SIJA, SAJIBU
Marra group

Department / Institute of Molecular Cancer Research
University of Zurich
Winterthurerstr. 190, 8057 Zürich

sajibu@imcr.uzh.ch
https://www.imcr.uzh.ch/en/research/Marra/Team/Sajibu.html

KEYWORDS – Colorectal cancer, Epigenetics, Sequencing

MAIN FIELDS OF RESEARCH; ABSTRACT

Colorectal cancer (CRC) is the third most commonly diagnosed cancer in the world and is one of the leading causes of cancer-related death. Colonoscopy, the standard CRC screening test, while being sensitive, is also invasive, expensive, require much preparation, and involves risk of complications. Despite the availability of many noninvasive stool tests for the patients, these tests are still not on par with colonoscopy concerning the sensitivity in detecting tumors. Thus, my overall goal is to design an accurate and noninvasive stool test based on the detection of age-independent, differentially methylated regions (DMRs) in the fecal DNA, which would detect the presence of a tumor in the colorectum and, consequently, to improve survival rates. Different buffers and temperature conditions were tested to optimize the DNA extraction from fecal sample. I observe that the quality and quantity of fecal DNA is superior when fecal sample was transported without buffer in low temperature. With qPCR, our results indicate that the proportion of human DNA is very small in the total fecal DNA sample. Current work aims to standardize the enrichment of human DNA from fecal DNA through methyl-binding domain proteins and in addition, to analyze DMRs genome-wide via deep sequencing and develop a statistical method to differentiate between carriers and non-carriers of colorectal tumors.

SPECIAL TECHNIQUES AND EQUIPMENT

---------