

Stabilization of Poly U Secondary Structure by Core Histones.

H. Klump and H. Falk

Institut für Physikalische Chemie der Universität Freiburg und
Institut für Biologie II der Universität Freiburg (West Germany)

It is well established that the secondary structure stability of the DNA is enhanced on complex formation with the core histones (H2A, H2B, H3, H4)₂ conventionally termed nucleosomes (1). Native and reconstituted chromatin fibres consist of a continuous array of these particles. Recently it has been shown by several groups that nucleosome like histone complexes can be reconstituted from core histones and alternating polynucleotides like poly d(A-T) and poly d(G-C) (2). We have gone one step further and tried to use poly U as well. On investigating the absorption as function of temperature we were surprised when we obtained a thermal transition curve which reflects an order disorder transition of poly U. This result can only be understood if we assume that under the conditions of reconstitution of nucleosomes at high salt concentration and low temperature poly U is at least partly double-stranded. This conformation is preserved on lowering the ionic strength by the interaction with the core histones and the histone core is stabilized by the polynucleotide interaction. From the electron micrographs we can show the well known "beads on a string" structure (3).

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2. Simpson, R. and Shindo, H. (1979) Nucl. Acid Res. 7, 481-492
3. Klump, H. and Falk, H. (1980) Nucl. Acid Res. submitted for publ.