

Product data sheet



MedKoo Cat#: 317352 Name: Bromfenac sodium CAS#: 91714-93-1 (sodium) Chemical Formula: C ₁₅ H ₁₁ BrNNaO ₃ Exact Mass: 333.00006 Molecular Weight: 356.1508	
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:

Bromfenac is a non-steroidal anti-inflammatory drug (NSAID) marketed in the US as an ophthalmic solution by ISTA Pharmaceuticals for short-term, local use. Prolensa and Bromday are the once-daily formulation of bromfenac, while Xibrom was approved for twice-daily administration. Bromfenac is indicated for the treatment of ocular inflammation and pain after cataract surgery, though it may be prescribed in an off-label manner by the physician. The high degree of penetration and potency of bromfenac can be attributed to the halogenation of the molecule: by adding a bromine moiety the NSAID becomes highly lipophilic which allows for rapid, sustained drug levels in the ocular tissues.

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	41.18	115.63
Ethanol	2.0	5.62
Water	71.0	199.35

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.81 mL	14.04 mL	28.08 mL
5 mM	0.56 mL	2.81 mL	5.62 mL
10 mM	0.28 mL	1.40 mL	2.81 mL
50 mM	0.06 mL	0.28 mL	0.56 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. Chen K, Lai K, Zhang X, Qin Z, Fu Q, Luo C, Jin X, Hu J, Liu S, Yao K. Bromfenac Inhibits TGF-β1-Induced Fibrotic Effects in Human Pterygium and Conjunctival Fibroblasts. Invest Ophthalmol Vis Sci. 2019 Mar 1;60(4):1156-1164. doi: 10.1167/iovs.18-24743. PMID: 30908581.

In vivo study

1. Rovere G, Nadal-Nicolás FM, Sobrado-Calvo P, García-Bernal D, Villegas-Pérez MP, Vidal-Sanz M, Agudo-Barriuso M. Topical Treatment With Bromfenac Reduces Retinal Gliosis and Inflammation After Optic Nerve Crush. Invest Ophthalmol Vis Sci. 2016 Nov 1;57(14):6098-6106. doi: 10.1167/iovs.16-20425. PMID: 27832276.

7. Bioactivity

Biological target:

Product data sheet



Bromfenac sodium is an inhibitor of COX, with IC50s of 5.56 and 7.45 nM for COX-1 and COX-2, respectively.

In vitro activity

Bromfenac suppressed the TGF- β 1-induced protein expression of FN (0.59 ± 0.07 folds, $P = 0.008$), COL3 (0.48 ± 0.08 folds, $P = 0.001$), and α -SMA (0.61 ± 0.03 folds, $P = 0.008$) in HPFs. Bromfenac also attenuated TGF- β 1-induced cell migration (0.30 ± 0.07 folds, $P < 0.001$), cell proliferation (0.64 ± 0.03 folds, $P = 0.002$) and the expression levels of p-AKT (0.66 ± 0.08 folds, $P = 0.032$), p-ERK1/2 (0.69 ± 0.11 folds, $P = 0.003$), and p-GSK-3 β -S9 (0.65 ± 0.10 folds, $P = 0.002$) in HPFs.

Reference: Invest Ophthalmol Vis Sci. 2019 Mar 1;60(4):1156-1164. <https://pubmed.ncbi.nlm.nih.gov/30908581/>

In vivo activity

Adult albino rats were divided into the following groups ($n = 8$ retinas/group): (1) intact, (2) intact and bromfenac treatment (twice a day during 7 days), (3) ONC (7 days), and (4) ONC (7 days) + bromfenac treatment (twice a day during 7 days). Quantification of Brn3a (brain-specific homeobox/POU domain protein 3A) +RGCs (retinal ganglion cells) in cross sections showed that bromfenac treatment does not accelerate ONC-induced degeneration. Cellular retinaldehyde binding protein 1 regulation indicated that bromfenac improves retinal homeostasis in injured retinas. Spectral-domain OCT showed that the thickness of the retina and the retinal nerve fiber layer at 7 days post ONC was significantly reduced in bromfenac-treated animals when compared to untreated animals.

Reference: Invest Ophthalmol Vis Sci. 2016 Nov 1;57(14):6098-6106. <https://pubmed.ncbi.nlm.nih.gov/27832276/>

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.