

MIR146A gene

microRNA 146a

Normal Function

The *MIR146A* gene provides instructions for making microRNA-146a (miR-146a). MicroRNAs (miRNAs) are short lengths of RNA, a chemical cousin of DNA. These molecules control gene expression by blocking the process of protein production. MiR-146a is abundant in immature blood cells and controls the expression of hundreds of genes. This microRNA is thought to be involved in normal blood cell development. In particular, miR-146a appears to play a role in the growth and division of blood cells called megakaryocytes, which produce platelets, the cells involved in blood clotting.

Health Conditions Related to Genetic Changes

5q minus syndrome

The *MIR146A* gene is involved in a condition called 5q minus (5q-) syndrome. This condition is a type of bone marrow disorder called myelodysplastic syndrome (MDS), in which immature blood cells fail to develop normally. Individuals with 5q- syndrome often have a shortage of red blood cells (anemia) and abnormalities in megakaryocytes. Affected individuals also have an increased risk of developing a fast-growing blood cancer known as acute myeloid leukemia (AML).

5q- syndrome is caused by deletion of a region of DNA from the long (q) arm of chromosome 5. This deletion occurs in immature blood cells during a person's lifetime and affects one copy of chromosome 5 in each cell. Most people with 5q- syndrome are missing a sequence of about 1.5 million DNA building blocks (base pairs), also written as 1.5 megabases (Mb). This deleted region contains 40 genes, often including *MIR146A*. Loss of one copy of the *MIR146A* gene reduces the amount of the microRNA miR-146a in cells. As a result, levels of proteins whose production is normally blocked by miR-146a are elevated, which leads to the abnormal development of megakaryocytes that occurs in 5q- syndrome. Research suggests that the other features of the condition are associated with other genes in the deleted segment of DNA.

Other Names for This Gene

- hsa-mir-146

- hsa-mir-146a
- miR-146a
- MIRN146
- MIRN146A
- miRNA146A

Additional Information & Resources

Tests Listed in the Genetic Testing Registry

- Tests of MIR146A ([https://www.ncbi.nlm.nih.gov/gtr/all/tests/?term=406938\[geneid\]](https://www.ncbi.nlm.nih.gov/gtr/all/tests/?term=406938[geneid]))

Scientific Articles on PubMed

- PubMed (<https://pubmed.ncbi.nlm.nih.gov/?term=%28%28MIR146A%5BTIAB%5D%29+OR+%28microRNA+146a%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+720+days%22%5Bdp%5D%29%29%29>)

Catalog of Genes and Diseases from OMIM

- MICRO RNA 146A; MIR146A (<https://omim.org/entry/610566>)

Gene and Variant Databases

- NCBI Gene (<https://www.ncbi.nlm.nih.gov/gene/406938>)
- ClinVar ([https://www.ncbi.nlm.nih.gov/clinvar?term=MIR146A\[gene\]](https://www.ncbi.nlm.nih.gov/clinvar?term=MIR146A[gene]))

References

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Genomic Location

The *MIR146A* gene is found on chromosome 5 (<https://medlineplus.gov/genetics/chromosome/5/>).

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