the histological differentiation between malign and benign brain tumors. Similar results were found in the LDH patterns of extracerebral tumors.

8—9 esterases were demonstrated with different substrates and characterized by differential inhibition with organophosphoric compounds, EDTA and eserine. At least one fraction of acid phosphatase was found.

Electrophoretic Properties of Atypical Human Serum Cholinesterase

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Atypical human serum cholinesterase [1,2] differs from the normal in inhibitor specificity [3]. The two forms were separated by electrophoresis and ion exchange chromatography [4] indicating a difference in molecular properties. To investigate whether the atypical form contains sialic acid, as does normal cholinesterase [5], a serum sample containing only the atypical enzyme * was treated with neuraminidase and the electrophoretic mobility determined on paper [6] at pH 4—12. Removal of sialic acid changed the mobility of the two forms of cholinesterase by the same amount, *i.e.* they contained about the same number of sialic acid residues per molecule. With the buffers used (acetate, barbital and glycine) the electrophoretic mobility of the two forms was identical (within 0.2×10^{-5} cm^2 V^{-1} sec^{-1}) both in the native and the sialic acid-free states.

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Studies on the Interaction between Oximes and Organophosphorus Compounds or Phosphorylated Cholinesterases

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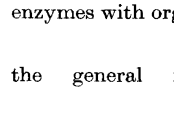
Phosphorylated cholinesterases obtained either after *in vitro* or *in vivo* reactions of the enzymes with organophosphorus compounds of the general formula  were reactivated with N-methylpyridinium-2-aldoxime methane sulphonate [1] (P2S) or N,N′-trimethylene-bis (pyridinium-4-aldoxime) dibromide [1] (TMB-4). Reactivation and conversion to a non-reactivable form [1] (aging) *in vitro* and *in vivo* was measured. In the case of Tabun [1] P2S was shown to be a very poor reactivator, while TMB-4 had a good effect both *in vitro* [2] and *in vivo* [3]. After phosphorylation by the other organophosphorus compounds studied the effect of the two reactivators was more equal, though TMB-4 usually was the better reactivator.

Aging *in vitro* as well as *in vivo* was shown to differ with the nature of the groups R_1 and R_2 in the organophosphorus compound [1,4] and with the nature and the source of the enzyme [1,2]. It was also shown that chemical treatment, *e.g.* purification of the enzyme, can alter this reaction [2]. Some phosphorylated oximes, corresponding to Tabun [4] and Sarin [4,5] were prepared and shown to be equally or even more toxic than the parent organophosphorus compound and to be inhibitors of cholinesterases. From studies on the phosphorylated oximes and on the reaction between oxime and organophosphorus compound in solution it was concluded that the four-substituted oxime yields a more stable phosphorylated compound than the two-substituted oxime.

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