General information

Conference Dates
May 24-25 2019

Conference Venue
Clinical and Didactic Centre, Medical University of Lodz
Lodz, 251 Pomorska St. 92-213 Łódź

Official Language
English

Conference internet service
http://jpm.umed.pl
JPMConference
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Organizers

Organizing Committee

President of JPM 2019 Conference & Chairman of Students’ Scientific Association: Magda Barańska
Vice-president of JPM 2019 Conference & Deputy chairman of Students’ Scientific Association: Magdalena Kowalczyk
Secretary of JPM 2019 Conference & Students’ Scientific Association: Adrianna Owczarek
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External Affairs Coordinator: Filip Karuga

External Affairs Team: Jagienka Szulc, Elizaveta Borkowska
Workshops Coordinator: Magdalena Kowalczyk

Members of the Organising Committee: Aneta Basiak, Leon Pawlik, Emilia Walczak
ONCOLOGY

COORDINATORS
Joanna Gadzinowska
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JURY
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Professor Wojciech Piekarski MD, PhD
Dr hab. Hanna Romańska-Knight, MD, PhD
Dr hab. Piotr Hogendorf, MD, PhD
WWOX possesses duality of function in molecular pathways associated with AP-2α and AP-2γ in bladder cancer.

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Introduction

WWOX tumor suppressor interacts with several transcription factors such as AP-2α and AP-2γ. Based on literature data, WWOX protein represses oncogenic activity of AP-2γ in cytoplasm through inhibition of its transfer to nucleus and therefore impedes expression of target genes for this transcription factor. In terms of AP-2α, the molecular mechanism is not unequivocal since depending on cancer type it may behave as suppressor or oncogene, which introduces uncertainty in its function. Preliminary bioinformatic analysis demonstrated that WWOX gene can have different function (as a suppressor or oncogene) by modulating diverse cellular pathways activated via AP-2α and AP-2 transcription factors in bladder cancer.

Aim of the study

The purpose of presented research was to determine molecular pathways that can be regulated by WWOX protein interacting with AP-2α and AP-2γ in bladder cancer cell lines with different grade status.

Material and methods:

Therefore, we created two in vitro cell lines models with different level of WWOX and high expression of TFAP2A and TFAP2C for RT-112 cell line (grade 2) and CAL-29 cell line (grade 4), respectively. For this purpose, carried out tests were focused on apoptosis (Muse® MultiCaspase Assay Kit), cell cycle (Muse® Cell Cycle Assay Kit), and selected transcription factors' target genes expression and genes connected with EMT process – CDH1, ZEB1, EZR (RT-qPCR).

Results

In RT-112 cell line variant with high WWOX/high TFAP2A we observed increased expression not only of target genes such as Ezrin (EZR), Forkhead box protein A1 (FOXA1), Krüppel-like factor 4 (KLF4), Cyclin-dependent kinase inhibitor 1A (CDKN1A, p21), but also genes connected with epithelial phenotype (CDH1) and mesenchymal phenotype (ZEB1). In CAL-29 bladder cancer cells with high WWOX/highTFAP2C, we noticed higher level of SMAD4, IKBKB, TP63 genes but lower CDH1 and ZEB1. However, analysis of programmed cell death revealed that overexpressed WWOX gene has anti-apoptotic properties in both RT-112 and CAL-29. It is consistent with results obtained from cell cycle for CAL-29 line, within which WWOX induced cells transition from the G0/G1 phase to S and G2/M phases.

Conclusions

Taken together, our study indicates that WWOX gene exhibits duality of function in bladder cancer, depending on differentiation of cancer cells and interaction with partners.