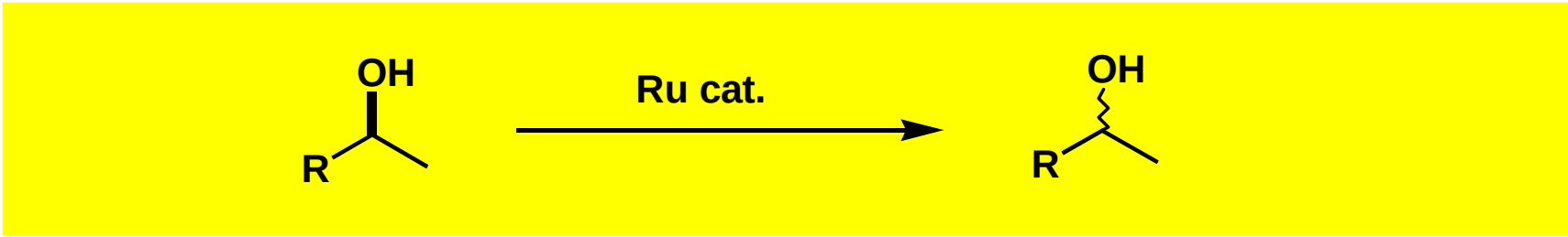
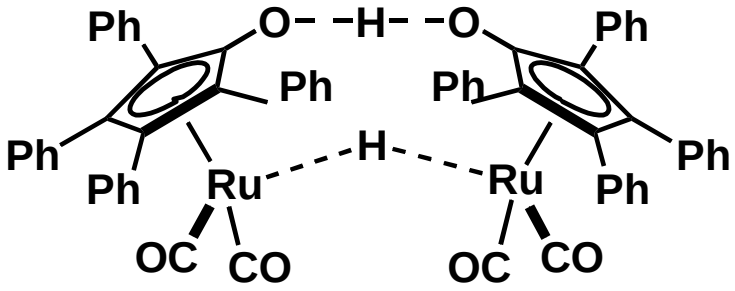
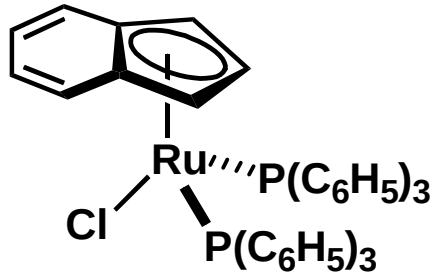
RACEMIZATION OF SECONDARY ALCOHOL



Ru cat:



Shovo (1986)
Bäckvall (1999)
Casey(2001)



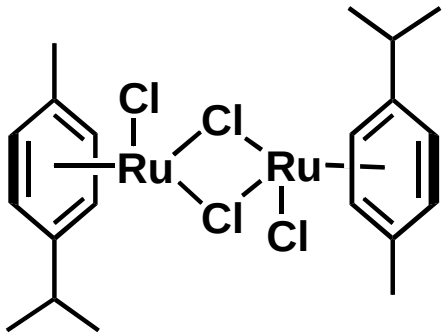
+ 5KOH

Park (1998)

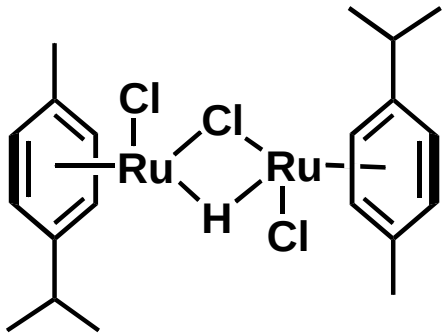
$RuCl_2(PPh_3)_3$

+

5 NaOH

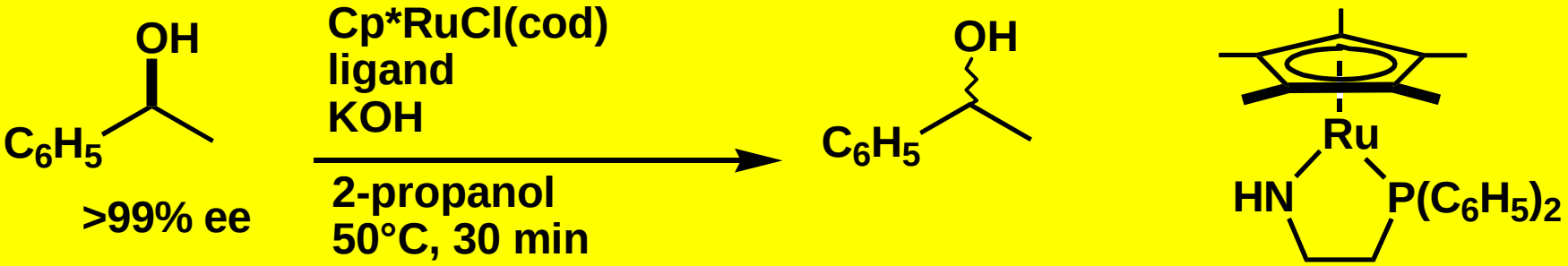


Bäckvall (1999)



