Flagelin 22 TFA

Cat. No.: HY-P1568A

Molecular Formula: $C_{95}H_{163}F_3N_{32}O_{36}$

Molecular Weight: 2386.5

Target: Bacterial

Pathway: Anti-infection

QRLSTGSRINSAKDDAAGLQIA (TFA salt)

Storage: Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

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

SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (41.90 mM; Need ultrasonic)

H_2O : 33.33 mg/mL (13.97 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	0.4190 mL	2.0951 mL	4.1902 mL
	5 mM	0.0838 mL	0.4190 mL	0.8380 mL
	10 mM	0.0419 mL	0.2095 mL	0.4190 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (0.87 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (0.87 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (0.87 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Flagelin 22 TFA (Flagellin 22 TFA), a fragment of bacterial flagellin, is an effective elicitor in both plants and algae.

In Vitro

Flagelin 22 (flg22) is a 22-amino-acid peptide, which corresponds to the highly conserved N-terminal region of flagellin, can induce immunity reaction in various plants such as tomato (Solanum lycopersicum), potato (Solanum tuberosum), tobacco (Nicotiana tabacum), and Arabidopsis thaliana. Flagelin 22 can induce oxidative bursts and hypersensitive responses (HR) in both female gametophytes and sporophytes of Saccharina japonica, indicating that algae and plants may share similar mechanisms for recognizing pathogens. After culturing the female gametophytes of S. japonica in the presence of Flagelin 22, flg15, flg14, and flg22D43A for 40 days, both Flagelin 22 and flg15 significantly induce growth inhibition of the algae at a

concentration of 1 μM. The fresh weights of Flagelin 22- and flg15-challenged female gametophytes are less than one half of the control[1].

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

PROTOCOL

Cell Assay [1]

One milliliter of the female gametophytes is added to 100 mL sterilized seawater containing 1 μM of Flagelin 22, flg15, flg14, and flg22D43A, respectively. Controls are sterilized seawater and 0.1% BSA in sterilized seawater. Gametophytes are grown at 10°C with a 24-h photoperiod at 50 μmol photons m^{-2} s^{-1}. Sterilized seawater medium is provided with 0.2 mM KNO_3, 0.02mM KH_2PO_4, and 1 μM of the four respective peptides and refreshed every week. The gametophytes are briefly blotted dry, and the fresh weight is measured after 40 days[1].

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

CUSTOMER VALIDATION

- Nat Commun. 2021 Jul 15;12(1):4327.
- Plant Biotechnol J. 2021 Jul 12.

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REFERENCES

[1]. Bojun Lu, et al. Defense responses in female gametophytes of Saccharina japonica (Phaeophyta) induced by flg22-derived peptides. Journal of Applied Phycology (2016), 28(3), 1793-1801.

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