



Health  
**About.com Cholesterol**

Share

**Muscle Pain and Statins**

A Gene May Provide Clue About Muscle Pain Caused By Statin Drugs

By Jennifer Moll, About.com Guide Updated January 02, 2008

About.com Health's Disease and Condition content is reviewed by the [Medical Review Board](#)

**Free Cholesterol Newsletter!**

Enter email address

**Sign Up**

**Discuss** in my forum

**Statins** are a group of popular and effective cholesterol-lowering medications that work by blocking a key protein, HMG-CoA reductase, which is responsible for making cholesterol in the liver. Statins target all aspects of your lipid profile, lowering **LDL** cholesterol and **triglycerides** while raising **HDL** cholesterol. Unfortunately, there are rare but troublesome side effects of statins, ranging from mild muscle weakness to life-threatening **rhabdomyolysis**. Scientists have recently reported that they may have found the gene responsible for this -- atrogen-1.

Previous studies have shown that the gene atrogen-1 is turned on at the beginning stages of the breakdown of muscle (muscle wasting). This is associated with illnesses such as cancer, sepsis, and AIDS. When the atrogen-1 gene is not active, muscle wasting does not occur.

Scientists at Beth Israel Deaconess Medical Center in Boston, Massachusetts felt that atrogen-1 might also play a role in the development of **myopathies** in those taking statins. To test this, the investigators gave a statin, **Mevacor (lovastatin)**, to cultured muscle cells, zebra fish, and humans. They found that humans taking Mevacor had higher levels of atrogen-1 than those not taking the drug. The more Mevacor given to the cells and zebra fish, the more likely it was that muscle damage would occur. When atrogen-1 was removed from the cells, the drug did not cause muscle damage.

This information is preliminary, but it provides us an understanding of what may be causing muscle pain in statin users, and why some individuals taking statins may be more susceptible to this than others. In the future, this may allow your health care provider to identify if you are at risk for statin-related **myopathies**, ranging from mild muscle pain to life-threatening **rhabdomyolysis**. Additionally, scientists may be able to manipulate this gene, or others involved, to prevent muscle damage caused by statins.

Sources:

Hana JI, Cao P, Tankale P, et al. The muscle-specific ubiquitin ligase atrogen-1/MAFk mediates statin-induced muscle toxicity. *J Clin Invest.* 117(12):3940-3951.

**Related Searches** [Beth Israel Deaconess](#) [Mevacor Lovastatin](#) [Israel Deaconess Medical Center](#) [Beth Israel Deaconess Medical Center](#) [Deaconess Medical Center](#)