

## 740 Y-P

<b>Cat. No.:</b>	HY-P0175
<b>CAS No.:</b>	1236188-16-1
<b>Molecular Formula:</b>	C <sub>141</sub> H <sub>222</sub> N <sub>43</sub> O <sub>39</sub> PS <sub>3</sub>
<b>Molecular Weight:</b>	3270.7
<b>Sequence:</b>	Arg-Gln-Ile-Lys-Ile-Trp-Phe-Gln-Asn-Arg-Arg-Met-Lys-Trp-Lys-Lys-Ser-Asp-Gly-Gly-{Tyr (PO2)}-Met-Asp-Met-Ser RQIKIWFQNRRMKWKKSDGG-{PO2-Tyr}-MDMS
<b>Sequence Shortening:</b>	RQIKIWFQNRRMKWKKSDGG-{Tyr(PO2)}-MDMS
<b>Target:</b>	PI3K; Autophagy
<b>Pathway:</b>	PI3K/Akt/mTOR; Autophagy
<b>Storage:</b>	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

DMSO : 25 mg/mL (7.64 mM; Need ultrasonic)  
H<sub>2</sub>O : 5 mg/mL (1.53 mM; ultrasonic and adjust pH to 3 with 0.5%CH<sub>3</sub>COOH)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	0.3057 mL	1.5287 mL	3.0574 mL
	5 mM	0.0611 mL	0.3057 mL	0.6115 mL
	10 mM	---	---	---

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.5 mg/mL (0.76 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (0.76 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (0.76 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

740 Y-P (740Y-PDGFGR; PDGFR 740Y-P) is a potent and cell-permeable PI3K activator. 740 Y-P readily binds GST fusion proteins containing both the N- and C- terminal SH2 domains of p85 but fails to bind GST alone<sup>[1]</sup>.

<b>IC<sub>50</sub> &amp; Target</b>	PI3K								
<b>In Vitro</b>	<p>740 Y-P (50 µg/mL; 48 hours) specifically stimulates mitogenesis in medium is better than EGF or FGF at stimulating entry into S-phase, it shows the percentage of cells in S-phase for 48.3% in C2 cells. Additionally, LY294002 (HY-10108) or Wortmannin (HY-10197) potently inhibits the mitogenic response stimulated by the peptide<sup>[1]</sup>.</p> <p>740 Y-P (1 µg/mL) stimulates mitogenesis at the lowest concentration tested. The peptide stimulates mitogenesis in both the presence and absence of serum (0.5%), and in the former instance a maximal response observed at 50 µg/mL. 740Y-P to stimulate mitogenesis is highly specific and not a general feature of a cell permeable SH2 domain binding peptides<sup>[1]</sup>.</p> <p>740 Y-P (30 µM; 24 hours) remarkably inhibits the level of LC3-II/LC3-I in GO-induced PC12 cells<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis<sup>[2]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>PC12 cells</td> </tr> <tr> <td>Concentration:</td> <td>30 µM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Inhibited the protein expression of LC3-II.</td> </tr> </table>	Cell Line:	PC12 cells	Concentration:	30 µM	Incubation Time:	24 hours	Result:	Inhibited the protein expression of LC3-II.
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Result:	Inhibited the protein expression of LC3-II.								
<b>In Vivo</b>	<p>740 Y-P is not only internalised in living cells but can also interact with p85 in vivo<sup>[1]</sup>.</p> <p>740 Y-P (intraperitoneal injection; 10 mg/kg; 6 weeks) decreases the degree of ROS levels in Aβ(25-32) treated hippocampal tissues and increases the extent of AKT and PI3K phosphorylation in alzheimer's disease (AD) rat model<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								

## CUSTOMER VALIDATION

- Mol Cancer. 2022 May 10;21(1):112.
- J Clin Invest. 2022 Nov 22;e153470.
- Biomaterials. 2019 Feb;194:57-72.
- Exp Mol Med. 2023 May 1.
- J Exp Clin Cancer Res. 2021 Aug 12;40(1):255.

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## REFERENCES

- [1]. Derossi D, et al. Stimulation of mitogenesis by a cell-permeable PI 3-kinase binding peptide.
- [2]. Xiaoli Feng, et al. Graphene Oxide Induces p62/SQSTM-dependent Apoptosis Through the Impairment of Autophagic Flux and Lysosomal Dysfunction in PC12 Cells. Acta Biomater. 2018 Nov;81:278-292.
- [3]. Zhiqing Sun, et al. GABAB Receptor-Mediated PI3K/Akt Signaling Pathway Alleviates Oxidative Stress and Neuronal Cell Injury in a Rat Model of Alzheimer's Disease. J Alzheimers Dis. 2020;76(4):1513-1526.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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