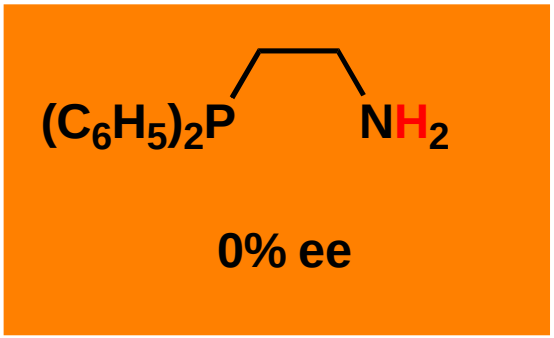
Park (2000)

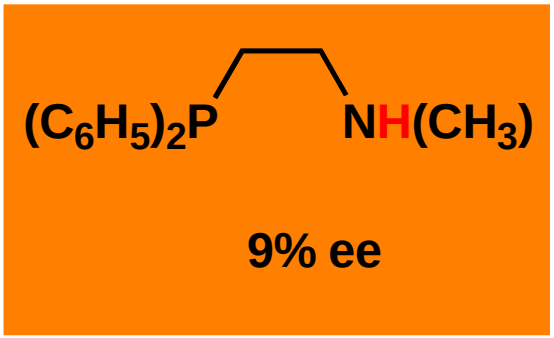
DEHYDROGENATIVE TRANSFORMATION OF SECONDARY ALCOHOL

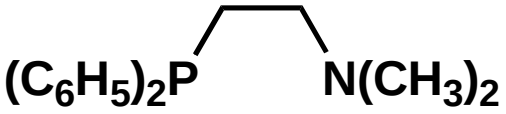


日本化学会第７８春季年会, **1F514 (2000)**

ligand



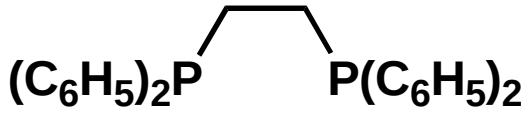




98% ee

$P(C_6H_5)_3$ (1 eq.)

