



Hemoglobin C Trait

What is Hemoglobin?

Hemoglobin is a protein inside of red blood cells that carries oxygen to all parts of the body. Normal adult hemoglobin is called hemoglobin A.

What is Hemoglobin C Trait?

People with hemoglobin C trait inherit a normal hemoglobin gene (hemoglobin A) from one parent and an abnormal hemoglobin gene (hemoglobin C) from the other parent. People with hemoglobin C trait make both hemoglobin A and hemoglobin C. Hemoglobin C trait is not a disease. It will not turn into a disease. Hemoglobin C trait will not cause health problems and will require no special medical care.

Why is it Important to Know if You Have Hemoglobin C Trait?

The most important aspect of identifying people with hemoglobin C trait is to educate and inform them of the risk of having a child affected by a potentially more serious hemoglobin disorder, some of which include:

Hemoglobin SC (sickle cell disease):

If a child inherits one copy of the hemoglobin C gene from one parent and a copy of the sickle cell gene (hemoglobin S) from their other parent, it results in a type of sickle cell disease called hemoglobin SC. Sickle cell disease is a serious blood disorder that requires life-long medical care.

Hemoglobin CC disease:

If a child inherits one copy of the hemoglobin C gene from one parent and a second copy of the hemoglobin C gene from their other parent, it results in a hemoglobin disorder called hemoglobin CC disease. Hemoglobin CC disease is not a form of sickle cell disease. Hemoglobin CC disease does not usually cause serious health problems but can reduce the number and size of red blood cells in your body causing a mild anemia.

Because hemoglobin C trait is an inherited condition, genetic counseling and possibly genetic testing for the family should be considered so that they can be fully informed of their potential risks of having a future child affected by one of the more serious hemoglobin disorders.

The content of this fact sheet has been reviewed by the NBS Advisory Hemoglobinopathy Subcommittee.