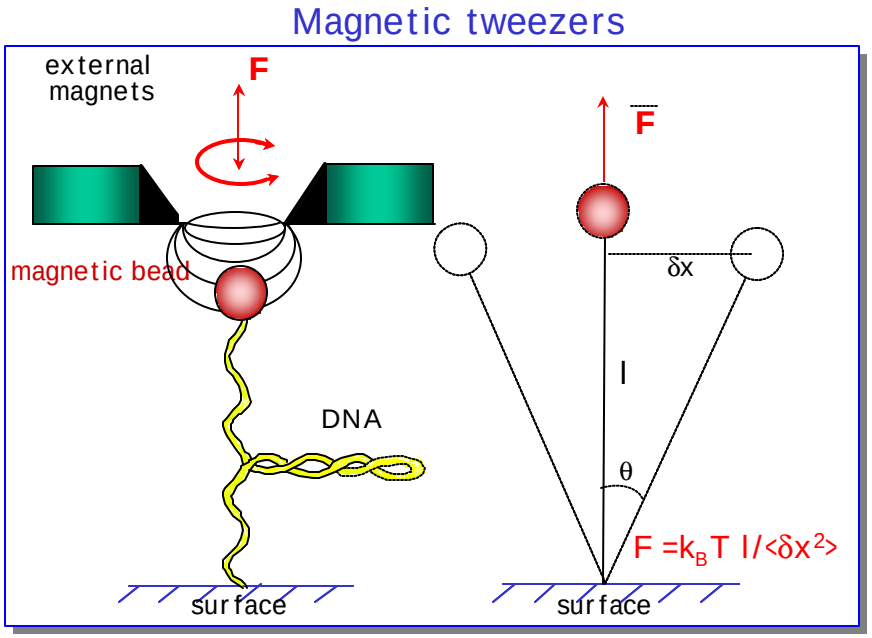
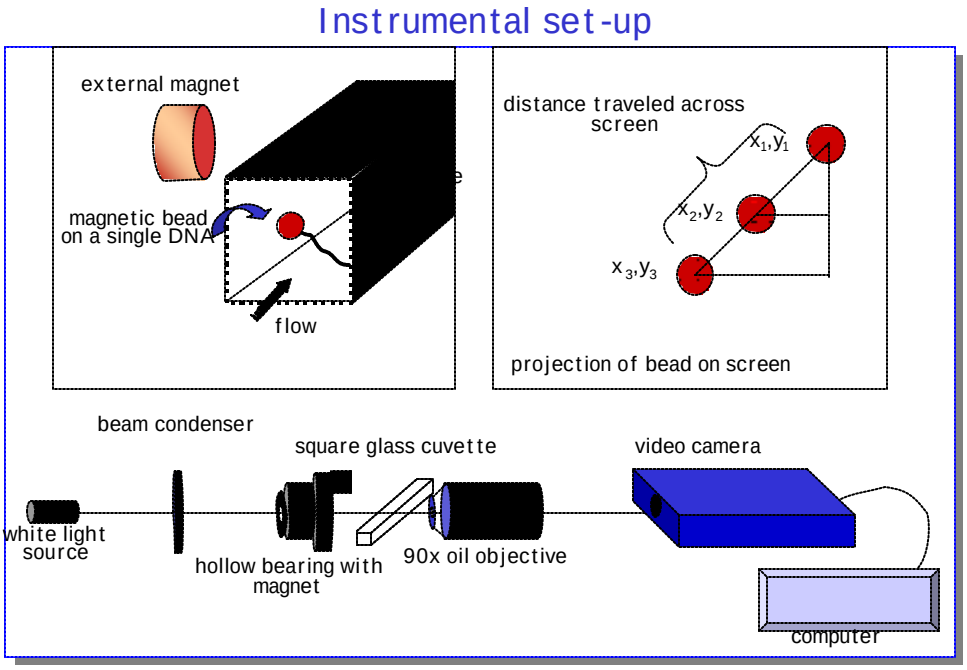
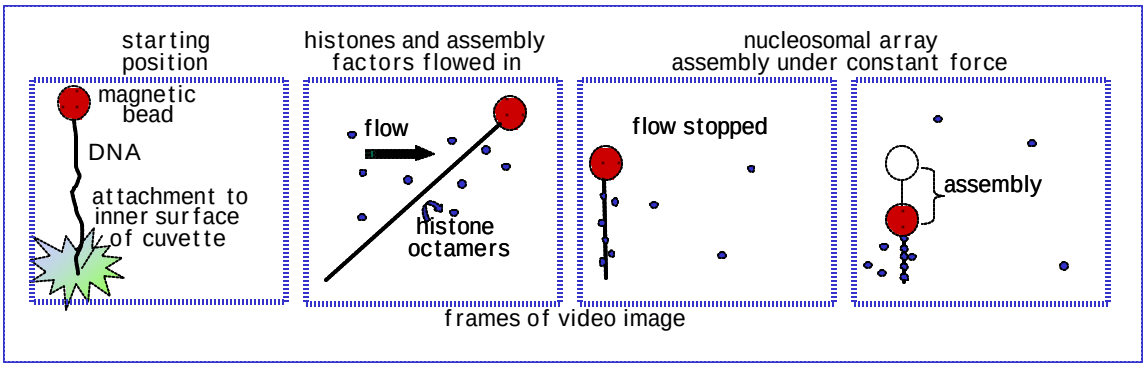
Magnetic Tweezers Instrumentation:

