MedicalXpress

Study identifies fibroblast growth factor 18 as an ovarian cancer biomarker

September 9 2013

Ovarian cancer is one of the leading causes of cancer-related death in women and is often not detected until the later stages of disease, which contributes to poor prognosis. Biomarkers that can be used for early diagnosis and outcome have been identified; however, many of these have not been evaluated at the biological and clinical levels.

In this issue of the *Journal of Clinical Investigation*, Michael Birrer and colleagues at Massachusetts General Hospital identify fibroblast growth factor 18 (FGF18) as a predictive marker for poor overall survival in ovarian cancer patients.

Overexpression of the gene encoding FGF18 was associated with enhanced tumor blood vessel formation and expression of cancer promoting cytokines. These data indicate that further studies on the predictive potential FGF18 and its use as a therapeutic target in ovarian cancer are warranted.

More information: FGF18 as a prognostic and therapeutic biomarker in ovarian cancer, *J Clin Invest*. DOI: 10.1172/JCI70625

Abstract
High-throughput genomic technologies have identified biomarkers and potential therapeutic targets for ovarian cancer. Comprehensive functional validation studies of the biological and clinical implications of these biomarkers are needed to advance them toward clinical use. Amplification of chromosomal region 5q31–5q35.3 has been used to

predict poor prognosis in patients with advanced stage, high-grade serous ovarian cancer. In this study, we further dissected this large amplicon and identified the overexpression of FGF18 as an independent predictive marker for poor clinical outcome in this patient population. Using cell culture and xenograft models, we show that FGF18 signaling promoted tumor progression by modulating the ovarian tumor aggressiveness and microenvironment. FGF18 controlled migration, invasion, and tumorigenicity of ovarian cancer cells through NF-?B activation, which increased the production of oncogenic cytokines and chemokines. This resulted in a tumor microenvironment characterized by enhanced angiogenesis and augmented tumor-associated macrophage infiltration and M2 polarization. Tumors from ovarian cancer patients had increased FGF18 expression levels with microvessel density and M2 macrophage infiltration, confirming our in vitro results. These findings demonstrate that FGF18 is important for a subset of ovarian cancers and may serve as a therapeutic target.

Provided by Journal of Clinical Investigation