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The polarity regulatory PAR complex expression in colorectal adenocarcinoma: Correlation with clinical characteristic and prognosis

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Partitioning defective (Par) proteins regulate cell polarity and differentiation. Par3, Par6β, and protein kinase Cζ (PKCζ), which are PAR complex members, have been shown to be associated with oncogenesis and progression. Herein, we report the expression pattern and clinical relevance of Par3, Par6β, and PKCζ in colorectal adenocarcinoma (CRAC). A total of 393 primary CRACs, 41 primary-metastatic CRAC pairs, 41 adenomas with low-grade dysplasia, and 41 non-tumor colorectal tissue samples were examined by immunohistochemistry and western blot assays for Par3, Par6β, and PKCζ protein expressions. The association Par3, Par6β, and PKCζ expressions and clinicopathological factors, including patient survival, was evaluated. Primary CRACs and adenomas demonstrated higher levels of Par3, Par6β, and PKCζ than in non-tumor colorectal epithelia. The expressions of Par3, Par6β, and PKCζ were higher in primary CRACs as compared to adenomas or in metastatic CRACs. Among primary CRACs, decreased Par3 expression was found to correlate with a high proliferation rate and poor histological differentiation, decreased PKCζ expression was correlated with pathological TNM stage (I-II versus III-IV) and lymph node metastasis, and decreased Par6β and PKCζ expressions were correlated with shortened overall survivals. In metastatic CRACs, decreased PKCζ expression was correlated with a shortened metastasis-free survival. While increased Par3, Par6β, and PKCζ expressions were implicated in tumorigenesis, decreased expressions of Par3, Par6β, and PKCζ were found to be associated with worse clinicopathological factors in CRAC. In particular, the results of our study suggest that PKCζ down-expression is an independent poor prognostic and metastatic factor for CRAC.

Biography

Min-kyung Yeo has completed her Medical degree at Chungnam National University, Daejeon, South Korea in 2007 and PhD in 2015 at the same university. She is working as an Assistant Professor in the Department of Pathology at Chungnam National University Hospital, Daejeon, South Korea.

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