#4951 - FGFRL1 in prostate cancer progression

Abstract

Prostate cancer (PCa) is a disease with high incidence, however, many PCa patients are over-diagnosed and over-treated. Molecular characterization of PCa provides a valid approach to stratify patients, and thus reduce overtreatment. Fibroblast growth factors and their receptor (FGF/FGFR) signaling pathways are involved in various cellular functions such as proliferation, differentiation, migration, and apoptosis of prostate cancer cells. Dysregulated and constitutively activated FGF/FGFR pathways have been shown to be involved in the initiation and progression of prostate cancer.

Background

FGFR5 is the most recently identified member of the FGFR family. FGFRL1 binds several FGFs but its short intracellular part lacks a tyrosine kinase domain, required for FGF induced signaling. Cellular functions of FGFRL1 remain poorly understood. In silico data analysis indicated altered FGFRL1 mRNA expression in 17% of PCa cases. To date, there have been no systematic studies of FGFRL1 expression and function in prostate and PCa.

Materials and Methods

To investigate and validate the putative role of FGFRL1 protein in normal prostate and PCa, tissue microarrays (TMAs) containing different types of benign and malignant prostate tissue were used. Altered FGFRL1 protein expression was correlated with clinical parameters. Both in vitro and in vivo experiments were applied to study the biological functions of FGFRL1 in PCa cell lines.

Results

- FGFRL1 was significantly increased in PCa compared to normal tissue.
- FGFRL1 significantly associated with Gleason Score, preoperative PSA, and Ki-67 expression.
- FGFRL1 expression is related to adverse clinicopathological findings.
- FGFRL1 knockdown PC3M cell lines had slightly increased growth after 4 days.
- Xenografts of PC3M cells with lower levels of FGFRL1 generated smaller tumor volumes than control.

Summary

- Our results suggest that FGFRL1 may play an active role in PCa cells and in tumor progression. Thus, FGFRL1 can possibly be used to assess PCa prognosis.