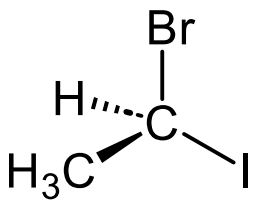
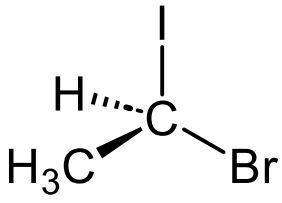
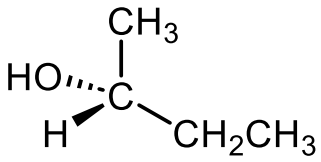
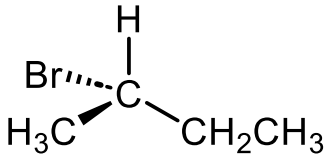
1. Assegnare la configurazione *R* o *S* alle seguenti molecole e determinare che rapporto di stereoisomeria c'è tra le due.

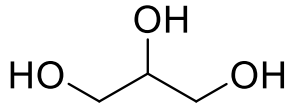
a) 

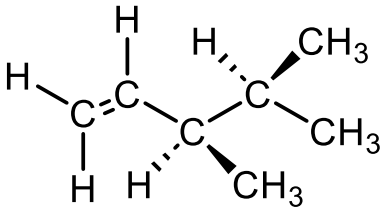
b) 

2. Contrassegna ciascun stereocentro nelle seguenti molecole con un asterisco e determinare la configurazione *R* o *S.*

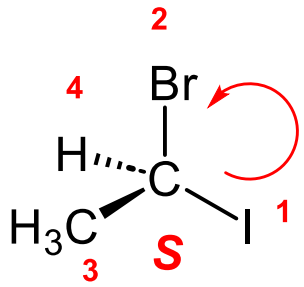
a) 

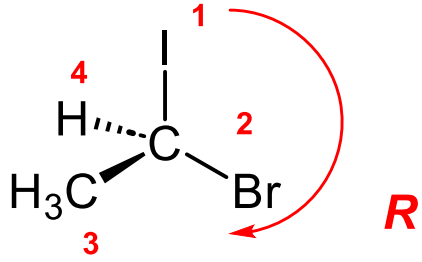
b) 

c) 

d) 

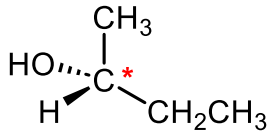
1. Assegnare la configurazione *R* o *S* alle seguenti molecole e determinare che rapporto di stereoisomeria c'è tra le due (soluzioni).

a) 

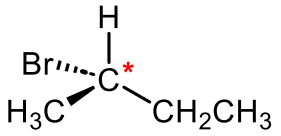
b) 

Le molecole sono tra di loro *enantiomeri*.

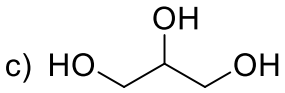
2. Contrassegna ciascun stereocentro nelle seguenti molecole con un asterisco e determinare la configurazione *R* o *S* (soluzioni).

a) 

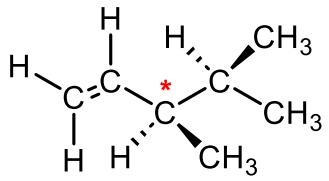
(2*R*)

b) 

(2*S*)-2-bromobutano

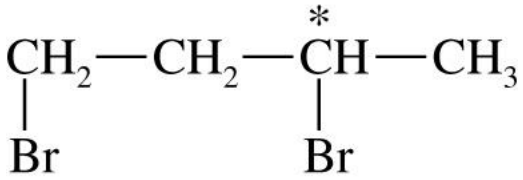
c) 

nessun stereocentro

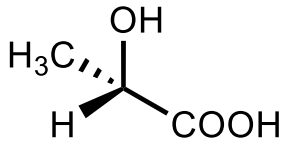
d) 

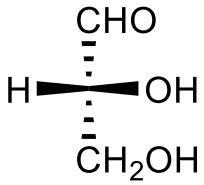
(3*R*)

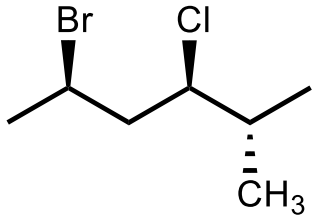
3. Disegna gli enantiomeri *R* e *S* dell'1,3-dibromobutano.



