

HYALURONAN CHAIN CONFORMATION AND DYNAMICS

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An overview of the present state of knowledge on hyaluronan chain conformational and dynamical aspects in solution is presented. Several configurational distributions and dynamical parameters related to nuclear magnetic relaxation, sensitive both to the molecular structure and to mobility, were calculated from the replica-exchange Monte Carlo statistics at different temperatures.

Conformational characteristics of hyaluronan chains are discussed, together with the dynamic chain patterns, evaluated by using a theoretical approach to diffusive polymer dynamics. The dependence of correlation times and NMR relaxation parameters from the chain dimension are investigated.

Topological features and dimensional properties are related to the structural determinants by using classical computational methods of molecular mechanics and Monte Carlo simulation.

The relationship between structure and dynamics are illustrated for a series of hyaluronan oligomers.