

the type of combination formed is in preparation.

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HÆMATOLOGY

Absence of Red Cell Enzyme Deficiency in Australian Aborigines

THE geographical distribution of erythrocyte glucose-6-phosphate dehydrogenase deficiency is now known to be widespread. Thus, this genetically determined enzyme defect has been shown to be present in parts of Africa, Asia and Europe, and in some Indian groups in South America¹. Marked variations in the incidence of the defect have been observed between different populations and in some instances between different groups in the same population. In south-east Asia recent work has shown the trait to be present in Thais², Malays³, Indonesians (Lie-Injo, L. E., personal communication), Filipinos⁴ and Melanesians⁴.

In the present work, using the rapid screening test described by Motulsky⁵, a total of 722 Australian Aborigines were examined for evidence of glucose-6-phosphate dehydrogenase deficiency. The subjects tested live in scattered areas of northern, central and western Australia. All have tribal affiliations. The groups studied are shown in Table 1.

Table 1

Area	Males	Females	Total
Cape York Peninsula			
Edward River	43	45	88
Mitchell River	84	62	146
Lockhart River	27	—	27
Aurukun	39	37	76
Welpa	12	29	41
Wrotham Park	12	11	23
Central Australia			
Alice Springs	140	—	140
Western Australia			
Port Hedland	40	59	99
Marble Bar	11	13	24
Nullagine	27	31	58
Total	435	287	722

No cases of enzyme deficiency were found in this large population sample, indicating that the gene frequency is extremely low or non-existent. This finding is of interest in several respects. Except for occasional cases of malaria introduced in recent times from surrounding areas Australia is malaria-free. The incidence of red cell enzyme deficiency has been shown, in Africa^{6,7}, New Guinea^{4,7} and Sardinia⁸, to be related to that of falciparum malaria, probably representing a selective advantage by way of increased resistance to malarial mortality. Absence of the deficiency in Australian Aborigines supports this

concept, as there would be no such advantage enhancing the survival of affected people in Australia.

Glucose-6-phosphate dehydrogenase deficiency has an incidence as high as 20 per cent in males of coastal New Guinea⁷. The penetration of the blood group B gene in Aborigines of the Cape York Peninsula groups is accepted as representing admixture from New Guinea⁹. It is evident, however, that this penetration has not resulted in the introduction of the enzyme deficiency, or, if the gene has been introduced in the past, it has not survived. That the well-known Malay contact with Aborigines in several areas of the north and north-west coast has not resulted in the introduction of the trait is not surprising, since its incidence in Malays is low, probably less than 1 per cent.

Absence of this deficiency of red cell enzyme, then, adds important evidence to that already accumulated, including the absence of thalassaemia and the abnormal haemoglobins, which demonstrates the degree of isolation of the Aborigines from surrounding peoples. This trait will serve as an additional link in the chain that may eventually disclose the origin of the Australian Aborigines.

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Distribution of Haptoglobin Types in Israel

THE interest in the patterns of haptoglobin types has been furthered during the past several years due to the introduction of starch-gel electrophoresis for their demonstration¹. Different populations have been investigated up to now^{2,3}.

Since differences between Jewish ethnic groups in Israel were described in relation to blood group patterns⁴, incidence of erythrocyte glucose-6-phosphate dehydrogenase deficiency⁵, and taste sensitivity to thiourea (Sheba, Ch., Ashkenazi, I., and Szeinberg, A., personal communication), it was of interest to investigate the haptoglobin patterns among them.

Blood specimens from 526 blood donors from the blood bank of Tel Hashomer Hospital, and from patients without any serious illness, were examined. The material consisted of 170 Ashkenazi Jews (East European origin), 118 Iraqi Jews (Babylonians), 104 North African Jews (Morocco, Tunisia, Algeria and