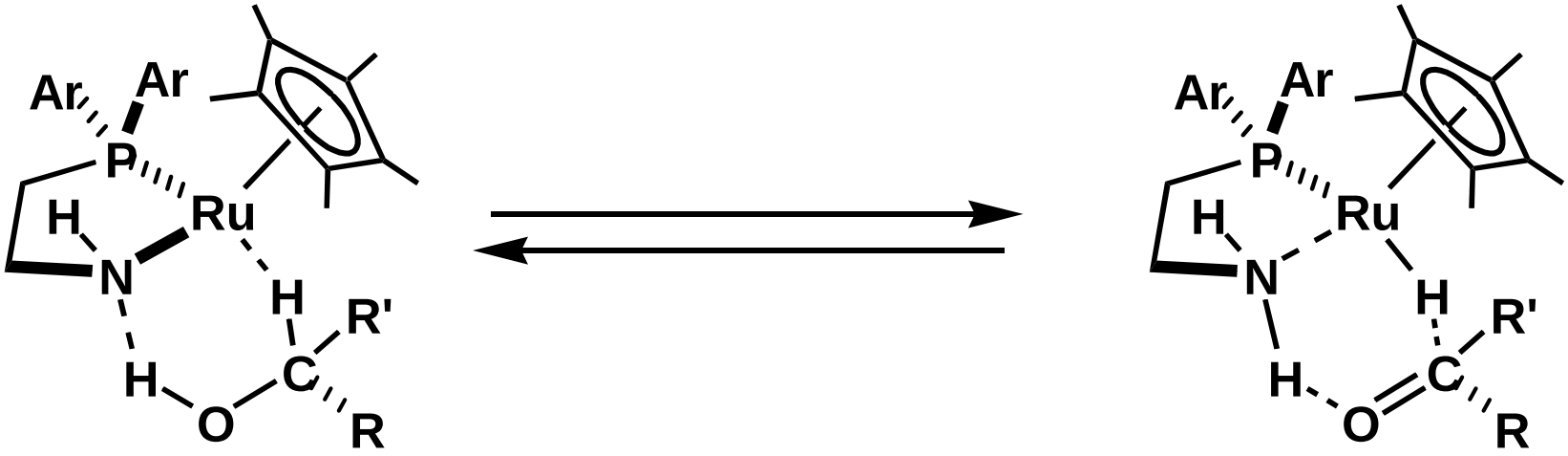
98% ee



98% ee

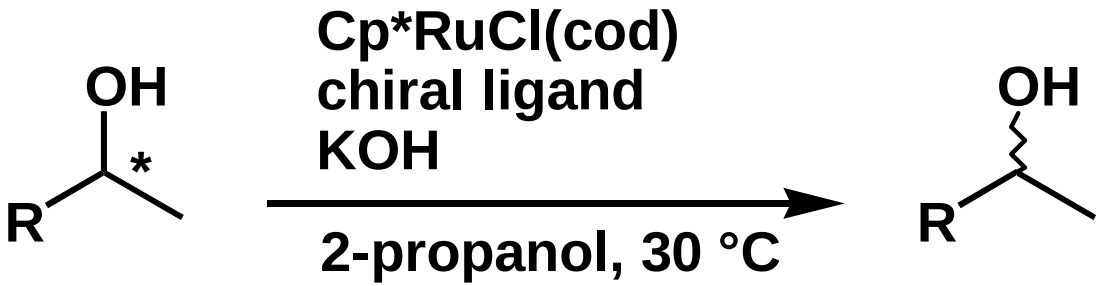
98% ee

DEHYDROGENATIVE TRANSFORMATION OF ALCOHOLS



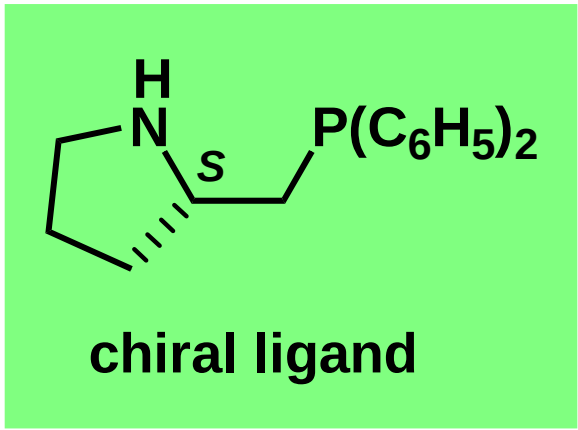
- **EPIMERIZATION OF *meso*-DIOLS**
- **ISOMERIZATION OF ALLYLIC ALCOHOLS**
- **LACTONIZATION OF α,ω-DIOLS**

