TITLE: Identifying molecular mechanisms of prostate cancer using transposon-mediated mutagenesis and mouse models

SUMMARY: Using the Sleeping Beauty (SB) transposon system as a genetic tool, my laboratory has generated new transgenic lines that express the SB transposase in prostate epithelial cells. We have used these lines to conduct somatic mutagenesis screens to discover new genes important for prostate cancer development and/or progression. This work identified phosphodiesterase 4d (PDE4D) as a candidate prostate cancer driver gene and as a candidate drug target in prostate cancer. In related studies, we identified MAGI2 as a candidate driver gene and biomarker for castration resistant prostate cancer. Ongoing research includes further characterization of the molecular pathways impacted by PDE4D and MAGI2 in prostate cancer as well as further development of mouse models for human prostatic diseases.