A single base change (an A changes to a T) results in an amino change from a glutamine to a valine at amino acid #7.

***Table 1: Single-Base Mutation Associated with Sickle-Cell Anemia***

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence for Wild-Type Hemoglobin** | | | | | | | | | | | | |
| ATG | GTG | CAC | CTG | ACT | CCT | GAG | GAG | AAG | TCT | GCC | GTT | ACT |
| Start | Val | His | Leu | Thr | Pro | Glu | Glu | Lys | Ser | Ala | Val | Thr |
| **Sequence for Mutant (Sickle-Cell) Hemoglobin** | | | | | | | | | | | | |
| ATG | GTG | CAC | CTG | ACT | CCT | GTG | GAG | AAG | TCT | GCC | GTT | ACT |
| Start | Val | His | Leu | Thr | Pro | Val | Glu | Lys | Ser | Ala | Val | Thr |

[http://www.nature.com/scitable/topicpage/genetic-mutation-441](http://www.nature.com/scitable/topicpage/genetic-mutation-441" \t "_blank)