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Targeting cancer testis antigens for biomarkers and immunotherapy in colorectal cancer: Current status and challenges

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#### Abstract

Colorectal cancer ranks third among the estimated cancer cases and cancer related mortalities in United States in 2014. Early detection and efficient therapy remains a significant clinical challenge for this disease. Therefore, there is a need to identify novel tumor associated molecules to target for biomarker development and immunotherapy. In this regard, Cancer testis antigens have emerged as a potential targets for developing novel clinical biomarkers and immunotherapy for various malignancies. These germ cell specific proteins exhibit aberrant expression in cancer cells and contribute in tumorigenesis. Owing to their unique expression profile and immunogenicity in cancer patients, Cancer testis antigens are clinically referred as the most promising tumor associated antigens. Several Cancer testis antigens have been studied in colorectal cancer but none of them could be used in clinical practice. This review is an attempt to address the promising Cancer testis antigens in colorectal cancer and their possible clinical implications as biomarkers and immunotherapeutic targets with particular focus on challenges and future interventions.

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