MS05-8 **Lipid matabolism and ABC transporter**

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Cholesterol and phospholipids are essential as a component of cellular membranes and a precursor of bioactive compounds such as steroid hormones. However, excess cholesterol in the body causes a hyperlipidemia, which is a factor of metabolic syndrome. It has been revealed that ABC transporter proteins mediate the efflux of lipids from cells utilizing energy of ATP hydrolysis and are involved in lipid metabolism of the body. ABC transporter proteins could be a target of drugs for disorders of lipid metabolism. ABCA1 and ABCG1 mediate the efflux of cholesterol and choline phospholipids to apolipoprotein A-I to form high-density lipoproteins (HDL) in peripheral cells, which is called the reverse cholesterol transport. Mutations of ABCA1 cause a genetic disease, Tangier disease, in which patients show absence of plasma HDL. MDR3 (ABCB4) mediates the efflux of phosphatidylcholine to form bile in hepatocytes. We have shown that MDR3 also transports cholesterol. ABCB1, which is highly homologous to MDR3 and functions in xenobiotic transport, translocates short chain phospholipids, and is suggested to modulate drug recognition by MDR1. From these, we propose that lipid transporters and xenobiotic transporters may retain similar substrate binding pockets.