BACKGROUND AND PURPOSE: Far-upstream element-binding protein-interacting repressor (FIR) is a c-myc gene transcription inhibiting factor. In colorectal cancers, a splicing variant form of FIR that lacks exon 2 of the transcription suppression domain (FIRΔexon2) is overexpressed. Accordingly, c-myc gene transcription was activated due to a dominant negative effect of FIR. Recent studies also showed that the upregulated expression of FIRΔexon2 was detected in numerous malignancies such as colorectal cancers, liver cancer, acute leukemia, and lung cancer. In this study, the existence of anti-FIR/FIRΔexon2 (FIRs) antibodies was examined in the serum of colorectal cancer patients before and/or after surgical operation to establish a novel cancer detection method.

MATERIALS AND METHODS: Purified protein of the FIRΔexon2 (513 amino acids) was prepared. The presence or absence of autoantibodies for FIRs in the sera of 87 colorectal cancer patients and 42 healthy controls was examined by dot blot assay. We compared the diagnostic value of anti-FIRs antibodies with the anti-p53 antibodies, CEA, or CA19-9 as tumor markers. Written informed consents were obtained from all participants prior to the study.

RESULTS: Anti-FIRs antibodies were detected in 28 preoperative serum of colorectal cancer patients (32.2% of positive rates). Detection rate was significantly higher than that of healthy control serum (p<0.01). The level of anti-FIRs antibodies was significantly decreased after the operation (p<0.01). Anti-FIRs antibodies were detected even in the cases that anti-p53 antibodies, CEA nor CA19-9 were not detected. Furthermore, the AUC (area under curve) of ROC (Receiver operating characteristic) for anti-FIRs antibodies was significantly larger (0.85) than those of anti-p53 antibodies or CA19-9.

DISCUSSION: A better detection system needs to be developed for the clinical diagnostic use such as ELISA. In conclusion, anti-FIRs antibodies are a promising candidate for the diagnostic application and/or the postoperative monitoring of colorectal cancer patients.
【結果】
大腸癌患者術前血清中には抗FIRs自己抗体が28件（陽性率32.2％）認められ、健常者血清0件（0％）と比較して有意に検出率であった（p<0.01）。術後血清では抗FIRs自己抗体は有意に低下した（p<0.01）。抗p53抗体、CEA、CA19-9が検出されなかった大腸癌患者血清でも抗FIRs自己抗体を検出した。
ROC（Receiver operating characteristic）曲線で解析した結果、抗FIRs自己抗体のAUCは0.85と良好であった。

【考察】
今後、抗FIRs自己抗体のELISAによる迅速かつ正確な検出系の確立を目指し、抗FIRs自己抗体の新規腫瘍マーカーと術後モニタリングマーカー候補の検討や診断応用を目指す。

【文献】