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DEPARTMENT OF MEDICAL GENETICS
SCHOOL OF MEDICINE
Please Reply To
GENETICS BUILDING

DEPARTMENT OF GENETICS
COLLEGE OF AGRICULTURE

Dr. Harold Deutsch
Department of Physiological Chemistry
SMI
University of Wisconsin
Madison 6, Wisconsin

Dear Harold:

I've just received a reprint from Fred Karush which is very pertinent to the discussion we had at lunch the other day. Fred has done this experiment of reversable denaturation by the use of high concentrations of urea. While he won't immediately admit this it seems to me that his finding that reversable denaturation can result in a virtual complete restoration of antibody activity strongly supports the idea of differentiation of antibodies on the basis of amino acid sequence. I am enclosing a thermofax of the relevant page or two which is taken from something called "Serological and Biochemical Comparison of Proteins - 14th Annual Protein Conference". I would be very pleased to have your reactions on this.

Joshua

Dear Josh:

First heartiest congratulations for your well-deserved honor.

The experiments of Karush, while interesting, are not too conclusive of a refolding to a former antibody site structure. Although urea will induce marked structural changes in the secondary structure of the protein, these may have nothing to do with antibody binding activity changes noted. I'm wondering whether similar effects would not be manifested by equal osmotic concentrations of other reagents like NaCl,

amino acids, sugars, etc. which would not severely affect the secondary structure in a degree similar to that occasioned by urea.

"An interesting experiment but one capable of variable interpretation". I'd be happy to discuss this further with you sometime.

Harold.