Myostatin-Related Muscle Hypertrophy is a single gene disorder characterized as an increase in muscle mass and strength as a result of a mutated MSTN gene. Other than these few symptoms, people with Myostatin-Related Muscle Hypertrophy are able to live a normal life with no other functional or cognitive effects. The MSTN gene codes for a protein, mystatin that is produced as two, unactuated subunits. These subunits are activated when when cleaved by a protease(1). One of the activated subunits then binds with activing type ll receptors, which in turn, recruits co-receptors Alk-3 or Alk-4 (2). The recruitment causes further cell signaling that eventually prevent myoblasts from differentiating and becoming mature muscle fibers. A kinase called Akt, which can stimulate protein synthesis, can also be inhibited by myostatin. Because myostatin inhibits both the signaling pathway and Akt, when the protein is dysfunctional, muscle build-up is virtually uncontrolled (1). While the inhibition pathway is well known, *the implications of an increase in myostatin and thus an increase in regulation is relatively unknown.*

**References**

**1.**     **Wagner, K. R., MD, PhD, & Cohen, J. S., ScM, CGC. (2013, July 3). Myostatin-Related Muscle Hypertrophy.**

**2.    Schiaffino, S., & Mammucari, C. (2011). Regulation of skeletal muscle growth by the IGF1-Akt/PKB pathway: insights from genetic models. *Skeletal Muscle*, *1*, 4. http://doi.org/10.1186/2044-5040-1-4**