, Jamwal R, Sethi I, Bhat A, Shah R, Verma S, Sharma M, Sadida HQ, Marzooqi SKA, Masoodi T, Mirza S, ***Macha MA***, Akil AAS, Kumar R, Bhat AA (2023). Associations between Telomere Attrition, Genetic Variants in Telomere Maintenance Genes, and Non-Small Cell Lung Cancer Risk in the Jammu and Kashmir Population of North Indi, North India. Accepted with minor comments in **BMC Cancer**. **18; 23 (1):874**. [PMID: 37718447](#).
35. Bernabeua M, Gharibzahedib SMT, Dar BN, ***Macha MA***, Ganaie AA, Castagnini JM, Warrington Y, Martínez AJM, Altintas Z, Collado MC, Barba FJ (2023). The potential modulation of gut microbiota and oxidative stress by dietary carotenoid pigments. **Critical Reviews in Food Science and Nutrition**. **10:1-19**. [PMID: 37691412](#).

36. ***Macha MA***, Hamdy NM, Shen Z (2023). Editorial: Emerging Therapeutic Targets, Potential Diagnostic or Prognostic markers for Colorectal Cancer. **Frontiers in Oncology- Gastrointestinal Cancers: Colorectal Cancer**.
37. Baba SK, Baba SK, Mir R, Elfaki I, Ullah MF, Barnawi J, Altemani FHA, Alenezi M, Mustafa SK, Masoodi T, Bhat AA, ***Macha MA***[§] (2023). Long non-Coding RNAs Modulate Tumor Microenvironment to Promote Metastasis: Novel Avenue for Therapeutic Intervention. **Front Cell Dev Biol.** **13;11:1164301**. **Corresponding author**. [PMID: 37384249](#)
38. Dagar G, Gupta A, Masoodi T, Nisar S, Merhi M, Marzooqi SA, Chauhan R, Dagar M, Mirza S, Bagga P, Haris M, Reddy R, Akil AAS, ***Macha MA***, Uddin S, Singh M and Bhat AA (2023). Harnessing the Power of CAR-T Cell Therapy: Progress, Challenges, and Future Directions. **J Transl Med.** **7;21(1):449**. [PMID: 37420216](#).
39. Chauhan R, Gupta A, Malhotra L, Pandita RK, Masoodi T, Sharma T, Dagar G, Batra A, Mriza S, Sharma MC, Haris M, Tanwar P, Samath EA, Uddin S, ***Macha MA***, Bhat AA, Pandita TK and Singh M (2023). Ubiquitin Specific Peptidase 37 and PCNA interaction promotes Osteosarcoma pathogenesis by modulating replication fork progression. **Journal of Translational Medicine** **21(1):286**. [PMID: 37118828](#).
40. Farooq M, Bhat GR, Besina S, Thakur N, Zahoor S, Rather RA, Mushtaq I, Dar S, Rah B, Bhat AA, ***Macha MA***, Dil Afroze (2023). Expression of HIF-1 α and Markers of angiogenesis and metabolic adaptation in molecular subtypes of Breast Cancer. **Translational Medicine and Communications.** **8;1-13**.
41. Kumar DP, Manu KA, ***Macha MA*** (2022). Editorial: The role of non-coding RNAs in gastrointestinal cancer. **Front Oncol.** **8;12:1056897**. [PMID: 36425552](#).
42. Bhat AA, Nisar S, Mukherjee S, #Saha N, #Yarravarapu N, #Lone SN, Masoodi T, Chauhan R, Hashem S, Bagga Pt, Reddy R, Bedognetti D, Uddin S, El-Rifai W, §Singh M, §***Macha MA***, §Haris M (2022). Integration of CRISPR/Cas9 with artificial intelligence for improved cancer therapeutics. **J Transl Med.** **18;20(1):534**. **Corresponding authors**. [PMID: 36401282](#).
43. #Nisar S, Masood T, #Prabhu KS, #Kuttikrishnan S, Zarif L, Khatoun S, Ali S, Uddin S, Akil A. Al-S, Singh M[§], ***Macha MA***[§], Bhat AA[§] (2022). Natural Products as Chemo-Radiation Therapy Sensitizers in Cancer. **Biomed Pharmacother.** **154:113610**. **Corresponding author**. [PMID: 36030591](#).
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37. ***Macha MA***, Matta A, Chauhan SS, Michael KMS, Ralhan R. Guggulsterone inhibits Nicotine induced phosphorylation of Bad, Bax by modulation of Akt pathway in head and neck cancer cells. 8th International symposium on Targeted Anticancer Therapies 2010 (TAT2010), Bethesda, MA, USA.
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42. ***Macha M*** and Ranju R. Natural Products modulate the effect of Smokeless Tobacco in Oral cancer. Poster abstract published in 27th Indian Association of Cancer Research, Ahmadabad, Gujarat, 2008.
43. ***Macha M***, Matta A, Ralhan R. Is ALCAM a Novel Target of Curcumin? 2nd international symposium on Translational Research-Natural products and Cancer. Lonavala Mumbai India-2007.
44. ***Macha M***, Matta A, Ralhan R. Curcumin down regulates 14-3-3 ζ Expression in Oral Cancer. 26th Annual Convention of Indian Association for Cancer Research, 2007, Bhubaneswar, India.
45. ***Macha M***, Matta A, Bahadur S, Gupta SD and Ralhan R. pSTAT3 Overexpression an Early Event in Oral Carcinogenesis. Indian Journal of Clinical Biochemistry, 2007, Vol. 22 (Supl.), pp296.
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47. ***Macha M***, Matta A, Sinha P, Bahadur S, Gupta SD, Ralhan R. Clinical Significance of p16 in surgical margins of Oral Squamous Cell Carcinoma. International Symposium on Translational Research: Apoptosis and Cancer, Trivanthapuram, India-2005.

