PhytoTech LABS

Product Information Sheet

S7625
Systemin

Formula:	$C_{85}H_{144}N_{26}O_{28}S$
MW:	2010.3 g/mol

Properties:

Form:	Powder
Appearance:	White to off-white
Application:	Plant Defense
Solubility:	Soluble in sterile water
Storage Temp:	-80°C
Amino Acid Sequence:	AVQSKPPSKRDPPKMQTD
Typical Working Concentration:	Varies by application. Concentration should be determined by end user.

Application Notes:

Systemin is an 18 amino-acid peptide that induces plants to accumulate protease inhibitors in response to herbivore attacks as a defense mechanism. It was first isolated from tomato leaves (Pearce *et al.* 1991), and was the first peptide signal found to regulate genes (Ryan and Pearce 1998). Systemin is a C-terminal cleavage byproduct of the 200 amino acid polypeptide prosystemin by phytaspaces (Beloshistov *et al.* 2018)

Dissolve in sterile, deionized water. Store at -80°C or below. Aliquot into multiple tubes to avoid multiple freeze-thaw events. Note, peptides and proteins are all susceptible to binding on the surfaces of plastic and glass tubes and bottles and significant losses can be realized during dilutions near or below 10 μg/mL. To overcome this, we would recommend dilutions below 1.0 mg/mL be performed with an aqueous solution of 0.05M NaCl (S624) and 0.1 mg/mL hydrolyzed casein (C184). Bovine serum albumin (BSA) has often been used in the same capacity as hydrolyzed casein, however we recommend hydrolyzed casein due to its widespread use in plant tissue culture.

Please Note: While PhytoTech Labs Inc. tests each lot of this product with two or more plant cell/ tissue culture lines, it is the sole responsibility of the purchaser to determine the appropriateness of this product for the specific plants that are being cultured and applications that are being used.

References:

Beloshistov et al. (2018) Phytaspase-mediated precursor processing and maturation of the wound hormone systemin. *New Phytologist* Vol. 218(3):1167-1178

Pearce G. *et al.* (1991) A polypeptide from tomato leaves induces wound-inducible proteinase inhibitor proteins *Science* Vol. 253(5022):895-897

Ryan CA and G Pearce (1998) Systemin: A Polypeptide Signal for Plant Defense Genes. *Annu. Rev. Cell Dev. Biol.* Vol.14:1-17

PhytoTech Labs Inc.

14610 W 106th St. Lenexa, KS 66215

Phone: 1-888-749-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442

www.phytotechlab.com