



Gene signature for predicting progression and prognosis of papillary renal cell carcinoma and potential therapeutic approaches.

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Abstract

Renal cell carcinoma (RCC) is the most prevalent type of kidney cancer with non-clear cell RCC (nccRCC) representing 25% of RCC cases.[1] Papillary renal cell carcinoma (pRCC) is an aggressive type of RCC representing 50-64% of nccRCC cases.[2] As pRCC is a minor RCC type, it has not been extensively studied and current treatment options are limited and ineffective.[3] Effective risk stratification remains challenging in pRCC thus it is important to develop effective prognostic biomarkers and therapeutic approaches to optimize patient management.

Researchers at McMaster have developed a novel multigene signature panel that robustly predicts pRCC metastasis and fatality as well as pRCC prognosis and progression. Further, these researchers have also identified potential treatment avenues for personalized or targeted therapies in patients with metastatic pRCC.

Applications

- Clinical applications in assessing pRCC risk of metastasis, relapse, and fatality.
- Clinical applications in personalized or targeted therapy in patients with metastatic pRCC.

Advantages

- Current methods for diagnosing pRCC are based on clinical features, which lack molecular knowledge that the current multigene panel addresses. Construction of this multigene panel was done through a systematic approach (i.e. not relying on clinical features), allowing for the assessment of pRCC with a high level of precision, which is essential to optimize treatment regime for individual patients.
- Current treatments for patients with pRCC show poor therapeutic benefits. Potential treatment regimens have been identified that could be used for improved therapeutic strategies.

References:

- [1] Cohen HT, and McGovern FJ. Renal-cell carcinoma. *N Engl J Med.* 2005;353(23):2477-90.
- [2] Twardowski PW, Mack PC, and Lara PN, Jr. Papillary renal cell carcinoma: current progress and future directions. *Clinical genitourinary cancer.* 2014;12(2):74-9.
- [3] Courthod G, Tucci M, Di Maio M, and Scagliotti GV. Papillary renal cell carcinoma: A review of the current therapeutic landscape. *Critical reviews in oncology/hematology.* 2015;96(1):100-12.