The recoveryELISA for PCSK9 & Evolocumab (RPE) R777

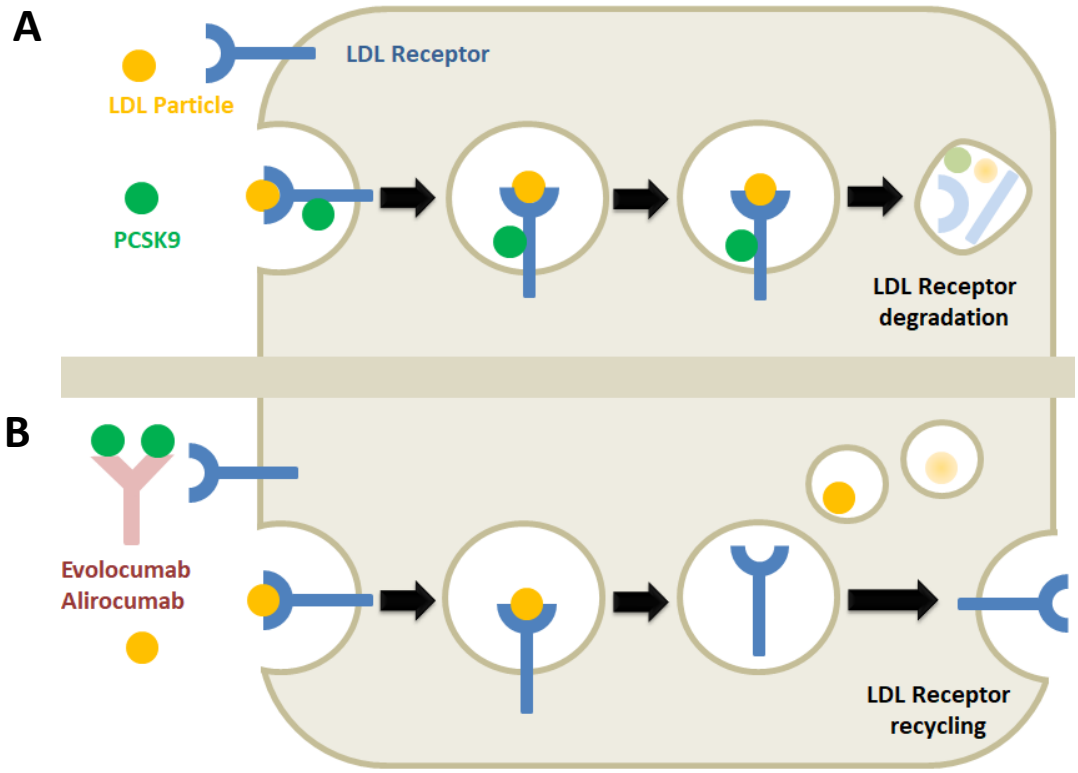

Figure 1: Mechanism of PCSK9 inhibitors Evolocumab or Alirocumab reduce LDL particle in patients suffering from residual cardiovascular disease

About PCSK9 and the use of *recovery*ELISA® RPE

Proprotein convertase subtilisin/kexin type 9 (PCSK9) has medical importance since it directly interferes with the lipoprotein particles (LDL) homeostasis. PCSK9 binds to the lipoprotein particles receptor (LDLR) which transports fat molecules within the extracellular fluid. Agents which block PCSK9 can decrease the LDL particle concentrations in the blood and thereby prevent cardiovascular disease. In the situation (**Figure 1A)** PCSK9 binds to LDLR and the trimeric complex of LDLR/PCSK9/LDL gets degraded in the hepatocytes upon internalization. In the presence of an PCSK9 blocking agent (**Figure 1B)** PCSK9 does not bind to the complex of LDLR/PCSK9/LDL than LDLR can be recycled and return to the cell surface and can thereby continue to remove LDL-particles from the bloodstream.

The first therapeutic monoclonal antibodies against PCSK9 Evolocumab and Alirocumab were approved by the U.S. Food and Drug Administration for lowering LDL-particle concentrations when statins and other drugs were not sufficiently effective or poorly tolerated. For Evolocumab two different dosing regimes are suggested 140 mg every two weeks or 420 mg once per month. The definition for Therapeutic Drug Monitoring (TDM) is that the clinical practice of measuring specific drugs to maintain a constant concentration in a patient's bloodstream, thereby optimizing individual dosage regimes .

