

Summary of Substitution and Elimination Data Presented In Class

1. CCCCCCCCBr $\xrightarrow[160^\circ, 5\text{ h}]{116\text{ g KF, HOCH}_2\text{CH}_2\text{OH}}$ CCCCCCCCF (42%)
165 g 44g
2. CC(C)CCBr $\xrightarrow[acetone, heat]{37\text{ g NaI}}$ CC(C)CCI (66%)
30 g 26 g
3. CCCI $\xrightarrow[ethanol, heat, 3\text{ h}]{32\text{ g EtO-C(=S)-S}^-\text{K}^+}$ CCS(=O)OCC (77%)
32 g 23 g
4. CCCCBr $\xrightarrow[NH_3(l)]{138\text{ g Na, HC}\equiv\text{CH(g)}}$ CCCC#C (68%)
685 g 280 g
5. CC(Cl)=CCl $\xrightarrow[H_2O]{Na_2CO_3}$ CC(Cl)=CO (63%)
250 g 134 g
6. CCCCCCCC[C@H](C)Cl $\xrightarrow[EtOH]{NaOEt}$ CCCCCCCC[C@H](C)OCC (100%ee)
7. CCCCCCCC[C@H](C)Br $\xrightarrow[H_2O/EtOH]{NaOH}$ CCCCCCCC[C@H](C)O (100%ee)
8. CC1(C)CCCC[C@H]1Cl $\xrightarrow[H_2O/EtOH, heat]{}$ CC1=CCCC[C@H]1C + CC1=CCCC[C@@H]1C + S_N1
1 : 99
9. CC1(C)CCCC[C@@H]1Cl $\xrightarrow[H_2O/EtOH, heat]{}$ CC1=CCCC[C@H]1C + CC1=CCCC[C@@H]1C + S_N1
32 : 68
10. CC(C)(C)Br $\xrightarrow[80^\circ\text{C}]{20\% H_2O, 80\% EtOH}$ CC(C)=C + S_N1
5 : 95
11. CC(C)(C)Cl $\xrightarrow[65^\circ\text{C}]{20\% H_2O, 80\% EtOH}$ CC(C)=C + S_N1
36 : 64
12. CC1(Cl)CCCCC1 $\xrightarrow[CH_3OH, heat]{}$ CC1(OCC)CCCCC1
13. CC1(Cl)C(=O)C2=CC=CC=C2 $\xrightarrow[acetone, heat]{H_2O}$ CC(O)C(=O)C2=CC=CC=C2 (2%ee)
14. CC1(Cl)C(=O)C2=CC=CC=C2 $\xrightarrow[heat]{EtOH}$ CC(OCC)C(=O)C2=CC=CC=C2 ("low"%ee)
15. CC1(Cl)C(=O)C2=CC=CC=C2 $\xrightarrow[heat]{H_2O}$ CC(O)C(=O)C2=CC=CC=C2 (17%ee)
16. CC(C)(C)C(Cl)C(C)(C)C $\xrightarrow[80^\circ\text{C}]{EtOH}$ CC(C)(C)C(OCC)C(C)(C)C
17. CC1(C)CCCC[C@H]1Cl $\xrightarrow[EtOH]{NaOEt}$ CC1=CCCC[C@H]1C + CC1=CCCC[C@@H]1C + S_N2
22 : 78
18. CC1(C)CCCC[C@@H]1Cl $\xrightarrow[EtOH]{NaOEt}$ CC1=CCCC[C@H]1C + CC1=CCCC[C@@H]1C + S_N2
> 99 : < 1
19. CC1(Br)C2=CC=CC=C2C1 $\xrightarrow[EtOH]{NaOEt}$ CC1=CC=CC=C1
20. CC(Br)C $\xrightarrow[EtOH, 55^\circ]{NaOEt}$ CC=C + CC(OCC)C
4 : 1
21. CCCCCBr $\xrightarrow["DBU"]{}$ CCCC=C (91%)
22. CC1=CCCCC1Br $\xrightarrow[160^\circ, 30\text{ min}]{39\text{ g quinoline, (quinoline)}}$ C1=CC=CC=C1 (68%)
16 g 5.4 g

