COLORECTAL CARCINOMA NEXT GENERATION SEQUENCING SUB PANEL

AMPATH LABORATORIES

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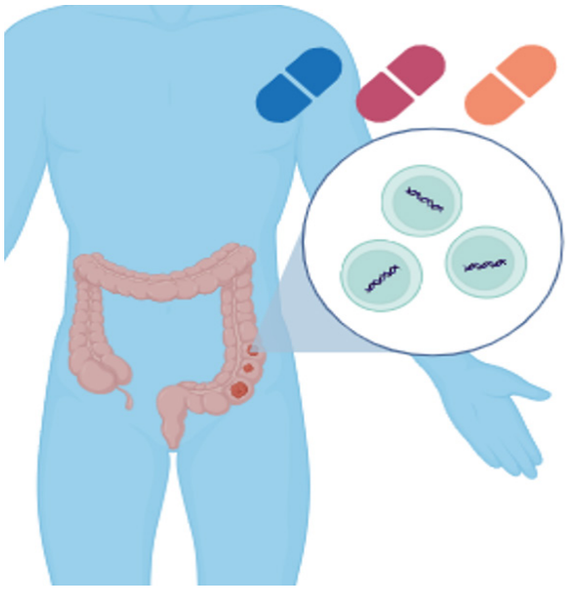
November 2025

Colorectal cancer is among the top three cancers for both men and women in South Africa. Genetic testing plays an integral part in the prognostication, germline screening, and management of colorectal carcinoma. Various testing options available at Ampath are summarised below, including the new colorectal carcinoma specific subpanel.

COLORECTAL CARCINOMA NGS TESTING SUB PANEL

Mnemonic	Details	Genes tested	Turnaround time	Sample requirements
OCASUB	DNA and RNA panel with MSI	*AKT1, APC, AXIN2, BRAF, BLM, BTK, CDH1, CDKN2A, CTNNB1, EPCAM, ERBB2, FBXW7, FGFR, HRAS, KRAS, MAP2K1, MSI, MUTHY, NRAS, NRG1, NTRK, POLE, POLD1, RET, RNF43, SMAD4, STK11, TP53*	14 working days	Formalin Fixed Paraffin Embedded Tissue (FFPE) 8-12 normal slides (not charged) with 10 micron thick un-stained recuts or 10 micron thick recuts in an Eppendorf tube or Paraffin Embedded tissue block



Biomarker	Theraputic Implications
KRAS	Patients with these mutations should **not** be treated with anti-EGFR therapy (cetuximab or panitumumab) either alone or combined with other agents
NRAS	Patients with these mutations should **not** be treated with anti-EGFR therapy
BRAF	Unlikely response to anti-EGFR therapy unless given with a BRAF inhibitor
ERBB2	Consideration of anti-HER2 therapy when *RAS* and *BRAF* are wildtype
NTRK1, NTRK2, NTRK3	Predicts response to NTRK targeted therapy (e.g. larotrectinib or entrectinib)
POLE/POLD1	Good response to immune checkpoint inhibitor therapy
RET	Predicts response to selpercatinib
MSI-H	No benefit from 5-FU adjuvant therapy Consideration of immune checkpoint inhibitor therapy

OTHER COLORECTAL CARCINOMA RELEVANT SOMATIC NGS TESTING OPTIONS AT AMPATH

Mnemonic	Details	Genes tested	Turnaround Time	Sample requirements
EGFRASSEQ	DNA only panel	*AKT1, BRAF, CDH1, CTNNB1, ERBB2, HRAS, KRAS, NRAS, PIK3CA, PTEN, TP53*	10 days	Formalin Fixed Paraffin Embedded Tissue (FFPE) 8-12 normal slides (not charged) with 10 micron thick unstained recuts or 10 micron thick recuts in an Eppendorf tube or Paraffin Embedded tissue block
OPANGS	DNA and RNA panel (excludes MSI, *POLE/POLD1* and other potential germline genes)	*AKT1, BRAF, CTNNB1, ERBB2, HRAS, KRAS, NRAS, NTRK1, NTRK2, NTRK3, PIK3CA, PTEN, RET, TP53*	14 days	
TMB	Tumour mutational burden measurement	90 genes	14 days	
OCAPLUS	DNA and RNA panel with TMB and MSI	>500 genes	14 days	