WHAT IS A2 MILK?

Cow’s milk protein is composed of whey and casein. A2 milk is a milk that does not contain A1 casein.

Among cow’s milk casein, there are several β-caseins, of which A1 and A2 β-caseins are the most prevalent ones.

- There are 13 genetic variants of β-casein in cow’s milk.6
- The most prevalent ones are A1 and A2 β-caseins7.

A2 β-casein is the original variant in cow’s milk, found thousands of years back.

- Originally, cow’s milk did not contain A1 β-casein8
- This A1 β-casein variant appeared 5,000 to 10,000 years ago from the A2 variant, because of cows’ domestication and genetic selection8.

Cow’s milk A1 and A2 β-casein variants have identical structure, except 1 amino acid, at position 67 of amino acid chain6.

Depending on the amino acid at position 67 (histidine in A1 and proline in A2 β-casein) there will be a release of specific amino acid during digestion: β-casomorphin-7 or -9 (BCM-7 or BCM-9)9,10.

Human milk β-casein and cow’s milk A2 β-casein have proline in the position 679,11.

- Limiting the release of BCM-7 peptide9,12,13. Hence they may have a similarity from a digestive point of view9,17.

Compared with A1 milk, A2 milk may provide some benefits*.

For digestion:
- Less severe gastrointestinal symptoms such as18,19:
  - Flatulence
  - Bloating
  - Abdominal pain

For immunity:
- Lower serum concentrations of some inflammatory biomarkers19
- Lower increase in BCM-7 plasma concentration20, which may have some adverse effects on health outcomes in infants20
- Increases natural production of the antioxidant glutathione (GSH)21

*clinical trials done in adults

References