The molecular weight of pyruvate kinase obtained by this method was found to be 210,000 ± 20,000 Daltons by sedimentation equilibrium in an ultracentrifuge. Studies of the molecular weights of the subunits suggest that the purified enzyme is of the same type (M) as that of the muscle enzyme used in previous studies, (O'Brien *et al.*, 1977).

The effect of lithium on this purified preparation was similar to that previously reported (Birch, 1978). Lithium inhibition was noncompetitive with respect to Mg^{2+}, K^+ and phosphoenol pyruvate but was competitive with ADP. The degree of inhibition by lithium of the purified brain enzyme was higher than for the muscle enzyme. Brain pyruvate kinase was inhibited by 7–12% by lithium (2 mmol/l) and ADP (1 mmol/l). With a higher concentration of lithium (10 mmol/l) in the presence of ADP (1 mmol/l), the degree of inhibition of pyruvate kinase was 25–32%. This is not in accord with the work of Balan, Cernătescu, Trandafirescu & Ababei (1974) who showed 75–94% inhibition of a crude extract of rat brain pyruvate kinase with 10 mmol/l lithium. These experiments were carried out under apparently identical conditions and we are unable to explain the discrepancy.

We conclude therefore that the inhibition by lithium of pyruvate kinase has been confirmed in an extract from brain and that such inhibition occurs at concentrations of lithium which might obtain during prophylactic lithium treatment.

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The effect of light on the enhancement of bacterial respiration by formyl tetrahydrofolic acid

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Formyl tetrahydrofolic acid (fTHF) stimultes the activity of several types of excitable cell (Spector, 1972; Jenkins & Spector, 1973) and also increases the rate of oxygen consumption of bacteria (Jenkins & Spector, 1975).

In the present work the oxygen consumption of E coli was measured using an oxygen electrode. When the cell was shielded from light, concentrations of fTHF up to 10^{-2} M had no influence on respiration. Exposure to light – particularly at the blue end of the visible spectrum – produced an immediate state of responsiveness to fTHF. Concentrations down to 10^{-5} M produced a dose-dependent stimulation of respiration. Light had no effect on the oxygen consumption of the organisms in a glucose-Ringer solution only.

High concentrations (10^{-3} M) of barbiturates, phenothiazines and anticonvulsants were required to depress bacterial respiration under dark conditions in the presence of folate. However illuminated bacteria enhanced by fTHF were sensitive to 10^{-6} M concentrations of the cerebral depressants which were examined.

The rate of many chemical reactions is increased on exposure to light, presumably due to electron promotion changes. These experiments appear to be examples of pharmacological actions being enhanced by such photolytic events.

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