Galactosidase

Galactosidase is an enzyme that breaks down the disaccharide lactose into its constituent monosaccharides, glucose and galactose. It is found in many organisms, including bacteria, fungi, plants, and animals, and is involved in a wide range of biological processes.

In humans, galactosidase is important for the digestion of lactose in milk and other dairy products. People with lactose intolerance, a condition in which the body is unable to digest lactose, have a deficiency in galactosidase activity, leading to gastrointestinal symptoms such as bloating, gas, and diarrhea.

Galactosidase is also used in industrial applications, such as the production of lactose-free dairy products and the hydrolysis of galactomannans in the food and beverage industry. It is a commonly used enzyme in molecular biology research for the manipulation of DNA molecules, particularly in the removal of unwanted galactose residues from glycoproteins.

Galactosidase alpha

Galactosidase alpha (GLA), a member of galactosidase (GAL) family, contributes to cancer diagnosis and targeted therapy. Up to now, neither prognosis nor immune infiltration has been demonstrated in cases with low-grade glioma (LGG). In LGG, we investigated the association between GLA expression and immune infiltration levels. Methods: GLA expression levels in pan-cancer were evaluated utilizing the Oncomine database. In addition, GLA level was screened via analyzing the gene expression omnibus (GEO) data and the Cancer Genome Atlas (TCGA) data, and evaluated in LGG tissues and adjacent tissues by using qPCR. TIMER database was utilized for evaluating the correlation between GLA level and LGG immune infiltrates. A correlation was found between GLA levels and LGG immune infiltrates utilizing the TIMER database. Moreover, we then assessed the TIMER data to explore clinical outcome in multiple immune cells and the correction between GLA expression and immune markers. Results: The mRNA levels of GLA were upregulated in LGG tissues. GLA expression was associated with a poor outcome of patients with LGG. Additionally, the infiltration levels of several immune cells were obviously enriched in LGG with a higher GLA level. Moreover, LGG prognosis was worsened with high GLA levels in immune cells. Conclusions: These results suggested that GLA levels in LGG might be more predictive of immune infiltration, with potential value for assessment of tumor development [1)]

[1)]

Zhang Y, Li J, Yin X. High-expression of Galactosidase alpha is correlated with poor prognosis and immune infiltration in low-grade glioma. J Cancer. 2023 Mar 5;14(4):646-656. doi: 10.7150/jca.81975. PMID: 37057282; PMCID: PMC10088540.