

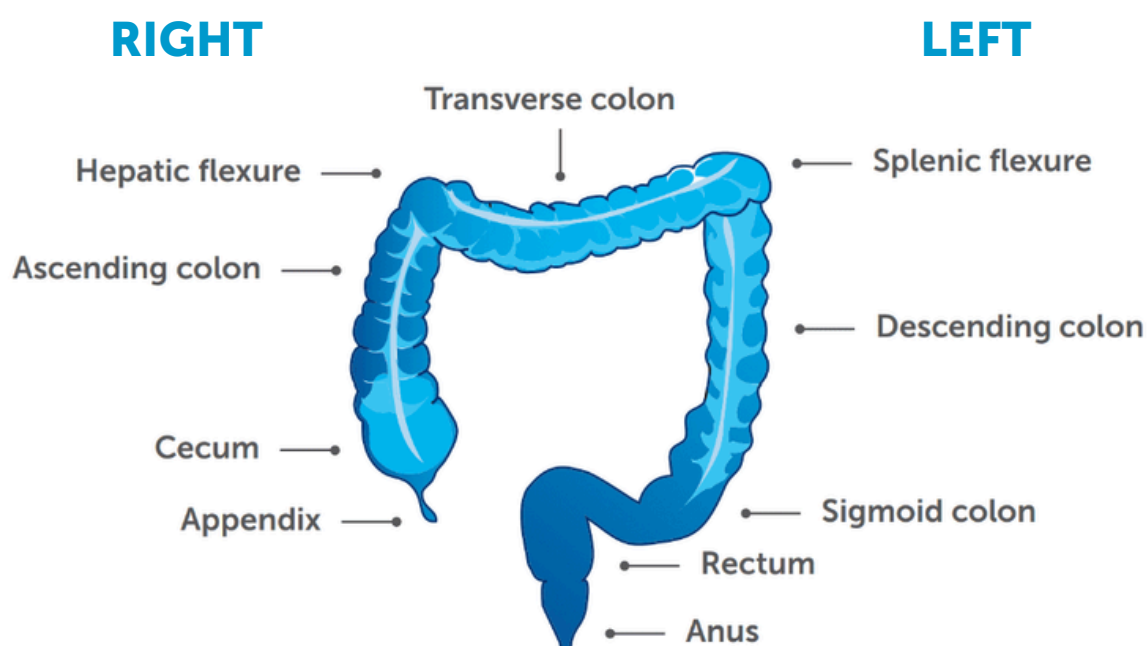
Side matters: Are you left or right sided?

FIND OUT WHY YOU NEED TO KNOW

The colon and rectum are part of the large intestine, which is located at the end of the digestive system. The large intestine is a six-foot-long muscular tube that helps digest food and eliminate waste from the body.

The colon is divided into the **right side** (which includes the cecum, ascending colon, and the hepatic flexure), the **left side** (which includes the splenic flexure, descending colon, sigmoid colon, rectosigmoid, and rectum*), and the transverse colon, which is divided between the right and left sides.

*Note: Some discussions of tumor sidedness include the rectum as part of the left side. However, rectal cancer is often treated differently from colon cancer, so your care team may consider it separately when planning treatment.



Research suggests that there are biological differences between left-sided and right-sided colon cancers. These differences are related to tumor biology, including which biomarkers are present, how the cancer grows, and how it responds to treatment.

In general, **left-sided colorectal cancers** tend to have a better overall prognosis than **right-sided cancers**, particularly in metastatic disease.^{1,2} However, tumor location is only one piece of the picture. Today, treatment decisions are driven primarily by biomarker testing, with tumor location helping guide certain therapy choices.

