

DNA which the organism contains (the most extreme AT type DNA ( $\frac{A+T}{G+C} = 2.70$ ) found so far in bacteria is that occurring in *Clostridium perfringens* var. Fred<sup>3</sup>), because it would be expected that the DNA from a bacteria and its L form would have an almost identical composition.

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- <sup>1</sup> Lynn, R. J., and Smith, P. F., *J. Bact.*, **74**, 811 (1957).
- <sup>2</sup> Schmidt, G., and Thannhauser, S. J., *J. Biol. Chem.*, **161**, 83 (1945).
- <sup>3</sup> Jones, A. S., and Walker, R. T., *J. Gen. Microbiol.*, **31**, 333 (1963).
- <sup>4</sup> Wyatt, G. R., *Biochem. J.*, **48**, 581, 584 (1951).
- <sup>5</sup> Watson, J. D., and Crick, F. H. C., *Nature*, **171**, 737 (1953).
- <sup>6</sup> *Ann. New York Acad. Sci.*, **79**, Art. 10, 465 (1960).
- <sup>7</sup> *Ann. New York Acad. Sci.*, **79**, Art. 10, 481 (1960).
- <sup>8</sup> Ki Yong Lee *et al.*, *Ann. Inst. Pasteur*, **91**, 212 (1956).

**A New Transferrin in New Guinea**

In 1957 Smithies<sup>1</sup>, using the technique of starch-gel electrophoresis, described inherited variants of human  $\beta$ -globulins. Smithies and Hiller<sup>2</sup> established the identity of these  $\beta$ -globulins with the iron-binding protein, transferrin, and this was afterwards confirmed with iron-59 and autoradiography<sup>3</sup>. During the past few years widespread sampling of human populations has demonstrated the existence so far of 14 transferrins. In order of decreasing mobility in starch-gel electrophoresis these are<sup>4</sup>: B<sub>0</sub>, B<sub>0-1</sub>, B<sub>1</sub>, B<sub>1-2</sub>, B<sub>2</sub>, B<sub>3</sub>, C, D<sub>0</sub>, D<sub>4</sub> (D<sub>0-1</sub>), D<sub>Montreal</sub>, D<sub>Chi</sub>, D<sub>1</sub>, D<sub>2</sub>, D<sub>3</sub>. The present communication reports another transferrin of the B series.

The new protein was readily detected in one-dimensional vertical starch-gel electrophoresis with borate buffer using conditions described previously<sup>5</sup>. Comparative investigations with different transferrin types showed that it migrated faster than B<sub>0</sub> (Fig. 1), and is thus the most rapidly migrating transferrin thus far described. From the intensity of staining with naphthalene black the protein appeared to have a concentration slightly higher than that of transferrin C. Autoradiographs of gels made after adding iron-59 to the serum before electrophoresis revealed two bands corresponding in position to the two protein bands. The faster-migrating band can thus be regarded as a transferrin. Since this new transferrin was first discovered in the serum of a native from a village near Lae in New Guinea it is proposed that this variant be called B<sub>Lae</sub>.

The example of B<sub>Lae</sub> already referred to was the only one in a series of 136 samples of serum from inhabitants

Table 1. TRANSFERRIN FREQUENCIES IN SOME POPULATIONS IN NEW GUINEA

Locality of New Guinea natives	No. tested	BC		CC		CD <sub>1</sub>		D <sub>1</sub> D <sub>1</sub>	
		No.	%	No.	%	No.	%	No.	%
Madag	16	—	—	16	100.0	—	—	—	—
Megier		—	—	—	—	—	—	—	—
Morobe:		—	—	—	—	—	—	—	—
Watut	28	—	—	27	96.4	1	3.6	—	—
Lae	17	1	5.9	12	70.6	3	17.6	1	5.9
Papua:	19	—	—	14	73.7	5	26.3	—	—
Port		—	—	—	—	—	—	—	—
Moresby		—	—	—	—	—	—	—	—
Kerema	33	—	—	27	81.8	6	18.2	—	—
Orokolo	23	—	—	14	60.9	8	34.8	1	4.3

in various places in New Guinea investigated in the present survey. Transferrin D<sub>1</sub> was observed in all population samples except that from Megier (Table 1). Careful comparison of the mobility of the D<sub>1</sub> in New Guinea failed to discriminate it from the D<sub>1</sub> of African Negroes or the D<sub>1</sub> of Australian Aborigines. Since the population samples were small no attempt has been made to calculate the gene frequencies of the transferrin alleles; but it is obvious that D<sub>1</sub> is relatively common in New Guinea. This result is in agreement with other investigations of transferrins in New Guinea<sup>6</sup>.

Although only one example of B<sub>Lae</sub> was found in the survey reported here we have been successful in obtaining fresh samples of serum from the propositus and members of his family. This has confirmed the presence of B<sub>Lae</sub> in the person originally sampled and has shown his brother and sister both to be heterozygous B<sub>Lae</sub>C and mother to be homozygous B<sub>Lae</sub>B<sub>Lae</sub>. Further investigations on the distribution of B<sub>Lae</sub> in New Guinea are at present in progress.

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- <sup>1</sup> Smithies, O., *Nature*, **180**, 1482 (1957); **181**, 1203 (1958).
- <sup>2</sup> Smithies, O., and Hiller, O., *Biochem. J.*, **72**, 121 (1959).
- <sup>3</sup> Giblett, E. R., Hickman, C. G., and Smithies, O., *Nature*, **183**, 1589 (1959).
- <sup>4</sup> Parker, W. C., and Bearn, A. G., *Science*, **137**, 854 (1962).
- <sup>5</sup> Lai, L. Y. C., *Austral. J. Sci.*, **23**, 228 (1961).
- <sup>6</sup> Barnicot, N. A., and Kariks, J., *Med. J. Austral.*, **2**, 859 (1960). Bennett, J. H., Auricht, C. O., Gray, A. J., Kirk, R. L., and Lai, L. Y. C., *Nature*, **189**, 68 (1961).

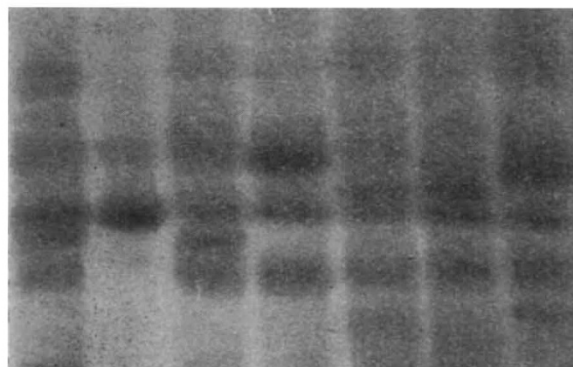


Fig. 1. The  $\beta$ -globulin are of a vertical starch-gel comparing B<sub>Lae</sub> with other transferrin variants. a, Transferrin B; b, transferrin C

**Structure and Plant Growth-regulating Activity of some 2-Benzothiazolyloxyacetic Acids and 2-Oxobenzothiazolin-3-ylacetic Acids**

THE preparation<sup>1</sup> and plant growth activity<sup>2</sup> of a compound stated to be 2-benzothiazolyloxyacetic acid (I) have been described in the patent literature. It became apparent, during the course of work on this and related compounds, that this structure was incorrect and that the compound is actually 2-oxobenzothiazolin-3-ylacetic acid (II).

