CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA, CALIFORNIA 91109

DIVISION OF BIOLOGY

Professor Joshua Lederberg
Dept. of Genetics
Stanford Medical Center
Palo Alto, Calif.

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Dear Josh:

You haven't had word from me so far because I was unable to contact Paul Berg, who is out of town. If it is all right with you, I shall try to come up to Stanford sometime between the 1st and the 10th of September. I hope to get in touch with you about the exact date before long.

I was very pleased to receive the amino acid matrices. Within plus 3 and -3 positions of proline, the most frequently occurring residues are I, E, V, U, then L, F, and A, G and Y follow closely. This list comprises most of the residues that have been found to be the most frequent substituants for proline. These substituants seem therefore to be functionally important not only at, but around proline sites. Among frequently occurring amino acids the ones that appear at +3 to -3 positions with respect to prolyl residues with the highest percentage values relative to their total number of occurrences are, in decreasing order, E, Q, F, N, V, I, A, G, and H.

The data that were sent to me relate to the human hemoglobin alpha and beta chains, sperm whale myoglobin, human heart cytochrome c, yeast cytochrome c, and TMV. This list comprises only three very different types of proteins. To confirm the general validity of the findings it would seem necessary to add to the list several other different types of proteins. I wonder whether you also have the corresponding data on egg white lysozyme, p-cytochrome-551, and Shroeder's data on catalase.

Jane and I are sending you and Esther our warmest greetings.

Affectionately,

Emile

ZUCKERKANDL, E.