

TGF- 1 가

Increase of Plasma TGF- 1 Level in Colorectal Cancer Patients

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Purpose: Many kinds of malignant tissues, including rectal cancer were reported to overexpress transforming growth factor- 1 (TGF- 1) gene. However, little has been done on the circulating TGF- 1 and the association of TGF- 1 with progression in patient malignant tumors. In this study, we measured the plasma level of TGF- 1 in colorectal cancer patients.

Methods: Enzyme-linked immunosorbent assay (ELISA) was used to measure plasma TGF- 1 level in 52 colorectal cancer patients and 290 normal controls. And carcinoembryonic antigen (CEA) as a tumor marker was compared with TGF- 1 in the aspects of sensitivity and specificity.

Results: The mean plasma TGF- 1 levels were 1.21 ± 0.834 (0.272 - 5.772) ng/mL in normal control and 8.428 ± 2.428 (1.392 - 39.241) ng/mL in colorectal cancer patients. TGF- 1 is more potent in cancer diagnosis than CEA.

Conclusions: The results of this study suggest that plasma TGF- 1 level can be a useful tumor marker in colorectal cancer patients. **JKSCP 2001;17:135-14**

Key Words: CEA, Colorectal cancer, ELISA, TGF- 1, Tumor marker

(Transforming growth factor, TGF)

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(: 463-400)
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, TGF- 1 TGF- 1
(bone morphogenetic protein), (activin),
(inhibin)
TGF- 1 25 kDa ,
(disulfide)
(homodimer) . TGF- 1
TGF- 1 in vitro
(,)
가 TGF- 1
TGF- 1
가 가
TGF- 1
G1
3
fibronectin, laminin, collagen, integrin, proteoglycan
4-6
1,2
TGF- 1
TGF- 1
7,8 TGF- 1
TGF- 1

가
450 nm,
TGF- 1 570 nm
(car- 가 2 well
cinoembryonic antigen, CEA) CV(%) 10
TGF- 1
3)
TGF- 1
1) 가 ROC (Receiver Operating Charac-
teristic) . ROC
cut-off value (sensitivity)
52 1- (specificity)
290 (sensitivity)
, (specificity)
EDTA . ROC TGF- 1
3,000 rpm 20
4°C
1.5 mL -70°C
2) TGF- 1
TGF- 1 ELISA
Human TGF- 1 immunoassay kit 4)
(R&D Systems, Minneapolis, MN) - 50 (- 52
290) TGF- 1
(latent) TGF- 1
100 µL 2.5 N acetic
acid/ 10 M urea () 2.7 N NaOH/ 1
M HEPES
TGF- II 가 coat-
ing 96 well (specificity) (sensiti-
200 µL vity)
(20 25°C) 3
200 µL TGF- 1 -HRP (horseradish peroxidase)
conjugate well 1 30 1) - TGF- 1
TGF- 1 -HRP conjugate TGF- 1
3 200 µL 20 1.219±0.834 (0.272 5.772) ng/mL, -
50 µL 8.207±2.428 (1.392 39.241) ng/mL
가 30 (Table 1), TGF- 1

가 (Fig. 1).

2) ROC

TGF- 1 ROC Fig. 2

ROC

90% 2.0 ng/mL

Table 2

(2.0 ng/mL)

TGF- 1

(cut-off value)

3) (CEA)

McNemar

, TGF- 1

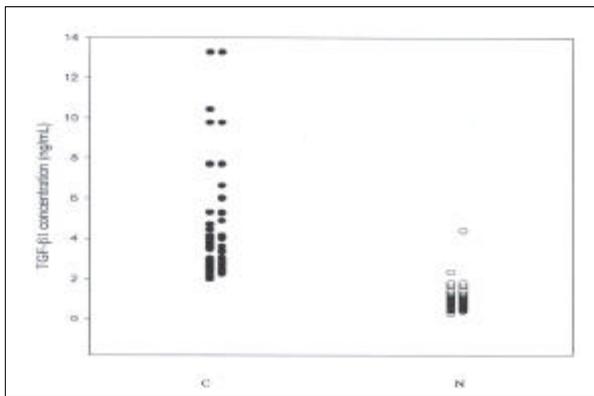


Fig. 1. Distribution of TGF- 1 concentration in the plasma of colorectal cancer patients and normal controls (ng/mL).

