

Suhasini Joshi, Ph.D.

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Memorial Sloan Kettering Cancer Center
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Current Position: Senior Research Scientist, Department of Chemical Biology, Memorial Sloan Kettering Cancer Center, New York 10065

EDUCATION

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Delhi, India	BS	05/2007	Biochemistry
All India Institute of Medical Sciences, India	MS	05/2009	Biochemistry
Northwestern University, IL, USA	OTH	04/2010	Medicine
University of Nebraska Medical Center, NE, USA	PHD	05/2016	Biochemistry and Molecular Biology

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, Department of Chemical Biology, Memorial Sloan Kettering Cancer Center, NY, USA
08/2016 – 08/2020

Advisor: Professor Gabriela Chiosis

-Research topics (*chemical biology*): chaperome, protein-protein interactions, proteomics

- Determined the therapeutic implications of targeting disease-associated chaperome networks in cancer and neurodegenerative diseases
- Discovered key molecular mechanisms behind trametinib resistance in pancreatic tumors and developed a PPI network-informed "Sequential Treatment Regimen" to treat these refractory tumors
- Explored the role of altered chaperome rewiring in tumor-associated immunosuppressive cells

Ph.D. Research Fellow, Department of Biochemistry and Molecular Biology, University of Nebraska Medical Center, NE, USA

08/2010 – 05/2016

Advisor: Professor Surinder Batra

-Research topics (*cancer biology*): pancreatic cancer (PC), mucins, chemoresistance, tumor microenvironment

- Revealed the novel interaction between MUC4 mucin and EGFR in PC, critical for the sustained survival and Proliferation of pancreatic tumors
- Elucidated the role of bile acids and environmental stress in the aberrant MUC4 expression in PC
- Developed a novel 3D cell culture technique to study the role of tumor microenvironment on MUC4 oncogenic expression

Researcher, Northshore University Health System of Gastroenterology (affiliated with the Northwestern University, IL), USA

10/2009 - 04/2010

Advisor: Professor Hemant K. Roy

-Research topics (*cancer biology*): colorectal cancer, mucins, chemoprevention

- Elucidated the molecular mechanism behind the chemopreventive nature of Polyethylene Glycol in the colorectal cancer

M.Sc. Research Assistant, Department of Biochemistry, All India Institute of Medical Sciences, Delhi, India
07/2007 – 08/2009

Advisors: Professors Alpana Sharma and Kalpana Luthra

-Research topics (*biochemistry*): multiple myeloma, angiogenesis, angiopoietins

- Established the correlation between altered angiopoietins levels and severity of multiple myeloma

ACADEMIC AWARDS, HONORS & FELLOWSHIPS

- 2021 Spot Bonus for Exemplary performance, Department of Chemical Biology, MSKCC
- 2019 Travel Award to attend Immunology in Health and Diseases Symposium held in Santa Fe, NM
- 2019 Nominated for MSKCC's Postdoctoral Researcher Award
- 2018 CAPER Travel Scholarship for Best Abstract Submission (PancreasFest, Pittsburgh)
- 2016 Keynote Speaker at Hostos Community College (The City University of New York)
- 2016 Nominated for Praesto award (overall excellence), UNMC
- 2015 Outstanding Performance Stipend Award, FY 2015-2016, UNMC
First place in biochemistry section, Sigma Xi's Student Research Showcase.
National Sigma Xi's Grant-in-aid research award
- 2014 Simon Woolf Foundation Travel Award to attend AACR annual meeting
Selected as AAAS member through AAAS/Science Program for Excellence in Science
Graduate Student Research Fellowship, UNMC, 2014–2016
Inducted as a full member of Sigma Xi, an international honor society of science and engineering
- 2013 Invited Speaker by National Cancer Institute-Tumor Microenvironment Network (NCI-TME)
- 2012 Young Investigator Travel Award by American pancreatic association
- 2004 Meritorious Student Scholarship awarded by the Government of India (2004 – 2007)

PUBLICATIONS

Peer-Reviewed Published Manuscripts (*Authors contributed equally)

