of the delayed component of tension, only Ca^{2+} has an effect on the time-constant of its development.

A Computer-Based Multi-Channel System for Automatic Chemical Analysis

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For the past 2 years an on-line computer has been used for hospital biochemistry. Currently the

system covers 80% of the work load of the laboratory (250 000 tests/annum).

Standard AutoAnalyzers are used as basic analytical instruments and these are coupled to a PDP 8/S computer. The system collects data simultaneously from 12 test channels fed from six sample channels. Input of command instructions, the collection and processing of data and the output of results occur as time-shared processes. Results are identified by specimen laboratory accession number entered into the system manually. Each test channel is calibrated in terms of a third-order polynomial expressing the assay value as a function of the peak readings. Correction is applied for calibration drift and specimen interaction. Factors that were considered in the design of the system and the main features of the program are presented and discussed.

COMMUNICATIONS

Oxidation of *cis*- and *trans*-Acenaphthene-1,2-diol by Soluble Preparations from Rat Liver

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The dehydrogenation of *cis*- and *trans*-acenaphthene-1,2-diol to acenaphthenequinone by a rat liver microsomal preparation was demonstrated by Drummond & Hopkins (1969). Ayengar, Hayaishi, Nakajima & Tomida (1959) partially purified an enzyme (catechol reductase, EC 1.3.1.5) from acetone-dried rabbit liver powder that dehydrogenates *trans*-1,2-dihydrobenzene-1,2-diol to 1,2-dihydroxybenzene in the presence of NADP^+ , and a similar reaction would be involved in the oxidation of the acenaphthenediols to acenaphthenequinone if 1,2-dihydroxyacenaphthylene were the initial dehydrogenation product.

In the present work a preparation was obtained from acetone-dried rat liver powder that dehydrogenates *trans*-acenaphthene-1,2-diol in the presence of NADP^+ . The preparation was assayed by following the increase in extinction at 340 nm due to the diol oxidation product and NADPH in 50 mm-tris-HCl, pH 9.0, at 37°C. The preparation was made by chromatographing the 100 000g supernatant of a suspension of the acetone-dried powder in 0.15 M-potassium chloride on Sephadex G-25 equilibrated with 10 mm-tris-HCl, pH 8.0. This removes endogenous cofactor-reducing activity. The protein eluate was further chromato-

graphed on DEAE-cellulose equilibrated in the same buffer, the column being eluted with a sodium chloride gradient. A fraction was obtained with nine times the specific activity of the Sephadex G-25 eluate. This preparation differed from the microsomal system in that it catalysed the oxidation of *trans*-acenaphthene-1,2-diol more readily than that of the *cis*-isomer, and required NADP^+ , and not NAD^+ , as cofactor. A preparation with these properties was also obtained from the 100 000g supernatant of a homogenate of rat liver. An almost identical protein elution profile was obtained from the DEAE-cellulose column, and a similar degree of purification was achieved.

After incubation of *trans*-acenaphthene-1,2-diol and NADP^+ at 37°C with a preparation of the soluble enzyme at pH 9.0 for 2 h, acenaphthenequinone was found to be present in the reaction medium, showing that the end product of the reaction was the same as that obtained with the microsomal preparation.

Thus there are at least two systems in rat liver that dehydrogenate acenaphthene-1,2-diol: one in the microsomal fraction and another in the soluble fraction. This appears to be similar to the findings of Billings, Sullivan & McMahon (1970) on the dehydrogenation of indan-1-ol to indan-1-one.

Ayengar, P. K., Hayaishi, O., Nakajima, M. & Tomida, I. (1959). *Biochim. biophys. Acta*, **33**, 111.

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