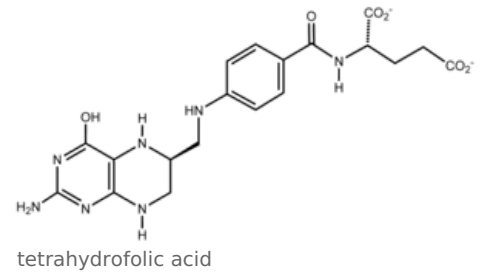


Tetrahydrofolic acid

Tetrahydrofolic acid (*tetrahydrofolate*) is reduced and at the same time active form folic acid (one of the aromatic rings is missing, see formulas).

Structure:

In the structure, we find a pteridine heterocycle connected to p-aminobenzoate (PAB) and the peptide one to glutamate (animals do not synthesize PAB or synthesize glutamate, therefore it has the character of a vitamin).

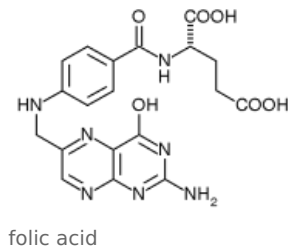


Function:

As an important coenzyme, C1 transfers fragments in the form of methyl, formyl and methylene. These fragments bind to N10 or N5 nitrogen or both at the same time. It is used in the metabolism of amino acids, in the synthesis of purines and pyrimidines.

Amino acid metabolism:

The following reactions are involved in the metabolism of amino acids, for example: conversion of serine to glycine, splitting of glycine, degradation of histidine, degradation of tryptophan.



Nucleotide and antifolic synthesis:

Folate antimetabolites (e.g.: methotrexate) are used to stop malignant growth, which in purine metabolism prevent the incorporation of carbons needed for the composition of the purine cycle and in pyrimidine metabolism prevent the methylation of dUMP to dTMP (catalyzed by thymidylate kinase) by eliminating THF.

Links

- ws:Kyselina tetrahydrofolistová

Related articles

- Folic acid
- Disorders of folate metabolism
- Cytostatics