

Research results show new way for cholesterol treatment

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Cardiovascular diseases are the number one cause of death globally due to e.g. arteriosclerosis. The cause is increased cholesterol. There is therefore a considerable need for an effective method of treatment against increased cholesterol. Now, Danish researchers have made a discovery that may change the picture of how it must be treated.

The researchers have identified a new so-called receptor system, located in all the cells in the body. The receptor, which is called sortilin, has a decisive influence on the protein PCSK9, which is of great importance for the body's ability to deal with the harmful LDL cholesterol.

New strategy for cholesterol treatment

Ten years ago it was discovered that the level of LDL cholesterol fell if you inhibited PCSK9. PCSK9-inhibiting drugs have since become the new hope within [cholesterol treatment](#) and the first products will probably be approved this year. The discovery is one of the biggest biomedical success stories in recent times, as it is normally takes 20 years before basic research can be converted into a product. The high pace and great focus on the effect has, however, meant that only a few people have conducted research into how the body itself regulates PCSK9.

"We have attempted to identify PCSK9's biology and have found out how this protein moves in the cell. We now know of an important

mechanism for how PCSK9 is released into the blood, where it has its harmful effect on the amount of LDL cholesterol," says Simon Glerup, Associate Professor from Aarhus University, and one of the researchers behind the study.

The research did not just provide answers, but also new opportunities.

"We discovered that there was yet another important element in play here, namely sortilin, and that it increases the activity of PCSK9. If we inhibit sortilin what we have seen is that this has the same effect as if we inhibit PCSK9 itself. In other words - much less [bad cholesterol](#). This opens the way for a completely new strategy for treating increased cholesterol," says postdoc Camilla Gustafsen from Aarhus University, who also participated in the survey.

Possible alternative to statins

The positive effect of inhibiting sortilin has been demonstrated in mice and studies in humans suggest that the same correlation is present here. The next step is now larger studies on humans. The hope is that the discovery can be used to develop medicine that can act as an alternative to statins, which are the most widely used [cholesterol](#)-reducing medication. Particularly because not everyone can either tolerate or benefit from statins.

"All eyes have been on PCSK9 for ten years. Now we present a new discovery, which contributes to the understanding of PCSK9 and can, at the same time, pave the way for a treatment that apparently has the same effect as PCSK9 inhibitors. The PCSK9 market is already limited by patents and copyrights, so this can make it possible for new pharmaceutical companies to enter the scene for the benefit of the patients," emphasises Simon Glerup.

The research results have just been published in the international scientific journal *Cell Metabolism*.

Provided by Aarhus University

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