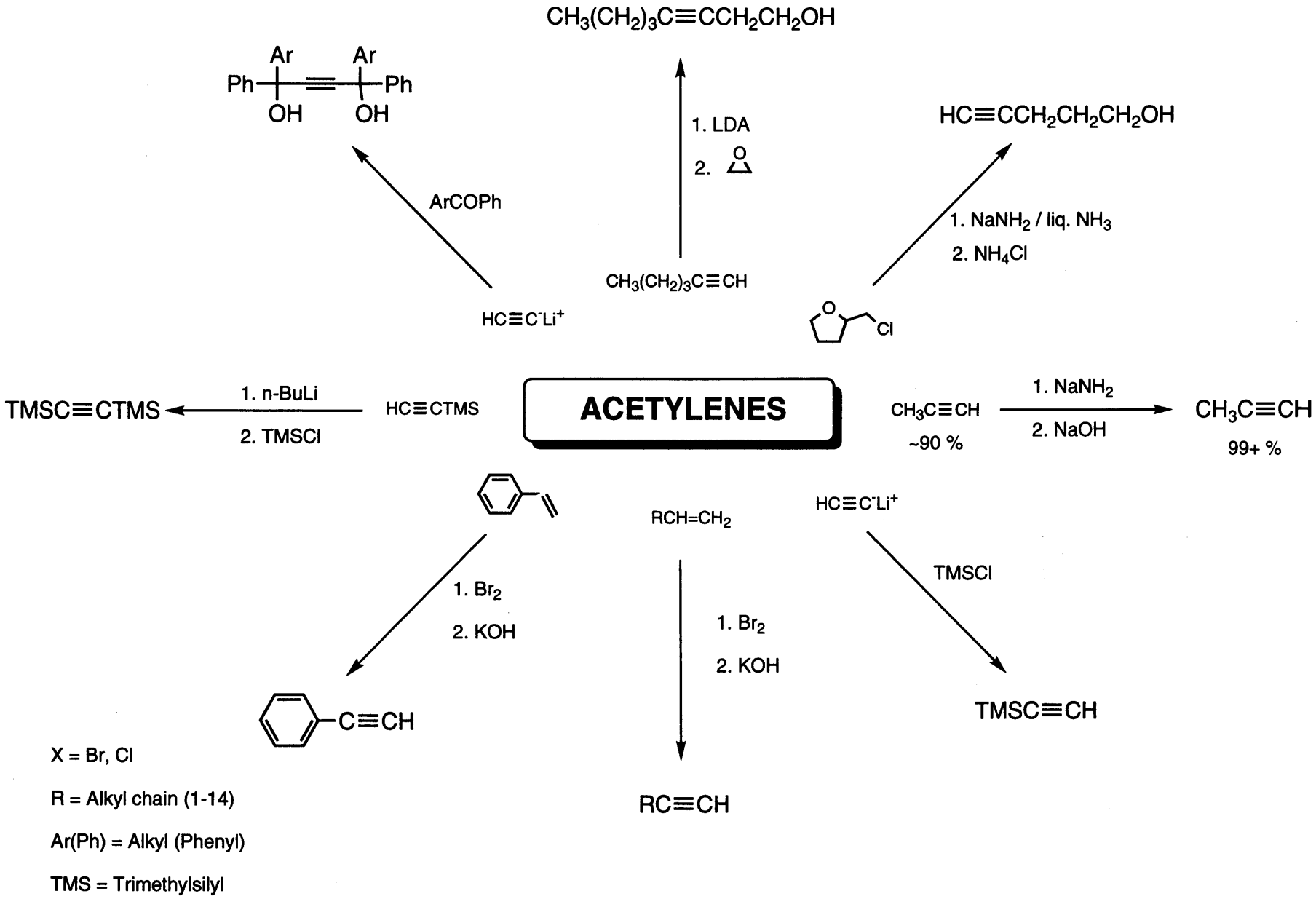
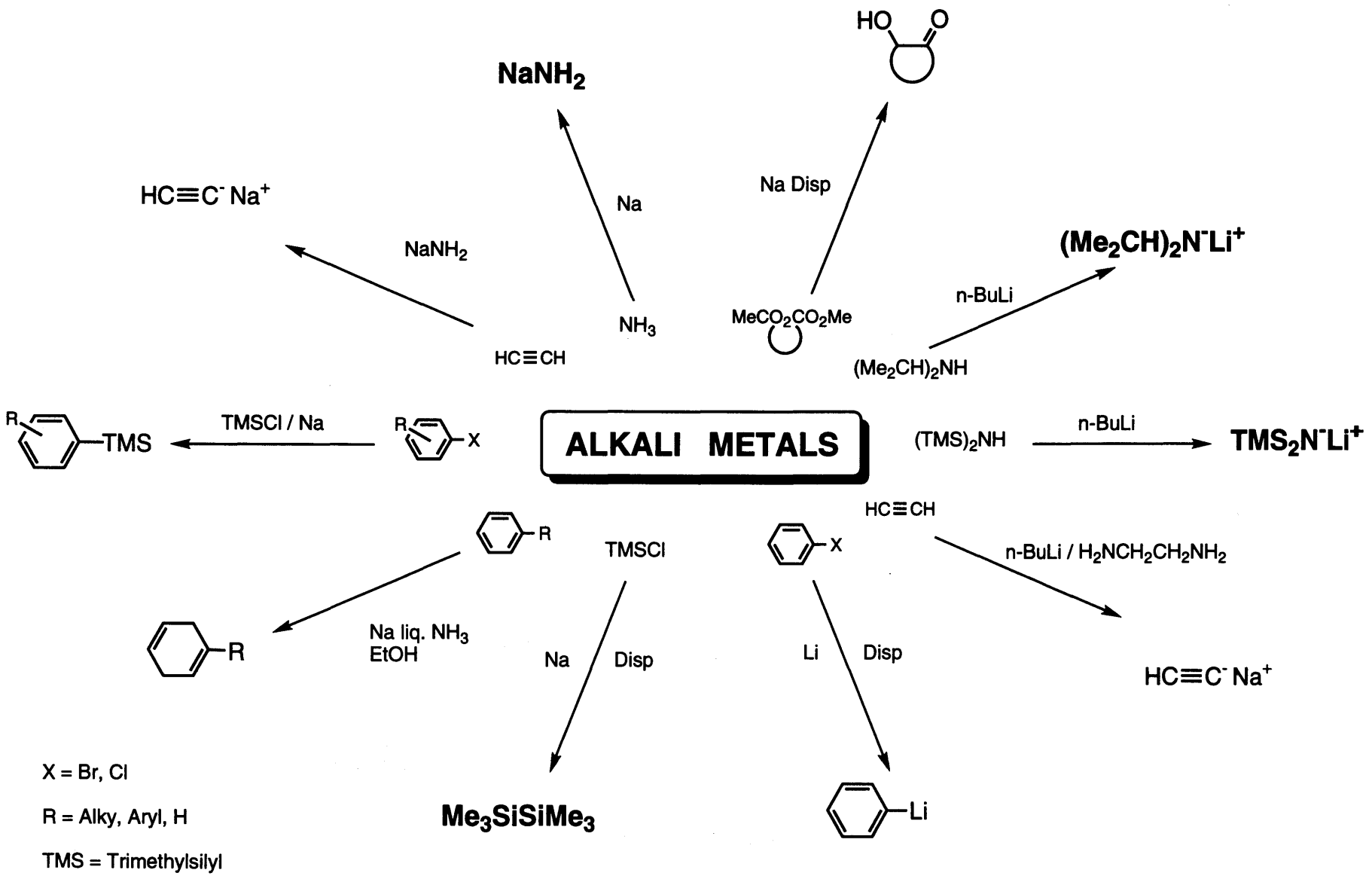
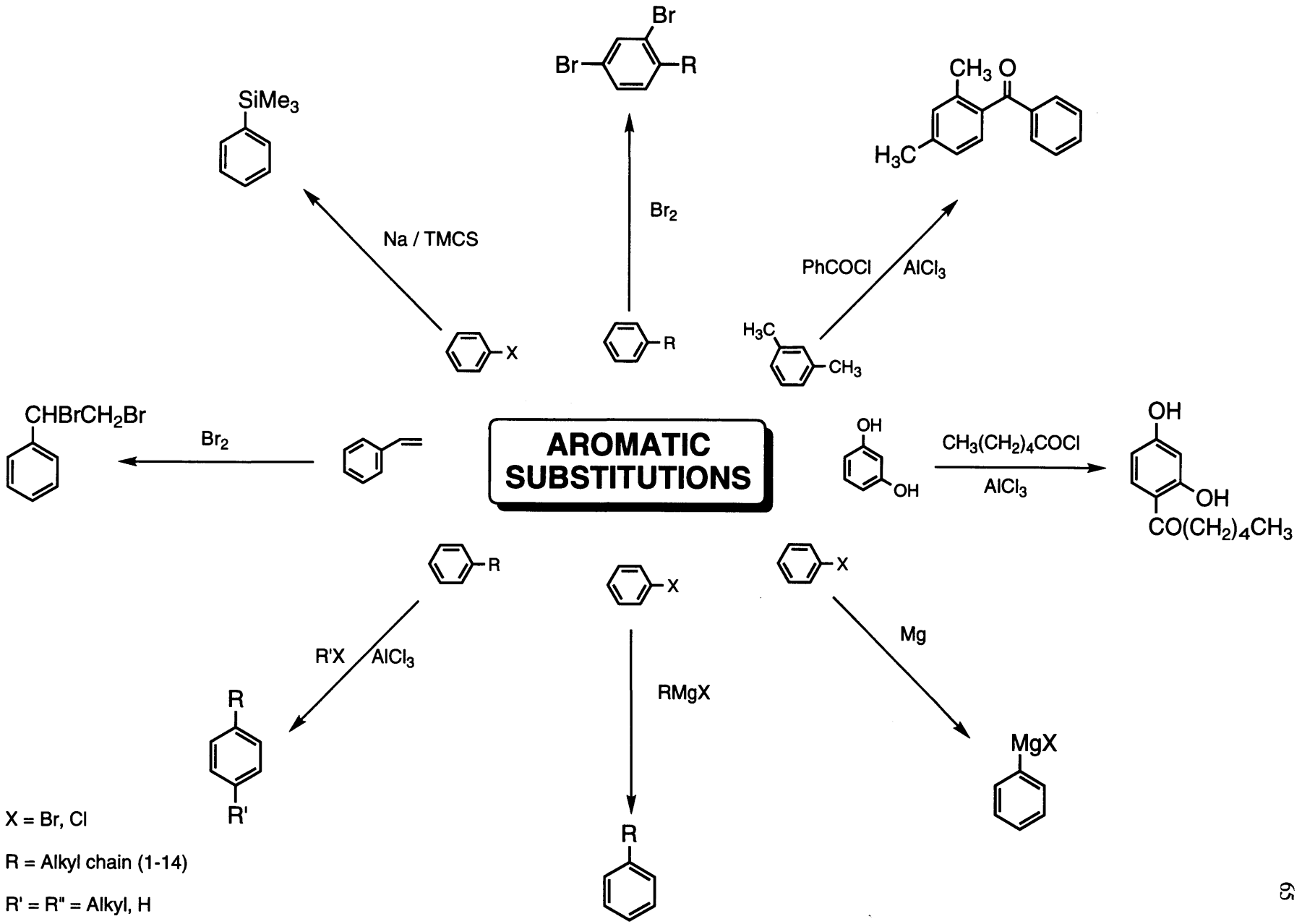