ENANTIOMER DISCRIMINATION OF SECONDARY ALCOHOL

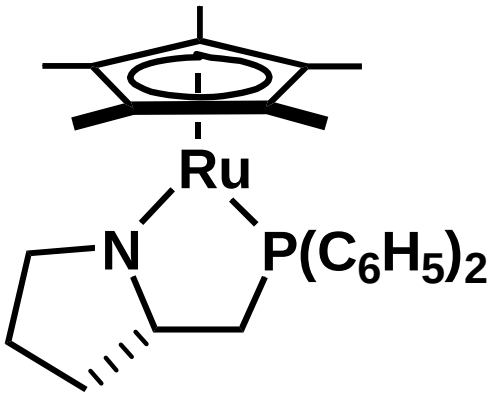


R = C_6H_5 or *n*-C_4H_9

alcohol:Ru:chiral ligand:KOH = 100:1:1.5:1



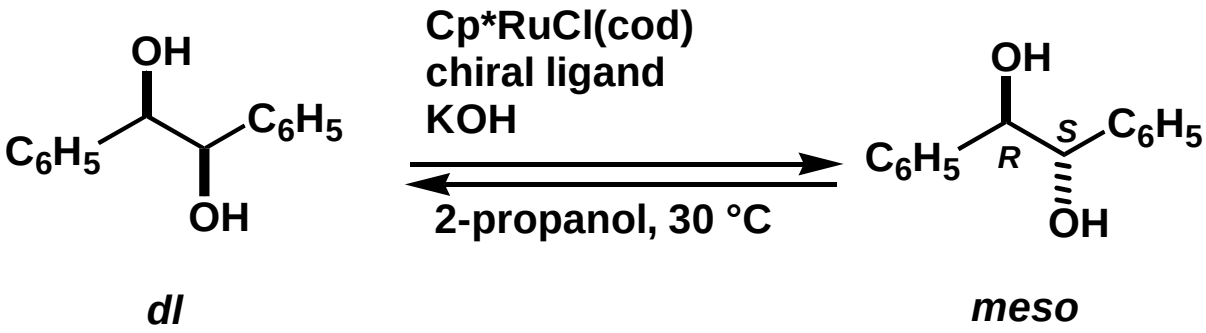
amide complex



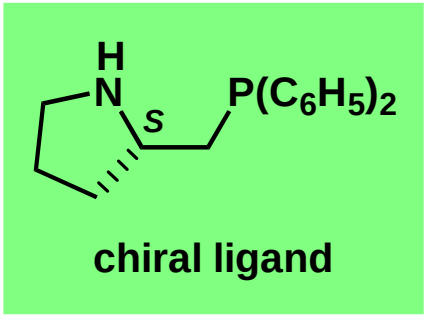
R = C_6H_5 k_S/k_R = 1.3

