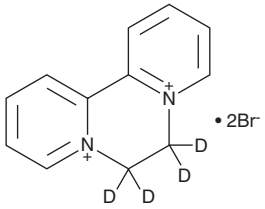
PRODUCT INFORMATION

Diquat-d_4 (bromide)

Item No. 18250

Formal Name:	6,7-dihydrodipyrido[1,2-a:2',1'-c]pyrazine-5,8-diium-6,6,7,7-d_4, dibromide
MF:	$C_{12}H_8D_4N_2 \bullet 2Br$
FW:	348.1
Chemical Purity:	≥95% (Diquat)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_4); ≤1% d_0
UV/Vis.:	λ_{max}: 309 nm
Supplied as:	A crystalline 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

Diquat-d_4 (bromide) is intended for use as an internal standard for the quantification of diquat 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).

Diquat-d_4 (bromide) is supplied as a crystalline solid. A stock solution may be made by dissolving the diquat-d_4 (bromide) in the solvent of choice, which should be purged with an inert gas. Diquat-d_4 (bromide) is slightly soluble in methanol and DMSO.

Description

Diquat is a bipyridylium herbicide that, as a stable radical, acts as an electron acceptor in the electron transport chain and is reoxidized by molecular oxygen, producing reactive oxygen species (ROS).[1] Diquat administration has been used to induce oxidative stress *in vitro* and in animal models.[2-4] It increases the production of ROS and decreases the mitochondrial membrane potential in mitochondria isolated from porcine intestine leading to mitophagy when administered at a dose of 100 mg/kg.[2] Formulations containing diquat have been used in agriculture for crop desiccation and defoliation.

References

1. Moreland, D.E. Mechanisms of action of herbicides. *Ann. Rev. Plant Physiol.* **31**, 597-638 (1980).
2. Cao, S., Wu, H., Wang, C., *et al.* Diquat-induced oxidative stress increases intestinal permeability, impairs mitochondrial function, and triggers mitophagy in piglets. *J. Anim. Sci.* **96(5)**, 1795-1805 (2018).
3. Singh, P., Hanson, P.S., and Morris, C.M. Sirtuin-2 protects neural cells from oxidative stress and is elevated in neurodegeneration. *Parkinsons Dis.* **2017(2643587)** (2017).
4. Tomášek, O., Gabrielová, B., Kačer, P., *et al.* Opposing effects of oxidative challenge and carotenoids on antioxidant status and condition-dependent sexual signalling. *Sci. Rep.* **6(23546)** (2016).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM