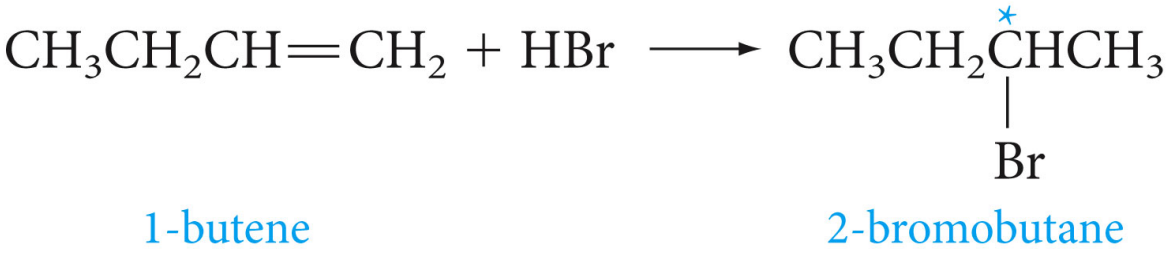
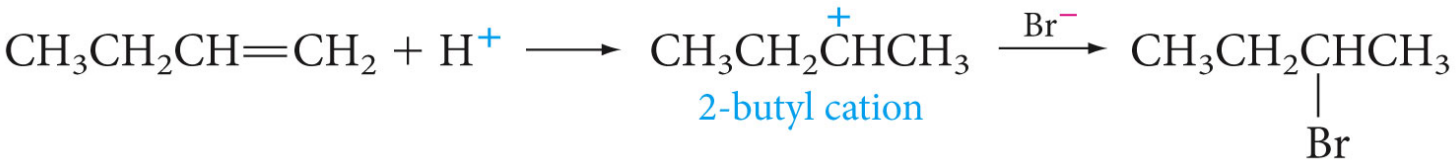
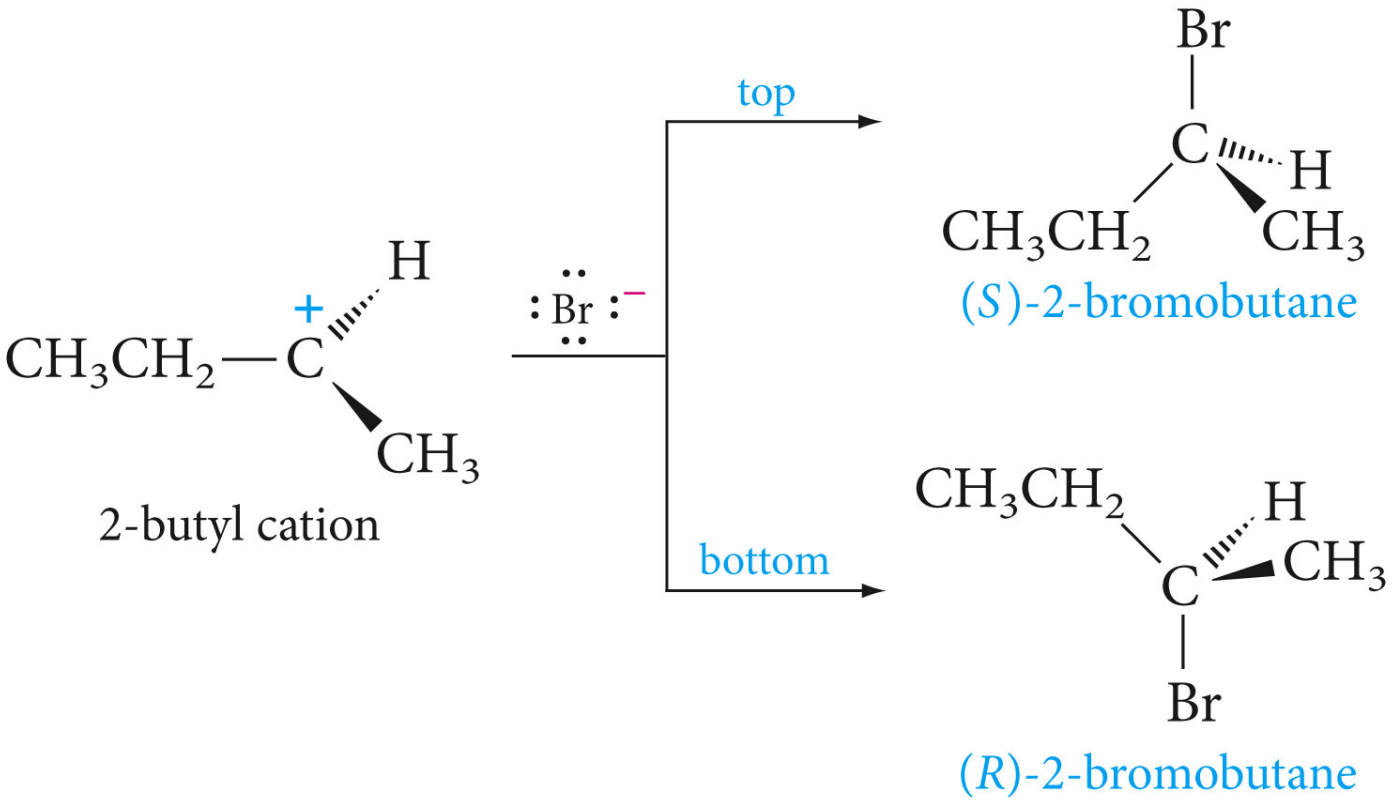
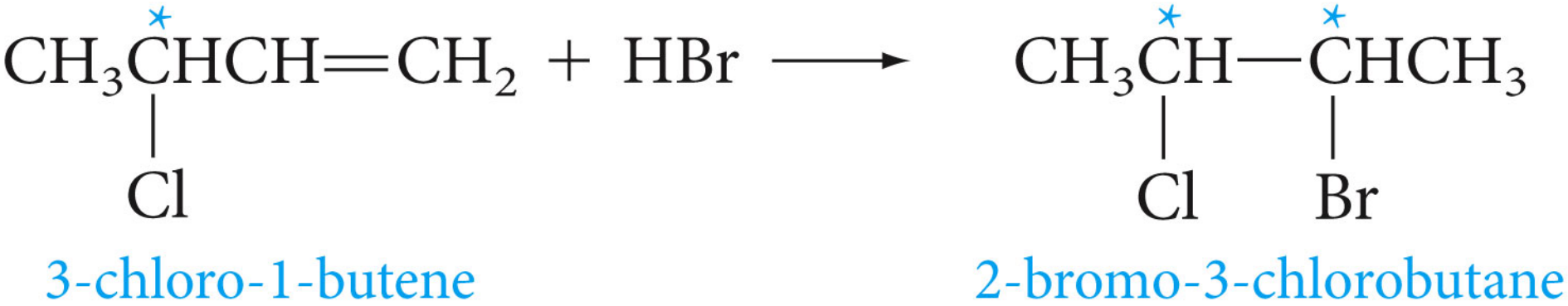
Stereochemistry and Chemical Reactions



