

# Thyroid Cancer, MEN II,\* and Genetic Testing— Relevant Facts

NAME(S) \_\_\_\_\_

Scientific Question	Answer
<b>What is your thyroid?</b>	Your thyroid is a gland near your voice box. This gland produces a hormone called thyroxine, which controls your metabolism.
<b>What is thyroid cancer?</b>	Cancer means that you have an overproduction of a certain type of cell. Thyroid cancer means that the patient has a tumor in his or her thyroid gland. This tumor is capable of spreading to other parts of the body. If left untreated, thyroid cancer is fatal. However, if caught early and surgically removed, it has a 95% cure rate.
<b>What causes thyroid cancer?</b>	There are many types of thyroid cancer, and people develop thyroid cancer for different reasons. It can be caused by inherited mutations, environmentally caused mutations, or a combination of both.
<b>Which of Max's genes would be tested?</b>	Max would be tested for a mutation in a gene called <i>RET</i> . This mutation causes multiple endocrine neoplasia type 2 (MEN II), which leads to one specific type of thyroid cancer. It is very unusual for cancer to be caused by a single mutation. Usually, cancer is the result of the accumulation of many different mutations, some inherited and others environmental. The inherited mutation here is an autosomal dominant mutation.
<b>If Max has the mutation, how likely is he to get thyroid cancer?</b>	Max would have a nearly 100% chance of getting thyroid cancer in his teens, 20s, or 30s.
<b>Is it possible to <i>not</i> have this mutation but still get thyroid cancer?</b>	Yes. There are many other genes that affect one's lifetime chance of getting thyroid cancer.
<b>Can you have surgery or take any medication to prevent yourself from getting thyroid cancer?</b>	Yes. Max's thyroid could be surgically removed now. If this were to occur, Max would have a 0% lifetime chance of thyroid cancer. Because he would no longer have his thyroid gland, Max would need to regulate his metabolism by taking a thyroid pill each day.

Your Own Relevant Question	Answer

\*Multiple endocrine neoplasia type 2.