R = *n*-C_4H_9 k_S/k_R = 1.8

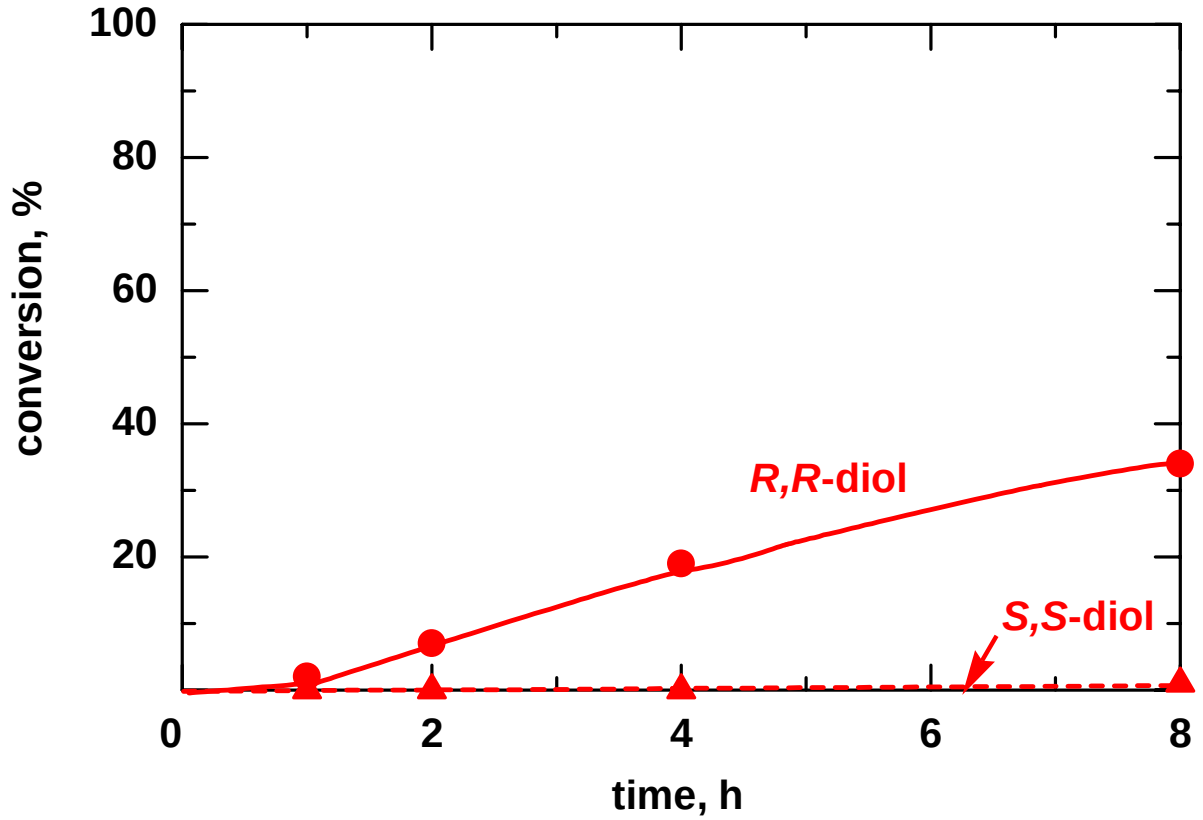
ENANTIOMER DISCRIMINATION OF *sym*-DIOL



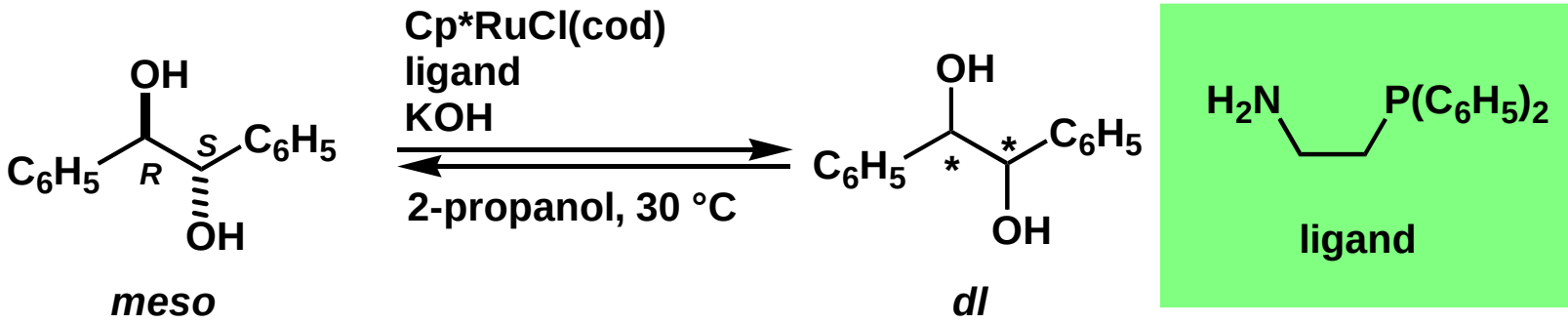
dl *meso*



hydrobenzoin:Ru:chiral ligand:KOH = 100:1:1.5:1

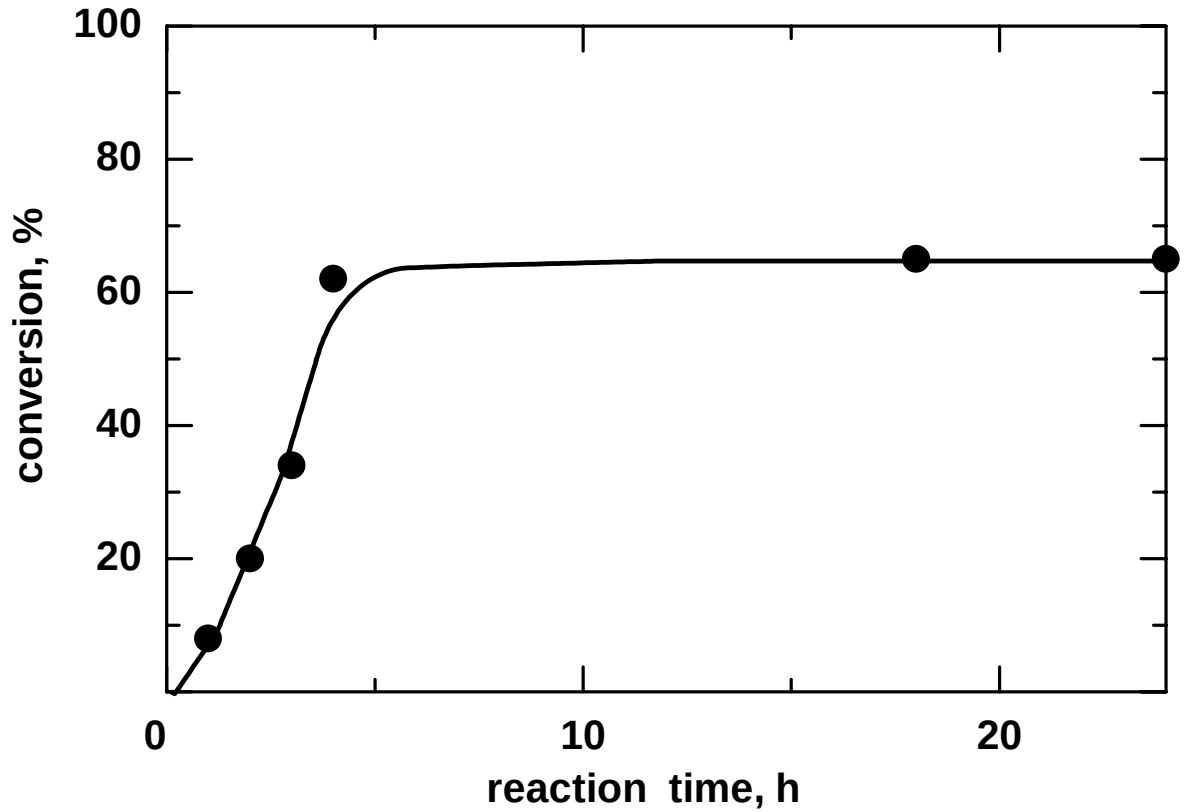


