

CONCERNING S. É. SHNOL'S ARTICLE "ON THE EXISTENCE OF THIAMIN DEHYDROGENASE"

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In his investigation [8], S.É. Shnol' has once again repeated the initial stage of my research with unpurified extracts and serum, the activity of which may vary within wide limits, as a result of which a sufficiently wide range of concentrations must be used for its detection. S.É. Shnol' used only one concentration, which was three times higher than that used by me [2, 3], and he carried out the reaction in the presence of adrenalin. It must not be forgotten that in these conditions the final effect of the reaction is determined by its first stage—the oxidation of adrenalin—and a negative result is dependent not on the "antithiamin dehydrogenase" invented ad hoc by S.É. Shnol', but on the delay in the oxidation of adrenalin by the tissue inhibitors [5]. It must also be remembered that a phosphate buffer at pH=7.2-7.4 is not a satisfactory medium for thiamin dehydrogenase [2,3]; in this pH zone, in the presence of adrenalin, a Ringer-bicarbonate solution should be used. Furthermore, the method of chromatographic separation in an acid mixture of protein-containing incubates, without preliminary treatment, used by S.É. Shnol', may be a source of error as a result of the adsorption of thiochrome on the protein. Doubts also arise concerning the technique of preparation of the extracts of the pituitary and thyroid glands, whose weight is only a few milligrams. No factual data is given in the article.

Thiamin dehydrogenase is widely distributed in the animal and plant worlds; its existence has been proved in experiments with purified enzyme solutions and by the use of adrenochrome [4, 6]. Thiamin dehydrogenase is readily found in organ extracts after removal of inhibitors and ballast substances [6]. Indirect evidence of its

existence may be seen in the result of the work of A. Ya. Rozanov [1] and of Iacono and Johnson [9].

From his results, obtained in conditions unsuitable for the detection of thiamin dehydrogenase, S. É. Shnol' makes an unjustifiable conclusion. Only one conclusion is possible from these results: In the conditions selected by S. É. Shnol', thiamin dehydrogenase is not found in extracts or in serum from rats. Obviously, on the basis of the foregoing remarks, it is difficult to detect this enzyme in such conditions. In conclusion, it is necessary to refute S. É. Shnol's claim that in his work he used my own instructions. If he had followed these instructions, these mistakes would not have arisen in his work.

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*Original Russian pagination. See C.B. Translation.