

# CLINICAL VALIDATION OF A FECAL BACTERIAL SIGNATURE TEST FOR COLORECTAL CANCER SCREENING

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**Keywords:** colorectal cancer screening, gut microbiota, clinical validation

## **Objectives**

The most extensively non-invasive test used for CRC screening is the fecal immunochemical test (FIT), which shows a limited accuracy. A new non-invasive test based on fecal biomarkers for CRC screening (RAID-CRC Screen) was developed to complement FIT increasing its specificity. This tool has been clinically assessed in FIT-positive patients (cut-off 20 µg/g, FIT20), maintaining the sensitivity at 100% for CRC and 94.6% for advanced neoplasia (AN) and increasing the specificity by 28.0% and 26.1%, respectively. This work aimed to demonstrate superiority in specificity and non-inferiority in sensitivity of the combination of RAID-CRC Screen in addition to FIT20 versus FIT20 alone (OC-Sensor) in a European screening population.

## **Methods**

A total of 2481 subjects older than 55 from the German screening colonoscopy program were included. They collected a fecal sample before the preparation for the colonoscopy to analyze the FIT and RAID-CRC Screen. The colonoscopy results were used as Gold Standard to calculate specificity and sensitivity.

## **Results**

The application of the RAID-CRC Screen in addition to FIT20 yielded the same sensitivity as the one obtained with FIT20 alone (66.7%) for CRC detection. In terms of specificity, the combination with RAID-CRC Screen provided a 97.0%, which was significantly higher (p-value<0.0001) than that for FIT20 alone (96.1%). The

increased specificity translated into a reduction of the false positive of 22.1%, in line with the results obtained in the proof-of-concept (28.0%). Regarding the positive predictive value (PPV), adding RAID-CRC Screen provided an 11.9%, which was higher than the one obtained with FIT20 (9.5%). The negative predictive value was maintained (99.8%). Regarding AN detection, sensitivity was significantly lower ( $p$ -value $<0.001$ ) when RAID-CRC Screen was combined with FIT20 (17.5%) when compared to FIT20 alone (21.8%), whereas the specificity value significantly increased (98.2%) compared to FIT20 (97.8%) ( $p$ -value=0.0039).

## **Conclusion**

Our findings confirm the results obtained in previous clinical studies in a CRC screening setting, showing the potential of RAID-CRC Screen to increase the overall specificity of FIT-base screening

The introduction in clinical practice of RAID-CRC Screen as a triage test after a FIT positive result may potentially avoid a relevant number of unnecessary colonoscopies and shorten waiting lists.