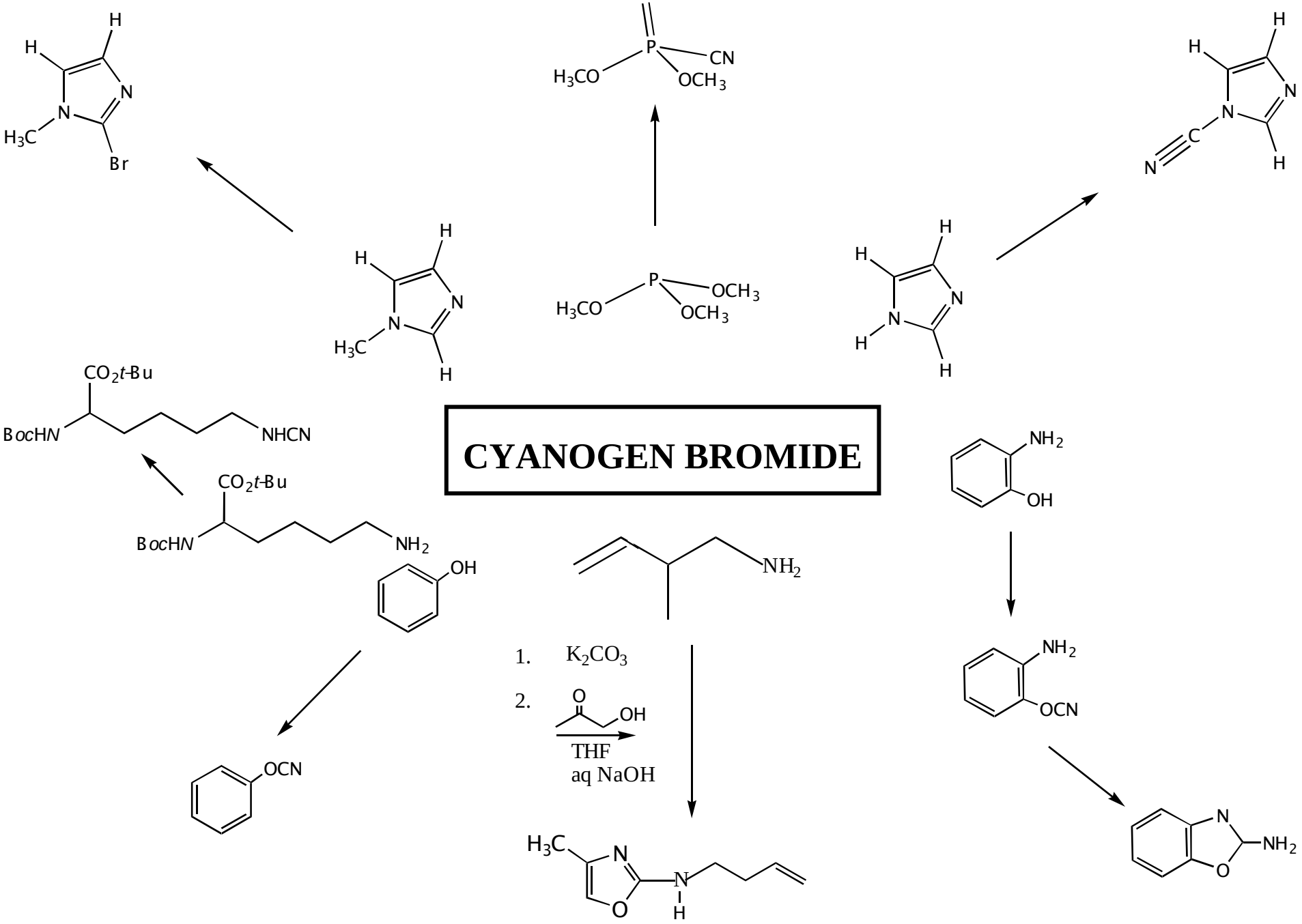
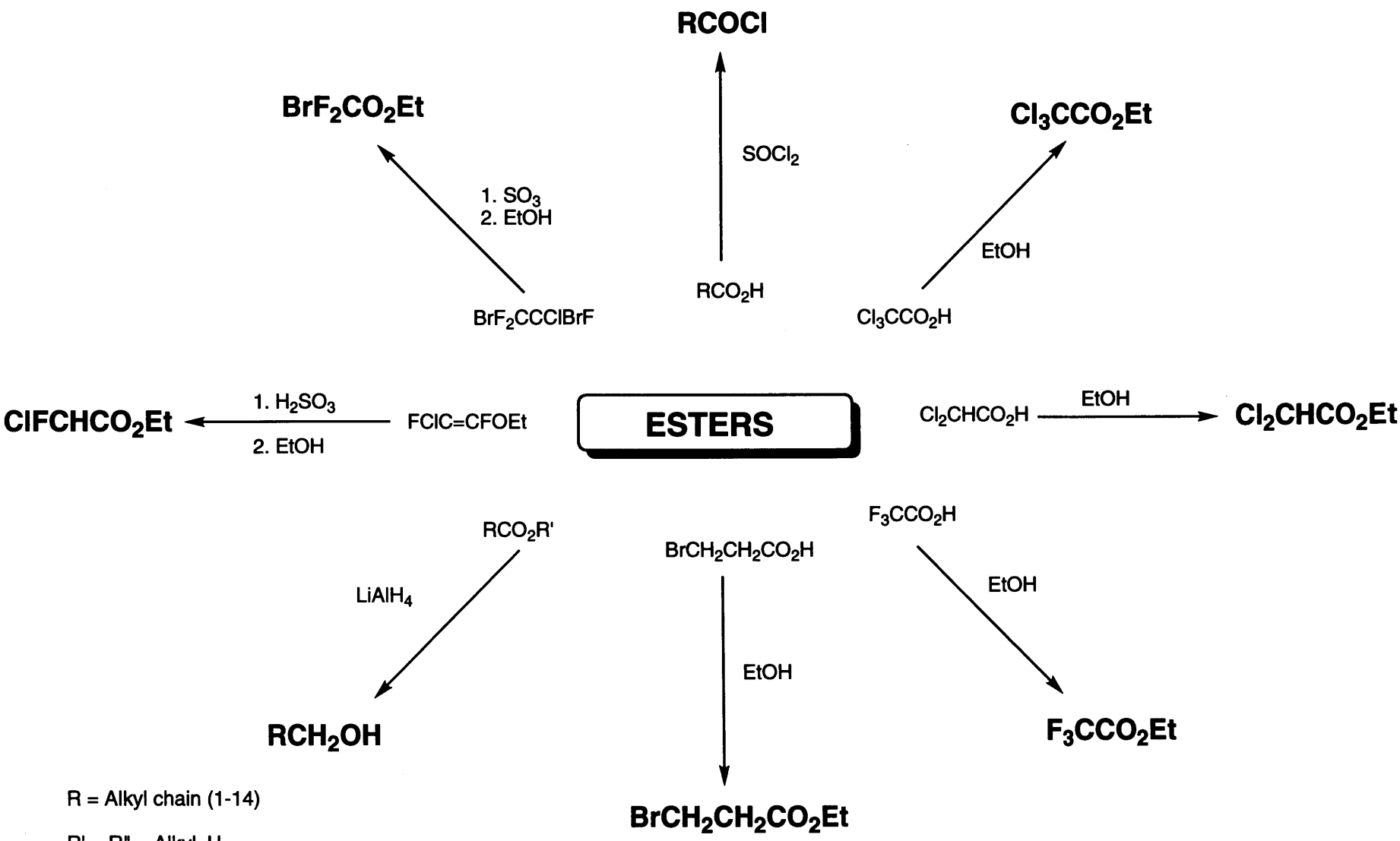

