

## Physalin O

## Chemical Properties

CAS No.:	120849-18-5
Formula:	C <sub>28</sub> H <sub>32</sub> O <sub>10</sub>
Molecular Weight:	528.55
Appearance:	N/A
Storage:	0-4°C for short term (days to weeks), or -20°C for long term (months).

## Biological Description

Description	Physalin O possesses anti-inflammatory activity, it exhibited conjugating abilities with GSH and also showed significant nitric oxide (NO) production inhibiting activities.
Targets(IC <sub>50</sub> )	IKK: None
In vitro	Michael reaction acceptors (MRAs) are a class of active molecules that are directly or indirectly involved in various cellular processes, including the regulation of many signaling pathways. In this study, the inducible nitric oxide synthase (iNOS) assay was used to demonstrate that the dichloromethane extract of <i>Physalis alkekengi</i> var. <i>franchetii</i> (DCEP) possesses anti-inflammatory activity that might be attributed to the modification of key cysteine residues in IKK $\beta$ by the MRAs in DCEP. METHODS AND RESULTS: To isolate these MRAs, glutathione (GSH) was employed, and a simple ultra-performance liquid chromatography/tandem mass spectrometry (UPLC-MS/MS) screening method was developed to investigate the GSH conjugates with potential MRAs. Five physalins, including one new compound isophysalin A (2), together with four known steroidal compounds, physalin A (1), Physalin O (3), physalin L (4) and physalin G (5), were isolated to evaluate the GSH conjugating abilities, and it was indicated that compounds 1, 2 and 3, which had a common $\alpha,\beta$ -unsaturated ketone moiety, exhibited conjugating abilities with GSH and also showed significant nitric oxide (NO) production inhibiting activities. CONCLUSIONS: The anti-inflammatory activities of compounds 1, 2 and 3 might be attributed to their targeting multiple cysteine residues on IKK $\beta$ ; therefore, the alkylation of IKK $\beta$ by compound 1 was further studied by microTOF-MS. The result showed that six cysteine residues (C(59), C(179), C(299), C(370), C(412), and C(618)) were alkylated, which indicated that IKK $\beta$ is a potential target for the anti-inflammatory activity of physalin A.

## Solubility Information

Solubility	< 1 mg/ml refers to the product slightly soluble or insoluble
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## Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.892 mL	9.460 mL	18.920 mL
5 mM	0.378 mL	1.892 mL	3.784 mL
10 mM	0.189 mL	0.946 mL	1.892 mL
50 mM	0.038 mL	0.189 mL	0.378 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 °C for 6 months; - 20 °C for 1 month. Please use it as soon as possible.

## Reference

1. Physalins with anti-inflammatory activity are present in *Physalis alkekengi* var. *franchetii* and can function as Michael reaction acceptors. *Steroids*. 2012 Apr;77(5):441-7.

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