CYTOCHROME b_2 IS NOT PHOTOREACTIVATING ENZYME*

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Duine and Berends (1966) concluded that cytochrome b_2 from yeast, L(+)-lactate dehydrogenase (EC 1.1.2.3), has photoreactivating activity (as assayed by the ability to photoreactivate ultraviolet-inactivated transforming DNA). I have evidence that cytochrome b_2 does not have photoreactivating activity.

I have measured the lactate dehydrogenase and photoreactivating activities of a number of yeast preparations, including highly purified cytochrome b_2 and highly purified photoreactivating enzyme. As is seen in the table, there is no correlation between the two activities. Therefore, it is probable that the cytochrome b_2 preparations used by Duine and Berends contained photoreactivating enzyme as an impurity.

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TABLE

Photoreactivating and lactate dehydrogenase activities of baker's yeast preparations

	Units per 0.1 ml	
	Photoreactivating Enzyme	Lactate Dehydrogenase (μmoles of ferricyanide converted per minute)
Photoreactivating Enzyme Preparations		
Crude ammonium sulfate precipitate	245	0.12
Phosphocellulose column fractions		
A	234	<0.003
B	1140	<0.003
C	560	<0.003
D	15	<0.003
E	<1	<0.003
Hydroxylapatite column fractions		
A	105	<0.003
B	375	<0.003
DEAE column fraction	530	<0.003
Cytochrome b_2 Preparation	<1	71

The photoreactivating enzyme preparations were made and assayed according to Muhammed (1966). The most highly purified photoreactivating enzyme is the DEAE fraction. The cytochrome b_2 (Morton and Shepley, 1963) was obtained from Drs. Julian Sturtevant and Patrick Pajot of Yale University. The lactic dehydrogenase activity in reducing ferricyanide was measured by the method of Appleby and Morton (1959).