CH3(CH2)3C≡CCH2CH2OH
Ar
Ar
Ph
Ph
OH
OH
ArCOPh
1. LDA
2.
HC≡CCH2CH2CH2OH
1. NaNH2 / liq. NH3
2. NH4Cl
CH3(CH2)3C≡CH
HC≡C-Li+
Cl
TMSC≡CTMS
1. n-BuLi
2. TMSCl
HC≡CTMS
ACETYLENES
CH3C≡CH
~90 %
1. NaNH2
2. NaOH
CH3C≡CH
99+ %
RCH=CH2
HC≡C-Li+
1. Br2
2. KOH
TMSCl
C≡CH
1. Br2
2. KOH
TMSC≡CH
RC≡CH
X = Br, Cl
R = Alkyl chain (1-14)
Ar(Ph) = Alkyl (Phenyl)
TMS = Trimethylsilyl


NaNH2
HO
O
HC≡C⁻ Na⁺
Na
Na Disp
NaNH2
(Me2CH)2N⁻Li⁺
NH3
n-BuLi
HC≡CH
MeCO2CO2Me
(Me2CH)2NH
R
TMS
TMSCl / Na
R
X
ALKALI METALS
(TMS)2NH
n-BuLi
TMS2N⁻Li⁺
R
HC≡CH
TMSCl
X
n-BuLi / H2NCH2CH2NH2
R
Na liq. NH3
EtOH
Na
Disp
Li
Disp
HC≡C⁻ Na⁺
Me3SiSiMe3
Li
X = Br, Cl
R = Alky, Aryl, H
TMS = Trimethylsilyl


AROMATIC SUBSTITUTIONS
Br
Br
R
Br2
SiMe3
Na / TMCS
X
R
CH3 O
H3C
PhCOCl
AlCl3
H3C
CH3
CHBrCH2Br
Br2
OH
OH
CH3(CH2)4COCl
AlCl3
OH
OH
CO(CH2)4CH3
R
R'X
AlCl3
R
R'
X
RMgX
R
X
Mg
MgX
X = Br, Cl
R = Alkyl chain (1-14)
R' = R" = Alkyl, H

