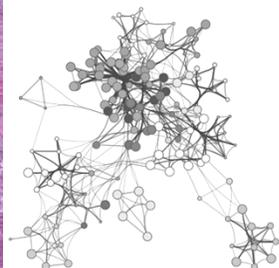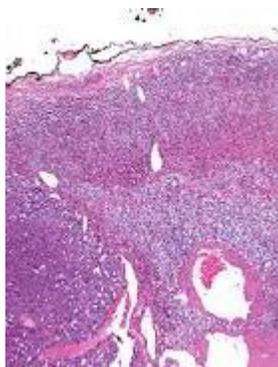# Gene signature for diagnosing kidney and adrenal carcinomas

Gene signature biomarker for diagnosing the progression and prognosis of kidney and adrenal carcinomas

McMaster · Industry Liaison Office

Tech ID

21-026

Inventors

X. Lin

A. Kapoor

Y. Gu

D. Tang

Patent Status

US provisional filed

Stage of Research

Proof of principle data available.

Contact

Amy Hector –

Business Development Officer

905-525-9140 ext. 28642

hectoraj@mcmaster.ca

http://milo.mcmaster.ca

Abstract

Clear cell renal cell carcinoma (ccRCC) is the most prevalent and aggressive type of kidney cancer [1]. Adrenocortical carcinoma (ACC) is an aggressive endocrine carcinoma with a 5-year survival rate of < 50% [2]. For both ccRCC and ACC, surgery remains the main treatment; however, relapse and metastasis are common [3,4]. To optimize treatment benefits and reduce fatality, it is essential to know which cancers are at risk for metastasis and lethal disease. Therefore, a method to effectively diagnose patients with high risk of metastasis and lethal disease is needed.

Researchers at McMaster have developed a novel multigene signature panel that robustly predicts ccRCC metastasis and fatality as well as ACC prognosis and progression.

Applications

- Clinical applications in assessing ccRCC and ACC risk of metastasis, relapse, and fatality

Advantages

- Current methods for accurately diagnosing ccRCC and ACC rely on physical and clinical features, such as tumor stage or Winter hypoxia score which lack molecular knowledge. This gene signature allows for the assessment of ccRCC and ACC with a high level of precision, which is essential to optimize treatment regime for individual patients.

References:

1. Cohen, H.T.; McGovern, F.J. Renal-cell carcinoma. *N Engl J Med* 2005, *353*, 2477-2490.
2. Ettaieb M, Kerkhofs T, van Engeland M and Haak H. Past, Present and Future of Epigenetics in Adrenocortical Carcinoma. *Cancers (Basel)*. 2020; 12.
3. Majer, W.; Kluzek, K.; Bluyssen, H.; Wesoly, J. Potential approaches and recent advances in biomarker discovery in clear-cell renal cell carcinoma. *Journal of Cancer* **2015**, *6*, 1105-1113
4. Gonzalez RJ, Shapiro S, Sarlis N, et al. Laparoscopic resection of adrenal cortical carcinoma: a cautionary note. *Surgery*. 2005; 138: 1078-85; discussion 85-6

Image obtained from:
https://commons.wikimedia.org/wiki/File:Adrenal_cortical_carcinoma_-_low_mag.jpg