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Acetylation-deacetylation of synaptosomal proteins: effect of Na<sup>+</sup> / S. Berl, A. Colon and D. D. Clarke. Mt. Sinai School of Medicine, New York, N.Y. 10029

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Acetylation-Deacetylation of Synaptosomal Proteins: Effect of  $\text{Na}^+$ . S. Berl, A. Colon and D.D. Clarke. Mt. Sinai School of Medicine, New York, N.Y. 10029.

Synaptosomes (S) when incubated with  $^3\text{H}$ -acetate (HA), are rapidly labeled. The perchloric acid (PCA) precipitable proteins contain most of the radioactivity probably as the acetyl moiety, which is released in a volatile form after acid or base hydrolysis (Berl et al., J. Neurochem. 40:176, 1983). Much of the radioactivity was chased by addition of unlabeled acetate suggesting that the acetylation was reversible. Labeling was also decreased in the presence of veratridine/veratrine (V, 100 $\mu\text{M}$ ) and this effect was prevented by tetrodotoxin (2 $\mu\text{M}$ ). When  $\text{Na}^+$  was omitted from the incubation medium, the incorporation of (HA) was increased; however, the effect of the (V) was no longer evident. After incubation without NaCl the addition of the latter (0.154 M) caused deacetylation to occur if (V) was also present but not if it wasn't. PCA precipitated protein was dissolved in SDS-urea and chromatographed on a column of Agarose 1.5 m; it showed 3 labeled peaks, the 2nd of which was decreased in the presence of (V). Whole (S), similarly chromatographed, gave an additional peak of lower molecular weight. The label in this latter peak was also decreased in the presence of (V). When (S) was placed in a boiling water bath for 9 min before addition of (HA) labeling was markedly decreased. Membrane and cytosolic fractions were obtained by osmotic shock following incubation of (S) with (HA). In the presence of  $\text{Na}^+$ , but not in its absence, (V) decreased the labeling of protein in both fractions. Column chromatography of the membrane fraction revealed the 4 peaks previously seen with whole (S) and the same 2 peaks were affected by (V). The cytosol fraction had 2 labeled peaks of lower M.W. both of which were reduced by (V). Acetylation of peptides seems to occur readily in (S) and deacetylation may be related to  $\text{Na}^+$  flux into the (S). (Supported by NIH grant NS-11631 (Clinical Center for Research in Parkinson's and Allied Diseases) and the Cummings Memorial Fund.)

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