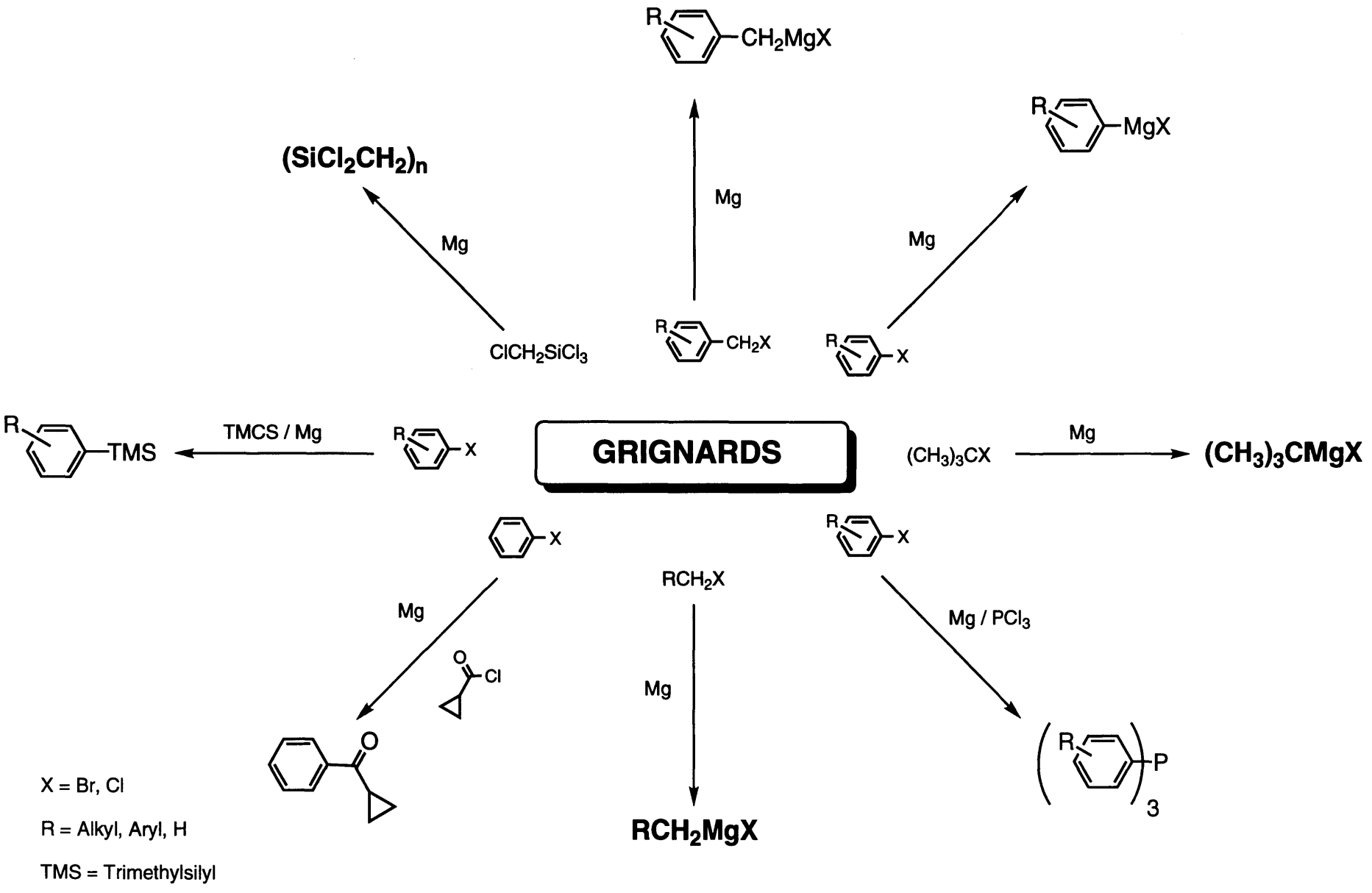
CYANOGEN BROMIDE

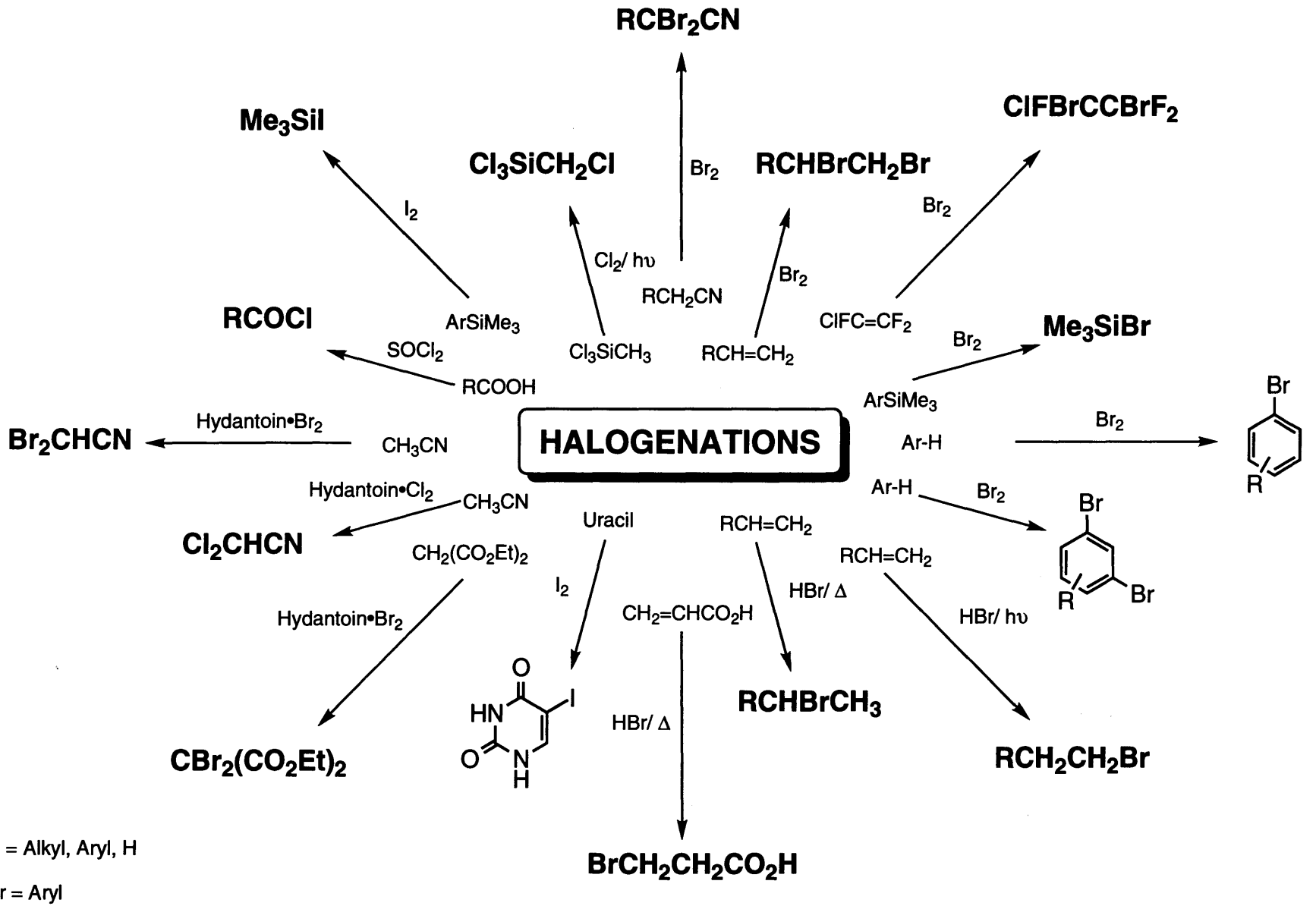




R = Alkyl chain (1-14)

R' = R" = Alkyl, H

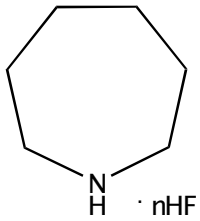

R
CH2MgX
(SiCl2CH2)n
Mg
Mg
R
MgX
Mg
ClCH2SiCl3
R
CH2X
R
X
R
TMS
TMCS / Mg
R
X
GRIGNARDS
(CH3)3CX
Mg
(CH3)3CMgX
X
R
X
RCH2X
Mg
Mg
O
Cl
Mg / PCl3
O
Mg
R
P
3
X = Br, Cl
R = Alkyl, Aryl, H
TMS = Trimethylsilyl
RCH2MgX

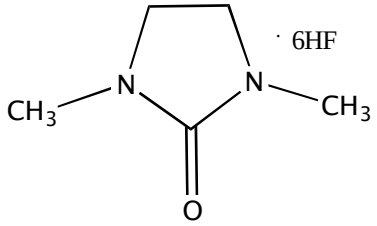


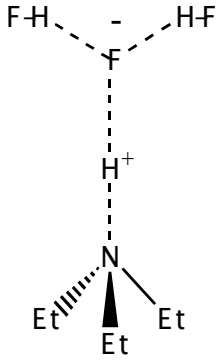
R = Alkyl, Aryl, H

Ar = Aryl

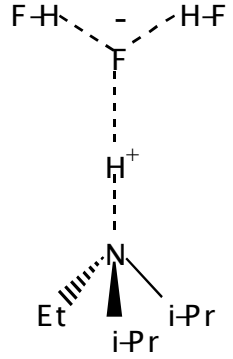
Hydrogen Fluoride Base Complexes



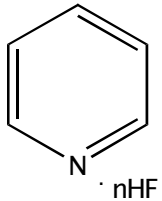


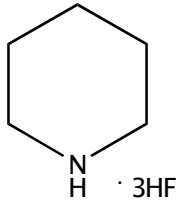


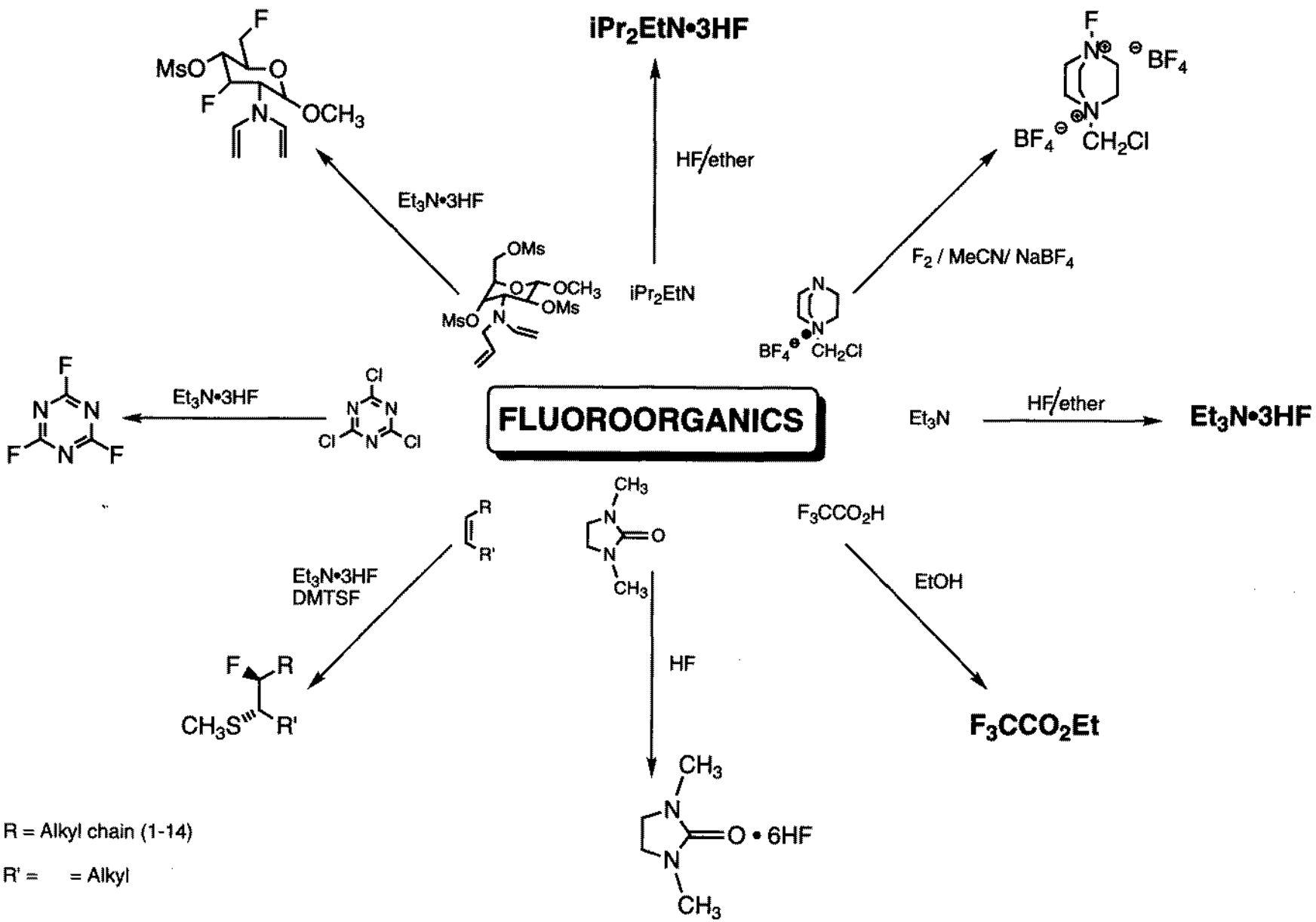
Triethylamine
Tris(Hydrogen Fluoride)

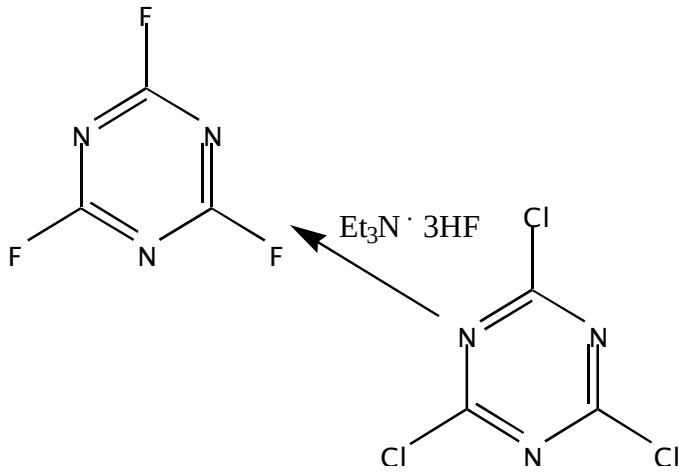


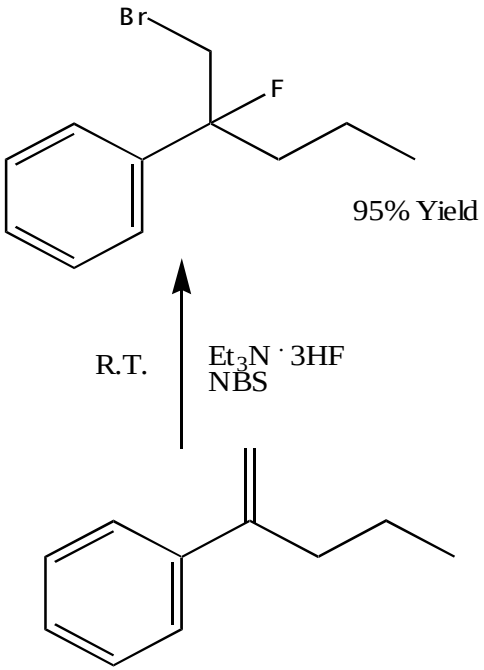
Diisopropylethylamine
Tris(Hydrogen Fluoride)