EPIMERIZATION OF *meso*-HYDROBENZOIN WITH ACHIRAL LIGAND

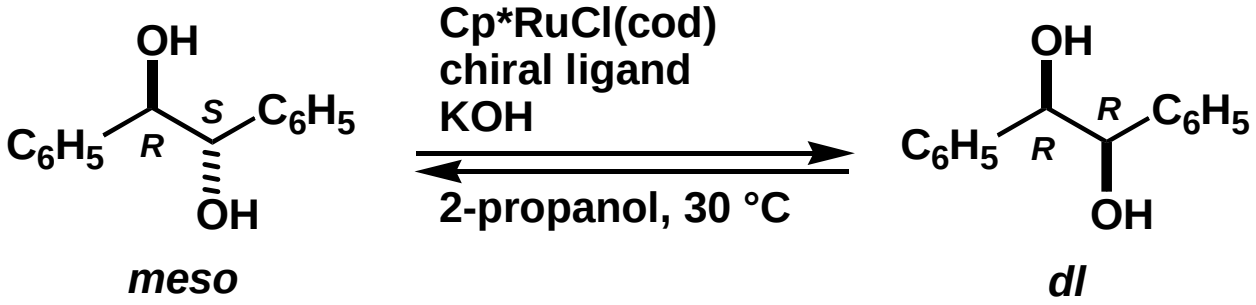


meso ***dl***

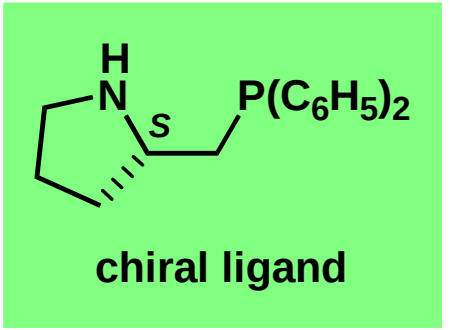
hydrobenzoin:Ru:ligand:KOH = 100:1:1.5:1



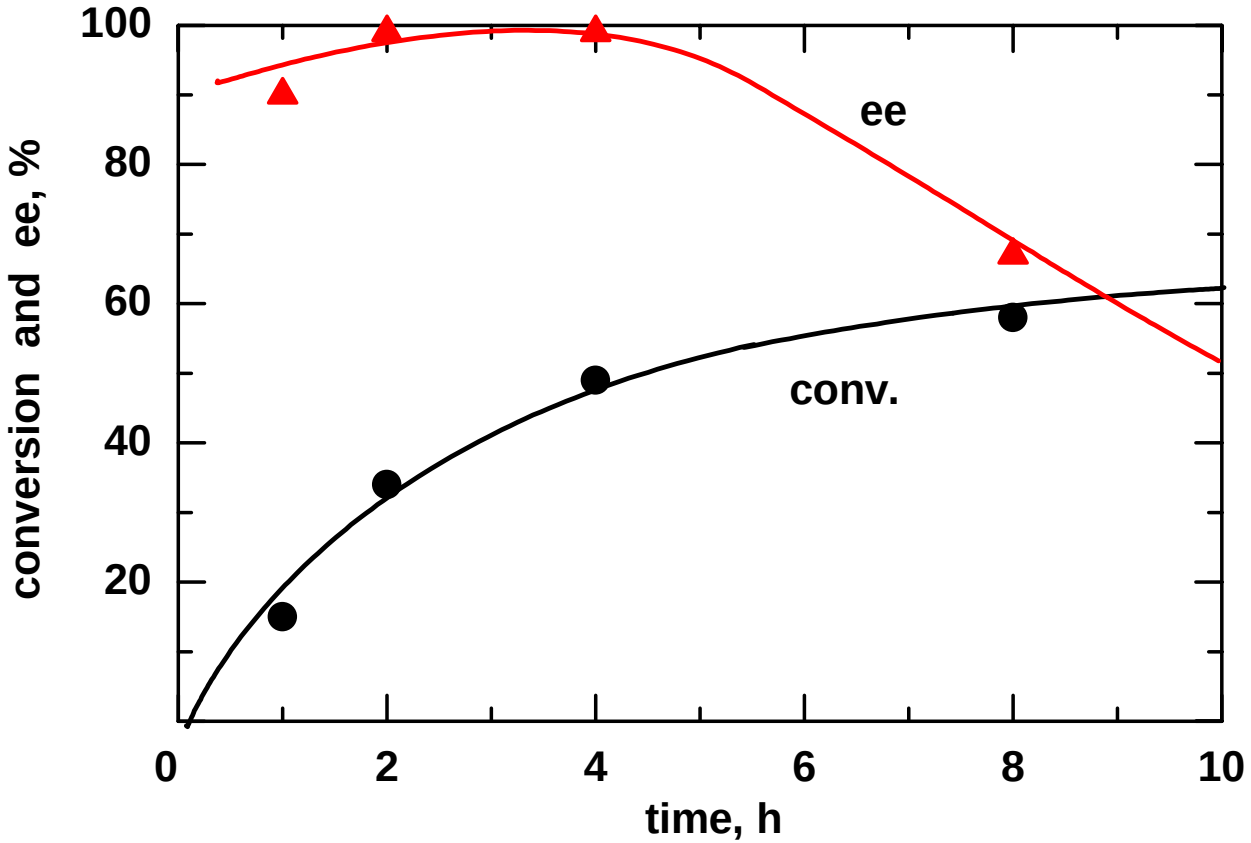
EPIMERIZATION OF *meso*-HYDROBENZOIN WITH CHIRAL LIGAND



