

PCSK9-Inhibitors



PLAY PICMONIC

AVAILABLE DRUGS

Evolocumab

PC-Evolution

Evolocumab is a human monoclonal antibody from the group of PCSK9 inhibitors. It is used to treat hypercholesterolemia.

Alirocumab

Alienware-PC

Alirocumab is a drug from the group of PCSK9 inhibitors that are used to treat hypercholesterolemia.

MECHANISM OF ACTION

Monoclonal Antibodies

Monocle on Ant-tie-body

PCSK9 inhibitors are monoclonal antibodies. Monoclonal antibodies are antibodies produced by a cell line ("cell clone") derived from a single B lymphocyte. They are directed against a specific, single epitope. In this case, they target the serine protease PCSK9 enzyme.

Bind the PCSK9 Enzyme

PCS-K9

The serine protease PCSK9 has the function of binding to LDL receptors on the surface of liver cells (hepatocytes) and promoting their breakdown in the lysosomes. PCSK9 inhibitors selectively bind to circulating PCSK9 and inhibit their function. As a consequence, the enzyme can no longer bind to the LDL receptors.

Decreased Degradation of LDL-receptors

Down-arrow Degradation of Ladybug-devil Receptors

As a result of the binding of the PCSK9 enzyme, the breakdown of the LDL receptors decreases.

Increased LDL Receptors on Hepatocytes

Up-arrow Ladybug-devil Receptor on Liver

Leading to an increase of LDL receptors on Hepatocytes.

Reduction of LDL in Plasma

[Reduced Ladybug-devils on Plasma-TV](#)

The increased LDL receptors on the cell surface lead to a reduction in LDL cholesterol (LDL-C) in the blood, as it is increasingly absorbed by the liver cells.

INDICATION

Second-line Therapy for Hypercholesterolemia

[Second-place-tutu on Hiker-cholesterol-burger](#)

PCSK9 inhibitors are used as second-line therapy in patients with hypercholesterolemia. Due to the current (2019) high costs, PCSK9 inhibitors are only used in familial hypercholesterolemia, therapy-refractory hypercholesterolemia with a very high cardiovascular risk, and when the standard therapy with statins plus ezetimibe has been exhausted and the LDL value is still above 140 mg/dL.

ADMINISTRATION

Subcutaneous Injection

[Sub-q-tip](#)

The drug is administered subcutaneously.

SIDE EFFECTS

Skin Reaction at the Injection Site

[Skin Reaction at the Injection Site](#)

Skin Reaction at the Injection side is a common side effect of this drug.

Myalgia

[Mayo-algae](#)

Myalgia is a common side effect of this drug.

Neurocognitive Impairment

[Cog-brain Impaired](#)

A common side effect of this drug is neurocognitive impairment.