

Project #3

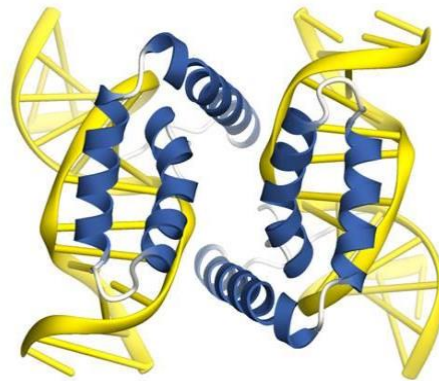
Title: Mechanisms in pancreatic development and breast cancer stemness mitigated by Sox proteins

Description: This proposal seeks to find detailed molecular mechanisms involved in two seemingly disparate areas of pancreatic development and breast cancer stemness. The common thread is Sox2, a transcription factor, implicated in pluripotency and other developmental roles but also shown to be a factor in various cancers. Normal Sox2 maintains stem cells in their pluripotent state but a double mutant was shown to have converted Sox2 into Sox17, an endodermal TF, shown to be critical for pancreatic β cell development. Other Sox proteins have also been implicated in pancreatic development and these will also be studied. This proposal seeks to shed light on the mechanisms driving pancreatic development and at the same time find mechanisms involved in the stemness of breast cancer. The proposal will use an integrative approach and use of biochemistry and structural biology of in vitro systems and combine this with cell biology data from stem cell diabetes and cancer groups within QBRI.

Mentors: Dr. Prasanna R. Kolatkar, Senior Scientist. Email: pkolatkar@hbku.edu.qa
Dr. Zeyaul Islam, Postdoctoral researcher. Email: zislam@hbku.edu.qa



Sox crystals



Structure of Sox17 bound to DNA