Succinyl adenosine, a new substance in the human cerebrospinal fluid

In the course of an examination of the cerebrospinal fluid for free nucleotides, nucleosides, and similar substances, the paper-chromatographic technique revealed the presence of a substance (occasionally two) not identical with those previously reported.

Hydrolysis in 1 *N* HCl at 100° for 1 h transformed the constantly occurring substance (X) into the compound which was occasionally found (Y). The reaction of X with orcinol is positive, but it does not contain phosphate. It is retarded in paper chromatography with 95% ethanol–1 *M* ammonium acetate, pH 7.5 (7.5:3, *v/v*) as solvent[1] when the latter is saturated with borate[2].

Hydrolysis of X in 3 *N* HCl at 100° for 5 h will form substances identified chromatographically as well as spectrophotometrically as adenine, hypoxanthine and aspartic acid.

Y contains no phosphate, it is not retarded by saturation of the solvent of PALADINI AND LELOIR[1] with borate, and it does not give a positive orcinol reaction. The HUNTER[3] reaction which is positive with succinyl adenine[4] gave a positive reaction with Y. Chromatography and spectrophotometry showed that Y was identical with succinyl adenine synthesized by the method of CARTER[5]. It is concluded that X is succinyl adenosine and Y the corresponding aglycone.

So far as we are aware, succinyl adenosine has not been found before in animals and the two substances have not been demonstrated previously in the cerebrospinal fluid.

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Mammalian hydroxylation in the 6-position of the indole ring

Many pathological human urines contain the sulphate ester of a hydroxyskatole[1,2]. Enzymic hydrolysis of this substance gives the unconjugated hydroxyskatole, which is an unstable substance. The persulphate oxidation of skatole gives a product identical with that excreted by man, together with 5- and 7-sulphatoxyskatoles, and other products including 3-methyloxindole[1,3]. The oral administration of skatole to the rat results in the excretion of a mixture of sulphate esters of hydroxyskatoles similar to that resulting from the persulphate oxidation reaction. Enzymic sulphation of the hydroxyskatoles resulting from the iron–ascorbic acid hydroxylation of skatole gives a similar mixture, containing the human sulphate ester, along with 5- and 7-sulphatoxyskatoles[1].

The products of the iron-ascorbic acid oxidation[4,5] of skatole have now been separated and identified. The oxidation was carried out in open flasks at room