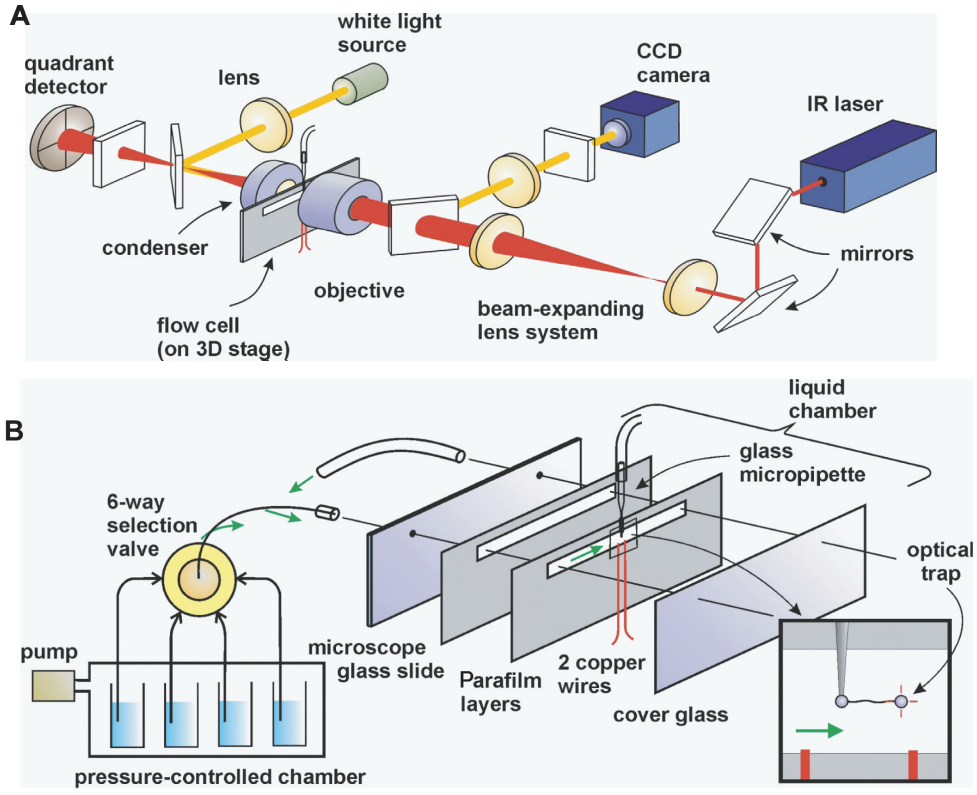

FIGURE 2. Schematic drawing of the experimental setup, the flow system, and the specially designed flow cell. (*A*) Home-built microscope system in which optical tweezers (OT) are introduced into the flow cell. The microscope objective focuses an expanded laser beam to create the OT. A quadrant detector measures the deflection of the laser beam by the trapped polystyrene bead. For small displacements of the bead, the deflection of the beam is proportional to the displacement of the bead from the center of the trap and, therefore, proportional to the force exerted on the DNA molecule attached to it. (*B*) Expanded view of the flow cell and the flow system. Two Parafilm layers (100 µm thick each) are sandwiched between a microscope glass slide and a microscope coverglass (170 µm thick). A flow channel, cut within the Parafilm, is connected through small holes in the microscope glass slide to inlet and outlet tubing. A glass micropipette is inserted with its 1-µm diameter tip in the center of the channel. This pipette is used to hold a polystyrene bead as it is attached to a single DNA molecule, while the other bead is held with the OT. For measuring the actual NaCl concentration at the position of the single chromatin fiber, two copper electrodes are inserted. The sandwiched structure is mounted onto a metal holder (not shown) that is connected to the stage, and which enables three-dimensional motion of the micropipette bead with respect to the trapped bead. An air-pressure-controlled flow system is used to introduce different buffers into the flow cell. (Typically, these are the flow cell buffer containing 150 mM NaCl, DNA in the same buffer, streptavidin-coated beads, and *Xenopus laevis* diluted egg extract). Different containers are pressurized within a closed chamber, which drives the liquid toward the 6-way selection valve. The valve can be controlled manually to select the buffer solution that needs to enter the cell.

Protein–Protein Interactions: A Molecular Cloning *Manual*, 2nd Ed., © 2005 by Cold Spring Harbor Laboratory Press, Chapter 22, Figure 2.