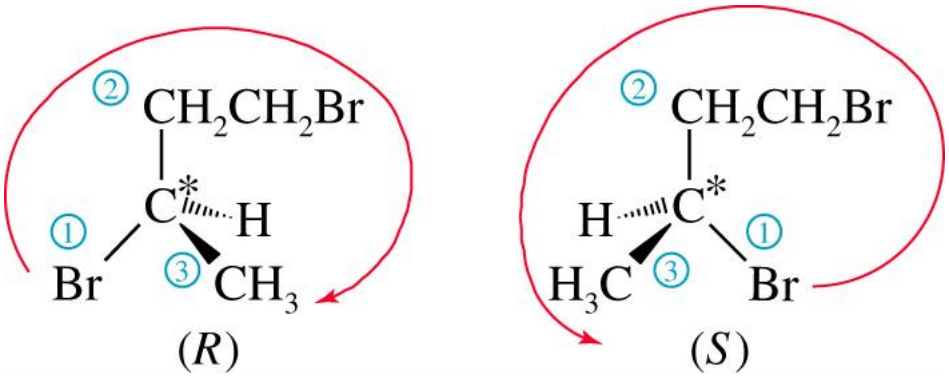
4. Disegnare l'enantiomero per ciascuna delle seguenti molecole.

a. 

b. 

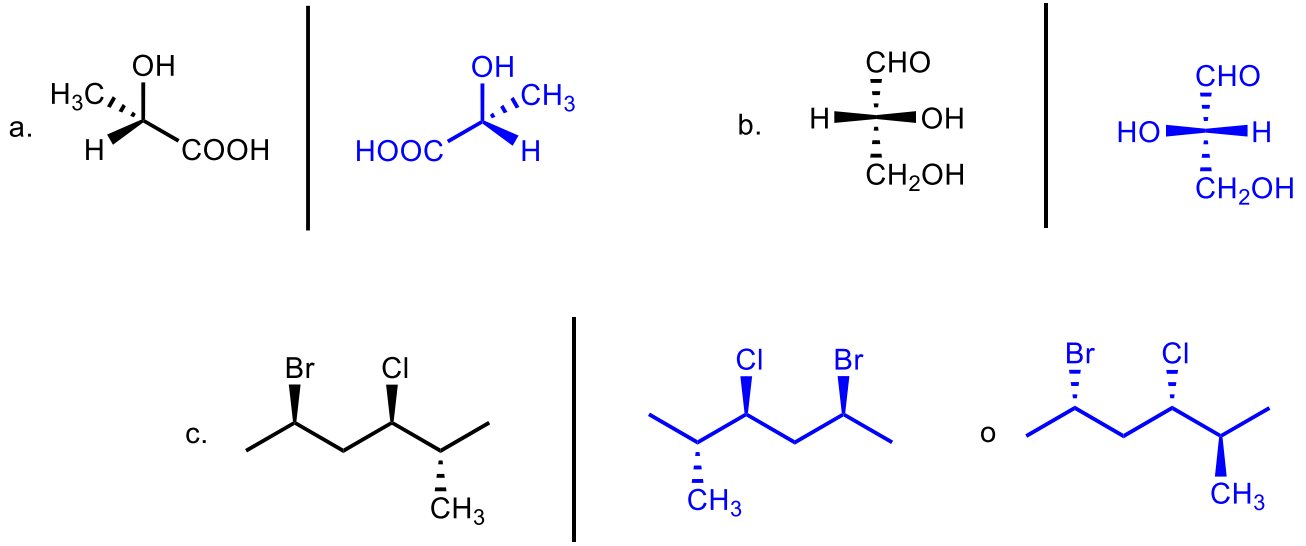
c. 

