Ver. HB221103

Aureobasidin A (AbA)

Product description

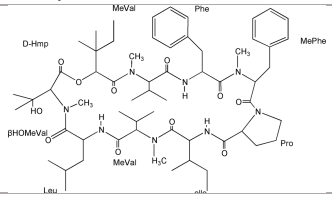
Aureobasidin A, also known as AbA, Basifungin, breomycin A, is a cyclic ester peptide antibiotic isolated from the filamentous fungus Aureobasidium Pullulans No. R106. It has a strong anti-fungal ability and is an inhibitor of the inositol phosphorylated ceramide synthase AUR1. It is toxic to yeast even at lower concentrations (0.1-0.5 μg/mL). Species of fungus susceptible to Aureobasidin A include Saccharomyces cerevisiae, Schizosaccharces pombe, Candida glabrata, Aspergillus nidulans and A. niger.

AbA inhibits the activity of inositol phosphorylamide (IPC) synthase, an essential enzyme for fungalsphingolipid biosynthesis, and interferes with sphingolipid synthesis, thus kills the strain. AUR1 gene from Saccharomyces cerevisiae and AURA gene from Aspergillus aspergillus, homologous genes encoding IPC synthase, are the most studied. Mutations in these genes can make strains resistant to AbA, such as AUR1-C gene.

Components

Components No.	Name	60231ES03	60231ES08	60231ES10
60231	Aureobasidin A (AbA)	1 mg(1 mg/mL)	5×1 mg(1 mg/mL)	10×1 mg(1 mg/mL)

Specifications

Synonym	Aureobasidin A; AbA; Basifungin
CAS No.	127785-64-2
Molecular formula	$C_{60}H_{92}N_8O_{11}$
Molecular weight	1101.42 g/mol
Appearance	liquid solution
Purity	⩾97%
Solubility	The powder is soluble in DMSO and methanol (0.5-10 mg/mL); Insoluble in water
Structure	

Shipping and Storage

The product is shipped with dry ice and can be stored at -15°C ~ -25°C for two years. Long-term storage at 4°C and room temperature is not recommended. Aqueous stock solutions and store at -15°C ~ -25°C. Avoid repeated freeze-thaw.

Instructions

1. Working concentration

Please refer to relevant literature for specific concentration, and explore and optimize according to your own experimental conditions (such as experimental purpose, cell type, culture characteristics, etc.)

2. Cell experiment (in vitro experiment)

Aureobasidin A arrests growth of yeast cells through both ceramide intoxication and deprivation of essential inositolphosphorylceramides.[1]

Triple tandem repeats of each CArG-box motif were synthesized. All DNA fragments were cloned into the Y1H vector pAbAi (Clontech, Mountain View, USA) using suitable restriction sites. Then, each assembled pAbAi construct was linearized with BstbI and transformed into Saccharomyces cerevisiae Y1HGold strain according to the Yeast Transformation System 2 Manual (Clontech, Mountain View, USA). Clones carrying the desired DNA fragment were screened for auto activation on synthetic uracil dropout medium supplemented with Aureobasidin A in the concentration of 100–900 ng/mL, as indicated (Clontech, Mountain View, USA).[2]

The open reading frames (ORFs) of SlBES1 genes were amplified and ligated into pGBKT7-GAL4BD plasmid. The fusion GAL4BD-SlBES1 constructs were further transformed into Y2H Gold yeast cells. The SD/—Trp medium plates were used to cultivate the yeast transformants. The α-galactosidase activity of the transformants was identified by X-α-gal and the expression of AUR1-C was screened by Aureobasidin A. [3]

Minimum inhibitory concentrations of Aureobasidin for various yeasts

	Strain	MIC (μg/mL)
S.cerevisiae	ATCC9763 (diploid)	0.2-0.4
	SH3328 (haploid)	0.1
	Sake yeast (diploid)	0.1-0.2
	Shochu yeast (diploid)	0.1
	Beer yeast (triploid or tetraploid)	0.1
	Baker’ s yeast (diploid)	0.2-0.4
Schizo.pombe	JY-745 (monoploid)	0.1

Notes

1. The optimal working concentration of AbA varies from host cell to host and can be determined according to the minimum inhibitory concentration (MIC).
2. For your safety and health, please wear lab coats and disposable gloves for operation.
3. For research use only.

References

[1] Vanessa Cerantola, et al. Aureobasidin A arrests growth of yeast cells through both ceramide intoxication and deprivation of essential inositolphosphorylceramides. Mol Microbiol. 2009 Mar;71(6):1523-37.

[2] Gong P, Song C, et al. Physalis floridana CRABS CLAW mediates neofunctionalization of GLOBOSA genes in carpel development. J Exp Bot. 2021 Oct 26;72(20):6882-6903.

[3] Su D, Xiang W, Wen L, et al. Genome-wide identification, characterization and expression analysis of BES1 gene family in tomato. BMC Plant Biol. 2021;21(1):161.