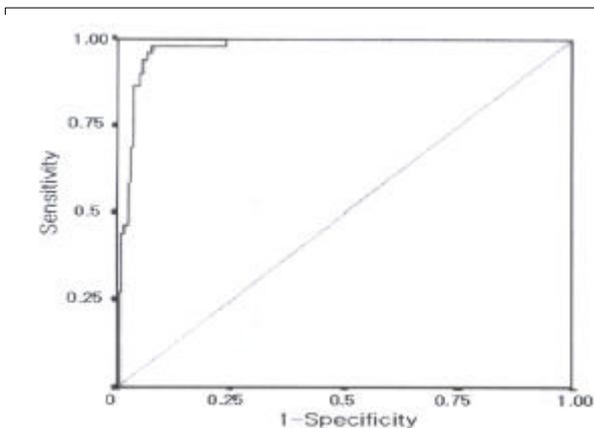


Fig. 2. ROC curve of colorectal cancer patients.

(CEA) 42% (50 21), TGF- 1 94% (50 47)

Table 1. TGF- 1 concentrations (ng/mL) in the plasma of colorectal cancer patients and normal controls

	Plasma TGF- 1 concentration (Range)	Tested number
Colorectal cancer	8.207 ± 2.428* (1.392 - 39.241)	52
Normal	1.219 ± 0.834* (0.272 - 5.772)	290

*Data = Mean ± Standard deviation

Table 2. Sensitivity and specificity of ROC curve according to TGF- 1 concentration (ng/mL)

TGF- 1 concentration (ng/mL)	Sensitivity	Specificity
1.8370	0.981	0.910
1.8415	0.981	0.914
1.8455	0.981	0.917
1.8790	0.981	0.921
1.9130	0.962	0.921
1.9180	0.962	0.924
1.9395	0.962	0.928
1.9625	0.962	0.931
1.9890	0.962	0.934
2.0460	0.942	0.934
2.1045	0.942	0.938
2.1950	0.942	0.941
2.2755	0.923	0.941
2.3005	0.923	0.945
2.3200	0.904	0.945
2.3320	0.904	0.948

Table 3. Comparison of sensitivity and specificity with CEA in colorectal cancer patients and normal controls (p= 0.0000)

Tumor marker	CEA	TGF- 1
Sensitivity	21/50	47/50
(Colorectal cancer 50 case)	(42%)	(94%)
Specificity	50/50	50/50
(Normal 50 case)	(100.0%)	(100.0%)

Cut-off value: CEA < 4.5 ng/mL, TGF- 1 < 2.0 ng/mL

p-value 0.0000
(CEA)

TGF- 1
가

, AFP (alpha-feto protein)
²³

()가 (Table 3).
50

TGF- 1

TGF- 1
TGF- 1

TGF- 1

TGF- 1
50

TGF- 1

TGF- 1
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TGF- 1

TGF- 1

TGF- 1

TGF-

TGF- 1

1

²⁰

, , ,
1

TGF- 1 (1,219 ng/mL)+2
(0.834 ng/mL) 2.887 ng/mL
⁹⁻¹⁴ TGF- 52 10 (19.2%)
+1 2.053 ng/mL
52 3 (5.8%)

ROC 2.0 ng/
mL 52
2 (3.8%)

¹⁵ ¹⁶

TGF- 1

TGF- 1

¹⁷⁻¹⁹

TGF- 1

TGF- 1 가

2
TGF- 1

가

Shim ²⁰
가

가

TGF- 1

TGF- 1

TGF- 1 mRNA 2
가 TGF- 1 가

TGF- 1

1

가 TGF-
가 ²¹

TGF- 1 가

가 , TGF- 1 가

TGF- 1

가

가

TGF- 1

가

²²

TGF- 1

TGF- 1

TGF- 1
1
2
TGF- 1
TGF- 1
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가 . TGF- 가

ELISA TGF- 가 (species) 가

. TGF-

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가 TGF- 1 가

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TGF- 1

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TGF- 가

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ELISA TGF- 1 TGF- 1

