Downregulation of ADAMDEC1 Correlates with Tumor Progression and Metastasis in Colorectal Cancer: a Bioinformatic Study

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Background: Colorectal cancer (CRC) as a heterogeneous disease is the third most common cancer with a high incidence rate worldwide. Despite improvements in patient outcomes and advancements in therapies such as surgery, chemotherapy, and targeted medicines CRC remains the largest cause of mortality. Therefore, finding distinctive and common characteristics in their molecular and biological processes might provide new insight into the creation and identification of diagnostic and therapeutic biomarkers. The release of metalloproteinases, which facilitate tissue invasion and intravasation by cancer cells through extracellular matrix (ECM) breakdown, is usually associated with tumor growth. A disintegrin and metalloprotease like decysin (ADAMDEC1) as a member of A disintegrin and metalloprotease (ADAMs) family play diverse roles in tissue homeostasis and immunity. Here, we aimed to explore the function of ADAMDEC1 in CRC.

Methods: Clinical information and mRNA expression levels of ADAMDEC1 metalloprotease in patients with CRC were obtained from The Cancer Genome Atlas (TCGA, https://portal.gdc.cancer.gov) based on the following selection criteria including basic clinical information of stage, gender, sample types (the normal and primary tumor), histological subtypes and nodal metastasis status. All requirements were conducted on a large sample size (>250). Datasets were then compared to obtain the significant p-value.

Results: Our results indicate that the expression level of ADAMDEC1 is down-regulated in CRC compared with normal tissue. This decrease was more considerable in stage 4 and N1 metastasis status of the disease ($p< 0.001$). In the case of histological subtypes, the expression of ADAMDEC1 in adenocarcinoma shows more reduction compared with mucinous adenocarcinoma ($p< 0.001$).

Conclusion: Our study revealed that ADAMDEC1 can be considered an influential factor in CRC progress with diagnostic and prognostic values.

Keywords: Tumor biomarkers" Colorectal cancer (CRC)" The Cancer Genome Atlas (TCGA)" A disintegrin and metalloprotease like decysin (ADAMDEC1)