# Sulfaphenazole

**Cat. No.:** HY-B1218

**CAS No.:** 526-08-9

**Molecular Formula:** $C_{15}H_{14}N_4O_2S$

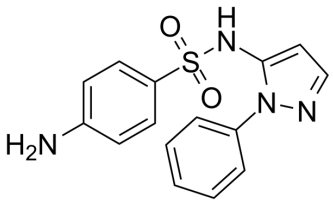
**Molecular Weight:** 314.36

**Target:** Bacterial; Cytochrome P450; Necroptosis; Apoptosis; Antibiotic

**Pathway:** Anti-infection; Metabolic Enzyme/Protease; Apoptosis

**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 : ≥ 100 mg/mL (318.11 mM)

* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 3.1811 mL | 15.9053 mL | 31.8107 mL |
| 5 mM | 0.6362 mL | 3.1811 mL | 6.3621 mL |
| 10 mM | 0.3181 mL | 1.5905 mL | 3.1811 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: ≥ 2.08 mg/mL (6.62 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.62 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.62 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Sulfaphenazole is a selective inhibitor of human cytochrome P450 (CYP) 2C9 enzyme. Sulfaphenazole is a cytoprotective agent against light-induced death of photoreceptors. Sulfaphenazole inhibits light-induced necrosis and mitochondrial stress-initiated apoptosis. Sulfaphenazole is an off patent sulfonamide antibiotic and demonstrates bactericidal activity through enhanced M1 macrophage activity. Sulfaphenazole can significantly reduce infarct size and restore post-ischemic coronary flow following ischemia and reperfusion[1][2][3].

| | |
|---|---|
| **$IC_{50}$ & Target** | CYP2C9 |
| **In Vitro** | Sulfaphenazole (10 μM; for 1 h) causes the numbers of light-induced apoptotic and necrotic cells decreased by 33 and 44%, respectively[1].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only.<br>Apoptosis Analysis[1]<br>Cell Line: 661W cells<br>Concentration: 10 μM<br>Incubation Time: For 1 h at 37 °C followed by light exposure for 2-3 h<br>Result: The numbers of light-induced apoptotic and necrotic cells were decreased by 33 and 44%, respectively. |
| **In Vivo** | Sulfaphenazole (5.13 mg/kg; intraperitoneal injections; daily; for 8 weeks) restores endothelium-mediated relaxation in diabetic mice[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only.<br>Animal Model: Diabetic male mice (db/db strain)[2]<br>Dosage: 5.13 mg/kg<br>Administration: Intraperitoneal injections; daily; for 8 weeks<br>Result: Although sulfaphenazole did not change endothelium-dependent vasodilation in control mice, it restored endothelium-mediated relaxation in db/db mice. |

## CUSTOMER VALIDATION

- Chemosphere. 2021, 131347.
- Carbohyd Polym. 2021 Feb 1;253:117255.
- J Agric Food Chem. 2019 Jul 24;67(29):8243-8252.
- J Agric Food Chem. 2019 Apr 17;67(15):4328-4336.
- ACS Appl Nano Mater. July 1, 2022.

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## REFERENCES

[1]. Qing Chang, et al. Cytochrome P450 2C epoxygenases mediate photochemical stress-induced death of photoreceptors. J Biol Chem. 2014 Mar 21;289(12):8337-52.

[2]. Shahrzad Elmi, et al. Sulfaphenazole treatment restores endothelium-dependent vasodilation in diabetic mice. Vascul Pharmacol. 2008 Jan;48(1):1-8.

[3]. Christopher T Turner, et al. Sulfaphenazole reduces thermal and pressure injury severity through rapid restoration of tissue perfusion. Sci Rep. 2022 Jul 23;12(1):12622.

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

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