Guest Editor Journals

1. ***Macha MA***, Hamdy NM, Shen Z (2023). **Emerging Therapeutic Targets, Potential Diagnostic or Prognostic markers for Colorectal Cancer**. Frontiers in Oncology- Gastrointestinal Cancers: Colorectal Cancer. [IF- 5.66](#).
2. Kumar DP, Manu KA, ***Macha MA*** (2022). "The Role of non-coding RNAs in Gastrointestinal Cancers" Frontiers of Oncology. [IF- 5.66](#).

Books Edited/Editing

1. ***Macha MA***, Bhat AA, and Massodi T. "Multi-omics in Health and Diseases" Elsevier. (Under Preparation). [ISBN: 9780443135958](#).
2. ***Macha MA***, Zargar SM, Bhat AA and Uddin S. "Neglected and Underutilized Crops for Cancer Prevention and Therapy" CRC Taylor Francis press. (Under Preparation) [ISBN: 9781032762692](#).
3. ***Macha MA***, Haris M, and Bhat AA. "Alternative Splicing and Cancer" CRC Taylor Francis press [ISBN: 978-1-032-19659-6](#).
4. Bhat AA, Haris M, ***Macha MA***, and Dhawan P. "Tight Junctions in Inflammation and Cancer". Springer Nature. [ISBN: 978-981-99-2414-1](#).
5. ***Macha MA***, Bhat AA, Wani NA "Immuno-Oncology Crosstalk and Metabolism" Springer Nature. [ISBN: 978-981-16-6226-3](#).
6. ***Macha MA***. "Modern technology: Present and Future of Cancer" OMICS Group International - eBooks, [ISBN: 978-1-63278-073-7](#).
7. ***Macha MA***, Assad A, Bhat MR. "Artificial Intelligence in Human Health and Diseases" Springer Nature (Under Preparation).
8. Bhat AA, ***Macha MA***, Akil A Al-Shabeeb, Fakhro KA. "Interplay between Obesity, Diabetes, and Cancer - Epidemiology, Pathophysiology, and Clinical Implications" Proposal under revision with Springer Nature (Under Preparation).
9. Wani NA, Bhat AA, and ***Macha MA***. "Microbiome Metabolism and Cancer" Proposal under revision with Springer Nature.
10. Bhat AA, ***Macha MA***, Nisar S. **Lipid Metabolism and Cancer**". Proposal under revision with Springer Nature.
11. ***Macha MA***, Bhat AA, and Massodi T. "CRISPR/Cas Technology in Health and Diseases". Proposal under revision with Elsevier.
12. ***Macha MA***, Ganaie AA, Dar BN. "Polyphenols and Gut Microbiome: The Role of Diet in Health and Disease". CRC Taylor Francis press.

