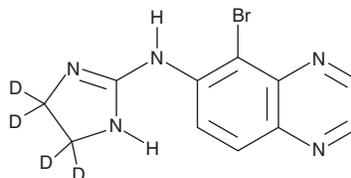


# PRODUCT INFORMATION



## Brimonidine-d<sub>4</sub> Item No. 25465

**CAS Registry No.:** 1184971-51-4  
**Formal Name:** 5-bromo-N-(4,5-dihydro-1H-imidazol-2-yl-4,4,5,5-d<sub>4</sub>)quinoxalin-6-amine  
**MF:** C<sub>11</sub>H<sub>6</sub>BrD<sub>4</sub>N<sub>5</sub>  
**FW:** 296.2  
**Chemical Purity:** ≥98% (Brimonidine)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Brimonidine-d<sub>4</sub> is intended for use as an internal standard for the quantification of brimonidine (Item No. 15426) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

### Description

Brimonidine is an agonist of  $\alpha_2$ -adrenergic receptors ( $\alpha_2$ -ARs;  $K_i$ s = 2.7, 52, and 44 nM for  $\alpha_{2A}$ ,  $\alpha_{2B}$ , and  $\alpha_{2C}$ -ARs, respectively, in CHO cells).<sup>1</sup> It is selective for  $\alpha_2$ -ARs over  $\alpha_1$ -ARs ( $K_i$  = 1,800 nM in human brain). Brimonidine lowers intraocular pressure in DBA/2J mice, a model of glaucoma, to control levels when applied topically to the eye as a 0.1% solution.<sup>2</sup> It also inhibits glutamate release, prevents upregulation of NMDA receptors containing NR1 and NR2A subunits, and protects rat retinal ganglion cells against glutamate excitotoxicity in a rat model of retinal ischemia when administered at a dose of 1 mg/kg per day.<sup>3</sup> Formulations containing brimonidine have been used in the treatment of open-angle glaucoma and ocular hypertension.

### References

1. Munk, S.A., Harcourt, D.A., Arasasingham, P.N., *et al.* Synthesis and evaluation of 2-(arylamino)imidazoles as  $\alpha_2$ -adrenergic agonists. *J. Med. Chem.* **40**(1), 18-23 (1997).
2. Sawada, K., Hiraoka, M., and Ohguro, H. Effect of antiglaucoma medicine on intraocular pressure in DBA/2J mice. *Ophthalmic Res.* **55**(4), 205-211 (2016).
3. Lee, D., Kim, K.Y., Noh, Y.H., *et al.* Brimonidine blocks glutamate excitotoxicity-induced oxidative stress and preserves mitochondrial transcription factor A in ischemic retinal injury. *PLoS One* **7**(10), e47098 (2012).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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