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Roles of vitamin A in the regulation of fatty acid synthesis

Yang FC *et al.* Vitamin A and lipogenesis

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Roles of Vitamin A in the Regulation of Fatty Acid Synthesis



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The effect of pantothenic **acid**, niacin and riboflavin is here described. By transformation into coenzymes these **vitamins** are involved in **fatty acid synthesis** and oxidation reactions. Other **vitamins**, like **vitamin B12**, folic **acid**, **vitamin C**, and essential **fatty acids** influence lipid metabolism by different mechanisms.

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Publish Year: 1982

Fatty Acid Synthesis: Activation, 5 Steps and Control

<https://biochemden.com/fatty-acid-synthesis> ▾

Fatty acid synthesis occurs similarly to Beta-oxidation – acetyl groups are added to a growing chain, but the mechanism of the pathway is distinctly different from being simply the reverse of Beta-oxidation.. The **Synthesis** mainly occurs in the cytosol (not mitochondria). It uses a moiety called Acyl-carrier protein (ACP) instead of CoA and the reducing agent NADPH (not NAD/FAD).

[Citric Acid Cycle](#) · [What is Biochemistry](#) · [Fatty Acids: Building Blocks of Fats and Oils](#)

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What is the role of vitamin C in the synthesis of fatty acids? ▾

What is the regulation of fatty acid oxidation? ▾

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PEOPLE ALSO ASK

What vitamins are involved in lipid metabolism? ▾

How is fatty acid synthesis controlled? ▾

What is the function of vitamins? ▾

Which is the first committed step of fatty acid biosynthesis? ▾

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<https://www.ncbi.nlm.nih.gov/pubmed/4274563>

Regulation of mammalian fatty-acid synthetase. The roles of carbohydrate and insulin. Volpe JJ, Vagelos PR. The regulation of fatty-acid synthetase has been studied in liver, adipose tissue, and brain of diabetic and normal rats in relation to insulin administration and glucose or fructose feeding.

Cited by: 87

Author: Joseph J. Volpe, P. Roy Vagelos

Publish Year: 1974

Vitamins and lipid metabolism

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The effect of pantothenic **acid**, niacin and riboflavin is here described. By transformation into coenzymes these **vitamins** are involved in **fatty acid synthesis** and oxidation reactions. Other **vitamins**, like **vitamin B12**, folic **acid**, **vitamin C**, and essential **fatty acids** influence lipid metabolism by different mechanisms.

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Author: A Fidanza, M Audisio

Publish Year: 1982

Vitamins: Water and Fat Soluble - The Medical Biochemistry ...

<https://themedicalbiochemistrypage.org/vitamins-water-and-fat-soluble> ▾

- Introduction to Vitamins and Minerals. Vitamins are organic molecules that function in a wide ...
- Thiamine (Thiamin) Thiamine (also written thiamin) is also known as vitamin B1. Thiamine is ...
- Riboflavin. Riboflavin is also known as vitamin B2. Riboflavin is the precursor for the coenzymes, ...
- Niacin. Niacin (nicotinic acid) is also known as vitamin B3. Both nicotinic acid (NA) and ...

See full list on themedicalbiochemistrypage.org

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What vitamins are involved in lipid metabolism? ▾

How is fatty acid synthesis controlled? ▾

What is the role of fatty acids in the heart? ▾

What is the function of vitamins? ▾

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Fatty Acid Biosynthesis

<https://www.cliffsnotes.com/study-guides/biology/...> ▾

Malonyl-CoA contains a 3-carbon dicarboxylic **acid**, malonate, bound to Coenzyme A. Malonate is formed from acetyl-CoA by the addition of CO₂ using the biotin cofactor of the enzyme acetyl-CoA carboxylase.. Formation of malonyl-CoA is the commitment step for **fatty acid synthesis**, because malonyl-CoA has no metabolic **role** other than serving as a precursor to **fatty acids**.

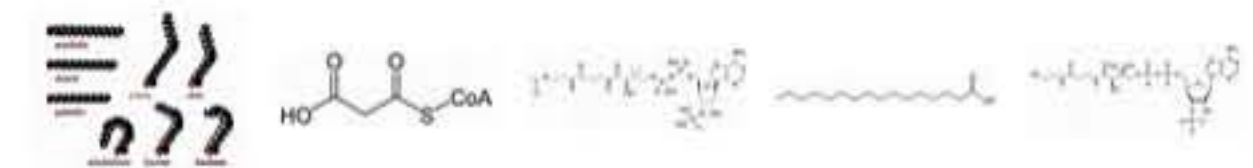
Fatty acid synthesis

Fatty acid synthesis is the creation of fatty acids from acetyl-CoA and NADPH through the action of enzymes called fatty acid synthases. This process takes place in the cytoplasm of the cell. Most of the acetyl-CoA which is converted into fatty acids is derived from carbohydrates via the glycolytic pathway. The glycolytic pathway also provides the glycerol with which three fatty acids can combine to form triglycerides, the final product of the lipogenic process. When only two fatty acids combine with glycerol and the third alcohol group is phosphorylated with a group such as phosphatidylcholine, a phospholipid is formed. Phospholipids form the bulk of the lipid bilayers that make up cell membranes and surround the organelles within the cells

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Fatty acid Malonyl-CoA Acetyl-CoA Palmitic acid Coenzyme A

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