Work Shops/Seminars Organized

1. Organized 1 week International Workshop on "Thermodynamics of Earth System Components and its application: atmosphere, hydrology, ecology, Climate and Society" at the IUST, Awantipora on 11th March - 17th March, 2024.

2. Organized two Days international conference on "Artificial Intelligence, Machine Learning, and Intelligent Systems at the IUST, Awantipora on 30th – 31st October, 2023.
3. Organized One Day Awareness Programme on "IPR and Design Thinking" at the Islamic University of Science and Technology (IUST), Awantipora on 1st June, 2023.
4. Organized One Day Seminar on "Cancer Awareness" at the IUST, Awantipora on 31st October, 2022.
5. Organized Webinar on "Patent and Design Filing in India" at the IUST, Awantipora on 13th Sep., 2022.
6. Organized 1-Day Seminar "Idea, Innovation, Start-up" at the IUST, Awantipora on 9th June, 2022.
7. Organized 1-Day Seminar "Colorectal Cancers: Preventable, Treatable, Beatable" at the IUST, Awantipora on May 24th May, 2022.
8. Organized 2-Day "National Level Academia-Industry Conclave 2.0": Bridging the Gap: ideation to Industry at the IUST, Awantipora on 11-12th May, 2022.
9. Organized 1-Day Workshop on "National Intellectual Property Awareness Mission" at the IUST, Awantipora on 28th April, 2022.
10. Organized 1-Day National Workshop on "Fundamentals of Patenting for Entrepreneurs" at the IUST, Awantipora on 17th March, 2022.
11. Organized Webinar on "Establishing a sustainable Entrepreneurship Ecosystem in Institutions of Higher Education" at the Department of Biotechnology, Central University of Kashmir, on 24th June, 2020.

Work Shops/Conferences/Webinars attended

1. Two Day National Conference cum Workshop: Innovations and Entrepreneurship for Sustainable Development (IESD-2022). Organized by CUK and SKUAST on 20th - 21th of December, 2022.
2. Two Day International Workshop: Role of Artificial Intelligence & Information Technology in Surgery & Medical Research. Organized by Post Graduate Dept. of General & Minimal Access Surgery Govt. Medical College Srinagar on 28th – 29th of October, 2022.
3. One Day Online Workshop: Plagiarism - An Opportunity to Learn, Teach & Excel. Organized by Dept. of Bioresources, University of Kashmir on 24th of June, 2020.
4. One Day online Workshop: Planning and Organizing Research Using Elsevier Tools: ScienceDirect, Scopus and Mendeley. Organized by Dept. of Bioresources, University of Kashmir. 26th April, 2020.
5. Hands-On workshop: Mastering RNA-Seq- NSG Data Analysis Organized by PINE.BIO, Omaha, Nebraska, USA in April, 2018.

Invited talks and presentations

S. No	Date	Title	Place
1	2023	Role of NR4A2 in Cancers and Beyond	Departmental Seminar Series at Sidra Medicine, Doha, Qatar.
2	2023	GI Cancer on the Rise: Novel Treatment Modalities	Seminar Series, King Fahad Medical Research Centre, KAU Saudi Arabia.
3	18 - 19 th Feb 2022	Novel Therapeutics for Head and Neck Cancer. Emerging Trends in Translational Oncology.	AIIMS, New Delhi, India.
4	2018	Overview of Head and Neck Cancer Research.	Head and Neck Cancer Research Focus Group (HNCRFG), UNMC
5	2016	Afatinib as a novel radiosensitizer for HNSCC.	HNCRFG, UNMC

6	2015	ErbB/EGFR signaling pathway inhibition in head and neck cancers.	HNCRFG, UNMC
7	2014	MUC4 as a therapeutic target in HNSCC.	HNCRFG, UNMC
8	2014	Targeting Co-dependent Molecular Pathways in Oral Cancer	HNCRFG, UNMC
9	2013	Mucins in Health and Disease: Implications in Resistance to Cancer Therapeutics	Seminar Series, King Fahad Medical Research Centre, KAU Saudi Arabia.
10	2013	Novel role of MUC4 in Head and Neck Cancer pathogenesis	HNCRFG, UNMC
11	2012	Role of MUC4 in Head and Neck Cancer Disparity	HNCRFG, UNMC
12	2011	MUC4 in Oral Cancer pathogenesis	HNCRFG, UNMC

