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## The proteins of retinoblastoma pathway, FEN1 and MGMT are novel potential prognostic biomarkers in pancreatic adenocarcinoma

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**Objectives:** We have studied the expressions of some major proteins involved in cell cycle regulation and DNA repair, which have got less attention in previous literature in pancreatic ductal adenocarcinoma (PDAC), but have significant impact on carcinogenesis of many other cancers.

**Methods:** We assessed immunohistochemically the expression levels of cell cycle regulators Rb, p16, cyclin dependent kinase 4 (CDK4) and cyclin D1 and DNA repair enzymes O6-methylguanine-DNA-alkyltransferase (MGMT) and flap endonuclease-1 (FEN-1) separately in malignant tissue and benign tissue from resection margins in 102 PDAC patients who undergone pancreaticoduodenectomy.

**Results:** The studied proteins showed wide but varying expression in both benign and malignant pancreatic tissues. Strong CDK4 expression in islets of Langerhans predicted poor relapse-free survival (RFS) (HR 2.874; 95% CI 1.261-6.550; p=0.012) and within T3-4 tumors CDK4 expression in adenocarcinoma cells predicted also poor disease-free survival (DFS) (RR 2.148; 95% CI 1.081-4.272; p=0.029). Within N1 patients, nuclear cyclin D1 expression in malignant cells associated with better DFS (RR 0.488; 95% CI 0.224-0.976; p=0.042). Strong MGMT expression associated in N1 patients with dismal RFS, DFS and overall survival, all significantly in cox regression analysis. FEN1 was also an independent predictor of poor DFS (in the whole study population) and worse RFS (in the patients with T3-4 tumors).

**Conclusion:** Major cell cycle regulators and DNA repair enzymes appear to have a notable prognostic role in PDAC, especially in the most aggressive ones. Based on other tumor types, their expression may also have predictive significance, but further studies are required to evaluate this.

### Biography

Joel Isohookana is pursuing his Doctoral degree from Faculty of Medicine in University of Oulu. He has published 3 papers in reputed peer-reviewed journals and presented his previous research findings in International Pancreas Spring Meeting Gottingen Germany, May 2017.

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