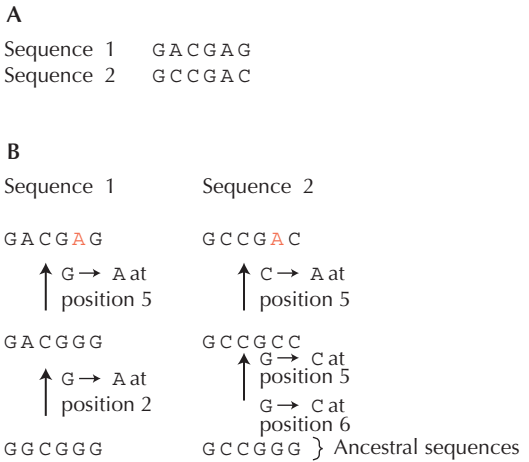

FIGURE 27.20. Homoplasy in sequences. Homoplasy refers to the presence of identical character states that did not arise through shared descent but rather by some other process, such as convergent evolution. This can occur with any character, including molecular sequences. For example, consider these two aligned DNA sequences (*A*), which both have an A at position 5. If the ancestor of Sequence 1 was GACGGG and the ancestor of Sequence 2 was GCCGCC (*B*), then the shared As at position 5 are not a reflection of common ancestry and are instead an example of homoplasy.