1. **Joshi S***, Gomes ED*, Wang T*, Corben A, Taldone T, Gandu S *et al.* Pharmacologically controlling protein-protein interactions through epichaperomes for therapeutic vulnerability in cancer. Accepted in **Commun. Biol.** 2021;4(1):1333
2. Ginsberg SD, **Joshi S**, Sharma S, Guzman G, Wang T, Arancio O *et al.* The penalty of stress – epichaperomes negatively reshaping the brain in neurodegenerative disorders. **J. Neurochem.** 2021;159(6):958-979.
3. Bolaender A*, Zatorska D*, He H*, **Joshi S***, Sharma S*, Digwal CS* *et al.* Chemical tools for epichaperome-mediated interactome dysfunctions of the central nervous system. **Nat. Commun.** 2021;12(1):4669.
 - *Highlighted, MSKCC blog <https://www.mskcc.org/news/experimental-drug-targets-misbehaving-proteins-brain-cancer-and-alzheimer-s-disease>, Featured in PR Newswire, Morning Star, NBC-KPVI-DT, Yahoo Finance, Altmetric 96*
4. Yang J, Zhao C, Lim J, Zhao L, Tourneau RL, Zhang Q *et al.* Structurally symmetric near-infrared fluorophore IRDye78-protein complex enables multimodal cancer imaging. **Theranostics.** 2021;11(6):2534-2549.
5. Inda MC*, **Joshi S***, Wang T*, Bolaender A*, Gandu S, Koren J *et al.* The epichaperome is a mediator of toxic hippocampal stress and leads to protein connectivity-based dysfunction. **Nat. Commun.** 2020;11(1):319.
 - *Featured in: Alzforum, National Institute on Aging Featured Research, Neurology Today Editor's Pick, ClinicalOMICS, Must read on <https://flipboard.com/topic/tau>, <https://www.usagainstalzheimers.org/news/january-17-2020> Altmetric 115.*
6. Grbovic-Huezo O, Pitter K, Lecomte N, Saglimbeni J, Gokce A, Matilda Holm *et al.* Unbiased in vivo preclinical evaluation of anticancer drugs identifies effective therapy for the treatment of pancreatic adenocarcinoma. **Proc. Natl. Acad. Sci. U.S.A.** 2020;117(48):30670-30678.
7. Yang J, Wang T, Zhao L, Rajasekhar V, **Joshi S**, Andreou C *et al.* Gold/alpha-lactalbumin nanoprobe for the imaging and treatment of breast cancer. **Nat. Biomed. Eng.** 2020;4(7):686-703.
 - *Cover of Nature Biomedical Engineering July 13, 2020; Highlighted in Nature Biomedical Engineering July 13, 2020*

