

# Role Of MicroRNA Identified In Thyroid Cancer

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- *From:* J <[studydras@xxxxxxxxx](mailto:studydras@xxxxxxxxx)>
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## Role Of MicroRNA Identified In Thyroid Cancer

The presence of only five tiny strands of RNA is enough to clearly distinguish cancerous thyroid tissue from otherwise normal tissue, scientists say.

The findings provide more evidence that an emerging set of RNA genes called microRNA (miRNA) is a powerful regulatory force in the development of cancer and other diseases. The study is published online in the Dec. 19 Proceedings of the National Academy of Sciences.

Scientists already know that some people inherit a predisposition to developing papillary thyroid cancer (PTC), the most common form of thyroid cancer, representing about 80 percent of all cases. Although changes in key cell–signaling systems and gene translocations are sometimes present in thyroid tumors, no specific gene mutations have yet been identified that are directly linked to the predisposition of this type of cancer.

That led researchers in The Ohio State University Comprehensive Cancer Center to conclude that while genetic mutations may indeed cause some people to be more likely to develop PTC than others, the mutations may not occur often enough to be readily detectable. They hypothesized that any predisposition to PTC might be more reasonably linked to a more subtle, complex interaction among several genes ? suggesting a possible role for miRNAs.

MiRNAs are smidgens of genetic material no longer than 22 or so nucleotides in length. A gene, in comparison, can be tens of thousands of nucleotides long. Scientists used to think miRNAs were parts of long stretches of functionless, ?junk? DNA in the genome. But Dr. Huiling He, a research scientist in the Human Cancer Genetics Program at Ohio State and the lead author of the study, says researchers are now beginning to understand how important they may be.

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The identification of miRNA signatures in cancer and other diseases has really changed the way we think about the process of malignant growth, says He.

Old dogma held that a gene carries a recipe for a molecule of messenger RNA which, in turn, carries a blueprint for the creation of a particular protein. Any mutation in the gene could affect the production of the protein. But recent studies have shown that protein production can also be manipulated indirectly through miRNAs.

MiRNAs can latch on to part of the messenger RNA and scramble its ability to p