Division of the History of Chemistry
American Chemical Society

Citation for Chemical Breakthrough

Journal of the American Chemical Society, **1969**, *91*, 502, 503, 505, 506, and 507.
Ralph Hirschmann and co-workers

Studies on the Total Synthesis of an Enzyme.
I. Objective and Strategy

Sir:

The remarkable advances in polypeptide synthesis during the past 15 years have made the synthesis of an enzyme a feasible objective. From a number of considerations the synthesis of RNase S′ appeared to be an attractive goal.

Studies on the Total Synthesis of an Enzyme. II. Synthesis of a Protected Tetratetracontapeptide Corresponding to the 21–64 Sequence of Ribonuclease A

Studies on the Total Synthesis of an Enzyme. III. Synthesis of a Protected Hexacontapeptide Corresponding to the 65–124 Sequence of Ribonuclease A

Studies on the Total Synthesis of an Enzyme. IV. Some Factors Affecting the Conversion of Protected S-Protein to Ribonuclease S′

Studies on the Total Synthesis of an Enzyme. V. The Preparation of Enzymatically Active Material

It may be concluded therefore that, under conditions where a 100-μg aliquot of natural acetamidomethylated S-protein gave 8–10 μg of RNase-S activity, an aliquot of about 60 μg of our synthetic protected protein gave 1.2–2 μg of RNase-S activity.

Presented to Merck & Co., Inc., 2018.