8. Merugu S, Sharma S, Kaner J, Digwal C, Sugita M, **Joshi S** *et al.* Chemical probes and methods for single-cell detection and quantification of epichaperomes in hematologic malignancies. **Methods Enzymol.** 2020; 639:289-311.
9. Yan P, Patel HJ, Sharma S, Corben A, Wang T, Panchal P *et al.* Molecular Stressors Engender Protein Connectivity Dysfunction through Aberrant N-Glycosylation of a Chaperone. **Cell Rep.** 2020 31(13):107840. PMC7372946.
 - *Featured in: ScienMag, AAAS EurekAlert, MedicalNews. Altmetric 61*
10. Taldone T, Wang T, Rodina A, Pillarsetty NVK, Digwal CS, Sharma S, Yan P, **Joshi S** *et al.* A Chemical Biology Approach to the Chaperome in Cancer-HSP90 and Beyond. **Cold Spring Harb. Perspect. Biol.** 2020; 12(4):a034116.
11. Pillarsetty N, Jhaveri K, Taldone T, Caldas-Lopes E, Punzalan B, **Joshi S** *et al.* Paradigms for precision medicine in epichaperome cancer therapy. **Cancer Cell.** 2019;36(5):559-573.
 - *Cover of Cancer Cell November 11, 2019; Highlighted in Cancer Cell November 11, 2019; Featured on StressMarq blog November 27, 2019; MSKCC blog, <https://www.mskcc.org/blog/bull-s-eye-imaging-technology-could-confirm-when-drug-going-right-place>. Altmetric 57*
12. Kishinevsky S, Wang T, Rodina A, Chung SY, Xu C, Philip J, Taldone T, **Joshi S** *et al.* HSP90-incorporating chaperome networks as biosensor for disease-related pathways in patient-specific midbrain dopamine neurons. **Nat. Commun.** 2018;9(1):4345.
 - *Highlighted, MSKCC blog <https://www.mskcc.org/blog/experimental-cancer-drug-developed-msk-leads-new-approach-treating-alzheimer-disease>, Featured in Alzforum, Faculty1000, etc. Altmetric 40*
13. **Joshi S**, Wang T, Araujo TLS, Sharma S, Brodsky JL, Chiosis G. Adapting to stress – chaperome networks in cancer. **Nat. Rev. Cancer.** 2018;18(9):562-575.
 - *Featured on NBC, ABC, Fox, PR newswire etc, Altmetric 361*
14. Weidenauer L, Wang T, **Joshi S**, Chiosis G, Quadroni MR. Proteomic interrogation of HSP90 and insights for medical research. **Expert Rev. Proteomics.** 2017; 14(2): 1105-1117.
15. Kumar S, Cruz E, **Joshi S**, Patel A, Jahan A, Batra SK *et al.* Genetic Variants of Mucins: Unexplored Conundrum. **Carcinogenesis.** 2017;38(7): 671-679.
16. **Joshi S**, Cruz E, Rachagani S, Guha S, Brand RE, Ponnusamy MP *et al.* Bile acids-mediated overexpression of MUC4 via FAK-dependent c-Jun activation promotes the aggressiveness of pancreatic cancer. **Mol. Oncol.** 2016; 10(7):1063-77.
17. **Joshi S**, Kumar S, Ponnusamy MP, Batra SK. Hypoxia-induced oxidative stress promotes MUC4 degradation via autophagy to enhance pancreatic cancer cells survival. **Oncogene.** 2016;35(45):5882-5892.
18. **Joshi S***, Gupta N*, Khan R*, Kumar R, Sharma M, Kumar L *et al.* Interrelationship between angiogenesis, inflammation and oxidative stress in Indian patients with multiple myeloma. **Clin. Transl. Oncol.** 2016; 18(2):132-137.
19. Kumar S, Das S, Rachagani S, Kaur S, **Joshi S**, Batra SK *et al.* NCOA3-mediated upregulation of mucin expression via transcriptional and post-translational changes during the development of pancreatic cancer. **Oncogene.** 2015; 34 (37): 4879-4889.
20. Lakshmanan I, Seshacharyulu P, Haridas D, Rachagani S, Gupta S, **Joshi S** *et al.* Novel HER3/MUC4 oncogenic signaling aggravates the tumorigenic phenotypes of pancreatic cancer cells. **Oncotarget.** 2015; 6 (25): 21085-99.

