

Cholesterol metabolism

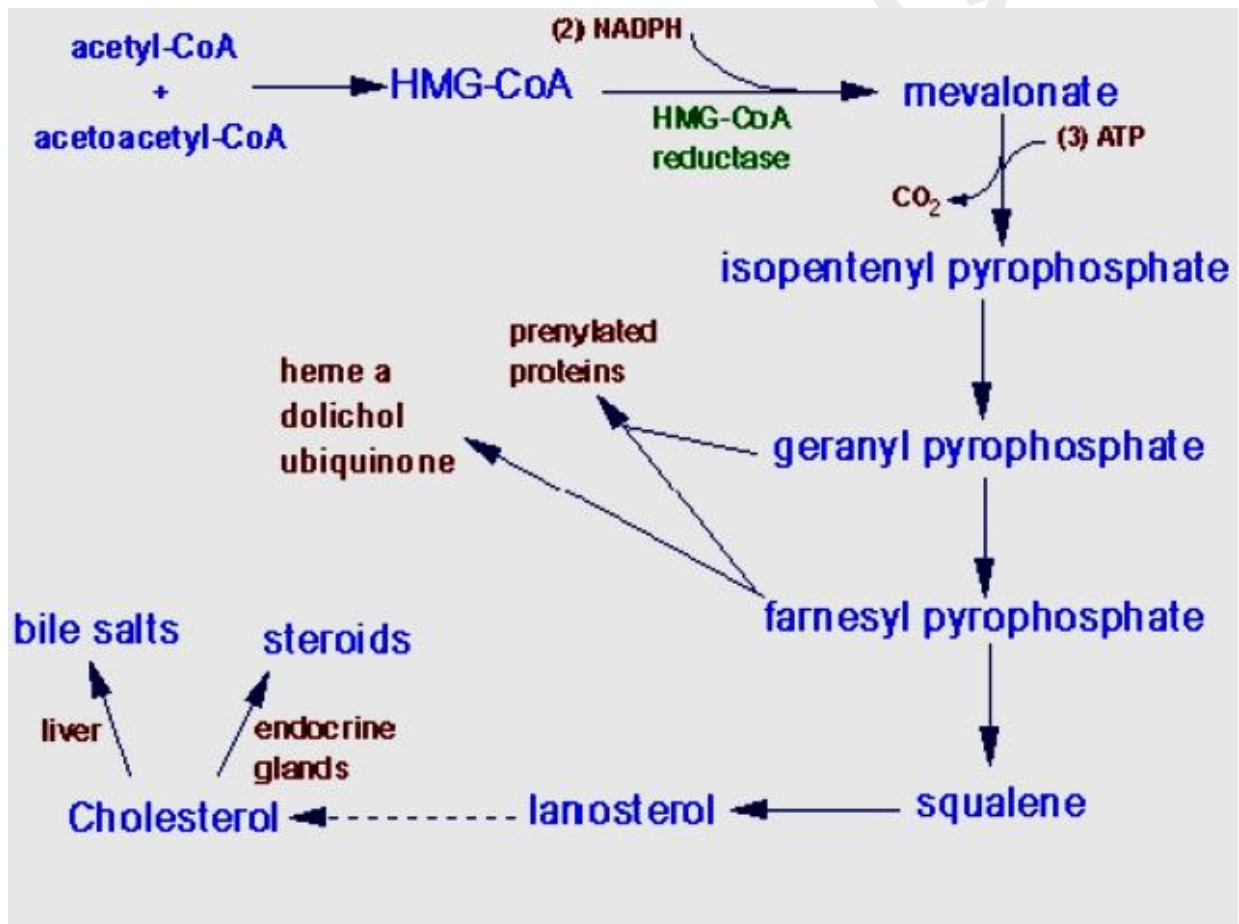
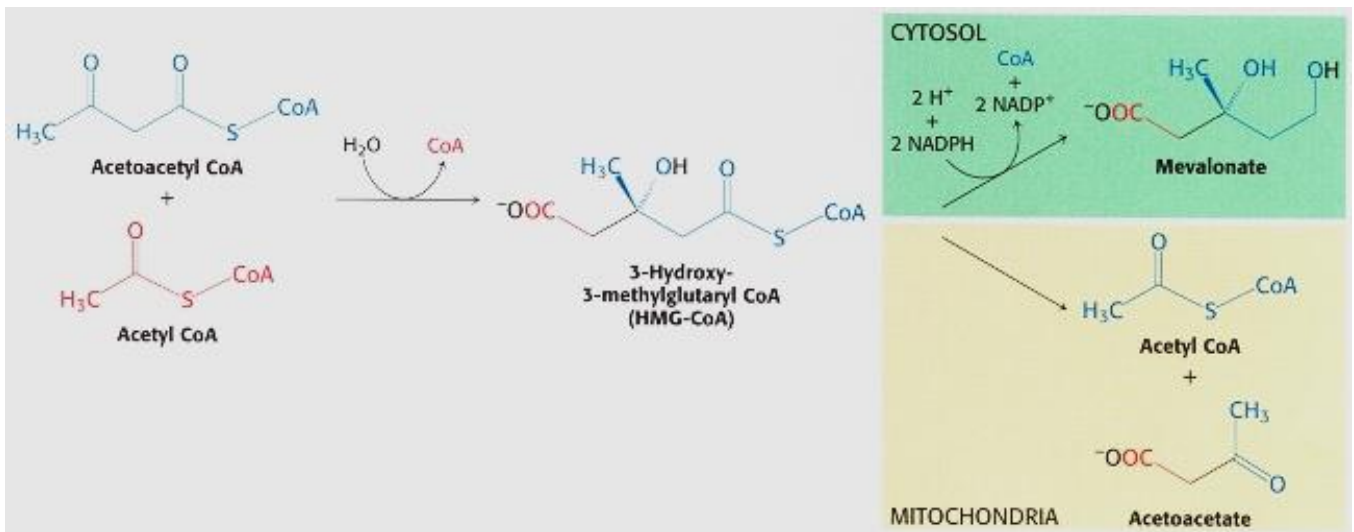
- Cholesterol is component of all cell membranes
 - precursor of bile acids
 - steroid hormones
 - vitamin D
- Sources: dietary cholesterol (~ 25% of a daily turnover) 0,3g/day
- synthesis in tissues (~ 75 %) - 1 g/day :- in (liver , reproductive tissues - adrenal cortex, ovaries, testes, placenta)
- enzymes of biosynthesis present in virtually all tissues
- Transport as a component of lipoproteins, most as cholesteryl esters

Chylomicrons	:	intestine	—————>	liver
VLDL	:	liver	—————>	plasma
LDL	:	plasma	—————>	extrahepatic tissues
HDL	:	plasma	—————>	liver

Cholesterol biosynthesis (mevalonate pathway)

- Initial substrate: acetyl-CoA
- Tissue localization: predominantly liver

The **mevalonate pathway**, also known as the **isoprenoid pathway** or **HMG-CoA reductase pathway** is an essential metabolic pathway present in eukaryotes, archaea, and some bacteria. The pathway produces two five-carbon building blocks called isopentenyl pyrophosphate (IPP) and dimethylallyl pyrophosphate (DMAPP), which are used to make isoprenoids, a diverse class of over 30,000 biomolecules such as cholesterol, heme, vitamin K, coenzyme Q10, and all steroid hormones.



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