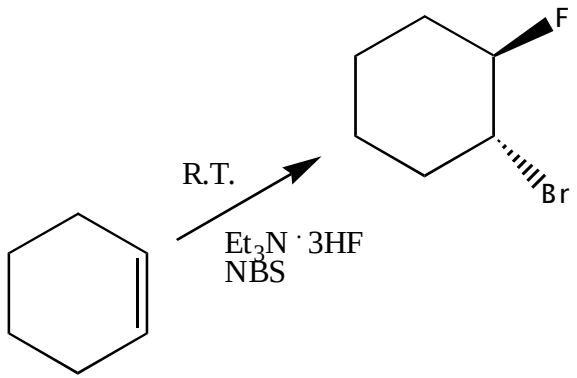




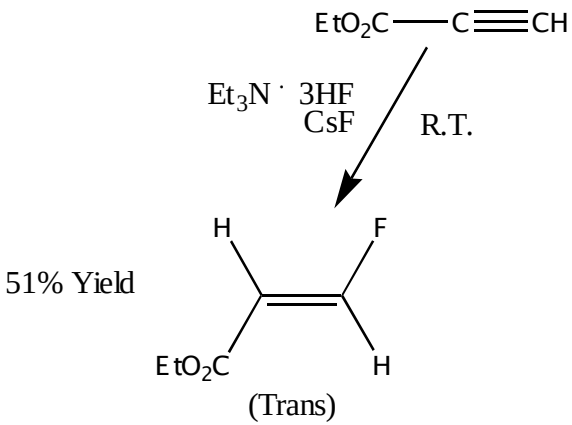

FLUOROORGANICS
iPr2EtN•3HF
HF/ether
iPr2EtN
Et3N•3HF
F2 / MeCN/ NaBF4
Et3N
HF/ether
Et3N•3HF
Et3N•3HF
DMTSF
HF
F3CCO2H
EtOH
F3CCO2Et
R = Alkyl chain (1-14)
R' = = Alkyl

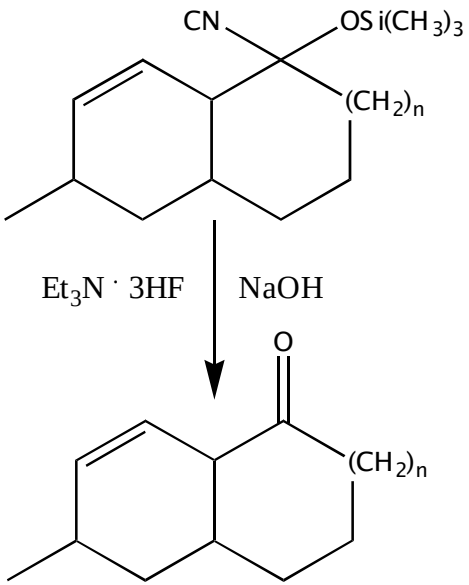


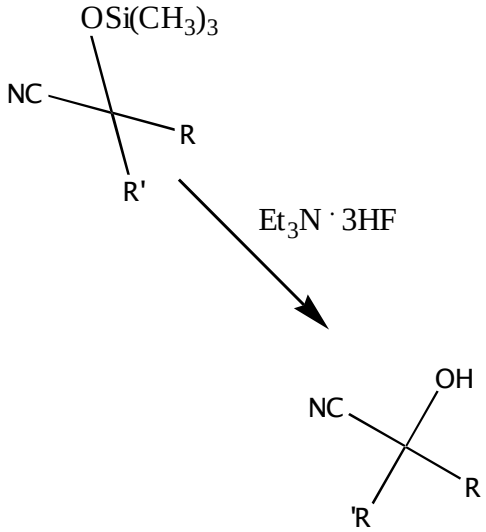




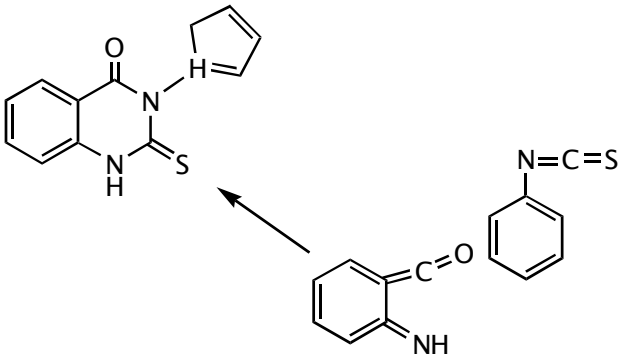
Triethylamine Tris(Hydrogen Fluoride)

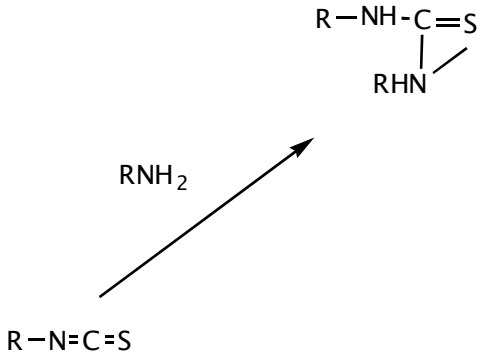




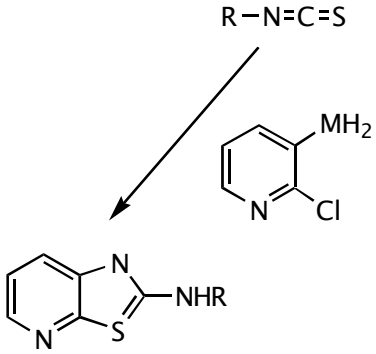


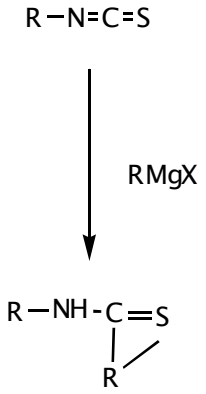
FAR Chemical, Inc.

