

Expression of AIMP1, 2 and 3, the scaffolds for the multi-tRNA synthetase complex, is downregulated in gastric and colorectal cancer

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ABSTRACT

Aminoacyl-tRNA synthetase-interacting multifunctional proteins (AIMPs) form a protein complex with aminoacyl-tRNA synthetases. In addition to protein translation, AIMPs play a role in diverse biological processes. Earlier studies suggested that AIMPs may act as tumor suppressors. However, the expression status of the AIMP proteins in human cancer tissues is largely unknown. In this study, we analyzed the expression of AIMP members (AIMP1, AIMP2 and AIMP3) in gastric cancer (GC) and colorectal cancer (CRC) tissues. We analyzed the expression of these proteins in 100 GC and 103 CRC tissues by immunohistochemistry using a tissue microarray method. Normal gastric and colon mucosa expressed AIMP1, AIMP2 and AIMP3 in nearly all of the cases (95-100%). However, the expression of AIMP1, AIMP2 and AIMP3 was significantly decreased in the GC samples (60%, 52% and 70% of the cases, respectively) and in the CRC samples (66%, 53% and 81% of the cases, respectively) ($P < 0.01$). Expression of AIMP1, AIMP2 or AIMP3 was not associated with clinicopathological parameters including differentiation, depth of invasion and TNM stage. The decreased expression of AIMP1, AIMP2 and AIMP3 in the GC and CRC tissues compared to the corresponding normal tissues suggested that downregulation of these proteins may be related to inactivation of the tumor suppressor functions of AIMP proteins and might play a role in the development of GC and CRC.

Key words: AIMP1, AIMP2, AIMP3, expression, gastric cancer, colorectal cancer.

Acknowledgments: This study was supported by a grant from the National Research Foundation of Korea (2010-0021159).

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Received August 2, 2010;
accepted December 28, 2010.