Gliadin p31-43 TFA

Cat. No.:	HY-P3151A
Molecular Formula:	$C_{73}H_{103}F_3N_{18}O_{22}$
Molecular Weight:	1641.7
Sequence Shortening:	LGQQQPFPPQQPY
Target:	Others
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description

Gliadin p31-43 TFA is an undigested gliadin peptide. Gliadin p31-43 TFA induces an innate immune response in the intestine and interferes with endocytic trafficking. Gliadin p31-43 TFA can be used for celiac disease research[1][2].

In Vitro

Gliadin p31-43 (100 μg/mL; 30 minutes-6 hours) treatment induces the MyD88/TLR7 complexes, and activates downstream signalling by activating MAPKs, ERK, JNK and p38). Gliadin p31-43 increases the levels of the phosphorylated forms of pY-ERK, JNK (pY-JNK) and p38 (pY-p38)[1].

Gliadin p31-43 treatment increases NF-κB phosphorylation in CaCo-2 cells from 0.45 in control cells to 0.86. Gliadin p31-43 treatment induces a significant increase in levels of the MxA protein. The levels of the IFN-α 7 and 17 mRNAs are also analysed after Gliadin p31-43 treatment[1].

In CaCo-2 cells, Gliadin p31-43 localizes to the early endosomes and delays vesicular trafficking. Gliadin p31-43 interferes with the correct localization of the growth factor regulated tyrosine kinase substrate (HRS) to early endosomes, delaying the maturation of the endocytic vesicles[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	CaCo-2 cells
Concentration:	100 μg/mL
Incubation Time:	30 minutes, 3 hours, 6 hours
Result:	Showed the increase in formation of the MyD88/TLR7 complex, and increased in the level of TLR7.

In Vivo

Gliadin p31-43 (10 μg; intraluminally injection) shows a sequence-specific spontaneous ability to form structured oligomers and aggregates in vitro and induced activation of the apoptosis-associated speck-like (ASC) complex[2].

The increment of IL-1β indicates the activation of the inflammasome caspase-1 pathway in the small intestine mucosa by oral administration of Gliadin p31-43 (20 μg) in wild type C57Bl/6 mice. Gliadin p31-43 has an intrinsic propensity to form oligomers which trigger the NLRP3 inflammasome[2].

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REFERENCES

[1]. 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.

[2]. 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.

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