Larazotide acetate

Cat. No.: HY-106268A

CAS No.: 881851-50-9

Molecular Formula: $C_{34}H_{59}N_9O_{12}$

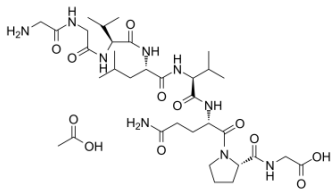
Molecular Weight: 785.89

Target: Gap Junction Protein

Pathway: Cytoskeleton

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 16.67 mg/mL (21.21 mM; Need ultrasonic)

DMSO : 3.2 mg/mL (4.07 mM; Need ultrasonic and warming)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.2724 mL	6.3622 mL	12.7244 mL
5 mM	0.2545 mL	1.2724 mL	2.5449 mL
10 mM	0.1272 mL	0.6362 mL	1.2724 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Larazotide acetate is a synthetic peptide. Larazotide acetate acts as a tight junction regulator and reverses leaky junctions to their normally closed state[1].

IC_{50} & Target

Paracellular permeability[1]

In Vitro

Larazotide acetate inhibits the redistribution and rearrangement of zonula occludens-1 (ZO-1) and actin caused by AT-1002 and gliadin fragments in Caco-2 and IEC6 cells. Larazotide acetate inhibits the AT-1002-induced TEER reduction and TJ opening in Caco-2 cells. Larazotide acetate inhibits the translocation of a gliadin 13-mer peptide, which has been implicated in celiac disease, across Caco-2 cell monolayers. Further, apically applied Larazotide acetate inhibits the increase in TJ permeability elicited by basolaterally applied cytokines[1].

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

In Vivo

When tested in vivo in gliadin-sensitized HLA-HCD4/DQ8 double transgenic mice, larazotide acetate inhibits gliadin-induced macrophage accumulation in the intestine and preserved normal tight junction structure[1].

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

PROTOCOL

Cell Assay [1]	Caco-2 cells are seeded onto 12-well plate and grown for 21–28 days until fully differentiated. The apical and basolateral compartments of Caco-2 cell monolayers are pre-incubated in Hank's Balanced Salt Solution (HBSS) at 37°C for 30 min. Treatment solutions containing 7.5 mM LY with or without AT-1002 (7 mM) and different concentrations of larazotide acetate (5, 10, 12.5, 15 mM) in HBSS are added to the apical compartment of each monolayer and incubated at 37°C, 50 rpm for 180 min. At the end of the incubation, samples are removed from the basolateral compartment and analyzed in a fluorescence plate reader at excitation and emission wavelengths of 485 nm and 535 nm, respectively. The increase in LY passage is calculated for each treatment and is expressed relative to that of untreated controls[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Mice[1] Cohorts of HLA-HCD4/DQ8 mice (n=10 each) are sensitized (i.p.) with 500 μg of gliadin dissolved in 0.02 mM acetic acid in 50 μg of Complete Freund'sAdjuvant; thereafter, mice are gavaged with gliadin (2 mg/mouse), +/− treatment, 2×/week for 7 weeks. Group 1 receives larazotide acetate (250 μg/mouse) and gliadin, Group 2 receives AT-1002 (250 μg/mouse) and gliadin, and Group 3 is gavaged with gliadin only. A group of non-sensitized controls (CFA, i.p. only) is gavaged with rice. Twenty-four hours after the last gavage, small intestinal tissue is mounted in Ussing chambers for the measurement of electrical parameters (Isc, conductance) and macromolecule transport (horseradish peroxidase [HRP] flux). Tissue is processed for macrophage counts by immunohistochemistry using F4/80 antibody specific for a macrophage-restricted cell surface glycoprotein[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2020 Jun 19;11(1):3151.

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REFERENCES

[1]. Gopalakrishnan S, et al. Larazotide acetate regulates epithelial tight junctions in vitro and in vivo. Peptides. 2012 May;35(1):86-94.

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