OVA Peptide (323-339)

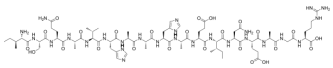
Cat. No.: HY-P0286

CAS No.: 92915-79-2

Molecular Formula: $C_{74}H_{120}N_{26}O_{25}$

Molecular Weight: 1773.9

Sequence: Ile-Ser-Gln-Ala-Val-His-Ala-Ala-His-Ala-Glu-Ile-Asn-Glu-Ala-Gly-Arg



Sequence Shortening: ISQAVHAAHAEINEAGR

Target: Others

Pathway: Others

Storage: Sealed storage, away from moisture and light

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)

SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 50 mg/mL (28.19 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	0.5637 mL	2.8186 mL	5.6373 mL
	5 mM	0.1127 mL	0.5637 mL	1.1275 mL
	10 mM	0.0564 mL	0.2819 mL	0.5637 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (28.19 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

OVA Peptide (323-339) represents a T and B cell epitope of Ovalbumin (Ova), which is important in the generation and development of immediate hypersensitivity responses in BALB/c mice.

In Vitro

When pulsed with 0.01 μM of OVA Peptide (323-339), M2-expressing B cells lead to an increase in the number of T_H cells mobilizing calcium, compared to M2Y-expressing B cells. To assess if M2-expressing B cells are also able to promote stronger individual responses, we quantified the 405/530 ratio MFI of responding T_H cells[1].

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

In Vivo	OVA Peptide (323-339) represents a T and B cell epitope of OVA, which is important in the generation and development of immediate hypersensitivity responses in BALB/c mice. Daily aerosolization of OVA Peptide (323-339) for 20 minutes over a period of 10 days has been as effective in the stimulation of a serum anti-OVA IgE antibody response as sensitization to native OVA by the same route. After sensitization to native OVA, the majority of the IgE anti-OVA response is directed against OVA Peptide (323-339). Evaluated by hematoxylin/eosin and major basic protein immunohistochemical stainings, OVA and OVA Peptide (323-339) induce similar lung inflammation. Interestingly, significant serum total IgE and OVA-specific IgE are observed in OVA mice when compared to saline control. OVA Peptide (323-339) mice show higher serum OVA-specific IgE, OVA Peptide (323-339)-specific IgE, IL-4 and lower IFN-γ similar to OVA mice. The proliferative response to OVA is found in cultured splenocytes of both OVA and OVA Peptide (323-339) mice, while the similar proliferative response to OVA Peptide (323-339) is only observed in the splenocytes of OVA Peptide (323-339)-sensitized and challenged mice. Although OVA Peptide (323-339) induces a Th2-like response in the mouse model as does OVA, OVA Peptide (323-339) has clearly limited immunogenic potency to activate OVA-sensitized and challenged mice splenocytes, unlike OVA[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	A20 B cell lines are loaded, or not, with different concentrations of OVA Peptide (323-339) overnight. Cells are then conjugated with purified mouse $CD4^+$ T cells and incubated for 20 h. After the 20 h incubation period, supernatant is recovered and stored at -20°C. IFN-γ production is quantified in the supernatants by sandwich ELISA. 96-well plates are analyzed. T cells cultured for two to four days in the presence of 3 μg/mL of anti-CD3 antibody are used as positive control of T cell activation. B cells cultured for 48 h in the presence of 2.5 μg/mL of anti-CD40 antibody and 5 μg/mL of the F(ab')2/F(ab) portion of an anti-mouse IgG antibody are used as positive control for B cell activation[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice[2] Fifty-one 8-week-old female BALB/c mice are randomly divided into three groups: OVA, OVA 323-339 and saline. They are intraperitoneally injected with 25 μg OVA or OVA Peptide (323-339) absorbed on 300 μg Alum or saline on days 0, 7, 14. On days 21-23, all groups are challenged intranasally with 20 μL of 1% OVA, 1% OVA Peptide (323-339) and saline, respectively. On days 0, 7, 14, mice are intraperitoneally injected with 25 μg OVA or OVA Peptide (323-339) absorbed on 300 μg Alum, or saline; on days 21-23, all groups are challenged intranasally with either 20 μL of 1% OVA, 1% OVA Peptide (323-339) or saline. On day 28, after killing, splenocytes are isolated and cultured under the stimulus of each allergen or medium. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Rep. 2020 May 26;31(8):107690.
- J Immunol. 2022 Jun 1;208(11):2558-2572.
- Biomed Res Int. 2022 Jun 19;2022:3946754.

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REFERENCES

[1]. Fontinha D, et al. Murid Gammaherpesvirus Latency-Associated Protein M2 Promotes the Formation of Conjugates between Transformed B Lymphoma Cells and T Helper Cells. PLoS One. 2015 Nov 6;10(11):e0142540.

[2]. Sun LZ, et al. Comparison between ovalbumin and ovalbumin peptide 323-339 responses in allergic mice: humoral and cellular aspects. Scand J Immunol. 2010

May;71(5):329-35.

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