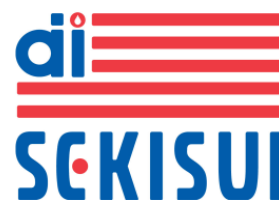


Cholesteryl ester transfer protein (CETP)



Description

Cholesteryl ester transfer protein (CETP) mediates the transfer/exchange of cholesteryl ester (CE) and triglyceride (TG) between plasma lipoproteins. Because CE is mainly generated by lecithin: cholesterol acyltransferase in HDL in plasma, the hetero-exchange of CE with TG by CETP leads to the net CE transfer from HDL to apolipoprotein B-containing lipoproteins. This reaction is believed to be one of the key steps of cholesterol transport from peripheral tissues to the liver, which is proposed to involve cellular cholesterol efflux to HDL, its esterification in HDL, CE transfer to other lipoproteins, and eventually, the uptake of the lipoproteins by the liver via receptor-mediated processes.

The pathway is of physiological importance because the cholesterol molecule is not catabolized in the peripheral tissues except for the steroidogenic cells, and thus CETP is expected to play an important role in cholesterol homeostasis.

Indication

- Atherosclerosis

Pathophysiology

Cholesteryl ester transfer protein (CETP) is a **new therapeutic target**, because the cholesteryl ester transfer process lowers HDL cholesterol and contributes to an **atherogenic lipoprotein profile**, particularly when plasma triglycerides are high.

Clinical evidence suggests that coronary artery calcification as well as intima media thickness is positively related to plasma cholesteryl ester transfer, and that **high plasma CETP concentration is associated with increased cardiovascular risk** in hypertriglyceridaemia.

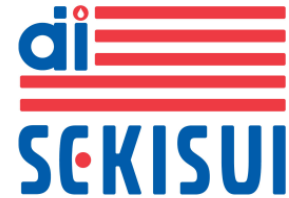
However, **CETP could also have anti-atherogenic potential**, since it provides a potentially beneficial route for delivery of HDL-derived cholesteryl esters to the liver. In addition, CETP could also favourably stimulate peripheral cell cholesterol removal and enhance hepatic cholesterol uptake. Recent evidence suggests that a **high CETP level may confer lower cardiovascular risk** in the context of low triglycerides.

References

- Inter-relationship of lipids transferred by the lipid-transfer protein isolated from human lipoprotein-deficient plasma. Morton RE and Zilversmit DB. J Biol Chem 1983;258:11751–11757.
- Plasma cholesteryl ester transfer protein. Tall AR. J Lipid Res 1993;34:1255–1274.
- A receptor-mediated pathway for cholesterol homeostasis. Brown MS et al. Science 1986;232:34–47.
- Overexpression of the HDL receptor SR-BI alters plasma HDL and bile cholesterol levels. Kozarsky KF et al. Nature 1997;387:414–417.
- Severe atherosclerosis in transgenic mice expressing simian cholesteryl ester transfer protein. Marotti KR et al. Nature 1993;364:73–75.
- Decreased early atherosclerotic lesions in hypertriglyceridemic mice expressing cholesteryl ester transfer protein trans-gene. Hayek T et al. J Clin Invest 1995;96:2071–2074.
- Increased coronary heart disease in Japanese-American men with mutation in the cholesteryl ester transfer protein gene despite increased HDL levels. Zhong S et al. J Clin Invest 1996;97:2917–2923.
- Atherosclerotic disease in marked hyperalphalipoproteinemia. Combined reduction of cholesteryl ester transfer protein and hepatic triglyceride lipase. Hirano K et al. Arterioscl Thromb Vasc Biol 1995; 15:1849–1856.
- CETP inhibition in cardiovascular risk management: a critical appraisal. Dullaart RP et al. Eur J Clin Invest 2007 Feb;37(2):90-98.

Product information CEPT ELISAover

CETP ELISA



Principle of the assay

The CETP ELISA kit is an *in vitro* quantitative assay for CETP (cholesteryl ester transfer protein) in human serum and plasma.

The assay is based on two different monoclonal antibodies that were raised against rabbit CETP and cross-react with human CETP. Test wells are coated with anti-CETP mAb (3-11D). CETP in the sample is captured by the antibody in the 1st incubation. After the 1st incubation and washing to remove all of the unbound material, HRP-labeled anti-CETP mAb (14-8F) is added. After the 2nd incubation and subsequent washing, substrate solution is added. Next, stop reagent is added. The intensity of color that develops is read by a microplate reader. The absorbance is proportional to the concentration of CETP in the sample.

References

- Human cholesteryl ester transfer protein measured by enzyme-linked immunosorbent assay with two monoclonal antibodies against rabbit cholesteryl ester transfer protein: plasma cholesteryl ester transfer protein and lipoproteins among Japanese hypercholesterolemic patients. Sasai K et al. Clin Chem (1998) 44, 1466-1473.
- Triglyceride transfer is required for net cholesteryl ester transfer between lipoproteins in plasma by lipid transfer protein. Evidence for a hetero-exchange transfer mechanism demonstrated by using novel monoclonal antibodies. Ko KWS et al. J Biol Chem (1994) 269, 28206-28213.
- Epitope mapping for the anti-rabbit cholesteryl ester transfer protein monoclonal antibody that selectively inhibits triglyceride transfer. Saito K et al. J Lipid Res (1999) 40, 2013-2021.

Key Features

- **Format:** 96-well plate
2- step sandwich ELISA
- **Sample type:** human plasma and serum
- **Linearity:** 0.2 ~ 5µg/ml
- **Sensitivity:** 0 µg/ml ≤ 0.15 Abs
2.5 µg/ml 0.2 ~ 0.9 Abs
5.0 µg/ml 0.5 ~ 2.0 Abs
- **Specificity:** 85% ~115% of expected value
- **Reproducibility:** CV value less than 10%
- **Shelf life:** 24 months



Scientific information on CEPTover