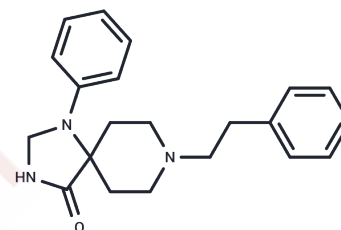


## ZIP14-IN-1

## Chemical Properties

CAS No. :	1048-17-5
Formula:	C <sub>21</sub> H <sub>25</sub> N <sub>3</sub> O
Molecular Weight:	335.44
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



## Biological Description

Description	ZIP14-IN-1 is a selective inhibitor of ZIP14. It can significantly inhibit the activity of ZIP14, but has no significant effect on ZIP8 (SLC39A8). ZIP14-IN-1 can effectively block the uptake of various divalent metal ions including zinc, iron, manganese and cadmium mediated by ZIP14. Its mechanism of action is to bind to the binding pocket formed at the dimer interface of ZIP14, thereby interfering with the metal ion transport pathway. In addition, ZIP14-IN-1 can reduce the levels of reactive oxygen species (ROS) and lipid peroxidation, alleviate metal-induced cytotoxicity, and can be used in related research on cancer cachexia .
Targets(IC50)	ROS
In vitro	In TReX-hZIP14 cells, the IC <sub>50</sub> value of ZIP14-IN-1 (Compound 14) for inhibiting ZIP14-mediated zinc ion uptake is 8.1 μM; in contrast, in TReX-hZIP8 cells, no significant inhibitory effect was detected even when the concentration was increased to 37 μM [1]. When the concentration of ZIP14-IN-1 is in the range of 0.03 to 50 μM, it can inhibit the uptake of four metal ions (zinc, iron, manganese, and cadmium) in both TReX cell lines and <i>Xenopus laevis</i> oocytes, among which the IC <sub>50</sub> values for inhibiting iron ion and zinc ion uptake are 6.25 μM and 6.06 μM, respectively [1]. After treating TReX-hZIP14 cells and mouse myoblasts with 0-50 μM ZIP14-IN-1 for 24 hours, it can effectively block the ZIP14-mediated metal ion influx process and alleviate the associated cytotoxic reaction [1]. When ZIP14-IN-1 is used at a concentration of 10 μM, it can significantly inhibit the production of reactive oxygen species (ROS) and lipid peroxides (LPO) mediated by ZIP14 in TReX-hZIP14 cells or TReX-hZIP8 cells, and also inhibit the occurrence of related inflammatory responses [1].
In vivo	In the mouse cachexia model, ZIP14-IN-1 was administered via drinking water at two dose groups of 0.1 g/L and 1.0 g/L, once daily for 10 consecutive days. It effectively improved the clinically key characteristics of cachexia and highlighted the application potential of targeting ZIP14 in inflammatory or consumptive diseases [1].

### Preparing Stock Solutions

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	1mg	5mg	10mg
1 mM	2.9812 mL	14.9058 mL	29.8116 mL
5 mM	0.5962 mL	2.9812 mL	5.9623 mL
10 mM	0.2981 mL	1.4906 mL	2.9812 mL
50 mM	0.0596 mL	0.2981 mL	0.5962 mL

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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

Hara T, et al. Matsukawa K, Ujihara S, Kawabe T, Taguchi H, Fujishiro H, Jenkitkasemwong S, Nunomura K, Lin B, Fukunaka A, Yoshigai E, Mishima K, Nakagawa S, Knutson MD, Imagawa H, Matsunaga N, Ohdo S, Hamachi I, Sakurai H, Fukada T. *Discover*

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