Genetics Uncoded:

Facts about Metachromatic Leukodystrophy

What Your Test Results Mean

Carriers typically show no symptoms of metachromatic leukodystrophy; however, carriers are at an increased risk of having a child with metachromatic leukodystrophy. Because risk for offspring depends on both parents' carrier status, carrier testing regardless of sex is recommended.

Metachromatic Leukodystrophy Explained

Metachromatic leukodystrophy is an inherited condition caused by lack of the enzyme arylsulfatase A. Without this enzyme, harmful substances build up in parts of the body, including the brain. The disorder is characterized by progressive deterioration of intellectual functions and motor skills, such as the ability to walk. Affected individuals also develop bizarre behavior, loss of sensation in the extremities, incontinence, an inability to speak, blindness, hearing loss, seizures, and paralysis, eventually leading to death.

There are three types of metachromatic leukodystrophy based on the age of onset — the infantile form, which appears at one to two years of age and is fatal by age ten; the juvenile form, which appears after age three but before adolescence and is fatal 10-20 years after onset; and the adult form, which can appear any time after puberty. Researchers are currently searching for an effective treatment for metachromatic leukodystrophy, and experimental treatments include cord blood transplantation and gene therapy.

How the Genetics Work

Metachromatic leukodystrophy is an autosomal recessive brain disorder caused by pathogenic variants in the *ARSA* gene. In general, individuals have two copies of the *ARSA* gene. Carriers of metachromatic leukodystrophy have a single variant in one copy of the *ARSA* gene while individuals with metachromatic leukodystrophy have variants in both copies of their genes, one inherited from each parent. Risk for two carriers to have a child with the disorder is 25%.

Questions? Contact us at **1-855-776-9436** to set up an appointment to discuss your results in more detail with a NxGen MDx genetic counselor.

NxGenMDx, LLC
801 Broadway Ave NW, Suite 203
Grand Rapids, MI, 49504

Revised 12/15/16