Researchers at the University of South Florida have developed a method to reduce bad cholesterol levels with the use of magnetic particles that bind to cholesterol.

Cholesterol is a necessary molecule that is used as a building block for many biological structures. Cholesterol does not flow freely in blood but is carried by structures known as lipoproteins. Low density lipoproteins (LDL), or “bad” cholesterol, deposit extra cholesterol on the arterial linings. It is estimated that 7 million Americans have high cholesterol, which means they are at a higher risk of developing coronary artery disease. There are drugs and other treatments available to reduce cholesterol levels, however the drugs often have substantial side effects. Surgical procedures to treat high cholesterol, such as gastric bypass, are very invasive and result in side effects as well.

USF inventors have developed a method of reducing cholesterol levels with nanoparticles that target LDL cholesterol. These nanoparticles feature a binding agent that makes the nanoparticle attach to LDL cholesterol molecules. The nanoparticles are made with a magnetic metal core. This means that when the particle binds to cholesterol, the particle may be controlled with an external magnet. Thus the invention makes it possible to use a magnet to force cholesterol in the body to concentrate into one location. It may then be possible to accumulate the cholesterol in such a way to more easily remove it from a patient. This invention avoids the side effects encountered by current methods and represents a promising new approach for treating high cholesterol.

**ADVANTAGES:**

- Specifically targets and lowers “bad” cholesterol
- Avoids side effects of drug therapies and gastric bypass surgery
- Validated results in vivo in mice

**Magnetic Targeting of LDL Cholesterol with Nanoparticles**

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