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Studying methylation status of p16, p14, MLH1, APC and UNC5C in the plasma as diagnostic biomarkers of colorectal cancer

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Colorectal cancer, in spite of different screening strategies is detected in late stages in Iranian patients. Hence, we aimed to study if different epigenetic markers could be helpful in detecting colorectal cancer in any stages. We studied 50 patients (25 males and 25 females) affected with colorectal cancer. Plasma of patients was extracted before any surgical operations. After extraction of free DNA in the plasma, the methylation status of P16, P14, MLH1, APC and UNC5C in the plasma of these patients in comparison with the plasma of normal controls was studied by High Resolution Melting Curve Analysis technique. It was shown that P14, P16 and MLH1 were not methylated in the plasma of these patients. Three sites in CpG islands of P14, P16 and MLH1 were studied by this technique. Three sites of UNC5C were studied by HRM. It was shown that 15%, 32.5% and 12.5% of DNA plasma samples in patients with colorectal cancer were methylated from 12.5% to 75%. Also, three sites of APC gene were studied in these patients. In addition, three sites of APC gene were studied by HRM. In 50%, 75% and 70% of patients, APC was methylated in plasma samples. Plasma samples of normal controls was studied too and it was shown that none of the genes in the plasma samples of normal controls was methylated. This study shows that UNC5C and APC methylation can be considered as good candidates for diagnosis of colorectal cancer though more studies are needed before considering them as markers.

Biography

Ladan Teimoori-Toolabi has completed her MD, PhD and Postdoctoral studies from Pasteur Institute of Iran. She is an Associate Professor in Molecular Medicine Department of Pasteur Institute of Iran. She has published more than 35 papers in reputed journals in ISI and has been serving as an Editorial-Board Member of two journals.

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