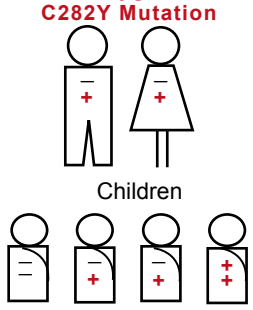
Examples of *HFE* Genotypes in Families with Hemochromatosis

Homozygote: inherits two copies of the same mutated *HFE* gene.
Heterozygote: inherits one copy of a mutated *HFE* gene. Also called a carrier.
Compound Heterozygote: inherits two different mutated copies of the *HFE* gene.

GENE MUTATIONS
Homozygote • Heterozygote
Compound Heterozygote

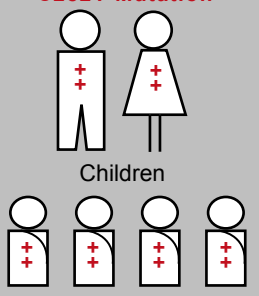
– Normal or Unknown Mutation **+ C282Y Mutation** **▲ H63D Mutation**

Both Parents Heterozygous for C282Y Mutation



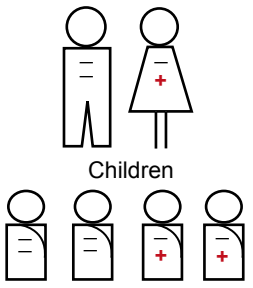
25% chance: Normal
50% chance: C282Y Carrier
25% chance: C282Y Homozygote

Both Parents Homozygous for C282Y Mutation



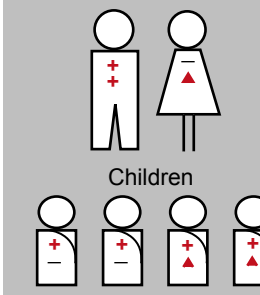
100% chance: C282Y Homozygote

One parent normal Other Heterozygous C282Y Mutation



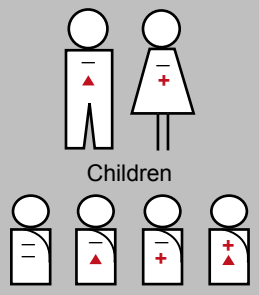
50% chance: Normal
50% chance: C282Y Carrier

One Parent is Heterozygous for H63D Mutation. One is a Homozygous for C282Y Mutation



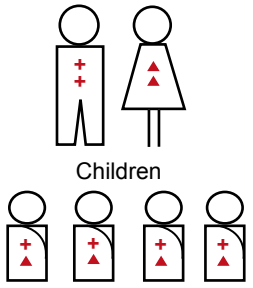
50% chance: C282Y Carrier
50% chance: Compound Heterozygote

Both Parents are Heterozygous for Different Mutations



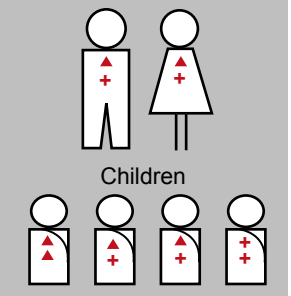
25% chance: Normal
25% chance: H63D Carrier
25% chance: C282Y Carrier
25% chance: Compound Heterozygote

Both Parents Homozygous Different Mutations



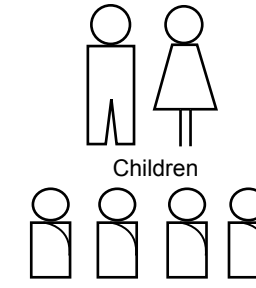
100% chance:
Compound Heterozygote

Both Parents Compound Heterozygotes



25% chance: H63D Homozygote
50% chance: Compound Heterozygote
25% chance: C282Y Homozygote

Your Family:



IMPORTANT NOTES:

- The inheritance pattern of classical (Type I) Hemochromatosis is autosomal, recessive
- Everyone inherits two copies of HFE
- Mutated copies of HFE are found primarily in Caucasians
- Only the mutated copies C282Y and H63D are represented in this chart because these are the most important known mutations to date
- When one parent has two mutated copies of HFE, all offspring are at least obligate carriers
- HFE mutations are present in about 85% of Caucasians in the USA with hereditary hemochromatosis
- HFE related iron overload is an adult onset disorder. Other genes that can cause iron overload in children are not included in this chart
- The risk of iron loading is presently known to be greatest in men who are C282Y homozygotes
- Heterozygotes, especially compound heterozygotes are also at increased risk of iron loading, but likelihood and severity are lower
- Informed consent: Anyone considering genetic testing should be made aware of the potential consequences, such as possible insurance and employer discrimination or paternity identification
- Genetic status provides no information about tissue iron levels. Clinical evaluation of serum ferritin and transferrin iron saturation percentage is one way to estimate tissue iron status
- For more information about prevalence and penetrance of HFE, contact Iron Disorders Institute: info@irondisorders.org