PURPOSE: The aim of this study was to evaluate the possibility of using a monoclonal antibody against exon 9 deleted E-cadherin (E-cad delta 9-1) for immunotherapy of gastric cancer.

METHODS: Among nine human diffuse-type gastric cancer cell lines, we selected a cell line expressing exon 9 deleted E-cadherin (HSC-45M2) by direct sequencing. Tumor specificity and tumor specific in vivo targeting of E-cad delta 9-1 were evaluated in nude mouse bearing a tumor derived from HSC-45M2 cell line by immunohistochemical staining. The expression rate of E-cad delta 9-1 was evaluated in 299 gastric cancer patients, and in positive cases, the mutational status of E-cadherin exon 9 was examined.

RESULTS: Immunohistochemical staining of various tissues from nude mice showed that only tumor tissue reacted with E-cad delta 9-1. However, immunohistochemical staining of the same tissues after systemic injection of E-cad delta 9-1 showed that reticuloendothelial and hypervascular organs reacted with E-cad delta 9-1, but tumor tissue showed only a slight reaction. Evaluation of the reactivity of 299 gastric cancer patients to E-cad delta 9-1 showed that 4.8% (9/187) of patients, who all had diffuse- or mixed-type gastric cancers, reacted positively, but none of the 112 intestinal-type gastric cancer patients reacted positively. Two of 9 patients (22%) with positive staining to E-cad delta 9-1 were confirmed to have...
mutant forms of E-cadherin exon 9. CONCLUSION: Considering that E-cad delta 9-1 showed good tumor specificity and that some diffuse-type gastric cancers were immunopositive to it, this antibody could be a candidate therapeutic antibody against gastric cancers that express mutant E-cadherin.