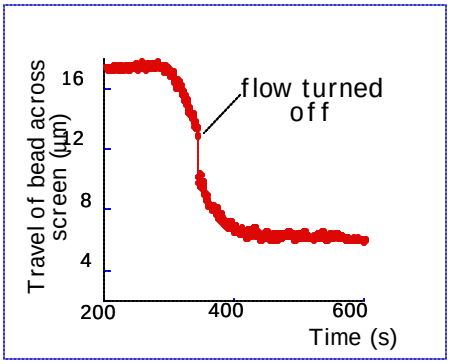




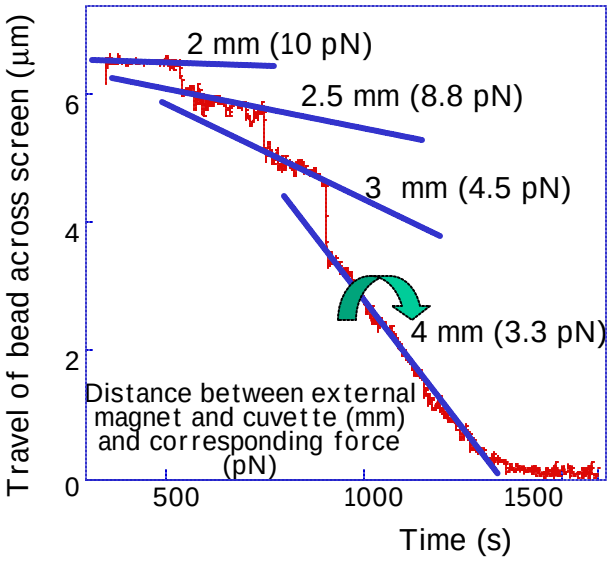
We have used magnetic tweezers to study chromatin assembly and disassembly and RNA transcription.

Assembly curves in stopped-flow experiments



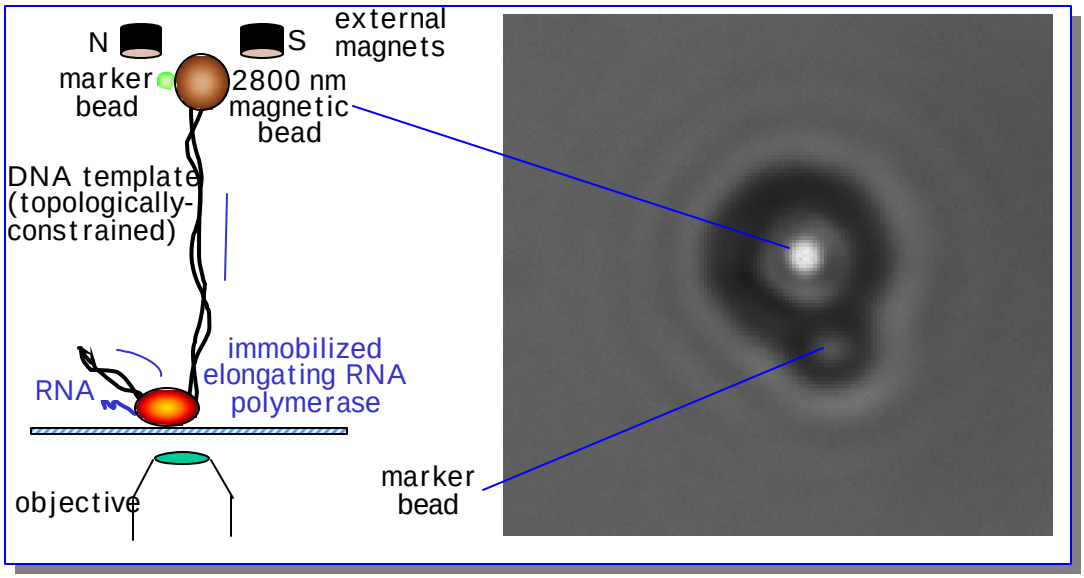


Step-wise adjustment of force in a single assembly experiment

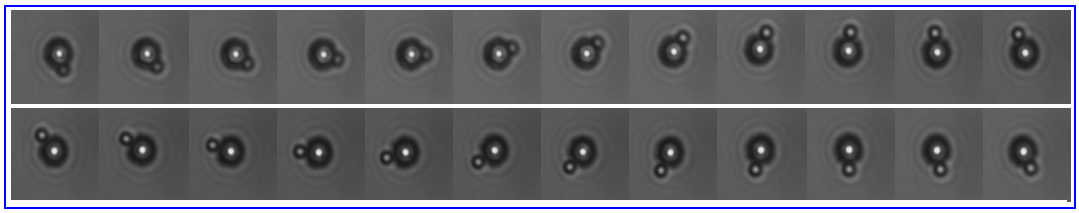


In collaboration with Profs. J. Zlatanova and W. McAllister, we have been able to visualize transcription from a single T7 RNA polymerase.

Single-molecule transcription viewed by magnetic tweezers: experiment



One full rotation of the bead as the RNA polymerase transcribes one helical turn of the DNA



We are continuing these experiments to study chromatin dynamics, transcription and the mechanism of action of helicases.

References:

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