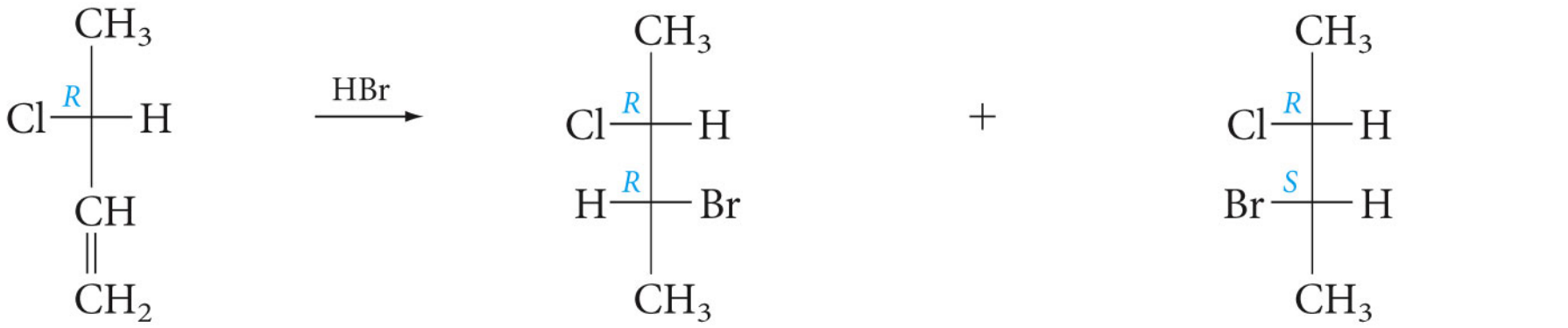




When chiral products are obtained from achiral reactants, both enantiomers are formed at the same rates, in equal amounts.



Reaction of a chiral regent with an achiral reagent when it creates a new stereogenic center, leads to diastereomeric products at different rates and in unequal amounts.

