

The Expression of Integrins in Korean Breast Cancer Patients

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Purpose: Integrins are cell surface proteins that anchor the cells to the extra-cellular matrix. It has recently been found that integrins are involved in proliferations, migration, differentiation and survival signal transduction. We studied the expression of integrins in normal and cancer tissue of Korean breast cancer patients, and investigated the relationship between integrin expression and the characteristics of breast cancer.

Methods: Normal and malignant breast tissues were taken from 25 breast cancer patients who were admitted to the Ajou University Hospital. Specimens were immediately preserved in a nitrogen tank at the time of the operation. Total RNA was extracted, and semi-quantitative reverse transcriptase polymerase chain reactions (RT-PCR) performed with PCR primers for integrin 1, 2, 5, and v, and integrin 1, and 3. The integrin expressions were compared between the normal and malignant tissues, and the expressions were analyzed in relation to tumor characteristics.

Results: Integrin 1, 5, v, 1, and 3 were significantly over-expressed in breast cancer tissue than in normal tissue. There was no difference in integrin 2 expression between the normal and cancer tissues. Integrin 1 was over-expressed to a greater extent in lower histological grade carcinomas and to a lesser extent in high grade tumors. Hormonal receptor positive tumor tissue had more v, 5, and 1 integrin expressions. There was no significant relationship between integrins and tumor size, lymph node meta-

stasis, lymphovascular involvement, or c-erb-B2 expression. **Conclusions:** Integrins 1, 5, v and 3 were over-expressed in malignant breast tissue to a greater extent than in normal tissue. However, studies on the localization of integrin expression in cancer tissue, and co-relations of integrin over-expressions, with survival and drug sensitivity, must be followed to evaluate the clinical value of integrin expression. (J Korean Surg Soc 2003;64:14-19)

Key Words: Breast cancer, Integrin, Reverse transcriptase polymerase chain reaction (RT-PCR)

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Table 2. Characteristics of breast cancer

Tumor characteristics		Number
Tumor stage	T1	6
	T2	16
	T3	2
	T4	1
Lymph node metastasis	Negative	13
	Positive	12
Histologic grade	1	6
	2	9
	3	10
Estrogen receptor	Positive	17
	Negative	8
C-erb-B2	Positive	10
	Negative	15
Lymphovascular invasion	Positive	8
	Negative	17

Table 3. Expression of integrin subunit in normal tissue and breast cancer

				Number	P value
Integrin 1	T	N		5	0.000
	T > N			20	
Integrin 2	T	N		12	0.451
	T > N			13	
Integrin 5	T	N		5	0.000
	T > N			20	
Integrin v	T	N		5	0.000
	T > N			20	
Integrin 1	T	N		11	0.301
	T > N			14	
Integrin 3	T	N		8	0.003
	T > N			17	

Statistic analysis was done with SPSS, wilcoxon signed ranks test.

GAPDH INT 1 INT 2 INT 5 INT v INT 1 INT 3
 (N: normal, T: tumor)
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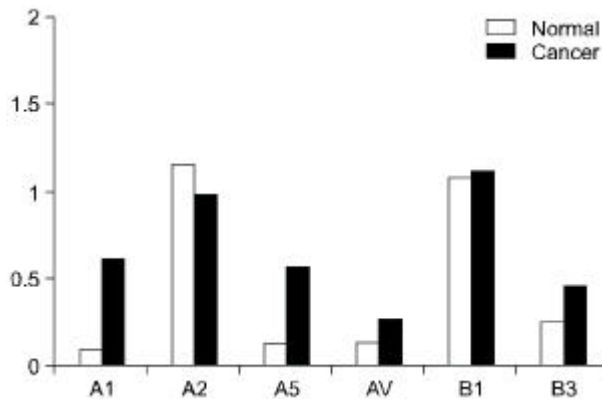
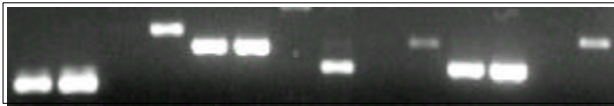


Fig. 1. Results of semiquantitative RT-PCR. RT-PCR products was read by densitometry and compensated by GAPDH expression.

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 5
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RT-PCR
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가 RT-PCR mRNA
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가 1990 Zutter (6) 2 1 integrin 가 mRNA 가 가 RT-PCR mRNA
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가 Gasparini (19)

Wilcoxon Signed ranks test
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가 가 가 , c-erb-B2

(P=0.093)

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 mRNA
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 v 3
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 v 1 가
 1 가
 가
 c-erb-B2
 RT-PCR
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