

# **SICKLE CELL ANEMIA COULD BE CURED BY GENOME EDITING**

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# THE MAIN IDEA

- Australian scientists have found out that by changing one letter in DNA in the blood cells could be the beginning of the cure for sickle cell anemia and other blood diseases.

# THE PROCESS

- The cure could work by switching on a sleeping gene that is on before you are born, but after you are born it turns off and a different version of the gene is turned on.
- The reason sickle cell anemia exists is because of a mutation in the adult hemoglobin.
- The research is based on people who have the mutation in the adult hemoglobin gene, but also have a mutation in the fetal hemoglobin gene.
- The mutation keeps the fetal gene on for the entire life of the person with sickle cell anemia. This gene being on can reduce the sickle cell anemia symptoms.

# THE CURE

- The helpful mutation that was found by the UNSW scientists is inserted into the red blood cells using proteins called TALENs.
- According to the scientists, the TALENs can, “cut a gene at a specific point, as well as providing the desired piece of donor DNA for insertion.”
- Once the scientists figure out if this idea works and is safe, they can use this as a base to build other cure ideas off of and this could be used to cure other blood diseases.

# THE SOURCE

- [www.eurekalert.org/pub\\_releases/2015-05/uons-nao.php](http://www.eurekalert.org/pub_releases/2015-05/uons-nao.php)