Delineating the Role of HNF1α in Pancreatic Cancer

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Introduction
Pancreatic cancer is one of the most aggressive cancers due to its high metastatic capability. We have demonstrated that silencing of IGF1R leads to inhibition of pancreatic cancer. Hepatocyte Nuclear Factor 1 Alpha (HNF1α) is one of the transcription factors that was significantly altered in IGF1R silenced pancreatic cancer cells. Studies have shown that HNF1α might play a role in metastasis. However, the mechanism underlying the role of HNF1α in pancreatic cancer growth and metastasis is poorly understood. Hence in this study, we are attempting to investigate the role of HNF1α in pancreatic cancer.

Materials and Methods
Western Blot and RT-PCR analysis were performed to assess the expression levels of HNF1α in normal and pancreatic cancer cell lines. HNF1α was silenced using siRNA in AsPC-1 pancreatic cancer cells. Cell viability was determined using MTS assay. Furthermore, we studied the role of HNF1A silencing on pancreatic cancer metastasis using migration, invasion, and colony formation assays. We also examined the key molecular players involved in proliferation, EMT, and apoptosis using western blot analysis.

Results
On screening a panel of cell lines we observed that the cancer cells express higher levels of HNF1α compared to normal pancreatic cells. Interestingly, the expression of HNF1A was highly upregulated in two (Capan-1 & AsPC-1) of the seven pancreatic cancer cell lines. To delineate the function role of HNF1α in these cell lines we silenced HNF1α gene expression and measured the cell viability. Targeting HNF1α significantly reduced the cell viability by more than 50% in AsPC-1 cells. In addition, we also observed silencing HNF1α decreased the metastatic potential of pancreatic cancer cells. The dysregulated expression profile of key molecular players of proliferation, EMT, and apoptosis suggest the oncogenic role of HNF1α in pancreatic cancer.

Conclusion
We conclude that targeting HNF1α may serve as a potential therapeutic target to treat pancreatic cancer.

Inflammatory Mediators in Diabetic Kidney Dysfunction

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Introduction
Diabetic nephropathy is a very common complication of diabetes which greatly affects the quality of life of the patients. Unfortunately, available medical treatments are relatively ineffective due to side its effects. We have investigated the role of a number of inflammatory mediators including HMGB1 and early injury markers in the diabetic kidney. High mobility group box 1 (HMGB1) protein is a novel biomarker of inflammation and we have recently shown that HMGB1 is up-regulated in diabetic animals. This study is designed to investigate whether blocking HMGB1 by its natural inhibitor Glycyrrhhizin can ameliorate the progression of this debilitating complication.

Materials and Methods
Zucker diabetic fatty (ZDF) rats, an established model for spontaneously diabetic rats were used for Type 2 animal model. Animals with blood glucose level ~300 mg/dl were included as diabetic. We have determined whether there is a direct association between the expression of inflammatory markers, HMGB1, TNFα and IL-1β, and kidney injury markers NGAL, Nestin in the kidney of the diabetic animals, by immunohistochemistry and Western blot analysis.

Results
This study demonstrates that HMGB1-mediated inflammation is involved in the diabetic nephropathy in Type 2 diabetic animals. HMGB1 inhibitor exhibited marked decrease in IL1β, TLR4, TNFα and pp38 expression in the kidney 6 weeks after diabetes.

Conclusion
The pathogenic role of HMGB1 is dependent on TLR4 mediated activation of NFκB in the progression of diabetic nephropathy and interruption of HMGB1-mediated inflammation ameliorates this condition. Successful completion of this study may provide an efficient way to treat this debilitating problem.

Racial Disparities in Traumatic Brain Injury Care Referral in a Hispanic-Majority Population

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Introduction
Traumatic brain injury (TBI) is a leading cause of death in the United States and the largest and most swiftly growing population of these injuries in the United States is among the Hispanic population. Functional outcomes for TBI cases can be significantly improved by post-hospitalization rehabilitation including intensive physical, occupational, and cognitive rehabilitation. This treatment is usually accomplished by discharge to post-hospitalization care following the acute period. In studying the referral to these facilities, Hispanics have been shown to have the lowest physician referral rate. However, this relationship has not been studied in a population where Hispanics are by far the majority. This study seeks to determine if differences exist in referral of TBI patients to post-hospitalization care among ethnic groups in the Hispanic-majority population of El Paso.

Methodology
This study included 1,124 patients over the age of 18 who pre-