hypermethylation is observed frequently in colorectal tumors and its overexpression is associated with unfavorable outcomes in patients with colorectal cancer. Yutaka Suehiro, Yuji Hinoda

Although growing evidence demonstrates that TWIST1 is an interesting tumor biomarker, little is known about the clinical significance of TWIST1 expression and TWIST1 methylation in human primary colorectal cancer. In this study, we examined the association of TWIST1 expression and TWIST1 methylation with clinicopathologic features in human primary colorectal tumors. Primary colorectal cancer (CRC) specimens from 319 patients, corresponding normal colorectal nontumorous mucosa from 251 patients with cancer, and colorectal adenomas from 189 patients were used. Methylation and expression levels of TWIST1 were compared with clinicopathologic features. The TWIST1 methylation level was higher in colorectal adenoma and cancer than in normal colorectal mucosa. Elevated TWIST1 mRNA expression in normal colorectal mucosa in patients with CRC as well as in primary CRC specimens was associated with unfavorable outcomes. There was no correlation between TWIST1 methylation and TWIST1 expression. Our results suggest that TWIST1 methylation may be a useful biomarker for screening colorectal tumors. In addition, TWIST1 mRNA expression is a possible molecular marker for predicting the outcome in patients with CRC. Confirmatory studies using independent data sets are needed to confirm our findings.

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【背景・目的】
TWIST1 は転写因子であり、epithelial-mesenchymal transition (EMT) 調節を介して胚発生に関与する。腫瘍においては TWIST1 の発現が EMT を促進し、種々の癌での悪性度と相関していることが報告されている。大腸癌における TWIST1 の意義はほとんど検討されておらず、この点を明らかにするために本研究を行った。

【材料と方法】
251 例の大腸粘膜、189 例の大腸腺腫、319 例の大腸癌組織を用いた。DNA を抽出後、バイサールサイト処理を行い、Methylation-specific PCR (MSP)、combined bisulfite restriction analysis (COBRA)、bisulfite sequencing 法にて TWIST1 メチル化解析を行った。また、TaqMan 法にて TWIST1 発現レベルを解析した。