CANCER ON THE RIGHT

Cecum | Ascending colon | Right half of transverse colon | Hepatic flexure



More commonly diagnosed in women and people over 65

- Are diagnosed more frequently in African American patients
- Often develop from flat (sessile) polyps, which can be harder to detect early
- Are more commonly diagnosed at a later stage
- May cause anemia, fatigue, or hidden bleeding rather than bowel changes
- Are more commonly associated with Lynch syndrome
- Have higher rates of: MSI-H/dMMR, BRAF V600E mutations, and KRAS mutations
- Mucinous or signet-ring features
- Respond particularly well to immunotherapy when MSI-H/dMMR is present
- Are less likely to benefit from anti-EGFR targeted therapies in the first-line metastatic setting, even when RAS wild-type

CANCER ON THE LEFT

Splenic flexure | Descending and sigmoid colon | Left half of transverse colon | Rectum | Anus



More commonly diagnosed in men and people under 65

- Occur more often overall than right-sided cancers
- Tend to form ring-like tumors that grow along the colon wall
- More commonly cause bowel habit changes, such as constipation, narrow stools, or obstruction
- Are more likely to be diagnosed at an earlier stage
- Are associated with familial adenomatous polyposis (FAP)
- Have higher rates of: HER2 amplification and EGFR-pathway sensitivity when RAS/BRAF wild-type
- Respond better to standard chemotherapy
- In metastatic disease, patients respond better to anti-EGFR targeted therapies (such as cetuximab or panitumumab) when biomarkers are appropriate
- Have an overall better prognosis compared with right-sided tumors

Right-sided tumors, when diagnosed in early stages (stage I or II), have a slightly better prognosis than **left-sided tumors**.³

People with late-stage, **right-sided tumors** sometimes have KRAS, NRAS, and BRAF mutations. Those mutations can predict poor response to anti-EGFR therapies and shorter survival. Even if **right-sided tumors** are KRAS, NRAS, or BRAF wild-type tumors, they are **unlikely to respond to anti-EGFR therapies**.⁴

The good news is that recent studies show that **right-sided tumors** more often have MSI-H/dMMR and BRAF V600E alterations. Tumors that are MSI-H/dMMR may respond particularly well to immunotherapy, which predicts a **positive response to checkpoint inhibitors and immunotherapy treatments**.

A **left-sided tumor** generally predicts that patients will **respond better to anti-EGFR therapies** (cetuximab and panitumumab) than to anti-VEGF therapies (bevacizumab) when given with chemotherapy as first-line treatment.

HER2 amplifications¹ are more common in **left-sided** and rectal tumors, and also predict a poor response to anti-EGFR agents.

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A **left-sided tumor** also predicts better survival for stage IV patients.

Prior to starting anti-EGFR agents, you need to have **biomarker testing** for NRAS, KRAS, BRAF and HER2 because these mutations can also occur in left-sided tumors.

Be sure to talk with your doctor about:



STAGE



BIOMARKERS



TUMOR SIDE

Additional questions and assistance: colorectalcancer.org/patient-family-support/helpline

Clinical Trial Referral Application: colorectalcancer.org

1 Shida D et al Prognostic value of primary tumor sidedness for unresectable stage IV colorectal cancer a retrospective study 2019 Annals of Surgical Oncology 26:1358-1365

2 Zakavelis G et al Current and future biomarkers in colorectal cancer. 2017 Ann Gastroenterol. 30: 613-621

3 Dekker E et al Colorectal Cancer 2019 The Lancet 394: 1467-1479

4 NCCN clinical cancer practice guideline in oncology (NCCN Guidelines) Ver.4-Nov 8, 2019 http://nccn.org/professionals/physician_gls/pdf/colon.pdf

colorectalcancer.org | Helpline: (877) 422-2030

The Colorectal Cancer Alliance is a national organization committed to ending colorectal cancer within our lifetime. We are your allies — a national network of passionate survivors, caregivers and advocates dedicated to helping you and your family navigate all aspects of the disease, from diagnosis and treatment to a lifetime of progression-free survival. We are a community of people eager to share experiences, address your concerns, and answer your questions. We understand the different stages of the colon cancer journey because we've been there. We are here for you when you need us because we believe tomorrow can't wait.



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