学位の種類	博士（医学）
報告番号	甲第１５０８号
学位記番号	第１０７９号
氏名	堀　寧
授与年月日	平成 28 年 3 月 25 日
学位論文の題名	Impact of TP53 codon 72 and MDM2 SNP 309 polymorphisms in pancreatic ductal adenocarcinoma （膵管腺癌における TP53 経路の異常：とくに TP53 codon 72 と MDM2 SNP309 の変異パターンについて） PLoS One. 2015; 10(3): e0118829
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Abstract

Background: Single-nucleotide polymorphisms (SNPs) of TP53 (codon 72, rs1042522) and MDM2 promoter (SNP 309, rs2279744) have been associated with risk for various human cancers. However, studies analyzing these polymorphisms in pancreatic ductal adenocarcinoma (PDAC) are lacking.

Methods: We investigated TP53 codon 72 and MDM2 SNP 309 polymorphisms in 32 patients with PDAC, 16 patients with chronic pancreatitis (CP), and 32 normal controls, using formalin-fixed paraffin-embedded tissue. We also examined TP53 and MDM2 protein immunohistochemistry (IHC) to assess the involvement of these differences in malignant transformation and disease progression.

Results: TP53 Pro/Pro genotype was significantly more frequent in PDAC patients than in controls (65.6 vs. 15.6%, $p < 0.001$) and no significant difference was found between CP patients (37.5%) and controls. In MDM2 SNP 309, there were no significant differences among the three groups. Based on the Kaplan-Meier analysis, overall survival was significantly shorter in MDM2 G/G genotypes compared with other genotypes (G/T and T/T) (359 vs. 911 days, $p = 0.016$) whereas no significant differences in TP53 genotypes were observed (638 vs. 752 days, $p = 0.471$). Although TP53 IHC was frequent in PDAC patients (53.1%), TP53 and MDM2 protein expression was not correlated with polymorphisms.

Conclusion: Our study demonstrated TP53 codon 72 polymorphism is potentially a genetic predisposing factor while MDM2 SNP 309 polymorphism might be useful in predicting survival outcome.