



FIGURE 15.18. The age of the CCR5- Δ 32 allele can be estimated from its association with two microsatellite markers. This allele (*red*) arose by mutation on a genetic background that carried two microsatellite markers that were then at a frequency of about 36% (*green filled circles; arrow, lower left*). The mutation increased to about 10% in present European populations and is still largely associated with the original two markers. However, one or more recombination events (*black cross*) have occurred, so that some CCR5- Δ 32 alleles are now associated with different microsatellites.

15.18, from data in Stephens J.C. et al., *Am. J. Hum. Genet.* **62**: 1507–1515, © 1998 University of Chicago Press