

Figure 5.4 Active Transport Using Proton and Sodium Gradients. (1) Protons are pumped to the outside of the plasma membrane during electron transport. (2) The proton gradient drives sodium ion expulsion by an antiport mechanism. (3) Sodium binds to the carrier protein complex. (4) The shape of the solute binding site changes, and it binds the solute (e.g., a sugar or amino acid). (5) The carrier's conformation then alters so that sodium is released on the inside of the membrane. This is followed by solute dissociation from the carrier (a symport mechanism).

