

General

α	observed optical rotation (in degrees)
δ	chemical shift
anhyd	anhydrous (in graphics only)
AO	atomic orbital
aq	aqueous
atm	atmosphere(s)
av	average
bp	boiling point
br	broad (spectral)
calcd	calculated
cat.	catalytic; catalyst (in schemes and tables)
CD	circular dichroism
CI	chemical ionization
cm^{-1}	wavenumber(s)
Compd	compound (in tables)
concd	concentrated
Config	configuration (in tables)
COSY	correlation spectroscopy
CV	cyclic voltammetry
d	day(s); doublet (spectral)
<i>d</i>	density
de	diastereomeric excess
DEPT	distortionless enhancement by polarization transfer
dr	diastereomeric ratio
ee	enantiomeric excess
EI	electron impact
eq.	equation
equiv	equivalent(s)
er	enantiomeric ratio
ESI	electrospray ionization
ESR	electron spin resonance
FAB	fast atom bombardment
FD	field desorption
FID	flame ionization detector; free induction decay
FT	Fourier transform
g	gram(s)
GC	gas chromatography
h	hour(s)
HOMO	highest occupied molecular orbital
HPLC	high-performance liquid chromatography
HRMS	high-resolution mass spectrometry
Hz	hertz
IR	infrared
<i>J</i>	coupling constant
K	kelvin(s)
L	liter(s)
lit.	literature
LUMO	lowest unoccupied molecular orbital
m	multiplet (spectral)
M	molar (moles per liter)
<i>m/z</i>	mass-to-charge ratio
M^+	parent molecular ion
MALDI	matrix-assisted laser desorption ionization
max	maximum
MHz	megahertz
min	minute(s); minimum

Abbreviation List for **SYNTHESIS**, **SYNLETT**, **SynOpen** and **SYNFACTS**

mL	milliliter(s)
mM	millimolar (millimoles per liter)
mmol	millimole(s)
mol	mole(s)
mol wt	molecular weight
mp	melting point
MS	mass spectrometry; molecular sieves
MW	microwave (in schemes)
N	normal (equivalents per liter)
NMR	nuclear magnetic resonance
NOE	nuclear Overhauser effect
NOESY	nuclear Overhauser effect spectroscopy
Nu	nucleophile
obsd	observed
OD	optical density
op	optical purity
Pa	Pascal
ppm	part(s) per million
q	quartet (spectral)
quin	quintet (spectral)
r.t.	room temperature
redox	reduction–oxidation
Ref.	reference (in tables)
R_f	retention factor (for TLC)
s	singlet (spectral); second(s)
sat.	saturated
sept	septet (spectral)
sext	sextet (spectral)
t	triplet (spectral)
Temp	temperature (in tables)
TLC	thin-layer chromatography
TOF	turnover frequency; time-of-flight
TON	turnover number
Torr	Torr
t_R	retention time (chromatography)
TS	transition state
UV	ultraviolet
v/v	volume per unit volume (volume-to-volume ratio)
vis	visible
vol	volume
w/w	weight per unit weight (weight-to-weight ratio)
wt	weight

Reagents and Solvents

acac	acetylacetonate
AcOH	acetic acid
Ac ₂ O	acetic anhydride
AIBN	2,2'-azobis(isobutyronitrile)
alumina	alumina / aluminum oxide
9-BBN-H	9-borabicyclo[3.3.1]nonane
BF ₃ ·OEt ₂	boron trifluoride–diethyl ether complex
BINAL-H	2,2'-dihydroxy-1,1'-binaphthyllithium aluminum hydride
BMS	borane–methyl sulfide complex
BOMBr	benzyl bromomethyl ether
BOMCl	benzyl chloromethyl ether
BOPCl	bis(2-oxo-3-oxazolidinyl)phosphinic chloride
BuLi or <i>n</i> -BuLi	<i>n</i> -butyllithium
<i>s</i> -BuLi	<i>sec</i> -butyllithium
<i>t</i> -BuLi	<i>tert</i> -butyllithium
BuOH or <i>n</i> -BuOH	<i>n</i> -butyl alcohol / butan-1-ol
<i>i</i> -BuOH	isobutyl alcohol
<i>s</i> -BuOH	<i>sec</i> -butyl alcohol / butan-2-ol
<i>t</i> -BuOH	<i>tert</i> -butyl alcohol
<i>t</i> -BuOK	potassium <i>tert</i> -butoxide
<i>t</i> -BuOOH	<i>tert</i> -butyl hydroperoxide
cAMP	adenosine cyclic 3',5'-phosphate
CAN	cerium(IV) ammonium nitrate
CCl ₄	carbon tetrachloride / tetrachloromethane
CH ₂ Cl ₂	dichloromethane
CHCl ₃	chloroform
CSA	10-camphorsulfonic acid
DABCO	1,4-diazabicyclo[2.2.2]octane
DBN	1,5-diazabicyclo[4.3.0]non-5-ene
DBU	1,8-diazabicyclo[5.4.0]undec-7-ene
DCC	<i>N,N'</i> -dicyclohexylcarbodiimide
DCE	1,2-dichloroethane
DDQ	2,3-dichloro-5,6-dicyano-1,4-benzoquinone
DEAD	diethyl azodicarboxylate
DET	diethyl tartrate
DIAD	diisopropyl azodicarboxylate
DIBAL-H	diisobutylaluminum hydride
DIC	diisopropylcarbodiimide
DIPA	<i>N,N</i> -diisopropylamine
DIPEA	<i>N,N</i> -diisopropylethylamine
DIPT	diisopropyl tartrate
DMAP	4-(<i>N,N</i> -dimethylamino)pyridine
DMDO	dimethyldioxirane
DME	1,2-dimethoxyethane
DMF	<i>N,N</i> -dimethylformamide
DMP	Dess–Martin periodinane
DMPU	1,3-dimethyl-3,4,5,6-tetrahydro-2(1 <i>H</i>)-pyrimidinone / <i>N,N'</i> -dimethylpropylene urea
DMSO	dimethyl sulfoxide
DNA	deoxyribonucleic acid
DPPA	diphenylphosphoryl azide
DTBB	4,4'-di- <i>tert</i> -butylbiphenyl
EDC or EDCI	<i>N</i> -ethyl- <i>N'</i> -(3-dimethylaminopropyl)carbodiimide
EDTA	ethylenediaminetetraacetic acid
Et ₂ O	diethyl ether
Et ₃ N	triethylamine
EtOAc	ethyl acetate
EtOH	ethanol
HMDS	hexamethyldisilazane
HMPA	hexamethylphosphoramide
K ₂ CO ₃	potassium carbonate

