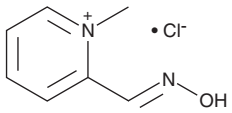
PRODUCT INFORMATION

Pralidoxime (chloride)

Item No. 23666

CAS Registry No.:	51-15-0
Formal Name:	2-[(hydroxyimino)methyl]-1-methyl-pyridinium, monochloride
Synonym:	2-PAM
MF:	$C_7H_9N_2O \bullet Cl$
FW:	172.6
Purity:	≥95%
UV/Vis.:	λ_{max}: 247, 300 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

Pralidoxime (2-PAM) (chloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-PAM (chloride) in the solvent of choice, which should be purged with an inert gas. 2-PAM (chloride) is soluble in the organic solvent DMSO at a concentration of approximately 1 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2-PAM (chloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2-PAM (chloride) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2-PAM reactivates acetylcholinesterase (AChE) that has been deactivated by binding of organophosphates to its esteratic site.[1] 2-PAM binds to the anionic site of AChE and displaces the phosphate from the esteratic site through formation of phosphate-pralidoxime conjugates. It reactivates paraoxon- and diisopropyl fluorophosphate-inactivated human red blood cell (RBC) AChE with IC_{50} shifts of 0.3 and 0.8 nM per µM of pralidoxime, respectively.[2,3] At a concentration of 10 µM, it reactivates human RBC AChE that has been inactivated by chlorpyrifos (Item No. 21412), diazinon (Item No. 23769), and malathion (Item No. 22998) by 17, 61, and 36%, respectively.[4] Pralidoxime binds to sarin-bound hAChE (K_d = 25.72 µM) and inhibits sarin-induced AChE deactivation (IC_{50} = 1.21 mM) in hemoglobin-free erythrocyte ghosts.[5] Formulations containing pralidoxime have been used to treat organophosphate poisoning.[1]

References

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2. Petroianu, G.A., Arafat, K., Kuca, K., *et al. J. Appl. Toxicol.* **26(1)**, 64-71 (2006).
3. Lorke, D.E., Hasan, M.Y., Arafat, K., *et al. J. Appl. Toxicol.* **28(4)**, 422-429 (2008).
4. Costa, M.D., Freitas, M.L., Soares, F.A., *et al. Toxicol. In Vitro* **25(8)**, 2120-2123 (2011).
5. Karade, H.N., Raviraju, G., Acharya, B.N., *et al. Bioorg. Med. Chem.* **24(18)**, 4171-4176 (2016).

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