Product Information Sheet

P6633
PSK-α

Synonyms:	Phytosulfokine-alpha
CAS:	179667-62-0
Formula:	$C_{33}H_{46}N_6O_{16}S_2$
MW:	846.88 g/mol

Properties:

Form:	Powder
Appearance:	White to off-white
Application:	Plant Growth Regulator
Solubility:	Soluble in sterile water (1 mg/mL)
Storage Temp:	-20°C or below
Amino Acid Sequence:	Y(SO_3)IY(SO_3)TQ
Typical Working Concentration:	Varies by application. Concentration should be determined by end user.

Application Notes:

Phytosulfokine-alpha (PSK-α) is a heat-stable tyrosine-sulfated pentapeptide growth factor that is present in both monocots and dicots. It was first isolated from the conditioned media of *Asparagus officinalis* L. mesophyll cells (Matsubayashi and Sakagami 1996), and later found to induce cell proliferation in rice cell suspension cultures (Matsubayashi *et al.* 1997). This peptide also enhances growth and development of other tissues, including both lateral and primary roots (Kutscmhar *et al.* 2009; Oh *et al.* 2018), hypocotyls (Stührwohldt *et al*. 2011), and microspores (Asif *et al.* 2014).

Dissolve in sterile, deionized water. Store at -20°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. This is a well-known phenomenon for all peptides and proteins and has been seen specifically in the case of flg22 (Felix *et al.* 1999). 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 *Phyto*Technology Laboratories™ 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

Asif M. *et al.* (2014) “Phytosulfokine alpha enhances microspore embryogenesis in both triticale and wheat.” *Plant Cell Tiss Organ Cult* Vol. 116 pg 125-130.

Kutschmar A. *et al.* (2013) “PSK-α promotes root growth in *Arabidopsis*.” *New Phytol* Vol. 181 (4) pg 820-831.

Matsubayashi Y. and Sakagami Y. (1996) “Phytosulfokine, sulfated peptides that induce the proliferation of single mesophyll cells of *Asparagus officinalis* L.” *Proc. Natl. Acad. Sci. USA* Vol. 93 pg 7623-7627.

Matsubayashi Y. *et al.* (1997) “Phytosulfokine-α, a sulfated pentapeptide, stimulateds the proliferation of rice cells by means of specific high- and low-affinity binding sites.” *Proc. Natl. Acad. Sci. USA* Vol. 94 pg 13357-13362.

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Oh E. *et al.* (2018) "Signaling Peptides and Receptors Coordinating Plant Root Development." *Trends in Plant Science* Vol. 23 (4) pg 337-351.

Stührwohldt N. *et al.* (2011) "Phytosulfokine-α Controls Hypocotyl Length and Cell Expansion in *Arabidopsis thaliana* through Phytosulfokine Receptor 1." *PLoS ONE* Vol. 6 (6): e21054. DOI: 10.1371/journal.pone.0021054.

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