Sheema Khan Ph.D.

Assistant Professor (Tenure-Track)
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Education

2010 Ph.D. Biotechnology, CSIR-Indian Institute of Integrative Medicine, Jammu & Kashmir, India

2006 M.Sc. Medical Microbiology and Immunology, Bundelkhand University, Uttar Pradesh, India

Professional Experience

2010-2011 **Postdoctoral Senior Research Fellow (CSIR),** Indian Institute of Integrative Medicine (IIIM), Jammu and Kashmir, India

2012-2013 **Postdoctoral Fellow,** Cancer Biology Research Center, Sanford Research/USD, Sioux Falls, South Dakota, USA

2013-2015 **Postdoctoral Fellow,** Department of Pharmaceutical Sciences, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

2015-2016 **Associate Scientist,** Department of Pharmaceutical Sciences, University of Tennessee Health Science Center, Memphis, TN, USA.

2016-2019 **Assistant Professor (Research track),** Department of Pharmaceutical Sciences, University of Tennessee Health Science Center, Memphis, TN, USA.

2019 –Pre **Assistant Professor (Tenure track),** Department of Immunology and Microbiology, University of Texas Rio Grande Valley, Edinburg, TX, USA.

Research Focus

Dr. Sheema Khan's laboratory broadly encompasses immunology and microbiology to understand multifactorial etiology and pathogenesis of Gastrointestinal (GI) cancers for early diagnosis and novel therapeutic interventions. The primary focus of her research is understanding the tumor immune microenvironment and metabolic regulations for improving existing immunotherapies, developing novel delivery systems (nanoparticles/exosomes) for therapeutic intervention and personalized medicine. Dr. Khan investigates the role of microbiome in the aetiopathogenesis of cancer to delineate specific microbial signals affecting the response to immunotherapies in GI cancers. Dr. Khan is expanding her research program at South Texas on investigations pertaining to genetic and microbial predisposition for cancer health disparity among minority populations. Further, in order to overcome the hindrances in the therapeutic delivery due to the prevailing rigid tumor microenvironment, Dr. Khan's group is developing antibody mediated nano-immunotherapeutic technology and drug-antibody immunoconjugates (ADCs), which ensures delivery of the therapeutics specifically to the tumor area. By combining the targeting capabilities of monoclonal antibodies with the cancer-killing ability of cytotoxic drugs, antibody-drug conjugates allow for discrimination between healthy and diseased tissue. In contrast to traditional chemotherapeutic drugs, antibody-drug conjugates target only cancer cells so that healthy cells are less severely affected.

Recent Publications (chosen out of 41 publications)

1. Sonam Kumari, **Sheema Khan* (* corresponding author)**, Radhika Sekhri, Hassan Mandil, Stephen Behrman, Murali M. Yallapu, Subhash C. Chauhan, Meena Jaggi*. Protein Kinase D1 regulates metabolic switch in pancreatic cancer via modulation of mTORC1. ***British Journal of Cancer.*** Accepted: 2019 Aug.
2. **Sheema Khan**, Saini Setua, Sonam Kumari, Nirnoy Dan, Andrew Massey, Bilal Hafeez, Murali M. Yallapu, Zachary Edwar Stiles, Anas Alabkaa, Junming Yue, Aditya Ganju, Stephen Behrman, Meena Jaggi, Subhash C.Chauhan. Superparamagnetic iron oxide nanoparticles of curcumin enhance gemcitabine therapeutic response in pancreatic cancer. ***Biomaterials***, 2019 Jul;208:83-97.
3. Massey AE, Sikander M, Chauhan N, Kumari S, Setua S, Shetty AB, Mandil H, Kashyap VK, **Khan S**, Jaggi M, Yallapu MM, Hafeez BB, Chauhan SC. Next-generation paclitaxel-nanoparticle formulation for pancreatic cancer treatment. ***Nanomedicine***. 2019 Jun 4;20:102027.
4. Sikander M, Malik S, Chauhan N, Khan P, Kumari S, Kashyap VK, **Khan S**, Ganju A, Halaweish FT, Yallapu MM, Jaggi M, Chauhan SC. Cucurbitacin D Reprograms Glucose Metabolic Network in Prostate ancer. ***Cancers*** (Basel). 2019 Mar 14;11(3).
5. **Khan S**, Zafar N, Khan SS, Setua S, Behrman SW, Stiles ZE, Yallapu MM, Sahay P, Ghimire H, Ise T, Nagata S, Wang L, Wan JY, Pradhan P, Jaggi M, Chauhan SC. Clinical

significance of MUC13 in pancreatic ductal adenocarcinoma. ***HPB (Oxford)***. 2018 Jun;20(6):563-572.

6. Pallabita Chowdhury, Prashanth K.B. Nagesh, Elham Hatami, Santosh Wagh, Nirnoy Dan, Manish
7. Stiles ZE, **Khan S**, Patton KT, Jaggi M, Behrman SW, Chauhan SC. Transmembrane mucin MUC13 distinguishes intraductal papillary mucinous neoplasms from non-mucinous cysts and is associated with high-risk lesions. ***HPB (Oxford)***. 2018 Aug 13. doi: 10.1016/j.hpb.2018.07.009.
8. Chowdhury P, Nagesh PKB, **Khan S**, Hafeez BB, Chauhan SC, Jaggi M, Yallapu MM. Development of polyvinylpyrrolidone/paclitaxel self-assemblies for breast cancer. ***Acta Pharm Sin B***. 2018 Jul;8(4):602-614. doi: 10.1016/j.apsb.2017.10.004.
9. Dan N, Setua S, Kashyap VK, **Khan S**, Jaggi M, Yallapu MM, Chauhan SC. Antibody-Drug Conjugates for Cancer Therapy: Chemistry to Clinical Implications. ***Pharmaceuticals*** (Basel). 2018 Apr 9;11(2).
10. **Sheema Khan**, Mara C. Ebeling, Mohammad Sikander, Murali M. Yallapu, Tomoko Ise, Satoshi Nagata, Stephen W. Behrman, Subhash C. Chauhan, Meena Jaggi. MUC13 Interaction with Receptor Tyrosine Kinase HER2 Drives Pancreatic Ductal Adenocarcinoma Progression. ***Oncogene***, June 20, 2016; Doi:10.1038/onc.2016.218.

Additional publications can be found by using the links below.

https://pubmed.ncbi.nlm.nih.gov/?term=sheema+khan&sort=date

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