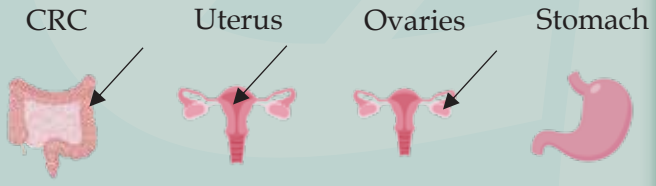
Which genetic conditions increase the risk of CRC?

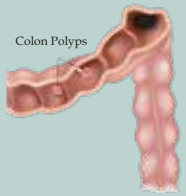
Lynch syndrome (LS)

- Represents the most common cause of hereditary CRC (3-5% of all CRC).
- LS is caused by gene faults in any of the following genes: *MLH1, MSH2, MSH6, PMS2* and *EPCAM.*
- Individuals/families with LS have an increased risk of the following cancers:



Familial Adenomatous Polyposis (FAP)

- Individuals with FAP have >90% chance to develop multiple growths in their colon (polyps) ⟶ formation of CRC.



- Polyp growth can start in childhood.
- A fault in the *APC* gene causes FAP.

Other CRC-predisposition genes

- Faults in other genes like *MUTYH, STK11, PTEN, POLE, POLD1, CHEK2, SMAD4, BMPR1A* can increase the risk of CRC too

Genetic counselling for individuals with an inherited cause of CRC will include tailored risk-management recommendations

FAQs

Can I reduce my risk of CRC?

Yes. Everyone can reduce CRC risk by:

- Avoiding smoking & alcohol intake
- Exercising regularly
- Limiting red/processed meat intake

However, if you have a faulty CRC gene and an increased risk of CRC, screening and other risk-reducing strategies would be recommended to you.

For more information on genetic testing, please contact:

Cancer Genetics Service

Tel: 6436 8088

cgsgroup@nccs.com.sg

Visit the Cancer Genetics Service webpage:
https://www.nccs.com.sg/patient-care/specialties-services/cancer-genetics-service

Please scan the following QR codes to access our website (left) or make a donation to CGS (right):

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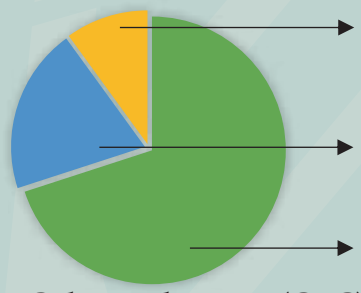
Document No. CEIS-EDU-PEM-272/0922

Germline Genetic Testing for Colorectal Cancer

National Cancer Centre Singapore
SingHealth

Scan here for softcopy of this pamphlet

There are 3 main types of CRC:



Colorectal cancer (CRC)

Hereditary/Inherited CRC *(yellow)*

- Caused by a fault (i.e., mutation) in a CRC gene, increasing CRC risk
- Usually accompanied by a strong family history of CRC and other cancers
- May come with an increased risk of other cancers (dependent on faulty gene identified)

Familial CRC *(blue)*

- Caused by a combination of certain genes and environmental factors
- May include cluster of cancers in family

Sporadic CRC *(green)*

- Caused by chance events
- Risk factors include:
  - Age
  - Environmental factors
- Little or no family history of cancer

Facts about Colorectal Cancer

- Colorectal cancer is cancer that happens in the large intestines or rectum.
- It is the third most-prevalent cancer worldwide, accounting to ~10% of all cancers

In Singapore, colorectal cancer is:

The most common cancer in males

The second most common cancer in females, after breast cancer

Early signs of CRC:

- Blood in stools
- Persistent stomach pain
- Discomfort when passing stools
- Presence of a lump in the stomach region

Knowledge IS Power

What is genetic testing?

- Genetic testing is usually a blood test, to look for faults in the genes you inherited.
- These faults can increase your risk of cancer.

Genetic testing can identify individuals and family members at risk of hereditary CRC

Who should consider testing?

- CRC diagnosed at under 50 years
- CRC and another primary cancer diagnosis
- Having more than 20 colonic polyps detected
- Tumour testing results that are suggestive of a genetic cause
- Multiple family members on the same side of the family with CRC and/or other cancers

Benefits of genetic testing for CRC

Your results can help in the following ways:

If you have CRC:

- Understand if your CRC was caused by a faulty gene running in your family.
- Guide surgical and treatment decisions.
- Inform doctors if you are at risk of other cancers.

If you do not have cancer:

- Guide medical screening options to help detect cancer early or to reduce CRC risk.