3. Disegna gli enantiomeri *R* e *S* dell'1,3-dibromobutano (soluzioni)

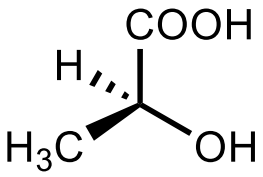


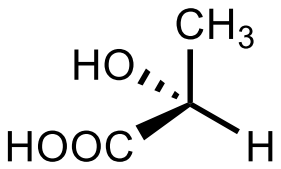
Il terzo atomo di carbonio del 1,3-dibromobutano è asimmetrico. L'atomo di bromo ha la prima priorità, il gruppo (-CH_2CH_2Br) la seconda, il gruppo metile la terza e l'idrogeno la quarta. Le immagini a specchio che seguono sono disegnate con l'atomo di idrogeno al contrario, pronto per assegnare (R) o (S) come indicato.

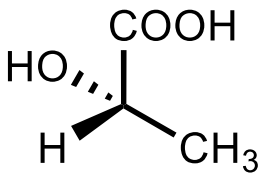
4. Disegnare l'enantiomero per ciascuna delle seguenti molecole (soluzioni).

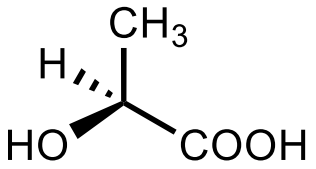


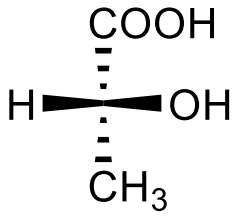
5. Di seguito sono riportate otto rappresentazioni dell'acido lattico. Prendi la struttura (a) come riferimento. Quali stereorappresentazioni sono identiche ad (a) e quali sono immagini speculari di (a)?

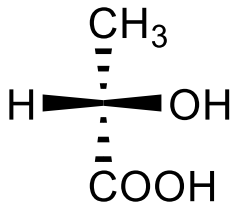
a. 

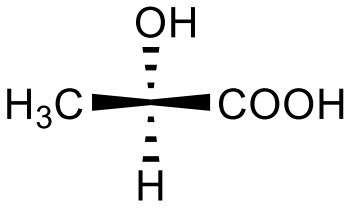
b. 

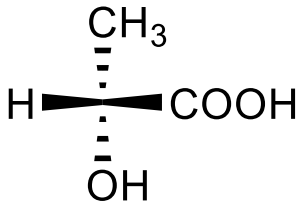
c. 

d. 

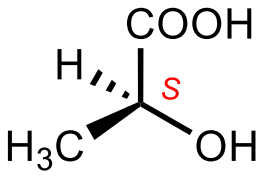
e. 

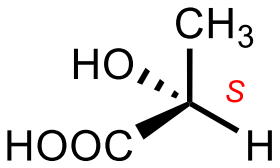
f. 

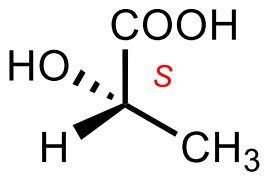
g. 

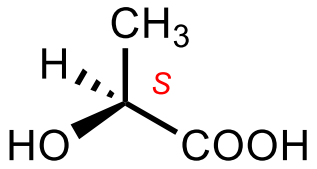
h. 

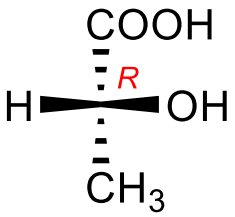
5. Di seguito sono riportate otto rappresentazioni dell'acido lattico. Prendi la struttura (a) come riferimento. Quali stereorappresentazioni sono identiche ad (a) e quali sono immagini speculari di (a)? (soluzioni)

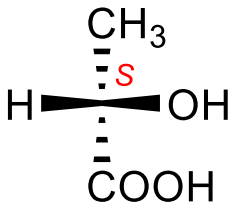
a. 

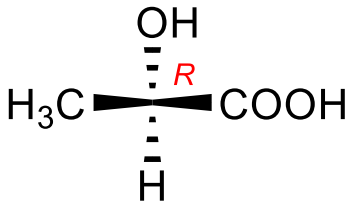
b. 

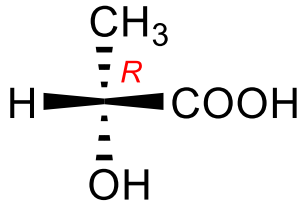
c. 

d. 

e. 

f. 

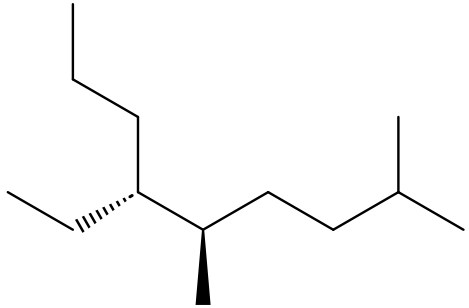
g. 

h. 

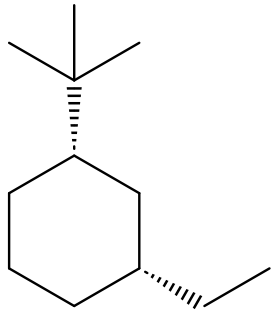
Le strutture (b), (c), (d) ed (f) sono identiche ad (a). Le strutture (e), (g) ed (h) sono immagini speculari di (a).

6. Assegnare la nomenclatura IUPAC completo dei descrittori stereochimici alle seguenti molecole.

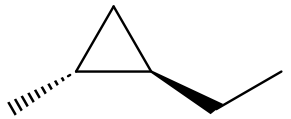
a.



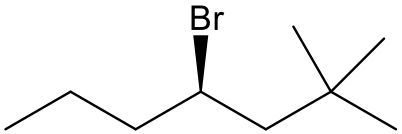
b.



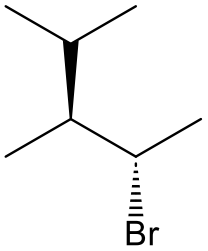
c.



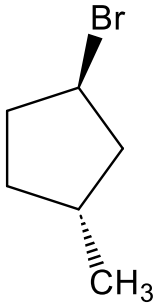
d.



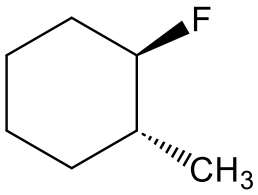
e.



f.

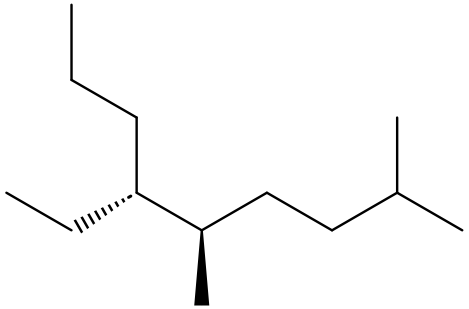


g.



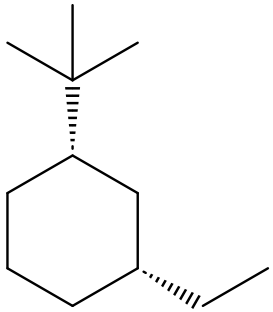
6. Assegnare la nomenclatura IUPAC completo dei descrittori stereochimici alle seguenti molecole (soluzioni).

a.