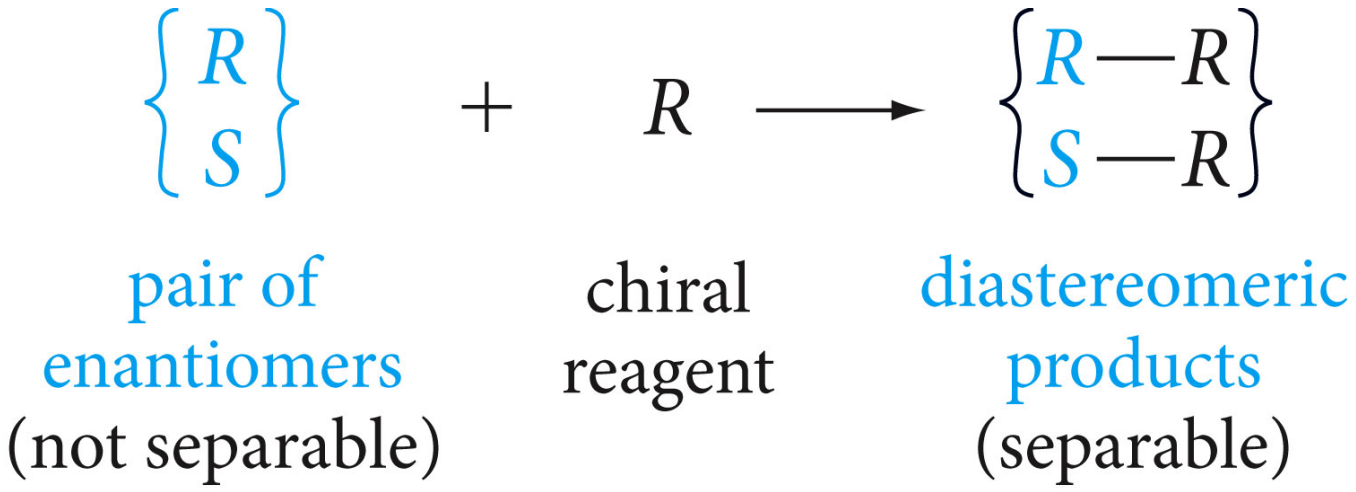


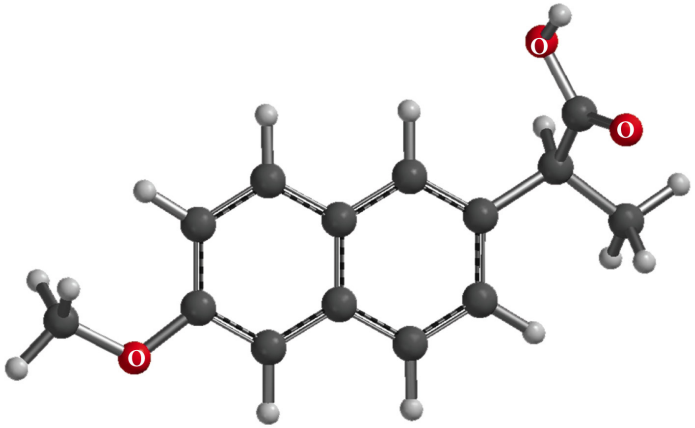
(*R*)-3-chloro-1-butene (2*R*,3*R*)-2-bromo-3-chlorobutane (2*S*,3*R*)-2-bromo-3-chlorobutane

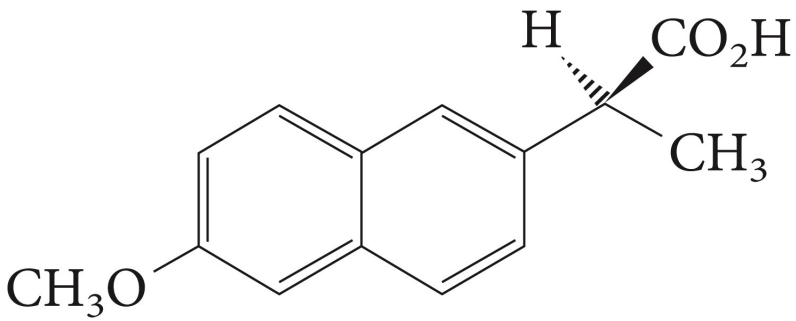
Reaction of a chiral reagent with an achiral reagent, when it creates a new stereogenic center, leads to diastereomeric products at different rates and in unequal amounts.

