Hydrolyzed Gliadin

Catalog # 3090

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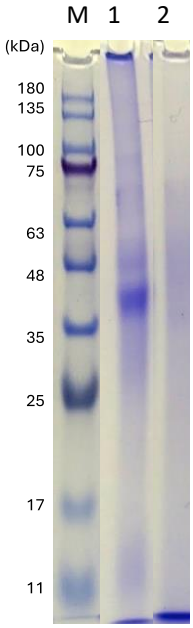

Figure 1

DESCRIPTION: Hydrolyzed Gliadin

APPLICATION: *In-vitro* studies such as ELISA and Western Blot. It can also be used as an allergen to study allergic diseases in experimental animals or in other *in vitro* experiments.

QUANTITY: 10 mg

FORM: Lyophilized powder

SOURCE: Wheat

STORAGE: Store at -20°C. After reconstitution, the solution can be stored at -20°C for long term storage and at 4°C for one week.

STABILITY: 1 year

NOTES: Figure 1. 10% SDS-PAGE under reducing conditions
M: Protein marker, 1: Native gliadin, 2: Hydrolyzed gliadin

BACKGROUND: Hydrochloric acid (HCl)-treated wheat protein (HWP) is commonly used in various consumer products including food, cosmetics, and shampoos. However, recent reports have raised concerns about immediate allergic reactions, particularly in response to facial soaps containing HWP. Treating wheat protein with HCl induces hydrolysis, breaking down both the main-chain amide bonds (peptide-bond hydrolysis) and the side-chain bonds (deamidation). This alters the structure of the wheat protein (1).

Gluten, a major component of wheat protein consisting of gliadin and glutenin, makes up about 86% of all wheat proteins. Gluten is the major allergen in wheat, and its derivatives are commonly used in cosmetic products after treatment with acids such as HCl. Gliadins are the monomeric proteins linked either by no disulfide bonds (ω-gliadins) or by intrachain disulfide bonds (α-, β-, and γ-gliadins) with molecular weights between 30 and 75 kDa (2).

Transdermal exposure to HWP can activate immune pathways, leading to sensitization and allergic reactions. Studies in mice suggested that HWP has a similar potential to induce allergic reactions as gluten, although its allergenicity may vary. One notable effect of HCl treatment is the increased solubility of HWP which enhances its susceptibility to pepsin digestion (3). Additionally, hydrolyzed proteins like HWP exhibit enhanced transdermal permeability, which might induce allergenic and immune responses (4).

These findings indicate the potential risks of using HWP in consumer products applied to the skin and highlight the need to carefully consider product ingredients to avoid allergic reactions, especially in individuals sensitive to wheat or gluten.

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16928 Woodinville-Redmond Rd NE Suite B-101
Woodinville, WA 98072
Phone: 425.702.6365 or 888.246.6373
Fax: 425.882.3094
www.chondrex.com
support@chondrex.com

Therefore, hydrolyzed gliadin is a valuable antigen for studying allergic reactions to gluten, including baker's allergies. Chondrex, Inc. also provides various mouse anti-gliadin antibody ELISA kits for evaluating humoral immunity in mouse gluten allergy models.

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