Have muscle weakness and heart problems? This letter is for families with variant(s) in the Titin gene (TTN). Changes in the Titin protein may cause muscle weakness as well as heart problems. You will need to discuss with your doctor if and how your Titin variant affects your health.

What is Titin?
Titin is a very large protein. It’s huge! In fact, Titin is the largest protein in the human body. The Titin protein is located in each of the individual muscle cells in our bodies. It is also found in the heart, which is a very specialized muscle. Muscles need Titin in order to work and move. You can learn more about Titin here: [http://titinmyopathy.com](http://titinmyopathy.com).

A common heart problem caused by variants in the Titin gene is known as dilated cardiomyopathy. Other heart problems can also occur. It is a good idea to have a checkup from a heart doctor if you have even a single variant in the Titin gene. This may also apply to family members.

Titin can cause several muscle disorders called “Titinopathy”.

Also called a “myopathy” or a “dystrophy”.

Muscle weakness can start in childhood or come on later as an adult.

How to make sense of your Variant of Unknown Significance Results for Titin

Changes found in a gene are sometimes called mutations or variants. Some variants in a gene may lead to health problems, while others may not.

Sometimes a genetic testing laboratory will find a variant in a gene that they have not seen before, and they do not know if it causes disease or not. When a lab comes across a variant, but it has not yet been reported to cause disease, they call it a “Variant of Unknown Significance” or VOUS or VUS.

There are many great doctors, researchers and clinicians working to discover which VOUSs cause disease and which do not. This is one reason why it’s really helpful for people like you to [register in our patient registry the Congenital Muscle Disease International Registry](http://www.cmdir.org) and enroll in research.
Enroll in Research

Here are two researchers working on Titin that you can contact:

For all people with Titin related muscle weakness:

**Beggs Laboratory**
Boston Children's Hospital
Casie Genetti, Genetic Counselor
Ph: 617-919-2169
cgenetti@enders.tch.harvard.edu

To help with diagnosis of skeletal muscle weakness:

**National Institutes of Health (NIH)**
National Institute of Neurological Disorders and Stroke Neurogenetics Branch
Neuromuscular and Neurogenetic Disorders of Childhood Section

**Sandra Donkervoort**, MS, CGC
Genetic Counselor
Ph: 301-496-0272
donkervoorts@mail.nih.gov

Here are some places to find more information:

Sarah Foye, Titin Family Advocate
foyesarah@gmail.com
(973) 797-9305

Titin Related Muscle and Heart Disorders Community
https://www.facebook.com/TitinRelatedCentronuclearMyopathy

Titin Myopathy Website:
http://titinmyopathy.com

All people with Titin related health disorders are invited to enroll in
The Congenital Muscle Disease International Registry
www.cmdir.org

The purpose of the CMDIR is to raise awareness, help with best care, clinical trials and in the future treatments or cures. Simply put, we will not find treatments or cures unless we know who the affected individuals are, what their diagnosis is, and how the disorder affects the individual. The registry asks contact information and a few health questions. The CMDIR has online resources you can access if you have questions. Contact Sarah Foye with any questions (973) 797-9305