Resolution of a Racemic Mixture

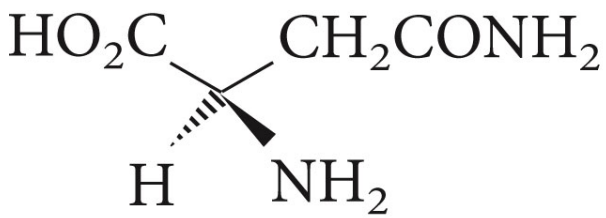
To separate a racemic mixture, we first react with a chiral reagent. The product will be a pair of diastereomers. These, differ in all types of physical properties and can therefore be separated by ordinary methods.



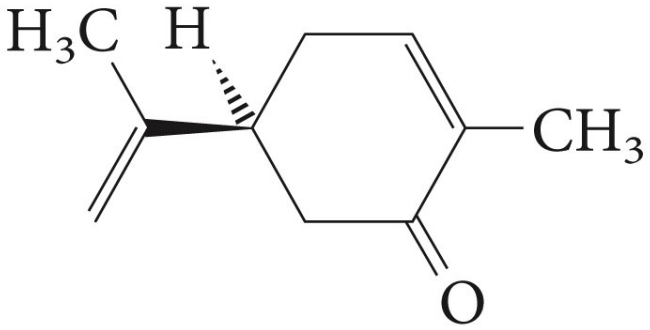




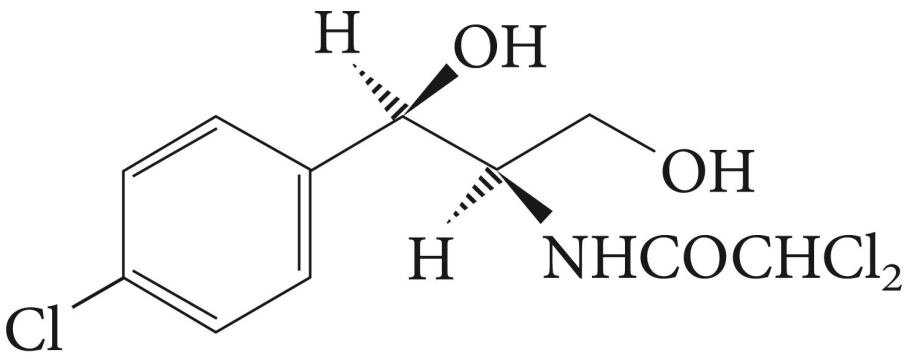