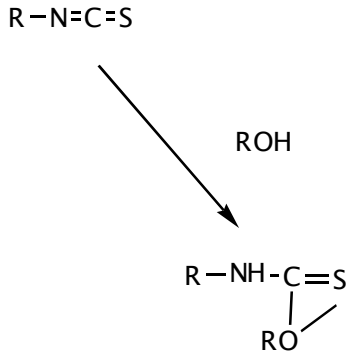




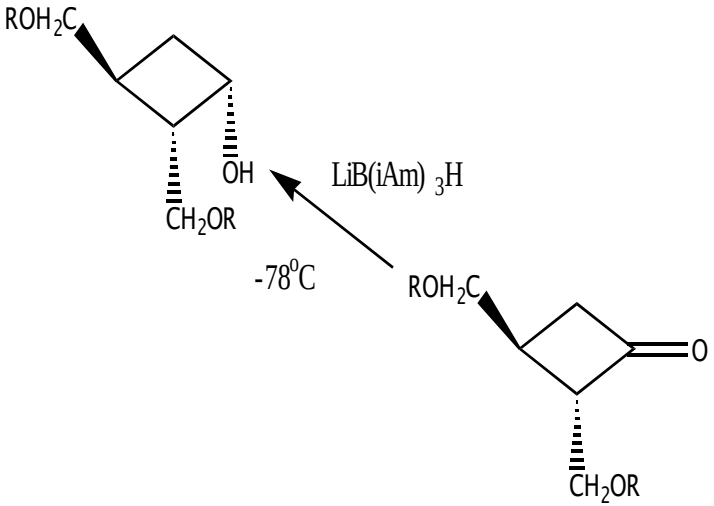
ISOTHIOCYANATES

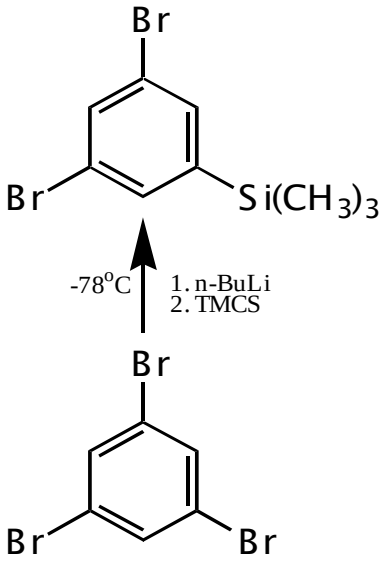


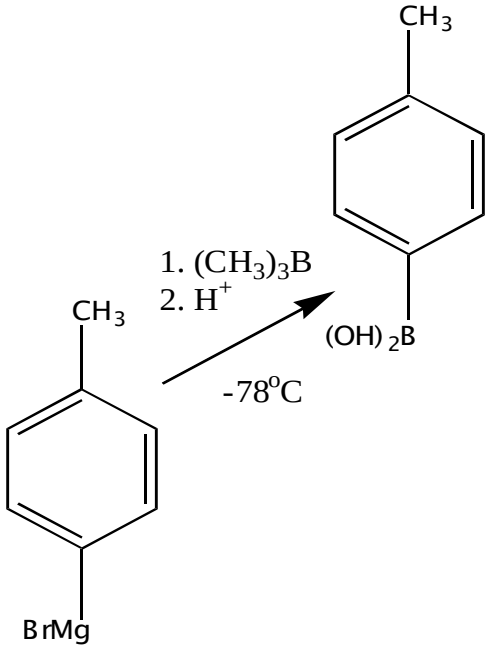


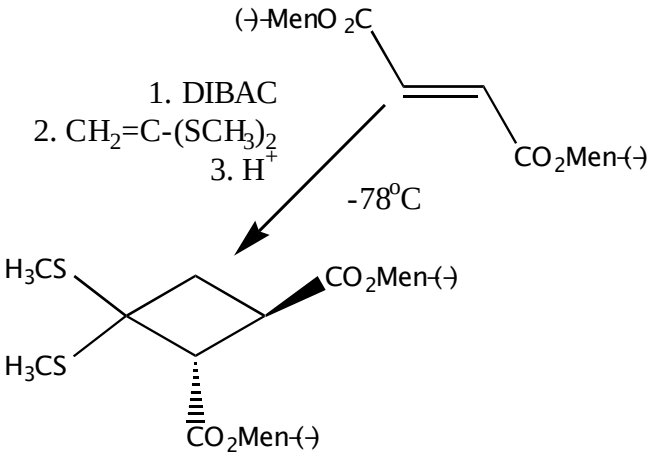


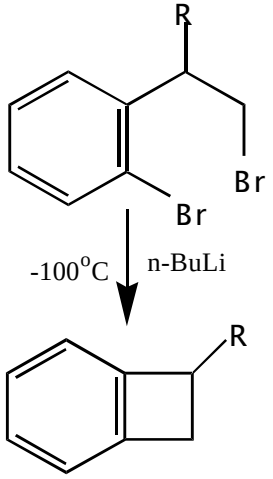
Low Temperature Chemistry

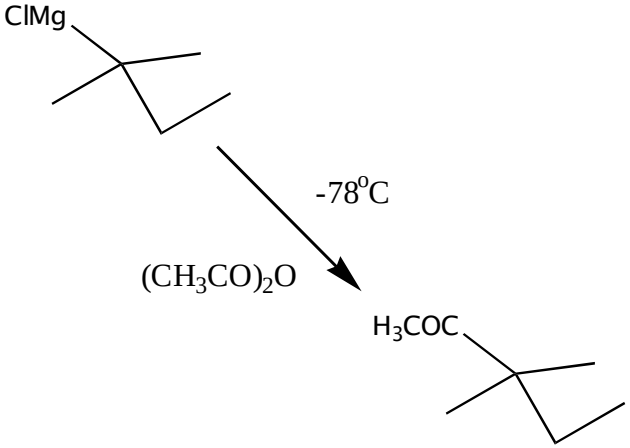


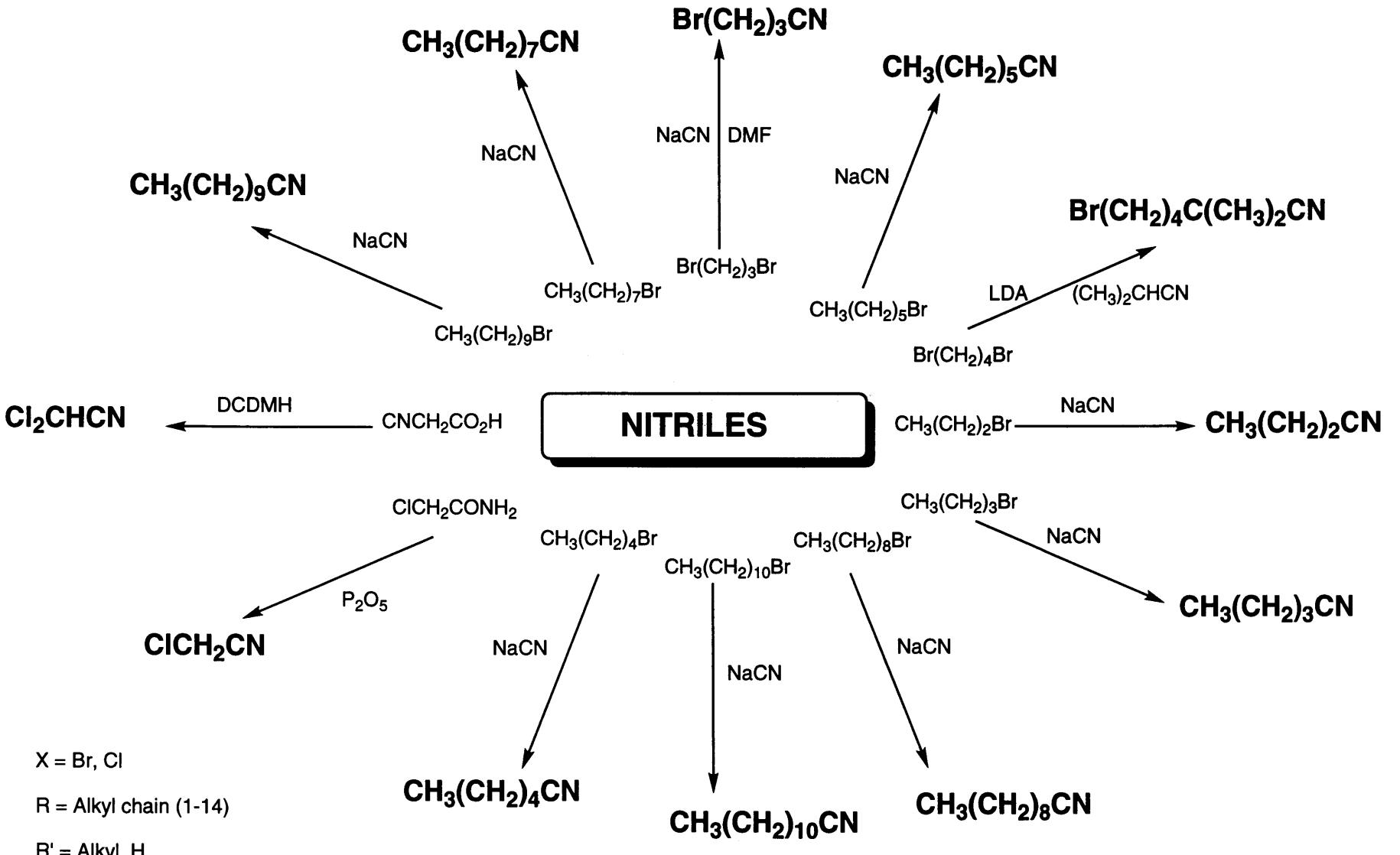


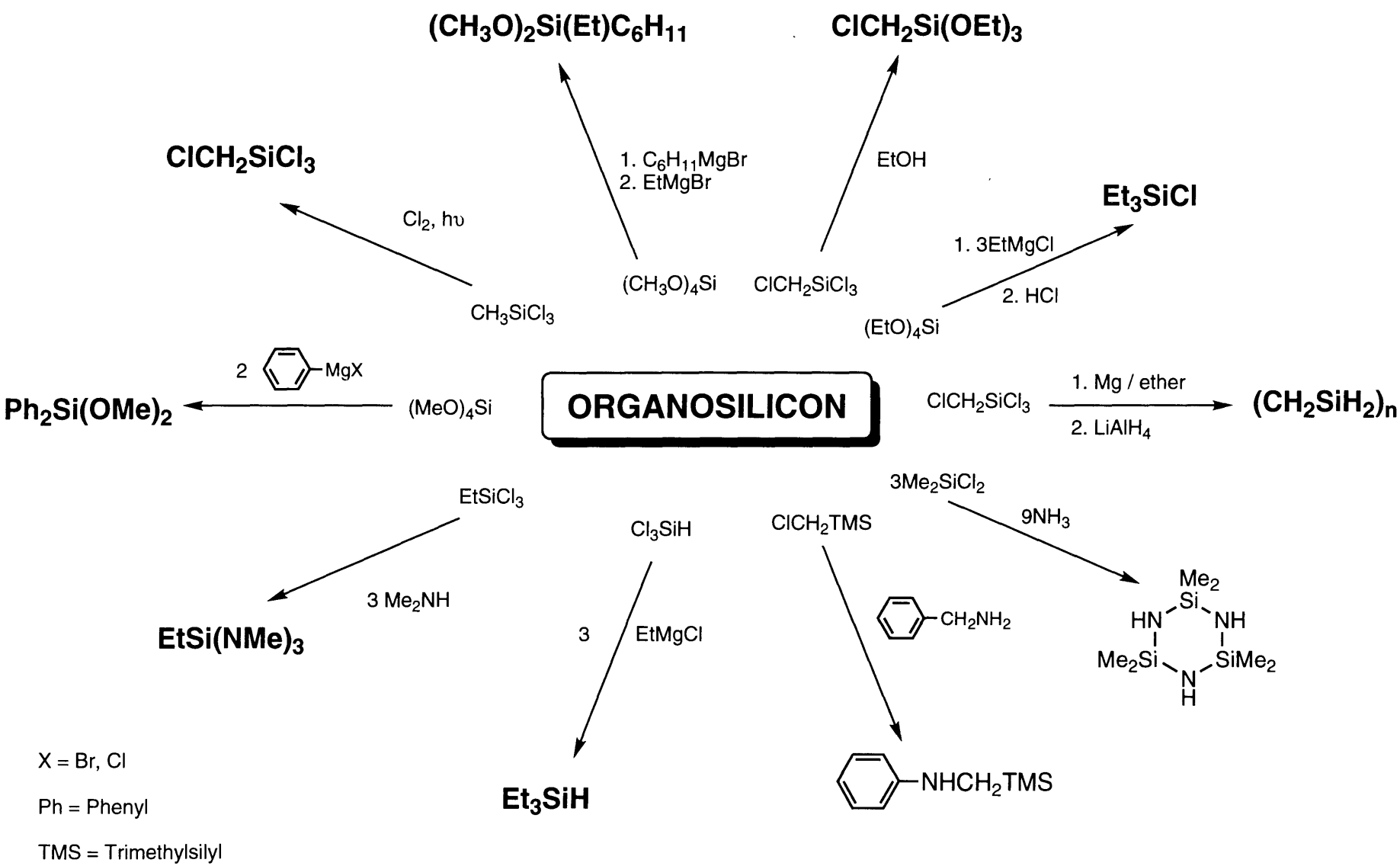


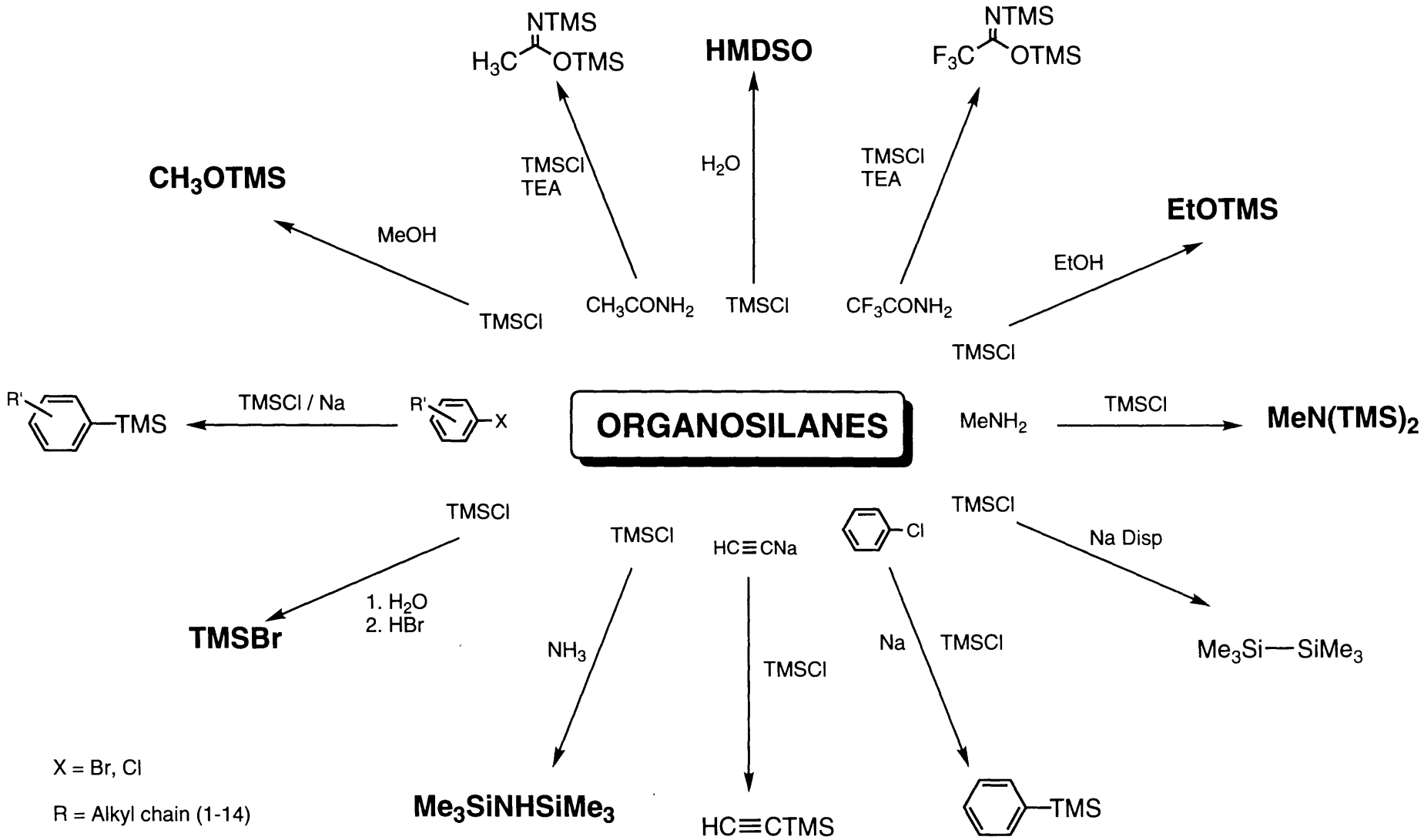


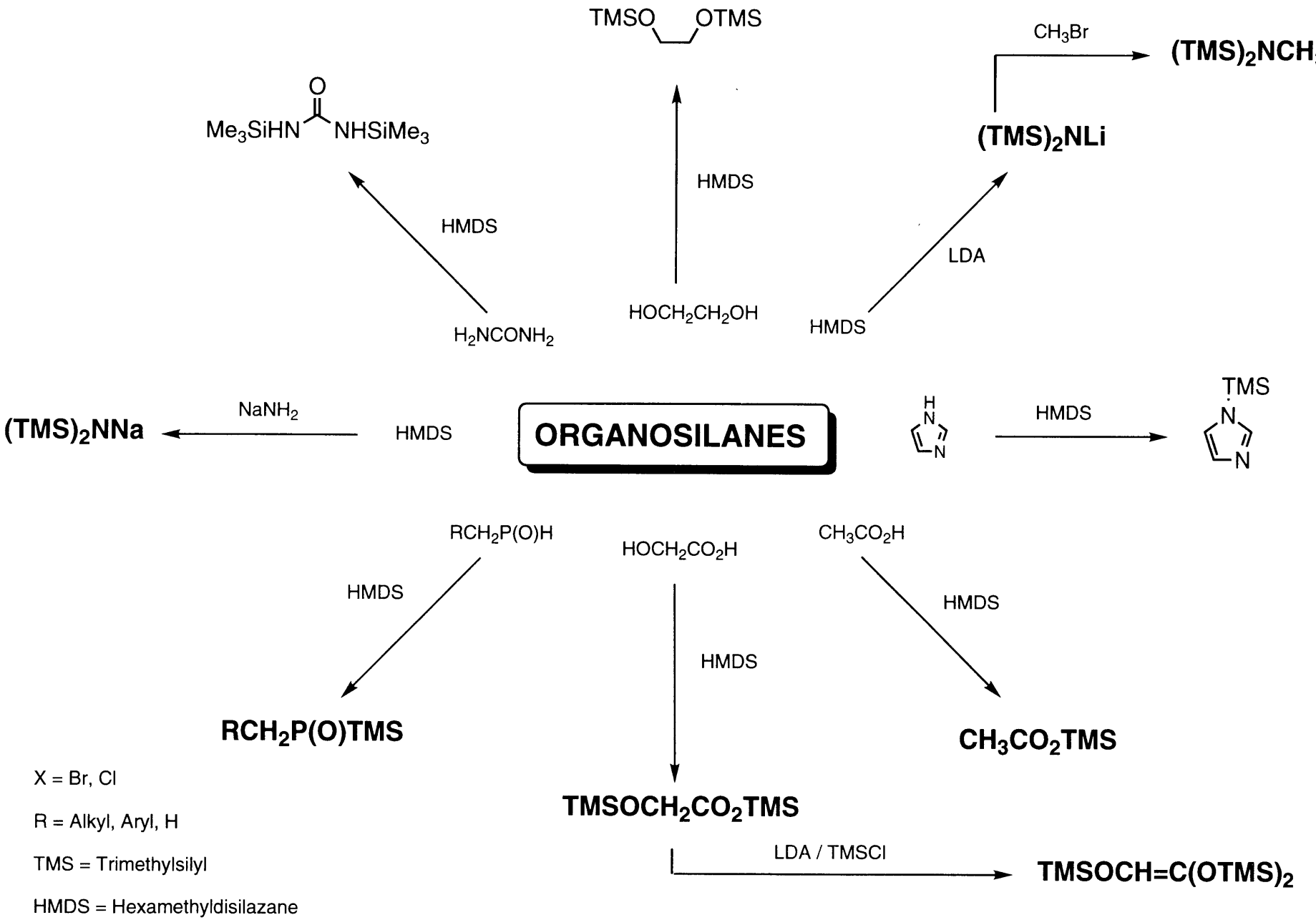


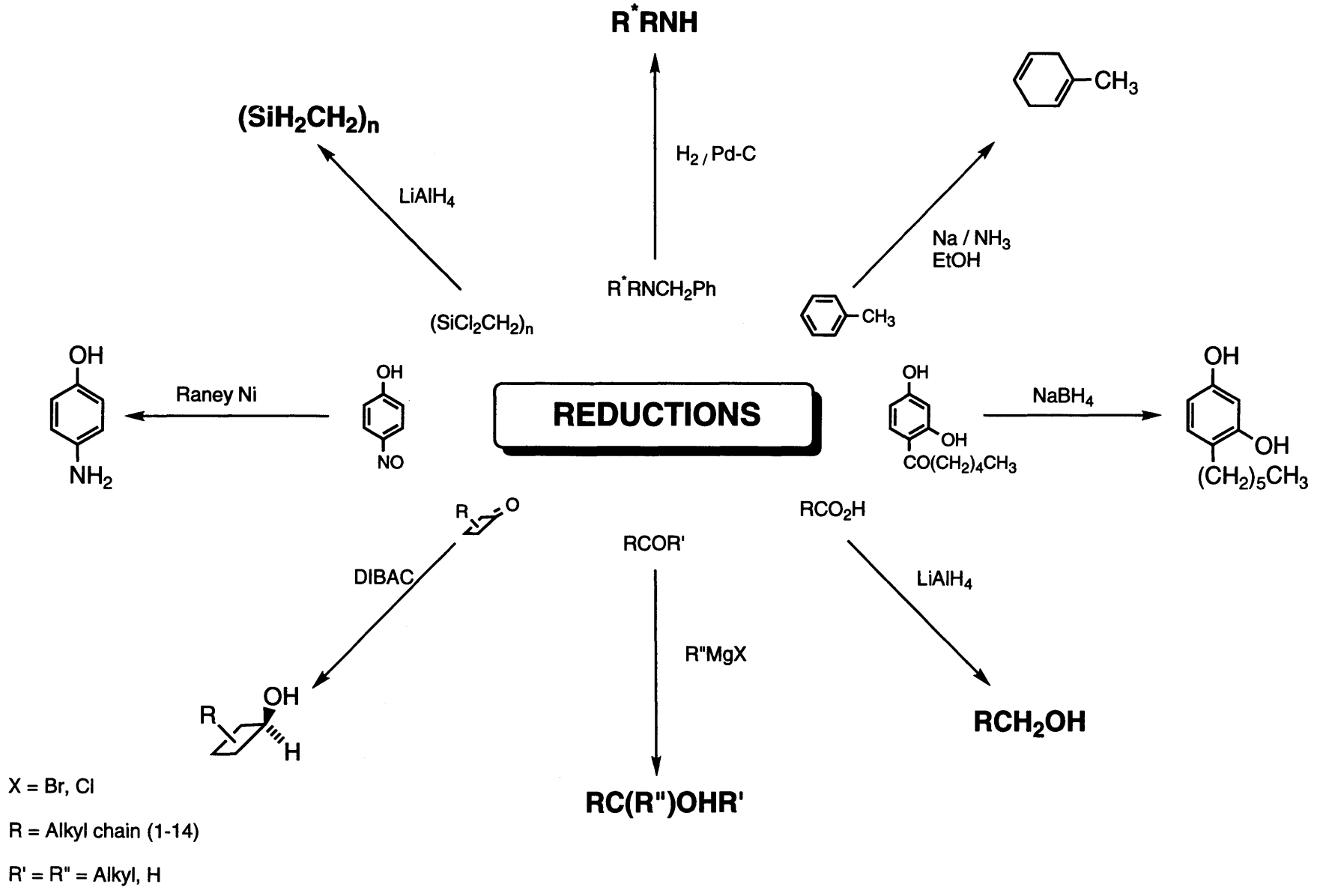



NITRILES
$CH_3(CH_2)_7CN$
$Br(CH_2)_3CN$
$CH_3(CH_2)_5CN$
$CH_3(CH_2)_9CN$
$Br(CH_2)_4C(CH_3)_2CN$
NaCN
DMF
$CH_3(CH_2)_7Br$
$Br(CH_2)_3Br$
$CH_3(CH_2)_5Br$
$CH_3(CH_2)_9Br$
LDA
$(CH_3)_2CHCN$
$Br(CH_2)_4Br$
Cl_2CHCN
DCDMH
$CNCH_2CO_2H$
