

Product data sheet



| | |
|---|--|
| MedKoo Cat#: 522715 Name: Optovin CAS: 348575-88-2 Chemical Formula: C ₁₅ H ₁₃ N ₃ OS ₂ Exact Mass: 315.05 Molecular Weight: 315.409 | |
| 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:

Optovin is a photoactive TRPA1 activator. Optovin activates human TRPA1 via structure-dependent photochemical reactions with redox-sensitive cysteine residues. In animals with severed spinal cords, optovin treatment enables control of motor activity in the paralyzed extremities by localized illumination. These studies identify a light-based strategy for controlling endogenous TRPA1 receptors in vivo, with potential clinical and research applications in nontransgenic animals, including humans.

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 | 79.26 |
| DMF:PBS (pH 7.2) (1:6) | 0.14 | 0.44 |
| DMSO | 29.51 | 93.57 |

4. Stock solution preparation table:

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---------------------------------------|---------|----------|----------|
| 1 mM | 3.17 mL | 15.85 mL | 31.70 mL |
| 5 mM | 0.63 mL | 3.17 mL | 6.34 mL |
| 10 mM | 0.32 mL | 1.59 mL | 3.17 mL |
| 50 mM | 0.06 mL | 0.32 mL | 0.63 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

Kokel D, Cheung CY, Mills R, Coutinho-Budd J, Huang L, Setola V, Sprague J, Jin S, Jin YN, Huang XP, Bruni G, Woolf CJ, Roth BL, Hamblin MR, Zylka MJ, Milan DJ, Peterson RT. Photochemical activation of TRPA1 channels in neurons and animals. *Nat Chem Biol.* 2013 Apr;9(4):257-63. doi: 10.1038/nchembio.1183. Epub 2013 Feb 10. PMID: 23396078; PMCID: PMC3604056.

In vivo study

Kokel D, Cheung CY, Mills R, Coutinho-Budd J, Huang L, Setola V, Sprague J, Jin S, Jin YN, Huang XP, Bruni G, Woolf CJ, Roth BL, Hamblin MR, Zylka MJ, Milan DJ, Peterson RT. Photochemical activation of TRPA1 channels in neurons and animals. *Nat Chem Biol.* 2013 Apr;9(4):257-63. doi: 10.1038/nchembio.1183. Epub 2013 Feb 10. PMID: 23396078; PMCID: PMC3604056.

7. Bioactivity

Biological target:

Optovin is a reversible photoactivated TRPA1 ligand that enables light-mediated neuronal excitation.

Product data sheet



In vitro activity

This study found that optovin generates singlet oxygen (1O_2), but neither hydroxyl radicals nor superoxide (Fig. 4b and Supplementary Fig. 11). Together, these data suggest that light excites optovin to a photochemically reactive state that can activate TRPA1 either directly or via singlet oxygen. Neither catalase nor superoxide dismutase reduced optovin's effects on hTRPA1 transfected HEK cells (Supplementary Fig. 12), further suggesting that hydroxyl radicals and superoxide do not contribute to optovin's activity.

Reference: Nat Chem Biol. 2013 Apr;9(4):257-63. <https://pubmed.ncbi.nlm.nih.gov/23396078/>

In vivo activity

Optovin is a rhodanine-containing small molecule with no previously annotated biological activity. Whereas DMSO-treated animals do not respond to photic stimuli, optovin-treated animals respond to light with vigorous motor excitation at an EC_{50} of $2 \mu M$ (Fig. 1d). Motor behavior in optovin-treated animals is elicited by stimulus intensities greater than $1.6 \mu W \cdot mm^{-2}$ (Fig. 1e). Thus, optovin is a novel behavior-modifying compound that causes rapid and reversible motor excitation in response to violet light stimuli.

Reference: Nat Chem Biol. 2013 Apr;9(4):257-63. <https://pubmed.ncbi.nlm.nih.gov/23396078/>

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.