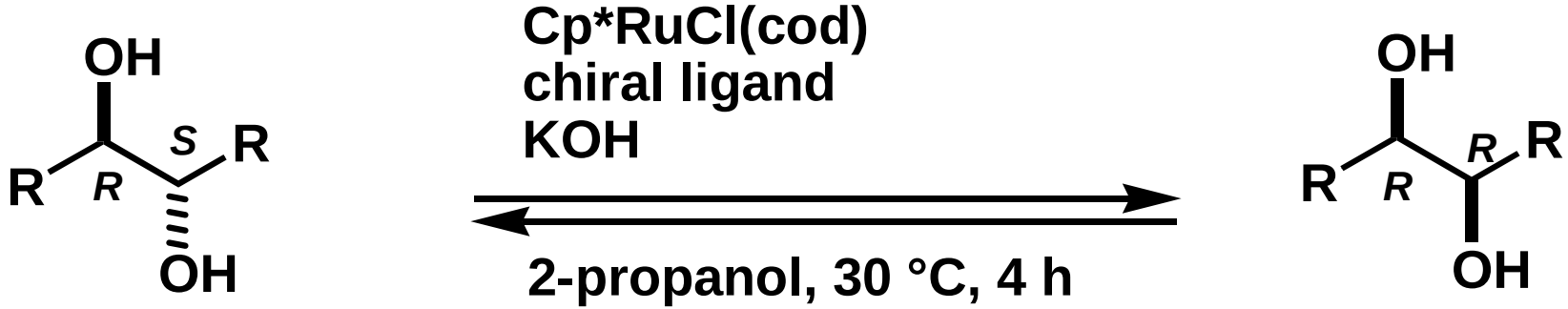
meso *dl*



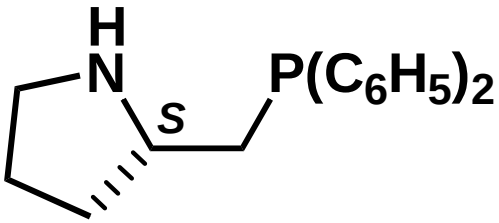
hydrobenzoin:Ru:chiral ligand:KOH = 100:1:1.5:1



SYNTHESIS OF OPTICALLY ACTIVE DIOLs FROM *meso*-DIOLs



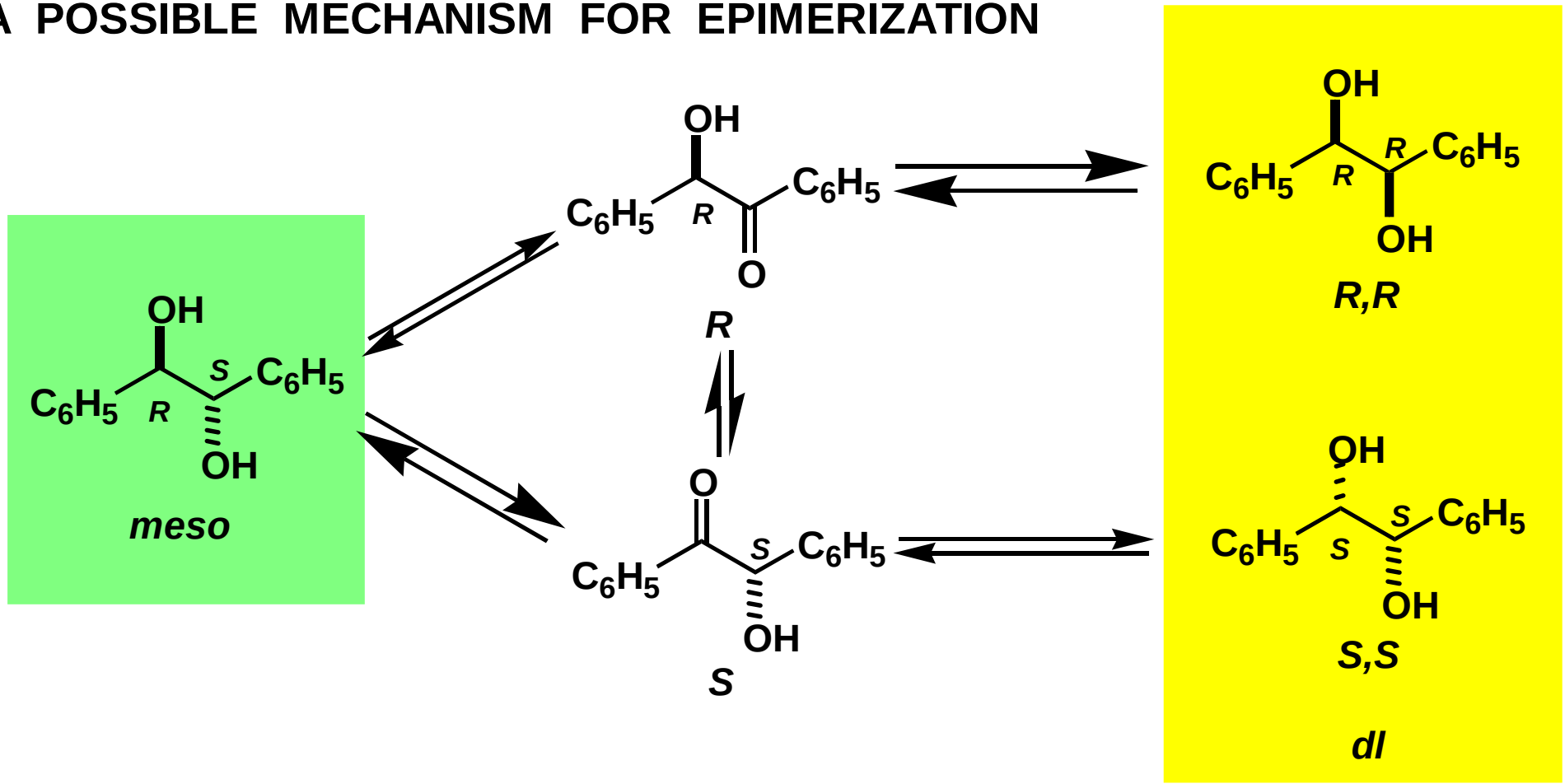
meso-diol:Ru:chiral ligand:KOH = 100:1:1.5:1