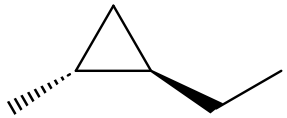
(5*R*,6*R*)-6-etil-2,5-dimetilnonano

b.



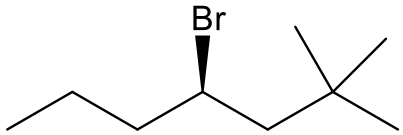
(1*S*,3*R*)-1-(*terz*-butil)-3-etilcicloesano

c.



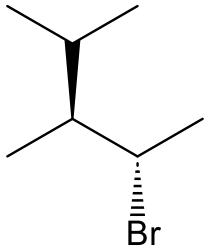
(1*R*,2*R*)-1-etil-2-metilciclopropano

d.



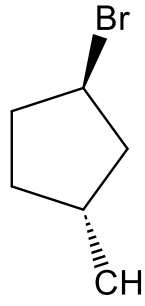
(*R*)-4-bromo-2,2-dimetileptano

e.



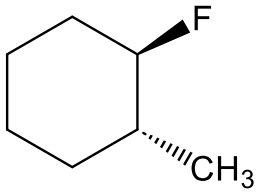
(2*S*,3*S*)-2-bromo-3,4-dimetilpentano

f.



(1*R*,3*R*)-1-bromo-3-metilciclopentano

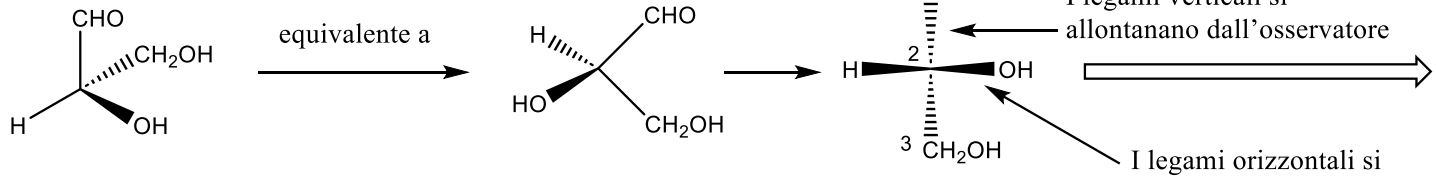
g.



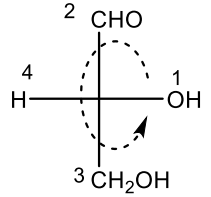
(1*R*,2*R*)-1-fluoro-2-methylcyclohexane

