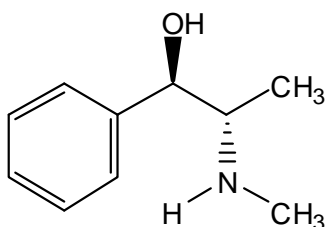
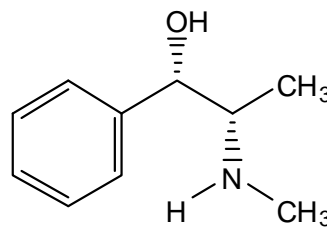


Workshop 11
Enantiomers, Diastereomers, and Meth

Congress passed the Combat Methamphetamine Epidemic Act of 2005 to limit the availability of ephedrine and pseudoephedrine at pharmacies, because of the ease with which both molecules are converted to methamphetamine.

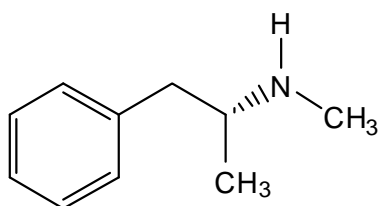


ephedrine



pseudoephedrine

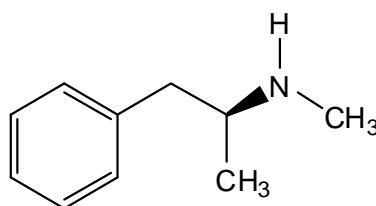
- a) Assign (*R*) or (*S*) stereochemistry to all stereocenters in these molecules. How would you describe the stereochemical relationship between ephedrine and pseudoephedrine? Are they stereoisomers? Enantiomers? Diastereomers? Are the molecules chiral? Are they *meso*?
- b) A meth lab cook would convert either of these substances to methamphetamine by chemically replacing the $-OH$ group with an $-H$. One of the molecules below is methamphetamine. The other is levomethamphetamine, an active ingredient in Vicks Inhaler products. Which is which? (Circle one answer for each.)



methamphetamine

or

levomethamphetamine



methamphetamine

or

levomethamphetamine

- c) What is the stereochemical relationship between these two molecules? Are they stereoisomers? Enantiomers? Diastereomers? Are the molecules chiral? Are they *meso*?