$CH_3(CH_2)_2Br$
$CH_3(CH_2)_2CN$
$ClCH_2CONH_2$
$CH_3(CH_2)_4Br$
$CH_3(CH_2)_8Br$
$CH_3(CH_2)_3Br$
$CH_3(CH_2)_{10}Br$
P_2O_5
$ClCH_2CN$
$CH_3(CH_2)_3CN$
$CH_3(CH_2)_4CN$
$CH_3(CH_2)_{10}CN$
$CH_3(CH_2)_8CN$
X = Br, Cl
R = Alkyl chain (1-14)
R' = Alkyl, H


ORGANOSILICON
(CH3O)2Si(Et)C6H11
ClCH2Si(OEt)3
ClCH2SiCl3
Et3SiCl
CH3SiCl3
(CH3O)4Si
ClCH2SiCl3
(EtO)4Si
1. C6H11MgBr
2. EtMgBr
EtOH
Cl2, hυ
1. 3EtMgCl
2. HCl
Ph2Si(OMe)2
(MeO)4Si
2
MgX
ClCH2SiCl3
1. Mg / ether
2. LiAlH4
(CH2SiH2)n
EtSiCl3
3 Me2NH
EtSi(NMe)3
Cl3SiH
3
EtMgCl
Et3SiH
ClCH2TMS
CH2NH2
NHCH2TMS
3Me2SiCl2
9NH3
Me2
Si
HN
NH
Me2Si
SiMe2
N
H
X = Br, Cl
Ph = Phenyl
TMS = Trimethylsilyl


ORGANOSILANES
CH3OTMS
MeOH
TMSCl
NTMS
H3C
OTMS
TMSCl
TEA
CH3CONH2
HMDSO
H2O
TMSCl
NTMS
F3C
OTMS
TMSCl
TEA
CF3CONH2
EtOTMS
EtOH
TMSCl
R'
TMS
TMSCl / Na
R'
X
MeNH2
TMSCl
MeN(TMS)2
TMSCl
1. H2O
2. HBr
TMSBr
TMSCl
NH3
Me3SiNHSiMe3
HC≡CNa
TMSCl
HC≡CTMS
Cl
Na
TMSCl
TMS
TMSCl
Na Disp
Me3Si—SiMe3
X = Br, Cl
R = Alkyl chain (1-14)
R' = Alkyl, H
TMS = Trimethylsilyl


TMSO OTMS
CH3Br
(TMS)2NCH3
Me3SiHN NHSiMe3
O
(TMS)2NLi
HMDS
HMDS
LDA
HOCH2CH2OH
H2NCONH2
HMDS
(TMS)2NNa
NaNH2
HMDS
ORGANOSILANES
H
N
N
HMDS
TMS
N
N
RCH2P(O)H
HOCH2CO2H
CH3CO2H
HMDS
HMDS
HMDS
RCH2P(O)TMS
CH3CO2TMS
TMSOCH2CO2TMS
LDA / TMSCl
TMSOCH=C(OTMS)2
X = Br, Cl
R = Alkyl, Aryl, H
TMS = Trimethylsilyl
HMDS = Hexamethyldisilazane


R*RNH
(SiH2CH2)n
H2 / Pd-C
LiAlH4
Na / NH3
EtOH
R*RNCH2Ph
(SiCl2CH2)n
CH3
CH3
OH
NH2
Raney Ni
OH
NO
REDUCTIONS
OH
OH
CO(CH2)4CH3
NaBH4
OH
OH
(CH2)5CH3
R
O
DIBAC
RCOR'
RCO2H
LiAlH4
R"MgX
OH
R
H
RCH2OH
RC(R")OHR'
X = Br, Cl
R = Alkyl chain (1-14)
R' = R" = Alkyl, H