



October 2000

Separation of lipoprotein from serum with the new micro ultracentrifuge at million x g

CS150GXL/CS150GX micro ultracentrifuges and S140AT fixed angle rotor

Example:

Separation of lipoprotein (VLDL, LDL and HDL) from human serum in only 270 minutes

Lipoproteins that are included in serum have a close relation to metabolism of lipid, and they are noticed in the research field on hyperlipemia. This time, lipoproteins VLDL, LDL and HDL were separated from normal human serum with the newly developed fixed angle rotor that has the world's highest RCF of 1,050,000 x g.

1. Equipment used

Centrifuge: Hitachi CS150GXL preparative micro ultracentrifuge

Rotor: S140AT fixed angle rotor

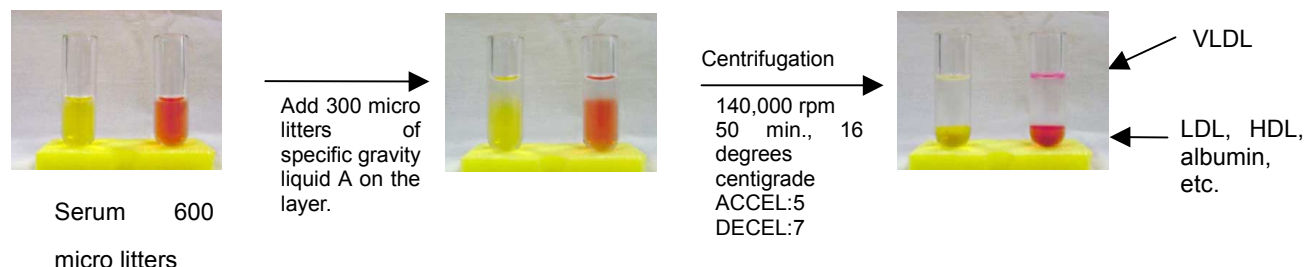
(Max. speed: 140,000 rpm, max. RCF: 1,050,000 x g, max. capacity: 2 ml x 10 tubes)

Tube: 1PC tubes

2. Procedures and results

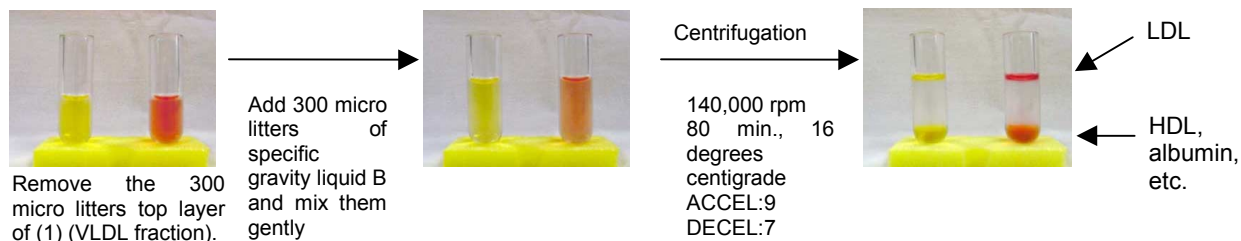
FAT RED 7B was added to the sample in each right tube below for easier visual checking.

(1) Separation of VLDL (Density < 1.006 g/ml)



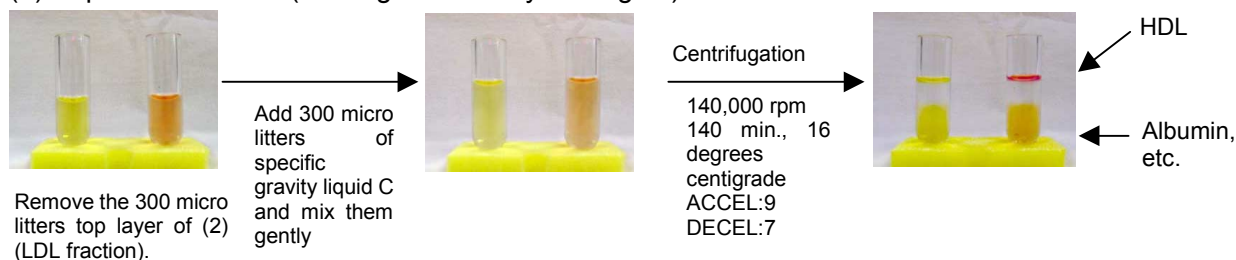
Note that the above VLDL fraction includes chylomicron.

(2) Separation of LDL ($1.006 \text{ g/ml} < \text{Density} < 1.063 \text{ g/ml}$)



Note that the above LDL fraction includes IDL.

(3) Separation of HDL ($1.063 \text{ g/ml} < \text{Density} < 1.21 \text{ g/ml}$)



Specific gravity liquid A (Density: 1.006 g/ml):

Put 11.40 g of NaCl and 0.1g of EDTA-2Na in a 1,000 ml measuring flask. Add 500 ml of distilled water and 1 ml of 1N NaOH, and mix them well until they are dissolved. Add distilled water up to 1,000 ml and then add additional 3 ml of distilled water. (NaCl: 0.195 mol)

Specific gravity liquid B (Density: 1.182 g/ml):

Add 24.98 g of NaBr to 100 ml of the specific gravity liquid A. (NaCl: 0.195 mol, NaBr: 2.44 mol)

Specific gravity liquid C (Density: 1.478 g/ml):

Add 78.32 g of NaBr to 100 ml of the specific gravity liquid A. (NaCl: 0.195 mol, NaBr: 7.65 mol)

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