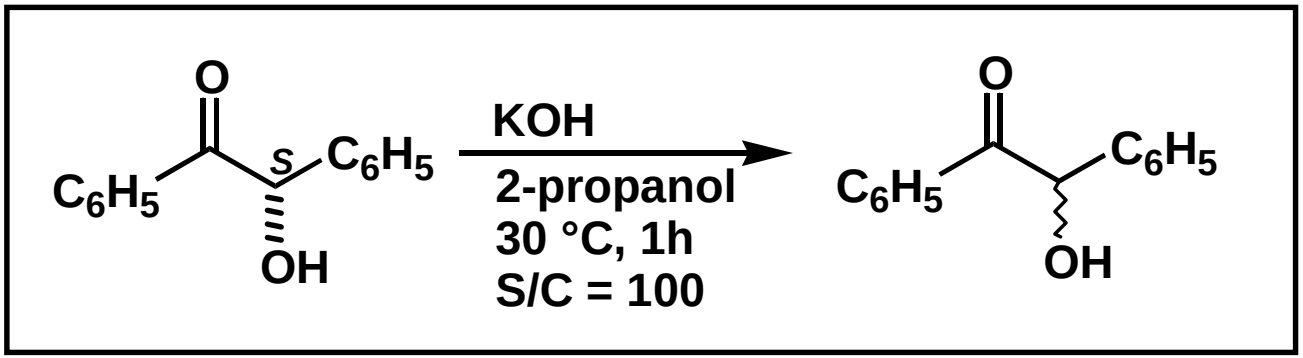


chiral ligand

R	conc.	conv, %	ee, %
C_6H_5	0.1 M	49	99
p-CH_3-C_6H_4	0.05 M	16	91
p-F-C_6H_4	0.1 M	22	85
CH_3	0.1 M	18	98
–$(CH_2)_4$–	0.1 M	0	-

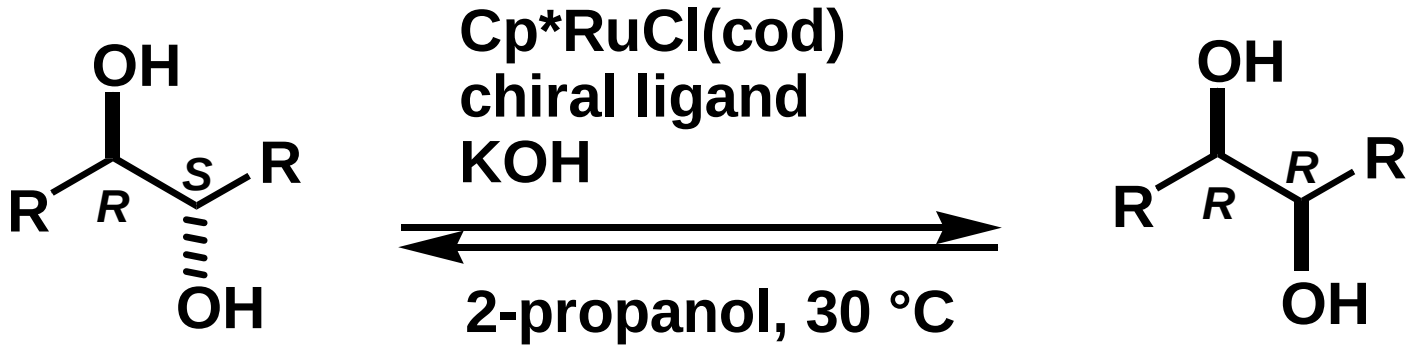
A POSSIBLE MECHANISM FOR EPIMERIZATION





SUMMARY

- **Epimerization of diols**



chiral ligand: