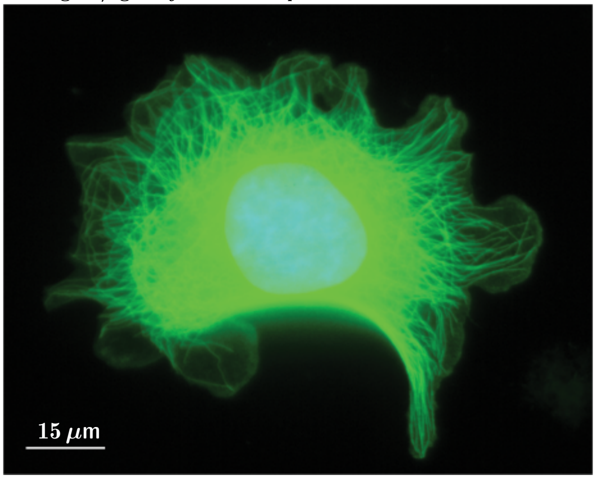
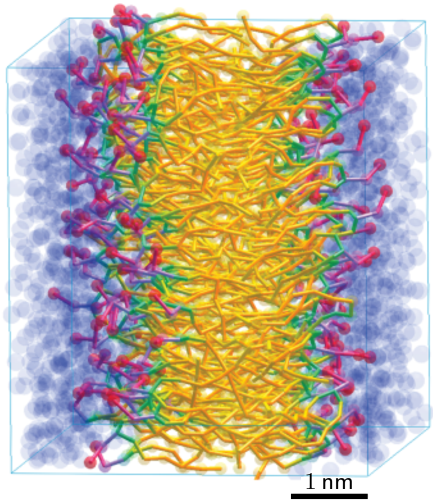
cg188/cg188cytoskel-RGB.pdf



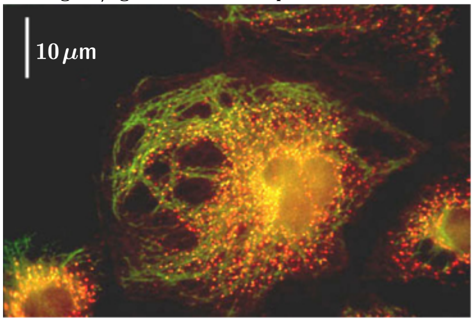
C1: [Fluorescence micrograph.] **Cytoskeletal network.** Newt lung cell in which the DNA is stained blue and microtubules in the cytoplasm are stained green. These filaments help maintain the cell's required shape as well as supplying the tracks along which kinesin and other motors walk. Chapter 10 will discuss these motors. [Figure © Conly Rieder.]

cg106/cg106bilayer-RGB.pdf



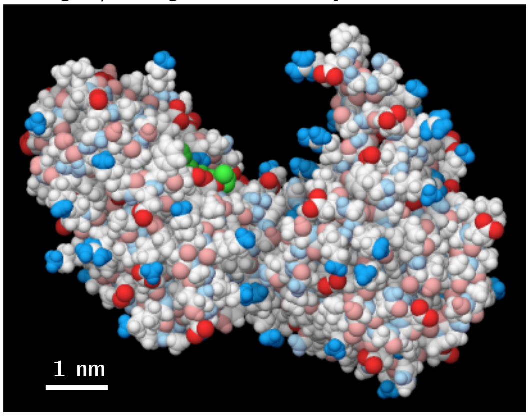
C2: [Computer simulation.] **The structure of a bilayer membrane** formed by the self-assembly of phospholipid molecules. Imagine repeating the arrangement of molecules upward and downward on the page, and into and out of the page, to form a double layer. The phospholipid molecules are free to move about in each layer, but they remain oriented with their polar head groups (*red*) facing outward, toward the surrounding water (*blue*), and their nonpolar hydrocarbon tails (*yellow*) pointing inward. Chapter 8 will discuss the self-assembly of structures like these. For computational simplicity the molecules have been simplified: Each yellow segment represents four carbon atoms in the real molecule. [Image kindly supplied by S. Nielsen; see Nielsen & Klein, 2002.]

cg210/cg210colocal-RGB.pdf



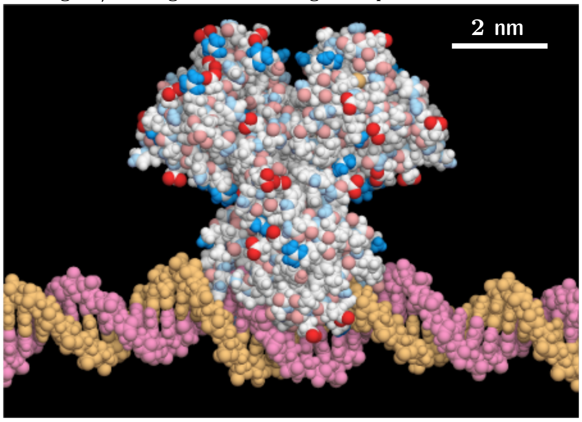
C3: [Fluorescence optical micrograph.] **Experimental demonstration that kinesin and microtubules are found in the same places within cells.** This cell has been doubly labeled with fluorescent antibodies labeling both kinesin (*red*) and tubulin (*green*). The kinesin, attached to transport vesicles, is mostly associated with the microtubule network, as seen from the yellow color where fluorescence from the two kinds of antibodies overlap. [Image kindly supplied by S. T. Brady; see Brady & Pfister, 1991.]

cg154/NEWcg154kinaseC-RGB.pdf



C5: [Structure rendered from atomic coordinates.] **Phosphoglycerate kinase.** This enzyme performs one of the steps in the glycolysis reaction; see Section 10.4. In this figure and Color Figure 6, hydrophobic carbon atoms are white, mildly hydrophilic atoms are pastel (light blue for nitrogen and pink for oxygen), and strongly hydrophilic atoms carrying a full electric charge are brightly colored (blue for nitrogen and red for oxygen). (The concept of hydrophobicity and the behavior of electrostatic charges in solution are discussed in Chapter 7.) Hydrogen atoms are colored according to the atom to which they are bonded. The enzyme manufactures one ATP molecule (*green object*) with each cycle of its action. [Art by D. S. Goodsell.]

cg192/NEWcg192DNAbinding-RGB.pdf



C6: [Composite of structures rendered from atomic coordinates.] **A DNA-binding protein.** The color scheme for the protein is the same as Color Figure 5; the DNA strands are colored orange and magenta. proteins like this one bind directly to the DNA double helix, physically blocking the polymerase that makes messenger RNA. They recognize a specific sequence of DNA, generally a region of 10–20 basepairs. The binding does not involve the formation of chemical bonds; instead it uses the weaker interactions discussed in Chapter 7. Repressors form a molecular switch, turning off the synthesis of a given protein until it is needed. This image depicts a repressor named FadR, involved in the control of fatty acid metabolism in *Escherichia coli.* [Art by D. S. Goodsell.]