Research Grants Ongoing

1. CCRUM Grant, Ministry of AYUSH, Govt. of India “**Investigate the Therapeutic and Chemo-Sensitizing Efficacy of Unani Pharmacopoeial formulation Dawa-UI-Kurkum on Head and Neck Squamous Cell Carcinoma**”.
Role: **Principal Investigator**
Amount: **39,28,760 INR**
2. **Promotion of University Research and Scientific Excellence (PURSE)**. DST, Govt. of India to Islamic University of Science and Technology, Awantipora, Kashmir.
Role: **Co-Principal Investigator**
Amount: **10 Crores**
3. Adhoc Research grant- ICMR, Govt. of India "**Artificial intelligence Based Deep Learning Model to Predict Gastric Cancer Tumor Heterogeneity and Therapeutic Response Using Histopathology Images**".
Role: **Principal Investigator**
Amount: **20,79,557 INR**
4. Core research Grant, Science and Engineering Research Board, Govt. of India. "**Systems biology based identification and validation of potential novel therapeutic agents for Head and Neck Squamous Cell Carcinoma**".
Role: **Principal Investigator**
Amount: **51,10,120 INR**
5. Ramalingaswami Re-Entry Fellowship, Department of Biotechnology, New Delhi, Govt. of India. "**Development and Characterization of *in Vitro* Models to Identify Novel Therapeutic Targets for Indian Esophageal Cancer Patients**".
Role: **Principal Investigator**
Amount: **11,360,000 INR**
6. J&K Science, Technology and Innovation Council, Department of Science and Technology. "**Development and Characterization of Novel *in vitro* models for Gastric Cancers from Kashmiri Patients**".
Role: **Principal Investigator**
Amount: **5,50,000 INR**
7. J&K Science, Technology and Innovation Council, Department of Science and Technology. "**Artificial Intelligence based Deep Learning Model to Predict Human Papilloma Virus Infection in Head and Neck Squamous Cell Carcinoma Patients using Histopathology Images.**"
Role: **Co-Principal Investigator**

Amount: **5,00,000 INR**

8. Core research Grant, Science and Engineering Research Board, Govt. of India. "**To study the Novel role of Cullin 3 - SPOP E3 ligase mediated immune surveillance in prostate cancer by promoting the degradation of next generation immune checkpoint inhibitor CD73**".

Role: **Co-Principal Investigator**

Amount: **51,01,000 INR**

Research Grants Completed

1. Startup fund from Department of Biochemistry and Molecular Biology, UNMC, USA.

Role: **Principal Investigator**

Amount: **11,100,000 INR (150,000\$)**.

2. Fred & Pamela Buffett Cancer Center, UNMC, USA.

Role: **Principal Investigator**

Amount: **11,100,000 INR (150,000\$)**.

Patents Granted/Under Process

1. **Patent number: 6945/2022-CO/SW**, Artificial Intelligence Based System For Pashmina Artwork Identification And Classification. IUST, **Macha MA**, Assad A, Bhat MR, Dar RA, Aalam SW, Mohiudin N, Ahangar AB, Ahanger AN.
2. **Patent number: 202211018901**, System and Method for Detecting and Classifying Pashmina Shawl. IUST, Bhat MR, Assad A, Dar RA, **Macha MA**, Ahanger AN. Ahangar AB, Aalam SW, Mohiudin N.
3. **Patent number: 202311027701**, An Artificial-Intelligence/Machine Learning-Based System For Predicting Cervical Cancer Subtypes Using Haematoxylin And Eosin Whole-Slide Images. IUST, Majeed T, Assad A, Deep K, Bhat MR, **Macha MA**, Aalam SW, Ahangar AB.
4. **Patent number: 202311050226**, A System And Method For Early Prediction Of Esophageal Cancer Subtypes From Histopathology Images. IUST, Aalam SW, Bhat MR, Assad A, **Macha MA**, Ahangar AB. Majeed T, Dar AU, Ahanger AN.
5. System and Method for Classifying Cervical Cancers (**Ongoing**).
6. Novel Tool to Predict Metastasis in Head and Neck Cancer Patients from Histopathology Images (**Ongoing**).
7. Novel Tool to Predict Signaling pathways from MRI (**Ongoing**).
8. Intelligent System for Predicting Tumor Heterogeneity in Gastric Cancer Patients from Histopathology Images (**Ongoing**).

References:

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