The Role of sFRP1 in Conventional Renal Cell Carcinoma

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INTRODUCTION

Renal cell carcinoma (RCC) is the seventh leading cause of cancer death. Renal cell carcinomas are vascular and metastasize relatively late in their evolution, which is problematic for management. Some patients are diagnosed with metastatic RCC at presenting and this is unfortunate as many of these patients can be cured if the tumors are resected at an early stage. Most patients are not diagnosed until the tumor is large and metastatic. This is due to the latency of disease progression and the absence of symptoms associated with RCC. Indeed, the diagnosis of RCC is often delayed until the tumor is large and has metastasized. RCC is highly lethal in the absence of treatment.

SFRP1 is a secreted glycoprotein that inhibits the Wnt signaling pathway. SFRP1 expression is reduced in RCC and many other malignancies. SFRP1 expression has been shown to predict for improved survival in patients with RCC. However, the mechanism by which SFRP1 inhibits Wnt signaling in RCC is not well understood. In this study, we investigate the role of SFRP1 in RCC using a model system of RCC.

RESULTS

sFRP1 Expression is Repressed in Conventional Renal Cell Carcinoma

A. Normal Tissue

B. RCC

C. sFRP1 expression is repressed in RCC. sFRP1 expression is repressed in RCC compared to normal tissue. This is consistent with previous reports showing that SFRP1 expression is reduced in RCC.

sFRP1 Acts as a Tumor Suppressor in cRCC

A. Normal Tissue

B. RCC

C. sFRP1 expression is repressed in RCC. sFRP1 expression is repressed in RCC compared to normal tissue. This is consistent with previous reports showing that SFRP1 expression is reduced in RCC.

Wnt Targets are Up-regulated in cRCC

A. Normal Tissue

B. RCC

C. Wnt targets are up-regulated in RCC. Wnt targets are up-regulated in RCC compared to normal tissue. This is consistent with previous reports showing that Wnt signaling is activated in RCC.

CONCLUSIONS

- Loss of SFRP1 is an early event in cRCC and may be due to methylation-induced silencing
- Activation of the Wnt signaling pathway in cRCC patients may be the result of decreased SFRP1 expression
- SFRP1 demonstrates tumor suppressive activity in cRCC