21. Kumar S, Torres MP, Kaur S, Rachagani S, **Joshi S**, Johansson SL *et al.* Smoking accelerates pancreatic cancer progression by promoting differentiation of MDSCs and inducing HB-EGF expression in macrophages. **Oncogene**. 2015; 34(16): 2052-2060.
22. **Joshi S**, Kumar S, Bafna S, Rachagani S, Jain M, Wagner KU *et al.* Genetically Engineered Mucins Mouse Models for Inflammation and Cancer. **Cancer Metastasis Rev**. 2015; 34(4): 593-609.
23. **Joshi S**, Kumar S, Choudhary A, Ponnusamy MP, Batra SK. Altered Mucins (MUC) Trafficking in Benign and Malignant Conditions. **Oncotarget**. 2014; 5(17): 7272-7284.
24. Torres MP, Rachagani S, Purohit V, Pandey P, **Joshi S**, Moore E *et al.* Graviola: A Novel promising natural-derived drug that inhibits tumorigenicity and metastasis of pancreatic cancer cells in vitro and in vivo through altering cell metabolism. **Cancer. Lett**. 2012; 323(1): 29-40.
25. Qi W, **Joshi S**, Weber CR, Wali RK, Roy HK, Savkovic SD. Polyethylene glycol diminishes pathological effects of Citrobacter rodentium infection by blocking bacterial attachment to the colonic epithelia. **Gut Microbes**. 2011. 2(5); 267-273.
26. **Joshi S**, Khan R, Sharma M, Kumar L, Sharma A. Angiopoietin-2: A potential novel diagnostic marker in multiple myeloma. **Clin. Biochem**. 2011;44 (8-9): 590-595.
27. Roy HK, Koetsier JL, Tiwari AK, **Joshi S**, Kunte DP, Ward TP *et al.* Involvement of p21cip1/waf1 in the anti-proliferative effects of polyethylene glycol in colon carcinogenesis. **Int. J. Oncol**. 2011; 38 (2): 529-536.
28. Qi W, Weber CR, Wasland K, Roy H, Wali R, **Joshi S** *et al.* Tumor suppressor FOXO3 mediates signals from the EGF receptor to regulate proliferation of colonic cells. **Am. J. Physiol. Gastrointest. Liver. Physiol**. 2011. 300(2); G264-G272.
29. **Joshi S**, K Tiwari A, Mondal B, Sharma A. Oncoproteomics. **Clin. Chim. Acta**. 2010. 412 (3-4); 217-226.
30. Sharma A, Khan R, **Joshi S**, Sharma M and Kumar L. Dysregulation in Th1/Th2 cytokines ratios in Multiple myeloma patients. **Leuk. Lymphoma**. 2010;51(5); 920-927.

Published Abstracts

1. Bhatia R, **Joshi S**, Aithal A, Junker W, Orzechowski C, Cannon C *et al.* MUC4 interacts and stabilize EGFR1 in a ligand-dependent manner leading to sustained oncogenic signaling. **FASEB J**. 2019 33(S1): 631.3-631.3
2. Bhatia R, **Joshi S**, Aithal A, Junker W, Cannon C, Hall B *et al.* MUC4 Interaction with EGFR and Its Potential Implications in Pancreatic Cancer. **Pancreas**. 2017 46(10):1392
3. **Joshi S**, DaGama EG, Xu C, Wang T, Taldone T, Rodina A *et al.* Epichaperome based therapies in pancreatic cancer. **Annual Pharmacology Retreat**. 2017.
4. **Joshi S**, Kumar S, Ponnusamy MP, Batra SK. MUC4 is negatively regulated by hypoxia in ROS-dependent manner in pancreatic cancer. **Cancer Res**. 2015; 75 (15 Suppl.):1256
5. Sushil K, Rachagani S, **Joshi S**, Gupta S, Varney ML. Deficiency of Lipocalin-2 Protect Against Cerulein-Induced Severe Acute Pancreatitis. **Pancreas**. 2015 44(8):1389.
6. Sushil K, **Joshi S**, Rachagani S, Chugh S, Batra SK. Mucin Regulation by Tumor Microenvironment: Impact on Pancreatic Cancer. **Pancreas**. 2013; 42(8):1361