Proiezioni di Fischer

1° caso: 1 centro stereogenico, esempio della gliceraldeide



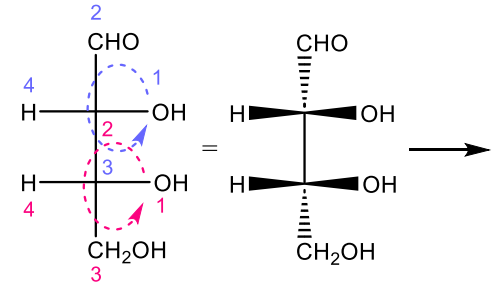
PROIEZIONE DI FISCHER



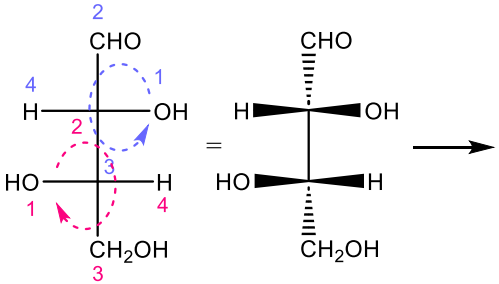
R-gliceraldeide

- rotazione antioraria
- atomo 4 orizzontale

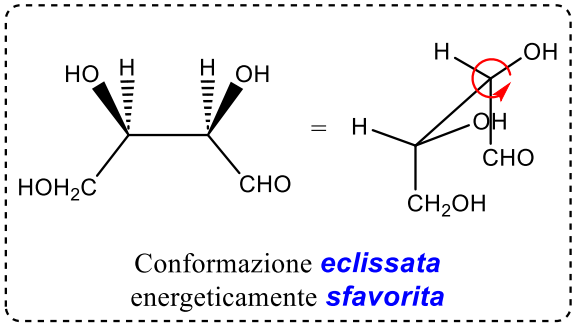
2° caso: 2 centri stereogenici, esempio del treosio e eritrosio - procedura a ritroso



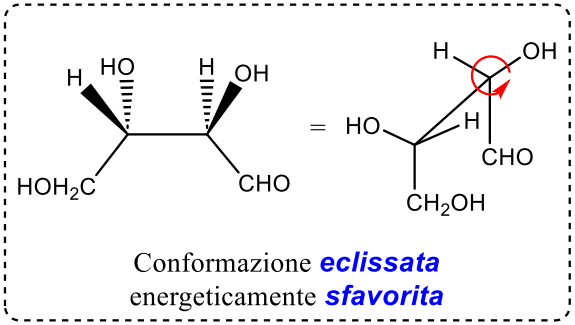
(*R*,*R*)-Eritrosio



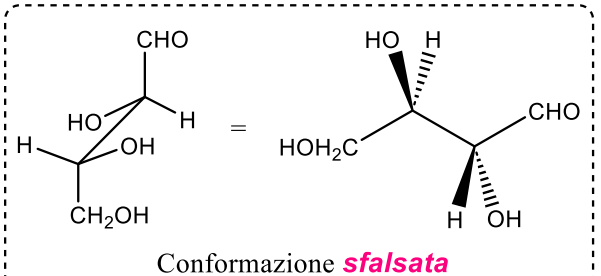
(*R*,*S*)-Treosio



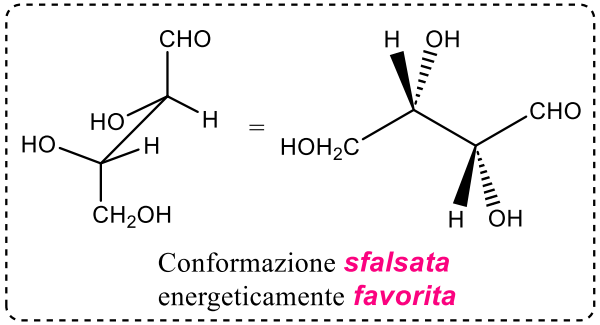
Conformazione ***eclissata*** energeticamente ***sfavorita***



Conformazione ***eclissata*** energeticamente ***sfavorita***



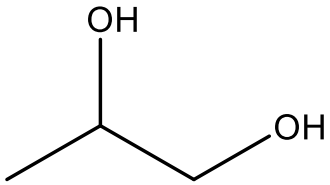
Conformazione ***sfalsata*** energeticamente ***favorita***



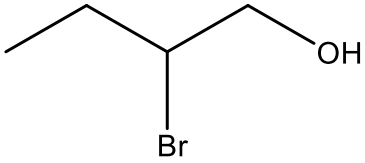
Conformazione ***sfalsata*** energeticamente ***favorita***