A pilot study enrolled Evolocumab naïve patients suffering from residual cardiovascular disease, treated for the first time with Evolocumab and followed for the next two injections. Serum samples were tested with the recoveryELISA© RPE to quantify free PCSK9 and free Evolocumab simultaneously and compared these results with the lipid profile (**Figure 2**).

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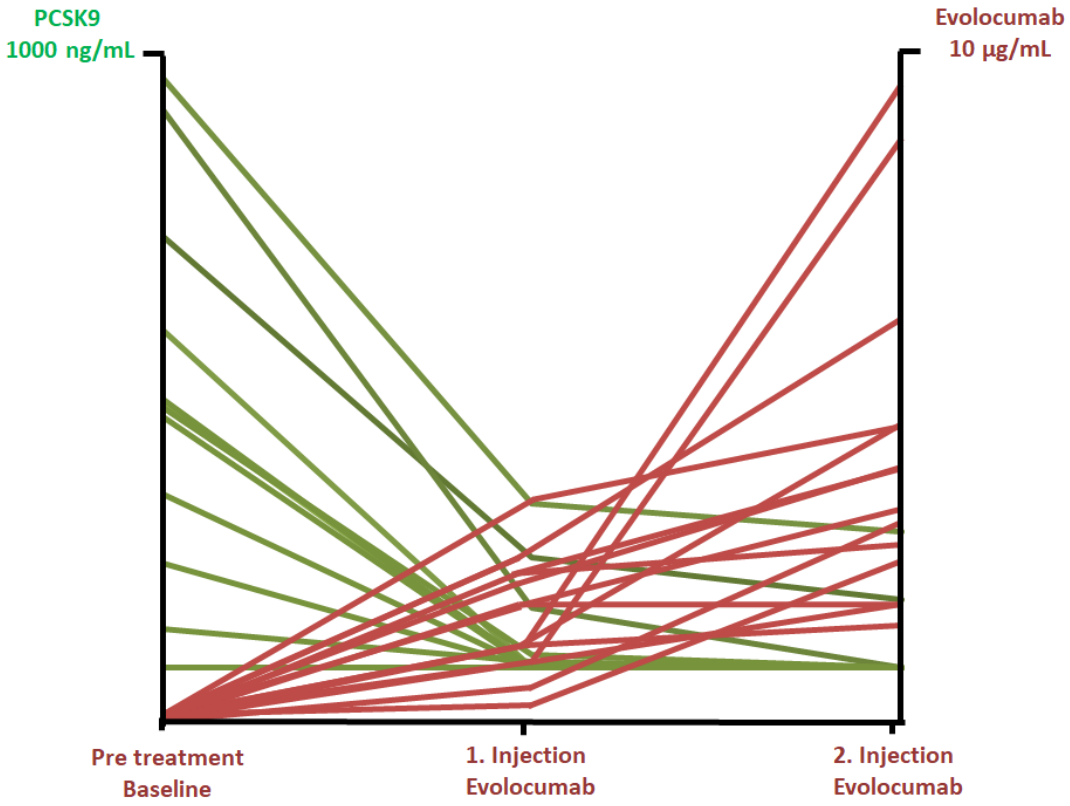

Figure 2: Summary of the clinical data generated by the *recovery*ELISA® RPE demonstrate the effect of Evolocumab on PCSK9

Unique features of the *recovery*ELISA® RPE

The *recovery*ELISA® RPE is the only method that simultaneously quantifies the free PCSK9, the PCSK9 neutralization rate and the free available therapeutic antibody Evolocumab in human serum samples during Evolocumab therapy. With the completed pilot study we could demonstrate that the *recovery*ELISA® RPE can contribute to TDM studies to support personalized dose finding strategy.

Product specifications

The working range for PCSK9 is 0.04 - 0.35 µg/mL and Evolocumab 0.2- 24.0 µg/mL. Please use the serum samples at dilution of 1:10. The recoveryELISA technology can be customized for any biological upon request. Keep in mind that BioTeZ has also the totalPCSK9 ELISA® (BTPCSK9-001) on stock for the quantification of PCSK9.

References

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