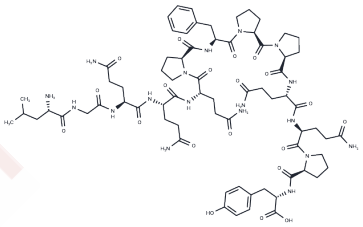
# Data Sheet (Cat.No.T39187)

TargetMol

## Gliadin p31-43

### Chemical Properties



CAS No. : 176326-01-5

Formula: C71H102N18O20

Molecular Weight: 1527.703

Storage: Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

### Biological Description

| | |
|---|---|
| Description | Gliadin p31-43, an undigested peptide derived from gliadin, prompts an innate immune response in the intestine and disrupts endocytic trafficking. Moreover, its utilization in celiac disease research has proven beneficial. |
| In vitro | Treatment with gliadin p31-43 (100μg/mL; 30 minutes-6 hours) stimulates the formation of MyD88/TLR7 complexes and activates downstream signaling pathways by enhancing MAPKs, ERK, JNK, and p38 activation in CaCo-2 cells. This results in increased levels of phosphorylated pY-ERK, JNK (pY-JNK), and p38 (pY-p38). Additionally, gliadin p31-43 treatment elevates NF-κB phosphorylation from 0.45 in control cells to 0.86 and significantly boosts MxA protein levels. It also affects the levels of IFN-α 7 and 17 mRNAs. Further, gliadin p31-43 localizes to early endosomes, interfering with the proper positioning of the HRS to early endosomes and delaying endocytic vesicle maturation. Western Blot Analysis confirms these findings, showing an increase in MyD88/TLR7 complex formation and elevated TLR7 levels following gliadin p31-43 exposure. |
| In vivo | Gliadin p31-43, administered intraluminally at a dose of 10 μg, naturally forms structured oligomers and aggregates in vitro, triggering the apoptosis-associated speck-like (ASC) complex[2]. Additionally, oral administration of 20 μg of Gliadin p31-43 in wild type C57Bl/6 mice elevates IL-1β levels, indicating the activation of the inflammasome caspase-1 pathway in the small intestine mucosa. This demonstrates Gliadin p31-43's inherent ability to initiate the NLRP3 inflammasome[2], showcasing its sequence-specific spontaneous action. |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 0.6546 mL | 3.2729 mL | 6.5458 mL |
| 5 mM | 0.1309 mL | 0.6546 mL | 1.3092 mL |
| 10 mM | 0.0655 mL | 0.3273 mL | 0.6546 mL |
| 50 mM | 0.0131 mL | 0.0655 mL | 0.1309 mL |

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Merlin Nanayakkara, et al. P31-43, an undigested gliadin peptide, mimics and enhances the innate immune response to viruses and interferes with endocytic trafficking: a role in celiac disease. Sci Rep. 2018 Jul 17;8(1): 10821.
María Florencia Gómez Castro, et al. p31-43 Gliadin Peptide Forms Oligomers and Induces NLRP3 Inflammasome/Caspase 1- Dependent Mucosal Damage in Small Intestine. Front Immunol. 2019 Jan 30;10:31.