What is Apolipoprotein B-48 (Apo B-48)?

Apolipoprotein B-48 is a specific structural protein in lipoproteins derived from the small intestine, such as chylomicron (CM) and chylomicron remnants. Since one role of CM is to transfer exogenous lipids derived from food to the liver or peripheral tissues, the measurement of Apo B-48 is considered a best marker for observation of exogenous lipid transportation after food intake.

Point
- Changes in exogenous and endogenous cholesterol can be analyzed by measuring LDL cholesterol, HDL cholesterol, and Apo-B48 of the same sample (ref. 2).
- Fasting Apo B-48 level may be a marker of postprandial hyperlipidemia (ref. 9).
- Fasting Apo B-48 level is known to be useful for the evaluation of risks for developing atherosclerotic diseases: peripheral arterial disease (PAD), cardiovascular disease, and vascular endothelial dysfunction.
- It is also considered useful for the evaluation of CM remnants that have been implicated as a cause of atherosclerosis in the cardiovascular system.
Apo B-48 is a structural protein specific to Chylomicron and useful for observation of exogenous lipid transportation derived from food.

Changes in postprandial TG, Apo B-48, and Total Apo B

![Graph showing changes in TG and Apo B-48 over time.]

6 healthy men and 6 healthy women, 39 to 60 years old (Mean 52 years old). After 12-hour fasting. Loading of oral OFTT cream (17 g/m²)

**Although TG and Total Apo B are not correlated, TG and Apo B-48 are correlated.**

Comparison of Apo B-48 and Apo B-100 between the administration of Fluvastatin only and Fluvastatin + Omega-3 fatty acid

Omega 3 fatty acids induce a marked reduction of Apo B-48 when added to fluvastatin in patients with type 2 diabetes and mixed hyperlipidemia.

![Graph showing changes in apo B100 and apo B48 against baseline.]

Patients with type 2 diabetes + hyperlipidemia
- Fluvastatin 80 mg group
- Fluvastatin 80 mg + Omega-3 fatty acid 4 g group

Blood collection after 12-hour fasting

**Easily evaluate dietary response by observing Apo B-48.**

Valdivielso, P. et al. Cardiovasc Diabetol, 8;8:1, Jan 2009 (ref. 1)

Utilize Rabbit Apo B-48 ELISA for translational research on hyperlipidemia or arteriosclerosis.

Fluctuation of Apo B-48, Triglyceride, and Cholesterol in blood after administration of Ezetimibe

Rabbit: NZW, Male, 10-Week-old, body weight 2.5 to 3.0 kg
High-fat diet
[Day 1] High-fat diet
[Day 8] Divided into 2 groups
- Control group: Saline 3 ml, n=3
- Ezetimibe group: Oral administration 0.6 mg/kg/day, Saline 3 ml, n=3

SE, * p<0.05, ** p<0.01

Although significant reduction was not confirmed with TG and Cho, Apo B-48 significantly was reduced

References

1. Omega 3 fatty acids induce a marked reduction of apolipoprotein B48 when added to fluvastatin in patients with type 2 diabetes and mixed hyperlipidemia
   Valdivielso, P., Roja, J., Garcia-Arias, C., Sanchez-Chaparro, MA., Gonzalez-Santos, P. Cardiovasc Diabetol, 8;8:1, Jan 2009.

2. Fasting and postprandial apolipoprotein B-48 levels in healthy, obese, and hyperlipidemic subjects

3. Determination of Immuno-Reactive Rabbit Apolipoprotein B-48 in Serum by ELISA.
   Makoto, Kinoshita., Teruhiko, Matsuhashi., Yarnato, Mashiho, Masaaki, Kosigita., Megumi, Kigure. and Tarno, Teranoto. Experimental Animals, 59(4), 459-467, 2010

4. Postprandial apolipoprotein B48 is associated with asymptomatic peripheral arterial disease: A study in patients with type 2 diabetes and controls

5. Particle Size of ApoB-48 Carrying Lipoproteins in Remnant Lipoproteins Isolated from Postprandial Plasma

6. Postprandial lipoprotein metabolism: VLDL vs chylomicrons

7. The characteristics of remnantlipoproteins in the fasting and postprandial plasma the fasting and postprandial plasma

8. Fasting apolipoprotein B48 is associated with asymptomatic peripheral arterial disease in type 2 diabetic subjects: A case-control study

9. Effect of combination therapy with Fenofibrate and Simvastatin on postprandial lipemia in the ACCORD Lipid Trial

10. Apolipoprotein B-48: A Unique Marker of Chylomicron Metabolism

Code/Product name/Measurement range/Price (96 well/kit)

<table>
<thead>
<tr>
<th>Code/Product name</th>
<th>Measurement range</th>
<th>Price</th>
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<tbody>
<tr>
<td>637-10641 Human Apo B-48 ELISA Kit</td>
<td>2.5 - 160 ng/ml</td>
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<tr>
<td>622-04909 Rabbit Apo B-48 ELISA Kit</td>
<td>19.5 - 1,250 ng/ml</td>
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(A consumption tax is not included in a sticker price)

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