7. Disegna una proiezione di Fischer per ciascuna delle seguenti molecole.

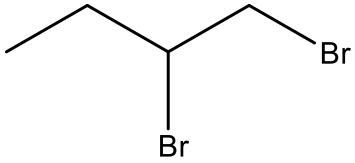
a) (S)-propan-1,2-diolo



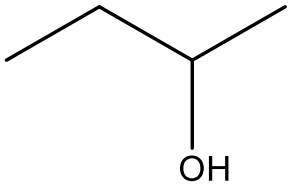
b) (R)-2-bromobutan-1-olo



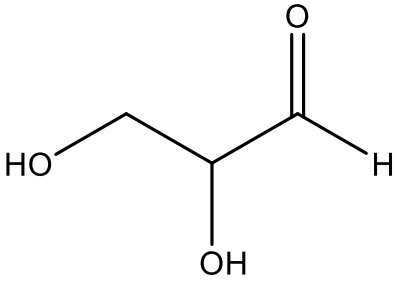
c) (S)-1,2-dibromobutano



d) (R)-butan-2-olo

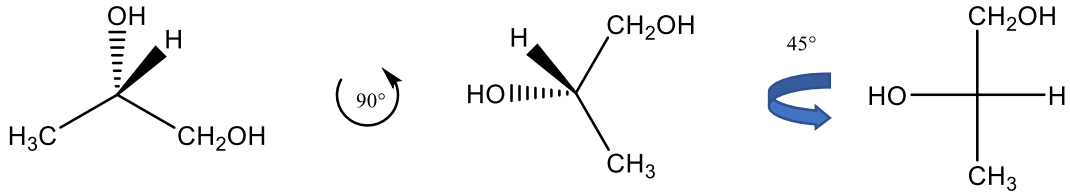


e) (R)-gliceraldeide

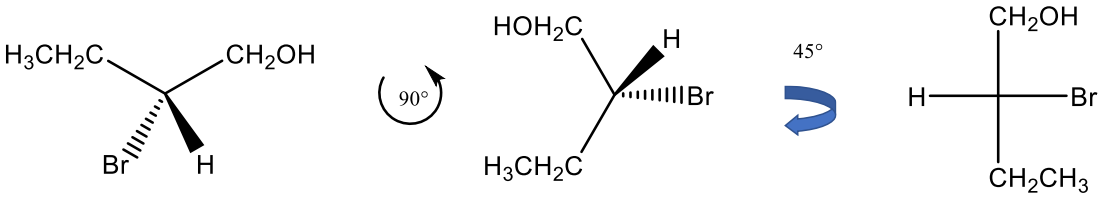


7. Disegna una proiezione di Fischer per ciascuna delle seguenti molecole (soluzioni).

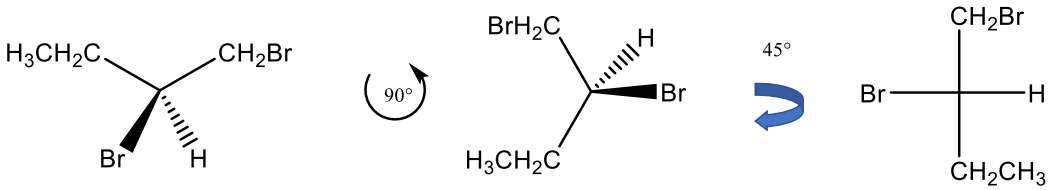
a)



b)

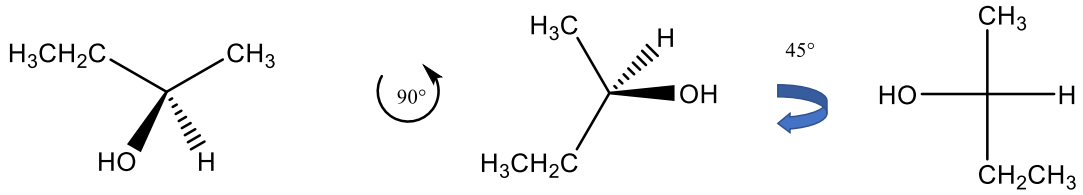


c)

