

RET+ advanced thyroid cancer

What is advanced thyroid cancer?



Thyroid cancer begins in the thyroid gland.

The thyroid is a butterfly-shaped organ that makes hormones to help regulate your heart rate, metabolism, blood pressure, and body temperature.



Advanced or metastatic thyroid cancer happens when the cancer spreads to other organs.

This means the cancer forms new tumors in other parts of your body.



There are several types of thyroid cancer, including: follicular, Hurthle cell, anaplastic, papillary, and medullary.



Some thyroid cancers can run in the family.

- You are 5 to 10 times more likely to develop papillary thyroid cancer (PTC) if you have a relative with PTC.¹
- About 25% of all medullary thyroid cancer (MTC) runs in the family.²

If you've been diagnosed with MTC, consider talking to all of your immediate family members (parents, siblings, and children) about the risks and whether they should talk to a doctor about being tested for an inherited cancer risk.

WHAT IS RET AND WHY DOES IT MATTER?



RET is a type of **gene** that everyone has within their cells. Genes are pieces of DNA that give the cells in your body instructions to perform certain functions.



In specific types of cancer cells, **the RET gene is abnormal**. Abnormal RET genes, such as **RET fusions or mutations**, drive the uncontrolled growth of cells, leading to cancer.



If your advanced thyroid cancer is caused by abnormal RET genes, it is referred to as **RET positive (RET+)**.

WHAT ARE THE PRIMARY TYPES OF RET+ THYROID CANCER?

Abnormal RET genes may be found in several types of advanced thyroid cancers, including MTC, PTC, follicular thyroid cancer, and Hurthle cell, but is most commonly found in MTC and PTC:

PTC

is the most common type of thyroid cancer, accounting for approximately 80% of all cases.³ **Approximately 10%-20%** of PTC cases are RET+.^{4,5}

MTC

is a less common type of thyroid cancer. **Approximately 90%** of advanced MTC cases are RET+.⁶

HAS YOUR CANCER BEEN TESTED FOR RET?

Whether you were just diagnosed with thyroid cancer or are determining a different treatment course, be sure to ask your doctor to test for all known biomarkers, including RET. Your doctor will need to perform **biomarker testing** to determine your biomarker status—including whether or not your tumor is RET+.



Have questions?

Talk to your doctor about questions you may have about your cancer and RET. Below are some potential questions you could ask:

- Has my cancer been tested for all biomarkers, including RET?
- If my cancer is RET+, how does that affect my treatment options?
- Should my family be tested for inherited cancer risk?

RET+=rearranged during transfection positive.

[Click here for printer-friendly version](#)

References:

1. Does papillary thyroid cancer run in families? *Clinical Thyroidology for the Public: a publication of the American Thyroid Association*. 2014;7(3):10.
2. American Society of Clinical Oncology (ASCO). Thyroid cancer: introduction. <https://www.cancer.net/cancer-types/thyroid-cancer/introduction>. Accessed December 07, 2020.
3. American Cancer Society. What is thyroid cancer? <https://www.cancer.org/cancer/thyroid-cancer/about/what-is-thyroid-cancer>. Accessed December 07, 2020.
4. Drilon A, Hu ZI, Lai GGY, Tan DSW. Targeting RET-driven cancers: lessons from evolving preclinical and clinical landscapes. *Nat Rev Clin Oncol*. 2018;15(3):151-167.
5. Kato S, Subbiah V, Marchlik E, Elkin SK, Carter JL, Kurzrock R. RET aberrations in diverse cancers: next-generation sequencing of 4,871 patients. *Clin Cancer Res*. 2017;23(8):1988-1997.
6. Romei C, Ciampi R, Casella F, et al. RET mutation heterogeneity in primary advanced medullary thyroid cancers and their metastases. *Oncotarget*. 2018;9(11):9875-9884.