# Tenapanor

**Cat. No.:** HY-15991

**CAS No.:** 1234423-95-0

**Molecular Formula:** $C_{50}H_{66}Cl_4N_8O_{10}S_2$

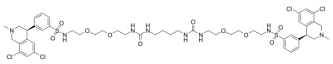
**Molecular Weight:** 1145.05

**Target:** Na+/H+ Exchanger (NHE)

**Pathway:** Membrane Transporter/Ion Channel

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 2 years |
| | -20°C | 1 year |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 50 mg/mL (43.67 mM; Need ultrasonic)

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 0.8733 mL | 4.3666 mL | 8.7332 mL |
| 5 mM | 0.1747 mL | 0.8733 mL | 1.7466 mL |
| 10 mM | 0.0873 mL | 0.4367 mL | 0.8733 mL |

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (2.18 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (2.18 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (2.18 mM); Clear solution
4. Add each solvent one by one: 5% DMSO >> 95% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (2.18 mM); Suspended solution; Need ultrasonic

## BIOLOGICAL ACTIVITY

**Description**

Tenapanor (AZD1722) is a potent and orally active sodium/hydrogen exchanger isoform 3 (NHE3) inhibitor. Tenapanor reduces intestinal phosphate absorption predominantly through reduction of passive paracellular phosphate flux. Tenapanor has the potential for the research of hyperphosphatemia[1][2].

**$IC_{50}$ & Target**

IC50: 5 nM (NHE3, human), 10 nM (NHE3, rat)[1]

**In Vivo**

Tenapanor (0.15, 0.5 mg/kg; p.o.) reduces passive paracellular phosphate absorption in rats[1].
Tenapanor (0.15 mg/kg; p.o.; twice-daily for 11 consecutive days) increases the reduction in urinary phosphorus excretion in rats[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | Rats (intestinal loop model)[1] |
| Dosage: | 0.15, 0.5 mg/kg |
| Administration: | P.o. |
| Result: | Reduced passive paracellular phosphate absorption by reduced urinary phosphate and sodium excretion after the high-phosphate meal and increased sodium and phosphate delivery to the cecum. |

| | |
|---|---|
| Animal Model: | 8 weeks, 250 g male Sprague–Dawley rats[2] |
| Dosage: | 0.15 mg/kg in combination with sevelamer (0%, 0.75%, 1.5%, and 3% (wt/wt)) |
| Administration: | Oral gavage; twice-daily for 11 consecutive days |
| Result: | Significantly augmented the reduction in urinary phosphorus excretion. |

## CUSTOMER VALIDATION

- J Exp Med. 2021 Nov 1;218(11):e20210479.
- JCI Insight. 2021 Jun 8;6(11):147699.
- J Virol. 2022 Nov 7;e0147322.
- Vet Microbiol. 27 October 2021, 109263.

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## REFERENCES

[1]. King AJ, et al. Inhibition of sodium/hydrogen exchanger 3 in the gastrointestinal tract by tenapanor reduces paracellular phosphate permeability. Sci Transl Med. 2018 Aug 29;10(456):eaam6474.

[2]. King AJ, et al. Combination treatment with tenapanor and sevelamer synergistically reduces urinary phosphorus excretion in rats. Am J Physiol Renal Physiol. 2021 Jan 1;320(1):F133-F144.

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

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