Product Information

Anti-Gliadin antibody, Mouse monoclonal

Clone GLD7, purified from hybridoma cell culture

SAB4200864

Product Description

Monoclonal Anti-Gliadin antibody (mouse IgG1 isotype) is derived from the GLD7 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from a mouse immunized with Gliadin from wheat (Cat. No. G3375, UniProt ID: P02863), as immunogen. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents (Cat. No. ISO-2). The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-Gliadin antibody specifically recognizes wheat gliadin. The antibody is specific for wheat, barley, spelt, rye. No cross reaction is observed with oats, soya, corn, rice and potato extracts. The antibody may be used in various immunochemical techniques including Immunoblotting and ELISA.

Gliadin, a type of prolamin, the major component of wheat gluten, is comprised of single-chain polypeptides with an average molecular weight of 25–100 kDa linked by intramolecular disulfide bonds.[1] The term gliadin defines a group of proteins extracted from gluten by 70% ethanol. All fractions have remarkably low solubility in aqueous solution except at extreme pHs[2]. This low water solubility has been attributed to the presence of disulfide bonds together with cooperative hydrophobic interactions within the protein folding and structure. The amino acid composition shows that gliadin has equal amounts of polar and neutral amino acids, mainly glutamine (about 40%) in addition to high proline content (14%).

As plant proteins, they are recognized as prion-free[2]. Gliadin can adhere to the mucus layer of the stomach due to its mucoadhesive property, which is a result of various interactions (for example, hydrogen bonding, van der Waals force, and mechanical penetration).

Gliadins, from an alcohol-soluble fraction of gluten, are storage proteins in wheat, barley, and rye (along with other gluten-containing grains). Glutenins are insoluble in alcohol and differ in their biochemical structure from glutens. It has been hypothesized that the initial immune reaction in celiac disease patients is focused on several of gliadin peptides, while the long-standing inflammatory response may be defined by other gliadin peptides that have been deamidated or cross-linked by tissue transglutaminase. These latter peptides are also more tightly linked to HLA-DQ2 and HLA-DQ8[3].

The tissue transglutaminase-catalyzed changes in gliadin are not restricted to single gliadin types, for example, prolamines in barley and rye (known as hordelin and secalin, respectively) and these may induce a messenger RNA-mediated interferon-gamma response in the small-intestinal mucosa of celiacs. An alpha-2-gliadin-33-mer appears to pass through the enterocyte brush border membrane by a dose-dependent translocation mechanism, and this is further enhanced by interferon-gamma, possibly mediated by a delayed epidermal growth factor endocytosis. In active celiac disease, this immune-mediated response is very complex and involves many different mediators (such as Interlukin-21 from activated CD4+ Tcells) some are still being studied.

With genetic susceptibility, gliadin may interact with interenterocyte tight junctions and cause their disassembly. Moreover, Gliadin peptides may bind to the chemokine receptor, CXCR3. This induces zonulin release from the tight junction region and causes a resultant increase in intestinal permeability. Permeability increases have also been demonstrated prior to the onset of clinically apparent celiac disease, and even with a gluten-free diet, this altered tight junction permeability may not completely return to normal[3].

Anti-Gliadin antibody may serve as an important tool in Celiac disease research field.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is for research use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1-2 µg/mL is recommended using wheat gliadin (Cat. No. G3375).

ELISA: a working concentration of 0.12-0.06 µg/mL is recommended using wheat gliadin (Cat. No. G3375).

Note: In order to obtain best results in different techniques and preparations it is recommended to determine optimal working concentration by titration test.

References

1. Ahmed E.O., et al., *Advances in protein chemistry and structural biology*, **98**, 169-221 (2015).
2. Ahmed E.O., et al., *Journal of controlled release*, **161.1**, 38-49 (2012).
3. Gujral N., et al., *World journal of gastroenterology: WJG*, **18.42,** 6036 (2012).

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