

- ⁶ K. OKUNUKI, I. SEKUZU, T. YONETANI AND S. TAKEMORI, *J. Biochem. (Tokyo)*, 45 (1958) 847.
⁷ V. MASSEY, *Biochim. Biophys. Acta*, 30 (1958) 500.
⁸ W. MCFARLANE, *Biochem. J.*, 26 (1932) 1022.
⁹ E. B. SANDELL, in "Colorimetric Determination of Trace of Metal", Interscience Publishers, New York, 1950, p. 375.
¹⁰ T. YONETANI, *J. Biochem. (Tokyo)*, 46 (1959) 917.

Received July 6th, 1959

Biochim. Biophys. Acta, 38 (1960) 158-160

Studies on the electron transport system

XIV. The isolation and properties of soluble cytochrome c_1 . Addendum

Since the publication of the paper on the isolation and properties of cytochrome c_1 ¹ it has been pointed out to the authors² that the calculations of the oxidation-reduction potential of cytochrome c_1 were not based on the most reliable E_0 value for the benzoquinone-hydroquinone system (see p. 44 and Table VI in GREEN *et al.*¹). When the more correct value of $+0.69607$ V³ is used for the E_0 of the reference quinone and 0.060148 for the factor 2.30258 RT/F, the mid-point potentials for cytochromes c_1 and c shown in the accompanying table are obtained. This table is a reproduction of our original table, but with the revised values substituted for the earlier ones. The mean E_0' for the cytochrome c_1 system is $+0.220$ V, and for the cytochrome c system $+0.248$ V. This latter value has to be compared with E_0' values obtained by others, which range from $+0.254$ V to $+0.262$ V.

TABLE I

DETERMINATION OF THE OXIDATION-REDUCTION POTENTIAL OF CYTOCHROMES c_1 AND c

The measurements were made in 0.1 M phosphate at 30°. The *p*-benzoquinone and hydroquinone solutions were prepared in ethanol from recrystallized samples.

Concentration of quinone-hydroxyquinone mixture (μmoles/ml)	Cytochrome	pH	E_0' of quinone system (V)	Total concentration of hemoprotein (μmoles/ml)	Final concentration of hemoprotein		0.060148 × $\log \frac{ox}{red}$	E_0' (V)
					oxidized (μmoles/ml)	reduced (μmoles/ml)		
I	c_1	6.73	$+0.2913$	0.034	0.0314	0.0026	0.0651	$+0.226$
I	c_1	7.55	$+0.2419$	0.034	0.026	0.008	0.0308	$+0.211$
0.5	c_1	7.55	$+0.2419$	0.034	0.023	0.011	0.0193	$+0.223$
6	c	6.73	$+0.2913$	0.105	0.081	0.024	0.0321	$+0.259$
6	c	7.55	$+0.2419$	0.105	0.058	0.047	0.0055	$+0.236$

The authors wish to thank Professor W. M. CLARK for drawing our attention to the error in the potentials.

*Institute for Enzyme Research, University of Wisconsin,
Madison, Wisc. (U.S.A.)*

D. E. GREEN
J. JÄRNEFELT
H. D. TISDALE

¹ D. E. GREEN, J. JÄRNEFELT AND H. D. TISDALE, *Biochim. Biophys. Acta*, 31 (1959) 34.

² W. M. CLARK, personal communication.

³ R. G. BATES, *Electrometric pH Determinations*, John Wiley and Sons, New York, 1954.

Received July 4th, 1959