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Summary of scientific research

For a number of years my major preoccupation was with the study of folding polypeptide chains to form native protein structures. This work was carried out mainly at the National Institutes of Health and established that the process of conversion of random chains to organized tertiary structure was entirely spontaneous, and required only the proper amino acid sequence.

In 1972 my colleagues and I began work on the isolation and characterization of human lymphoblastoid interferon. Pure samples of this material were isolated in 1979. Together with a group of investigators at the California Institute of Technology, the sequence of the protein was established. Although it had been planned to launch into a full-scale attempt to synthesize interferon by contemporary peptide chemistry, the meteoric appearance and development of DNA recombinant methods and cloning made the biological approach to the preparation of large quantities of human interferon much more reasonable.

Since arriving at the Johns Hopkins University, my interests have been drawn to some very interesting thermophilic organisms isolated by Deming and Baross which appear to be able to survive and multiply at temperatures over 250° C and at pressures of 250 atm or more. My lab in

Mudd Hall is now setting up to work out techniques for the laboratory cultivation of these organisms. It will, of course, be of great interest to examine the nature of the forces that stabilize proteins and nucleic acid at these very high temperatures and pressures.
