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ERC/mesothelin is expressed in human gastric cancer tissues and cell lines

(胃癌細胞株、胃癌組織を用いた ERC/mesothelin 発現の証明)

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Abstract

Previously, we found that the *ERC (Expressed in Renal Carcinoma)* gene was preferentially expressed in renal cancers in the Eker rat. ERC/mesothelin is expressed in mesothelioma and other malignancies. The ERC/mesothelin gene (*MSLN*) encodes a 71 kDa precursor protein, which is cleaved to yield 31 kDa N-terminal (N-ERC/mesothelin) and 40 kDa C-terminal (C-ERC/mesothelin) proteins. N-ERC/mesothelin is a soluble protein and has been reported to be a diagnostic serum marker of mesothelioma and ovarian cancer. Gastric cancer tissue also expresses C-ERC/mesothelin, but the significance of serum N-ERC levels for diagnosing gastric cancer has not yet been studied. We examined the latter issue in this study as well as C-ERC/mesothelin expression in human gastric cancer tissues and cell lines. We immunohistochemically examined C-ERC/mesothelin expression in tissue samples from 50 cases of gastric cancer, and we also assessed the C-ERC/mesothelin expression of 6 cancer cell lines (MKN-1, MKN-7, MKN-74, NUGC-3, NUGC-4 and TMK-1) using the reverse transcription-polymerase chain reaction, flow cytometry, immunohistochemistry, and immunoblotting. We also examined the N-ERC/mesothelin concentrations of the supernatants of cultured cells and the sera of gastric cancer patients using an ELISA. N-ERC/mesothelin was detected in the supernatants of 3 cell lines (MKN-1, NUGC-4, and TMK-1) by ELISA, but its concentration in the sera of gastric cancer patients was almost same as that observed in the sera of the normal controls. In the gastric cancer tissues, C-ERC/mesothelin expression was associated with lymphatic invasion, as reported by Einama et al. N-ERC/mesothelin was secreted into the supernatants of gastric cancer cell lines, but did not appear to be a useful serum marker of gastric cancer.