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### Development of new therapeutic approaches for pancreatic cancer treatment

Pancreatic cancer (PanCa) is the fourth leading cause of cancer related deaths in the United States due to the lack of early diagnosis and poor response to available therapeutics. Thus, identification of newer therapeutic approaches that can aid current therapeutics is highly desirable. We have defined multidimensional roles of MUC13 mucin in the pathogenesis and therapeutics/imaging of PanCa. We have reported that MUC13 is highly expressed in human pancreatic tumors but not in normal pancreas and its expression progressively increases with disease stage and metastasis. MUC13 enhances tumorigenesis through modulation of multiple oncogenes (*HER2*, *PAK1*, *ERK*, metastasin/*S100A4*, *TERT*, *sonic hedgehog (SHH)*, *GATA-1*) associated with tumorigenesis/metastasis and desmoplasia. We have also observed a functional interaction of MUC13 and *HER2* in PanCa cells and identified miR-145 as a tumor suppressor and a novel regulator of MUC13 in PanCa. Additionally, we have identified drugs that inhibit tumor desmoplasia (targets *SHH* pathway) and enhances therapeutic response of gemcitabine, thus, can be of therapeutic benefit for PanCa. Moreover, we have generated unique anti-MUC13 mouse monoclonal (MAb) and recombinant humanized (HuAb) antibodies that can efficiently target pancreatic tumors. Furthermore, we have successfully generated multiple patented nanoparticle formulations for antibody guided tumor specific targeted drug delivery and imaging. Taken together, our data suggest a crucial role of MUC13 in PanCa pathogenesis. Utilization of a novel anti-MUC13 monoclonal antibody can be used for the targeted tumor specific delivery of novel nanoparticle formulations in pancreatic tumors. This research will establish the multifaceted role of MUC13 in pathogenesis of PanCa and advance diagnosis and therapy of PanCa to reduce the morbidity and mortality caused by this devastating disease.

### Biography

Subhash C Chauhan has completed his PhD from Central Drug Research Institute (CDRI), Lucknow, India and received Postdoctoral training from University of Nebraska Medical Center (UNMC), Omaha, NE. He is currently serving as a Professor of Pharmaceutical Sciences at University of Tennessee Health Science Center (UTHSC), Memphis, TN. He has published more than 85 papers in reputed journals and has been serving as an Editorial Board Member for several journals of international repute.

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