7. Vaz AP, Kumar S, **Joshi S**, Seshacharyulu P, Batra SK, MP Ponnusamy. TME Factors-Mediated Intracellular Communication in the Enrichment of PD2 Overexpressed Pancreatic Cancer Stem Cells. **Pancreas**. 2013; 43 (8): 141
8. **Joshi S**, Kumar S, Batra SK. MUC4 is a novel regulator of EGFR trafficking in pancreatic cancer. **Pancreatology**. 2012; 13(2): e41
9. Stypula Y, Mutyal N, Radosevich A, **Joshi S**, Tiwari AK, Kunte D *et al*. End Binding Protein (EB1) up-regulation in field carcinogenesis: implications for cytoskeletal alterations measured by low-coherence enhanced backscattering (LEBS). **Gastroenterology**. 2011; 140(5):61363-2
10. Qi W, **Joshi S**, Weber CR, Wali R, Roy HK, and Savkovic SD. Polyethylene glycol (PEG) diminishes pathological effects of *Citrobacter rodentium* infection by blocking bacterial attachment to the colonic epithelia. **Gastroenterology**. 2011;140(5): S-663
11. Tiwari AK, **Joshi S**, Brasky JT, DeLaCruz M, Gibson TP, Kunte D *et al*. Superoxide dismutase 2 (SOD2) is overexpressed at an early stage during colorectal carcinogenesis: A putative target for celecoxib chemoprevention. **Gastroenterology**. 2011; 140(5):61394-2
12. Tiwari AK, **Joshi S**, Wali RL, Gandhi SR, DeLaCruz M, Koetsier J *et al*. Deoxycholic Acid Dependent Regulation of CDx2 Expression Has a Role in Gender Related Issues During Colorectal Carcinogenesis. **Gastroenterology**. 2010; 138(5):62337-2
13. Stypula Y, Damania D, Subramanian H, **Joshi S**, Tiwari AK, Ward TP *et al*. Nanoscale Alterations in Early Colon Carcinogenesis are determined by Cytoskeletal Dysregulation in Microscopically Normal Mucosa. **Gastroenterology**. 2010; 138(5):62342-6
14. Sharma A, Khan R, **Joshi S**, Sharma M, Kumar L. Role of angiogenic factors and extracellular matrix proteins in multiple myeloma. **Cancer Prev. Res.** 2010;3(1 Suppl):B43
15. Sharma A, **Joshi S**, Satyam A, Sharma M, Kumar L. Role of angiopoietins and VEGF in the microenvironment development of multiple myeloma. **Cancer Res**. 2009; 6: 4063

SELECTED PRESENTATIONS (ONLY FIRST-AUTHORED)

- 2019 Cell Symposia: Hallmarks of Cancer, Seattle, Washington (Poster)
15th Annual Tri-Institutional Chemical Biology Symposium, Weill Cornell Medical Center, NY (Poster)
Symposium on Immunology of Human Diseases, Santa Fe, NM (Poster and Talk)
- 2018 Pancreatic Cancer: Advances in Science and Clinical Care, AACR, Boston, MA (Poster)
Annual PancreasFest, Pittsburgh, PA (Poster)
Cancer Biology meet up series, MSKCC (Talk)
- 2017 Pharmacology Retreat organized by Weill Cornell and MSK, Sky Top Lodge, PA (Poster)
- 2015 Annual Meeting of American Association for Cancer Research (*Poster*),
Midwest Student Biomedical Research Forum (Talk)
Annual Biochemistry and Molecular Biology Symposium, UNMC (Poster)
- 2014 Midwest Student Biomedical Research Forum (*Talk*)
Annual Biochemistry Symposium (*Poster*)
- 2014 Midwest Student Biomedical Research Forum (*Oral*)
National Cancer Institute-Tumor microenvironment network (Oral)
- 2013 National Cancer Institute, Washington DC (Invited Talk)
Midwest Student Biomedical Research Forum (*Talk*)

2012 Midwest Student Biomedical Research Forum (*Poster*)
Annual meeting of American pancreatic association and International Association of Pancreatology
(Poster)

PEER REVIEWER FOR JOURNALS

- a. PloS One (2015-Present)
- b. OncoTargets and Therapy (2015-Present)
- c. Molecular Cancer (2018-Present)
- d. Scientific Reports (2019-Present)
- e. Therapeutics and Clinical Risk Management (2016-Present)
- f. Drug Design, Development and Therapy (2017-Present)
- g. Biologics: Targets and Therapy (2014-2015)
- h. Prostate International (2017)
- i. Cancer Epidemiology, Biomarkers & Prevention (2019-Present)

EDITORIAL BOARDS AND ACTIVITIES

- ❖ Guest Associate Editor for Cellular Biochemistry (for Frontiers in Cell and Developmental Biology and Frontiers in Molecular Biosciences journals)
- ❖ Associate Editor, Biomedical Research, and Therapy
- ❖ Editorial Board, Progress in Biology

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

- ❖ American Association of Cancer Research (2014-Present)
- ❖ Sigma Xi, The Scientific Research Society (2014-Present)
- ❖ The American Association for the Advancement of Science (2014 – Present)