

Answer on question #60301 - Biology / Biochemistry

Wikipedia says through transamination essential amino acids are converted into non-essential amino acids. But they have put an e.g. Could you cite one?

Answer:

Look at the figure below. It shows how amino group donated by leucine, the essential amino acid, is transferred to pyruvate to form alanine, a non-essential amino acid. The amino group can be donated by any essential amino acid to any non-essential one. The cell has a precursor for alanine, pyruvate, which is present in the cell in high amounts and can accept the amino group. There are such precursors for all other non-essential amino acids.

But the represented reaction cannot occur in the reverse direction. You can see that the product of deamination of leucine is unstable. As soon as it is produced, it is broken down into more stable compounds. Thus, if we wanted to produce leucine by transamination reaction, it would be impossible. There is no precursor for leucine in the animal cell. Thus, leucine is essential for animals. The same is for other essential amino acids: there is no precursor in the animal cell.

