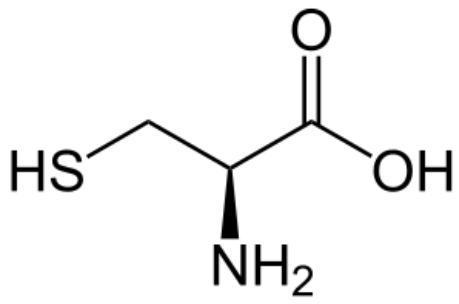
Cysteine

Cysteine is a non-essential amino acid that, like methionine , has a **sulfur** atom in its molecule.

Metabolism cysteine

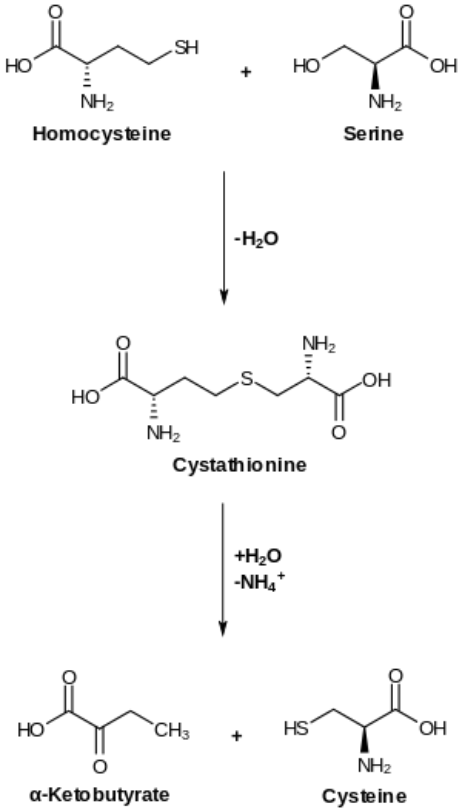


Cysteine molecule

Cysteine synthesis takes place in the human organism from **homocysteine** and **serine** .

The degradation of cysteine begins with the oxidation of the -SH group to -SO_2^- by the enzyme cysteine dioxygenase. In the resulting **L-cysteine sulfinate , the -NH_2** group is replaced by a keto group with the help of transaminase , and **β-sulfinylpyruvate** is formed . In the final reaction, it is split by desulfinase into **pyruvate** and sulfite (SO_3^-), or final sulfate (SO_4^-). Cysteine is an important source of **taurine** . L-cysteine sulfinate is decarboxylated to **hypotaurine** and subsequent oxidation of the -SO_2^- - group to -SO_3^- produces taurine.

Alternative non-oxidative degradation of cysteine produces **pyruvate** and **sulfane** (H_2S).



Importance

- In peptides, cysteine is essential for the formation of **disulfide bridges**.
- It is a substrate for **glutathione**.
- It is a substrate for **taurine**. The latter is conjugated with bile acids or other substances that increase their solubility in water.
- Decarboxylation of cysteine produces **cysteamine** , which is part of **coenzyme A**.
- It has a high proportion of **keratin** protein (hair, nails).

Links

Related articles

Aminoacids

References

- MATOUŠ, Bohuslav, et al. *Fundamentals of medical chemistry and biochemistry.* 2010 edition. Prague: Galen, 2010. 0 pp. ISBN 978-80-7262-702-8 .