Carnitine

see Acetylcarnitine.

see L-Carnitine.

Carnitine (β-hydroxy-γ-N-trimethylaminobutyric acid, 3-hydroxy-4-N,N,N- trimethylaminobutyrate) is a quaternary ammonium compound involved in metabolism in most mammals, plants and some bacteria.

Carnitine may exist in two isomers, labeled D-carnitine and L-carnitine, as they are optically active. At room temperature, pure carnitine is a white powder, and a water-soluble zwitterion with low toxicity.

Carnitine only exists in animals as the L-enantiomer, and D-carnitine is toxic because it inhibits the activity of L-carnitine.

Carnitine was discovered in 1905 as a result of its high concentration in muscle tissue. It was originally labeled vitamin BT; however, because carnitine is synthesized in the human body, it is no longer considered a vitamin.

Carnitine can be synthesized by most humans; about 1 in 350 males is unable to synthesize it due to genetic causes on the X chromosome.

Carnitine is involved in the oxidation of fatty acids, and involved in systemic primary carnitine deficiency. It has been studied for preventing and treating other conditions, and is used as a purported performance enhancing drug.

Carnitine shuttle

Carnitine shuttle