# Product data sheet

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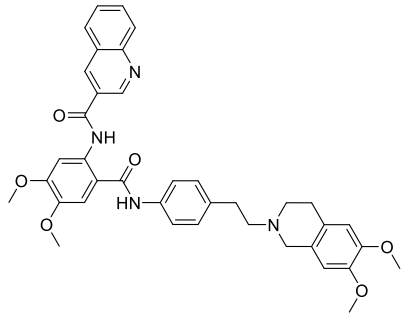
|---|---|
| MedKoo Cat#: 202820<br>Name: Tariquidar<br>CAS#: 206873-63-4 (free base)<br>Chemical Formula: $C_{38}H_{38}N_4O_6$<br>Exact Mass: 646.27913<br>Molecular Weight: 646.73 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**
Tariquidar, also known as XR9576, is a P-glycoprotein (P-gp) inhibitor undergoing research as an adjuvant against multidrug resistance in cancer. Tariquidar non-competitively binds to the p-glycoprotein transporter, thereby inhibiting transmembrane transport of anticancer drugs. Inhibition of transmembrane transport may result in increased intracellular concentrations of an anticancer drug, thereby augmenting its cytotoxicity.

**2. CoA, QC data, SDS, and handling instruction**
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

**3. Solubility data**

| Solvent | Max Conc. mg/mL | Max Conc. mM |
|---|---|---|
| DMSO | 2 | 3.09 |

**4. Stock solution preparation table:**

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 1.55 mL | 7.73 mL | 15.46 mL |
| 5 mM | 0.31 mL | 1.55 mL | 3.09 mL |
| 10 mM | 0.15 mL | 0.77 mL | 1.55 mL |
| 50 mM | 0.03 mL | 0.15 mL | 0.31 mL |

**5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator**
Please refer the product web page under section of "Calculator"

**6. Recommended literature which reported protocols for in vitro and in vivo study**
In vitro study

1. Durante M, Frosini M, Fusi F, Neri A, Sticozzi C, Saponara S. In vitro vascular toxicity of tariquidar, a potential tool for in vivo PET studies. Toxicol In Vitro. 2017 Oct;44:241-247. doi: 10.1016/j.tiv.2017.07.015. Epub 2017 Jul 23. PMID: 28746893.

2. Walker J, Martin C, Callaghan R. Inhibition of P-glycoprotein function by XR9576 in a solid tumour model can restore anticancer drug efficacy. Eur J Cancer. 2004 Mar;40(4):594-605. doi: 10.1016/j.ejca.2003.09.036. PMID: 14962729.

In vivo study

1. Matzneller P, Kussmann M, Eberl S, Maier-Salamon A, Jäger W, Bauer M, Langer O, Zeitlinger M, Poeppl W. Pharmacokinetics of the P-gp Inhibitor Tariquidar in Rats After Intravenous, Oral, and Intraperitoneal Administration. Eur J Drug Metab Pharmacokinet. 2018 Oct;43(5):599-606. doi: 10.1007/s13318-018-0474-x. PMID: 29616423; PMCID: PMC6133083.

**7. Bioactivity**
Biological target:
Tariquidar (XR9576) is a potent and selective noncompetitive inhibitor of P-glycoprotein with Kd of 5.1 nM in the CHrB30 cell line.

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In vitro activity

The effects of tariquidar doses toward the vasculature were investigated and an in-depth analysis of tariquidar-mediated effects on A7r5 and EA.hy926 cells viability, on the mechanical activity of freshly and cultured rat aorta rings and on L-type Ca2+ current [ICa(L)] of A7r5 cells has been performed. In both A7r5 and EA.hy926 cells, tariquidar was not cytotoxic up to 1μM concentration. On the contrary, at 10μM, it caused apoptosis already after 24h treatment. In fresh aorta rings, 10μM tariquidar partially relaxed phenylephrine-, but not 60mM K+ (K60)-induced contraction. In rings treated with 10μM tariquidar for 7days, the contractile response to both phenylephrine and K60 remained unchanged. Finally, tariquidar did not modify ICa1.2 intensity and kinetics. In conclusion, Tariquidar might exert both cytotoxic and acute, weak vascular effects at concentrations comparable to those employed in PET imaging. This implies that caution should be exercised when using it as diagnostic tool.

Reference: Toxicol In Vitro. 2017 Oct;44:241-247. https://linkinghub.elsevier.com/retrieve/pii/S0887-2333(17)30201-1

In vivo activity

The median (range) weight of the animals immediately prior to dosing was 0.35 (0.31–0.38) kg, 0.36 (0.31–0.45) kg, and 0.43 (0.36–0.48) kg for the oral, intraperitoneal, and intravenous route, respectively. Tariquidar was well tolerated by all animals. No immediate drug- or procedure-related complications occurred during intravenous, oral, or intraperitoneal administration of the study drug. Concentration–time curves of both tariquidar formulations in plasma of rats for the three administration routes are shown in Fig. 1. Thirty minutes after intravenous injection, tariquidar plasma concentration was 1.91 ± 0.29 μg/mL (Fig. 1a). After oral administration, drug concentrations in plasma reached their maximum at 4 h after dosing for both formulations (Fig. 1b). Overall, tariquidar plasma concentrations were higher for formulation B (the microemulsion). The difference in AUC0–24 between the two formulations was statistically significant, reflecting a marked increase in bioavailability elicited by the microemulsion (Table 1).

Reference: Eur J Drug Metab Pharmacokinet. 2018 Oct;43(5):599-606. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/29616423/