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Catalytic-site conformational equilibrium in nerve-agent adducts of acetylcholinesterase; possible implications for the HI-6 antidote substrate specificity

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Keywords: Crystal structure, Time-resolved fluorescence, Time correlated single photon counting, Fluorescence decay spectroscopy, acetylcholinesterase, tabun, cyclosarin, Russian VX, HI-6, reactivator, oxime, structure activity relationship

Abbreviations; DFP, diisopropylfluorophosphate; tabun, ethyl N-dimethylphosphoramidocyanidate; soman, pinacolylmethylphosphonofluoridate; sarin, isopropylmethyl phosphono- fluoridate; cyclosarin, cyclohexylmethylphosphonofluoridate; VX, O-ethyl S-[2-(diisopropylamino)ethyl) methylphosphonothioate; Russian VX, S-[2-(diethylamino)isobutyl) methylphosphonothioate; obidoxime, 1,10- (oxybis-methylene)bis[4-(hydroxyimino)methyl] pyridinium dichloride; HI 6, 1-[[[4-(aminocarbonyl)pyridinio]methoxy]methyl]-2-[(hydroxyimino)- methyl]pyridinium dichloride monohydrate; HLö-7, 1-[[[4-(aminocarbo- nyl)pyridinio]methoxy]methyl]-2,4-bis-[(hydroxyimino)methyl] pyridinium dimethanesulfonate); K048, (1-(4-hydroxyiminomethylpyridinium)-4-(4-carbamoylpyridinium) butane dibromide; obidoxime; oxo-[[1-[[4-(oxoazaniumylmethylidene)pyridin-1-yl]methoxymethyl]pyridin-4-ylidene]methyl]azanium; Ortho-7, 1,7-heptylene-bis- N,N0-2-pyridiniumaldoxime dichloride