# Product data sheet

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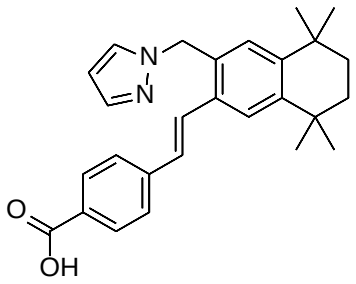
|---|---|
| MedKoo Cat#: 319875<br>Name: Palovarotene<br>CAS: 410528-02-8<br>Chemical Formula: $C_{27}H_{30}N_2O_2$<br>Exact Mass: 414.2307<br>Molecular Weight: 414.549 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**

Palovarotene, also known as RO-3300074 and R-667, is a highly selective retinoic acid receptor gamma (RAR-γ) agonist that is under investigation as a potential treatment for emphysema. Phase I clinical trials of palovarotene in patients with emphysema demonstrated that the drug is well tolerated, with improvements observed in markers of emphysema progression. Emphysema is characterized by the destruction of alveoli and alveolar ducts within the lungs. Retinoid signaling is believed to play a role in alveologenesis, with the retinoic acid receptor gamma thought to be required for alveolar formation.

**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 |
|---|---|---|
| DMF | 25.0 | 60.31 |
| DMSO | 22.5 | 54.28 |
| DMSO:PBS (pH 7.2) (1:2) | 0.3 | 0.72 |
| Ethanol | 3.0 | 7.24 |

**4. Stock solution preparation table:**

| **Concentration / Solvent Volume / Mass** | **1 mg** | **5 mg** | **10 mg** |
|---|---|---|---|
| 1 mM | 2.41 mL | 12.06 mL | 24.12 mL |
| 5 mM | 0.48 mL | 2.41 mL | 4.82 mL |
| 10 mM | 0.24 mL | 1.21 mL | 2.41 mL |
| 50 mM | 0.05 mL | 0.24 mL | 0.48 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

TBD

In vivo study

1. Chakkalakal SA, Uchibe K, Convente MR, Zhang D, Economides AN, Kaplan FS, Pacifici M, Iwamoto M, Shore EM. Palovarotene Inhibits Heterotopic Ossification and Maintains Limb Mobility and Growth in Mice With the Human ACVR1(R206H) Fibrodysplasia Ossificans Progressiva (FOP) Mutation. J Bone Miner Res. 2016 Sep;31(9):1666-75. doi: 10.1002/jbmr.2820. Epub 2016 Mar 12. PMID: 26896819; PMCID: PMC4992469.
2. Pavey GJ, Qureshi AT, Tomasino AM, Honnold CL, Bishop DK, Agarwal S, Loder S, Levi B, Pacifici M, Iwamoto M, Potter BK, Davis TA, Forsberg JA. Targeted stimulation of retinoic acid receptor-γ mitigates the formation of heterotopic ossification in an

established blast-related traumatic injury model. Bone. 2016 Sep;90:159-67. doi: 10.1016/j.bone.2016.06.014. Epub 2016 Jun 28. PMID: 27368930; PMCID: PMC5546218.

**7. Bioactivity**

Biological target:

Palovarotene is a nuclear retinoic acid receptor γ (RAR-γ) agonist.

In vitro activity

TBD

In vivo activity

This study tested Palovarotene in our validated rat trauma-induced HO (heterotopic ossification) model that involves blast-related limb injury, femoral fracture, quadriceps crush injury, amputation and infection with methicillin-resistant Staphylococcus aureus from combat wound infections. Palovarotene was given orally for 14days at 1mg/kg/day starting on post-operative day (POD) 1 or POD-5, and HO amount, wound dehiscence and related processes were monitored for up to 84days post injury. Compared to vehicle-control animals, Palovarotene significantly decreased HO by 50 to 60% regardless of when the treatment started and if infection was present. Histological analyses showed that Palovarotene reduced ectopic chondrogenesis, osteogenesis and angiogenesis forming at the injury site over time, while fibrotic tissue was often present in place of ectopic bone.

Reference: Bone. 2016 Sep;90:159-67. https://pubmed.ncbi.nlm.nih.gov/27368930/

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*