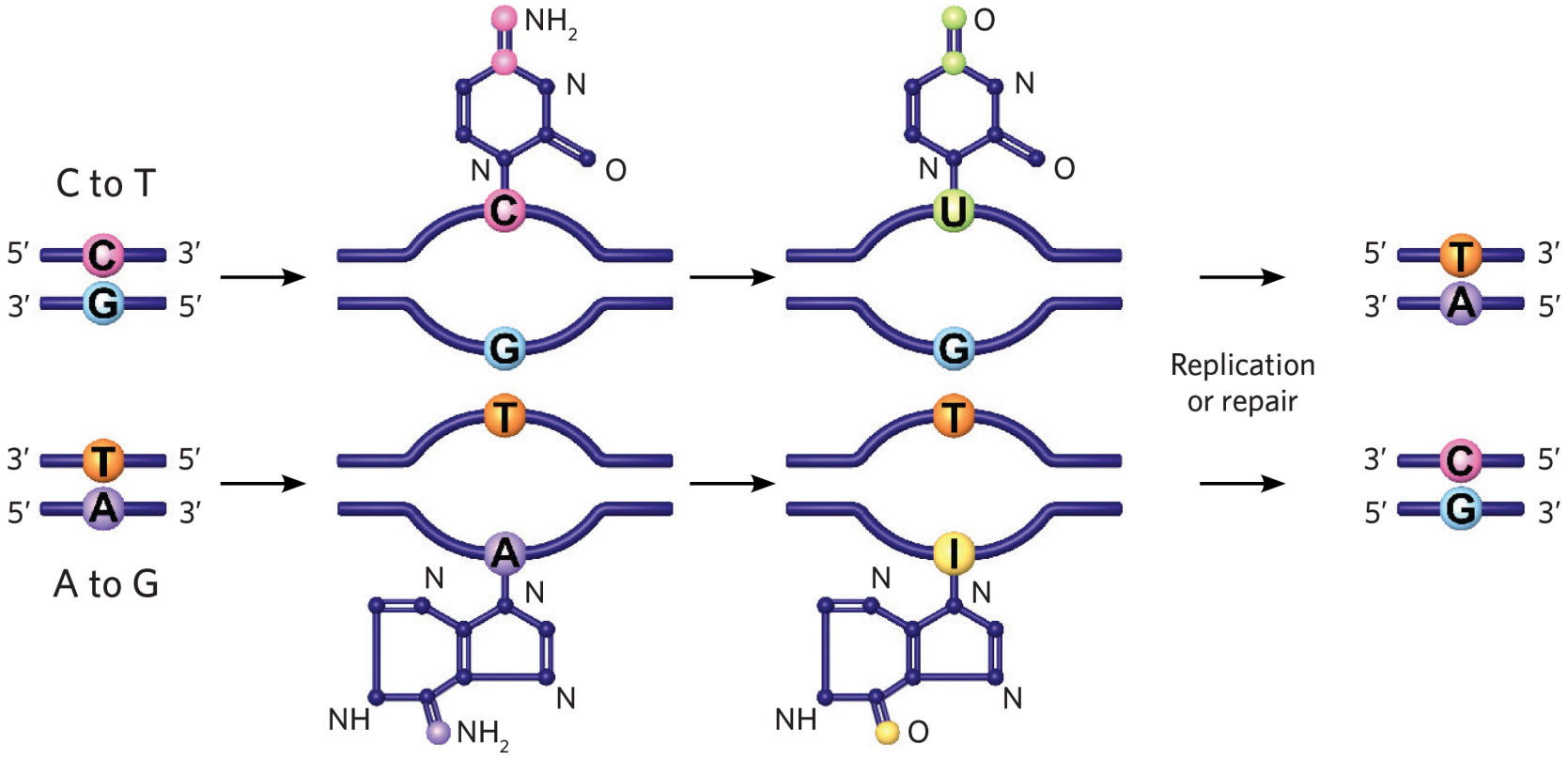

BASE PAIR SWITCH: CBEs convert C-G base pairs to T-A (top) by first deaminating the cytosine, converting it into a uracil, and then incorporating an adenine on the opposite DNA strand during replication or repair. ABEs convert A-T base pairs to G-C (bottom) by deaminating the adenine, converting it into an inosine, and then incorporating a cytosine on the opposite strand during replication or repair. Guide RNAs direct the CBE—which includes nuclease-free Cas9, cytosine deaminase, and uracil glycosylase inhibitor (to prevent uracil removal)—or ABE, which consists of nuclease-free Cas9 and adenosine deaminase, to the desired target sites in the plant genome.