(*S*)-naproxen



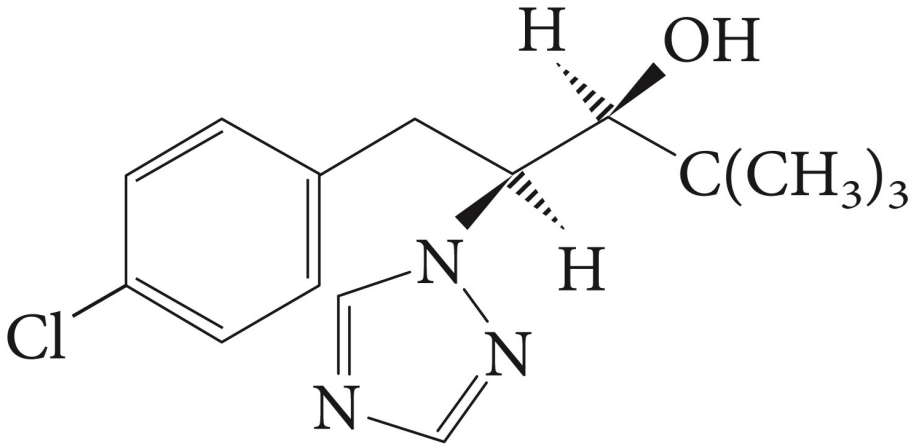
(*R*)-asparagine



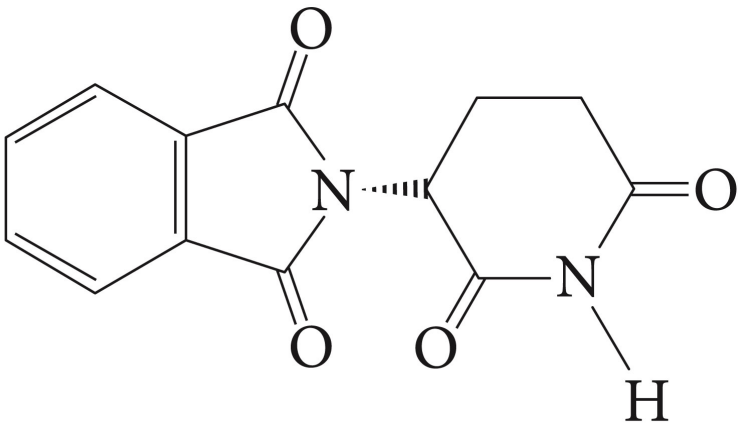
(*S*)-carvone



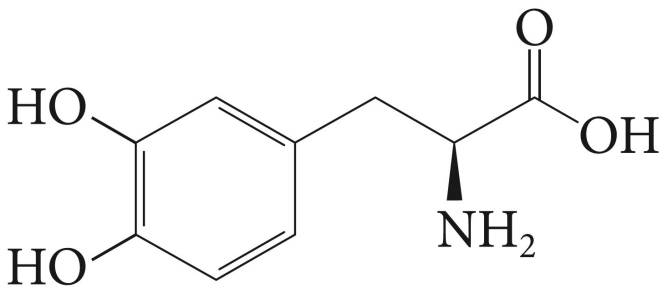
(*R*,*R*)-chloramphenicol



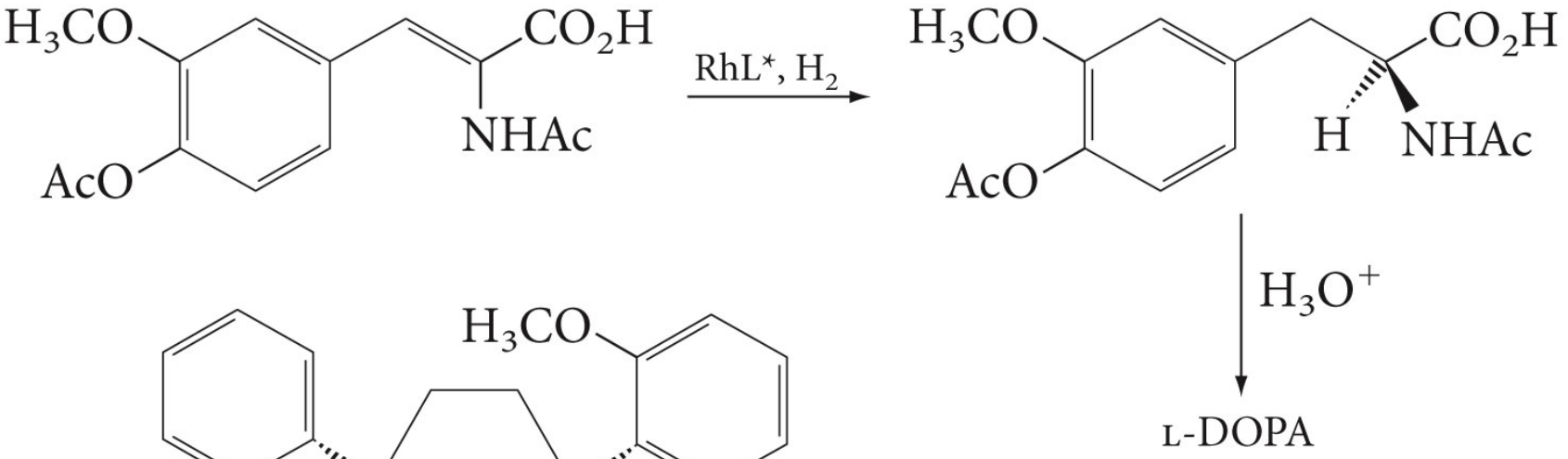
(*S*,*S*)-paclobutrazol

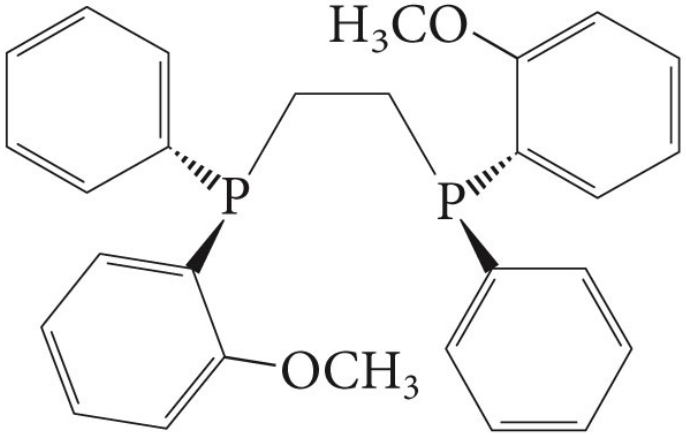


(*R*)-thalidomide



L-DOPA





L = (*R*,*R*)-DiPAMP Ligand