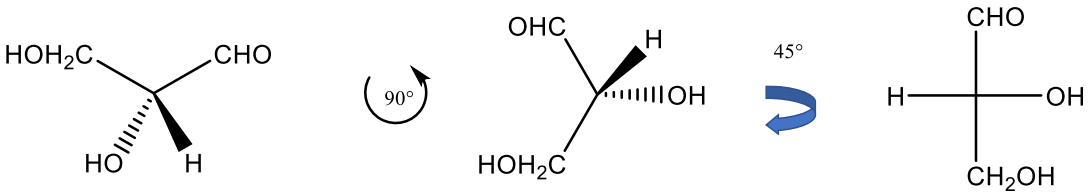


7. Disegna una proiezione di Fischer per ciascuna delle seguenti molecole (soluzioni).

d)

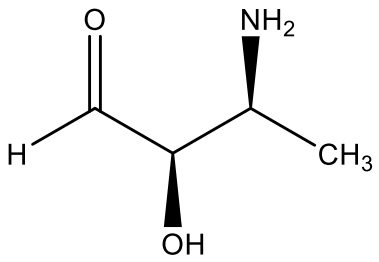


e)

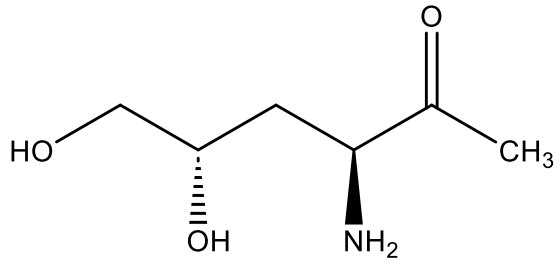


8. Rappresentare le seguenti molecole mediante rappresentazioni di Fischer e determinare la configurazione assoluta dei centri stereogenici.

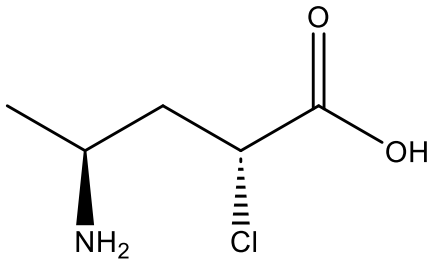
1.



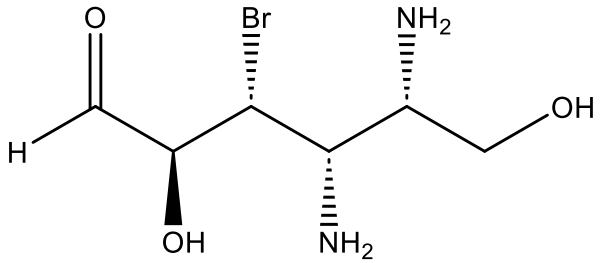
2.



3.

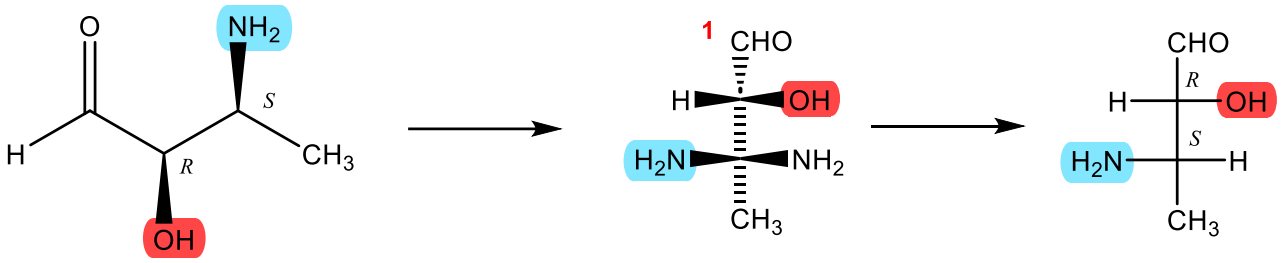


4.



8. Rappresentare le seguenti molecole mediante rappresentazioni di Fischer e determinare la configurazione assoluta dei centri stereogenici (soluzioni).

1.



2.