

P.20 - Genetic basis of Lactose Intolerance

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Lactose intolerance is an adverse food reaction characterized by gastrointestinal and extra-gastrointestinal symptoms, which results from the inability to hydrolyze lactose due to an enzyme lactase deficiency, encoded by the *LCT* gene, in the small intestine muscle. This reaction results when more than 12g of this disaccharide is ingested. There are 3 types of intolerance: the primary, characterized by the natural decrease of lactase production with advancing age; secondary, caused by the death of intestinal cells due to a primary disease that has a temporary duration and the congenital, known as autosomal recessive inheritance. In the Caucasian population, the gene associated to this intolerance has the variant C13910T or A22018T on chromosome 2q21.12. On the other hand, in the African and Middle Eastern population the change occurs at position -13907 C>T. The most current treatment for these patients is elimination of food containing lactose. Other options are currently available, such as lactase supplementation or consumption of probiotics that express β -galactosidase activity, helping to decrease the intolerance of this sugar and improve the quality of life. Lactose intolerance affects about 70% of the world's population, leading to a decrease in dairy products consumption. The genetic sequence variations are multiple, according to the world's populations, because the consumption of dairy products is diverse. The objective of this work is to understand the genetic basis of lactose intolerance.

Keywords: Lactose intolerance, genetics, lactase and *LCT* gene development.

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