Preface

DNA, Chromatin and Chromosomes

Mechanics and imaging of single DNA molecules

Stretching and imaging single DNA molecules and chromatin

Optical tweezers stretching of chromatin

Micromechanical studies of mitotic chromosomes

Elastic Invertebrate Muscle Proteins

Varieties of elastic protein in invertebrate muscles

Single-molecule measurement of elasticity of Serine-, Glutamate- and Lysine-Rich repeats of invertebrate connectin reveals that its elasticity is caused entropically by random coil structure

The Elastic Vertebrate Muscle Protein Titin

Titin as a modular spring: emerging mechanisms for elasticity control by titin in cardiac physiology and pathophysiology

Species variations in cDNA sequence and exon splicing patterns in the extensible I-band region of cardiac titin: relation to passive tension

Cardiac titin: molecular basis of elasticity and cellular contribution to elastic and viscous stiffness components in myocardium

Stretching and visualizing titin molecules: combining structure, dynamics and mechanics

Unfolding of titin domains studied by molecular dynamics simulations

Cytoskeletal Proteins

Mechanical response of single filamin A (ABP-280) molecules and its role in the actin cytoskeleton

Mechanics of vimentin intermediate filaments

Extracellular Matrix Proteins

Mechanics of elastin: molecular mechanism of biological elasticity and its relationship to contraction

Molecular basis for the extensibility of elastin

Stretching fibronectin

Fibrillin-rich microfibrils: elastic biopolymers of the extracellular matrix