

Publication

AMACR expression in colorectal cancer is associated with left-sided tumor localization

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Alpha-methylacyl-CoA racemase (AMACR) is an enzyme playing an important role in the beta-oxidation of branched-chain fatty acids and fatty acid derivatives. Altered expression levels of AMACR have been described in various cancers including colorectal cancer (CRC). To determine the potential prognostic impact of AMACR expression, we analyzed 1,315 CRC on a tissue microarray (TMA) by immunohistochemistry (IHC). Clinical follow-up data were available from all cancer patients. Positive AMACR staining was observed in 1,074 (81.7%) of the 1,315 cases including 276 cancers with weak (21.0%) and 798 cancers with strong staining (60.7%). AMACR IHC was significantly associated with tumor grade, stage, non-mucinous phenotype, and left-sided tumor localization ($p < 0.0001$ each). AMACR positivity was observed in 65.8% of cancers from the right-sided colon, in 73.2% of cancers from the colon transversum, in 81.1% of cancers from the colon descendens, and in 88.9% of the distal left-sided cancers (sigma and rectum; $p < 0.0001$). However, AMACR staining results were unrelated to clinical outcome. It is concluded that AMACR cannot serve as a prognostic marker in CRC. We hypothesize that the association of AMACR expression with tumor localization may be related to differences in the metabolism/exposure to fatty acids occurring along the colon.

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