Abbreviation List for **SYNTHESIS**, **SYNLETT**, **SynOpen** and **SYNFACTS**

KHMDS	potassium hexamethyldisilazide
LAH	lithium aluminum hydride
LDA	lithium diisopropylamide
LHMDS or LiHMDS	lithium hexamethyldisilazide
LTMP	lithium 2,2,6,6-tetramethylpiperidide
MCPBA or <i>m</i> CPBA	<i>m</i> -chloroperoxybenzoic acid
MeCHO	acetaldehyde
MeCN	acetonitrile
Mel	iodomethane
MEK	methyl ethyl ketone
MEMCl	2-methoxyethoxymethyl chloride
MeOH	methanol
MeOTf	methyl trifluoromethanesulfonate
MgSO ₄	magnesium sulfate
MOMCl	chloromethyl methyl ether
MoOPh	oxoperoxy molybdenum(pyridine)(hexamethylphosphoramide)
MsCl	methanesulfonyl chloride
MsOH	methanesulfonic acid
MTBE	methyl <i>tert</i> -butyl ether
MVK	methyl vinyl ketone
Na ₂ CO ₃	sodium carbonate
Na ₂ SO ₄	sodium sulfate
NaBH ₄	sodium borohydride
NaHCO ₃	sodium bicarbonate
NaHMDS	sodium hexamethyldisilazide
NBS	<i>N</i> -bromosuccinimide
NCS	<i>N</i> -chlorosuccinimide
NH ₄ Cl	ammonium chloride
NHS	<i>N</i> -hydroxysuccinimide
NIS	<i>N</i> -iodosuccinimide
NMM	<i>N</i> -methylmorpholine
NMO	<i>N</i> -methylmorpholine <i>N</i> -oxide
NMP	<i>N</i> -methyl-2-pyrrolidinone
PCC	pyridinium chlorochromate
PDC	pyridinium dichromate
PE	petroleum ether
PEG	polyethylene glycol
PhMe	toluene
Ph ₃ P	triphenylphosphine
PhOH	phenol
PMBCl	<i>p</i> -methoxybenzyl chloride
PMBOH	<i>p</i> -methoxybenzyl alcohol
PPA	poly(phosphoric acid)
PPTS	pyridinium <i>p</i> -toluenesulfonate
PrOH	propanol / propan-1-ol
<i>i</i> -PrOH	isopropyl alcohol / propan-2-ol
PTC	phase transfer catalysis
PTSA	<i>p</i> -toluenesulfonic acid
py	pyridine
RAMP	(<i>R</i>)-1-amino-2-(methoxymethyl)pyrrolidine
Red-Al [®]	sodium bis(2-methoxyethoxy)aluminum hydride
SAMP	(<i>S</i>)-1-amino-2-(methoxymethyl)pyrrolidine
SEMCl	2-(trimethylsilyl)ethoxymethyl chloride
TBAB	tetrabutylammonium bromide
TBACl	tetrabutylammonium chloride
TBAF	tetrabutylammonium fluoride
TBSOTf	<i>tert</i> -butyldimethylsilyl trifluoromethanesulfonate
TCNE	tetracyanoethylene
TES	triethylsilane
TESOTf	triethylsilyl trifluoromethanesulfonate
TFA	trifluoroacetic acid

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TFAA	trifluoroacetic anhydride
TfOH	trifluoromethanesulfonic acid
THF	tetrahydrofuran
THP	tetrahydropyran
TiCl ₄	titanium(IV) chloride
TMEDA	<i>N,N,N',N'</i> -tetramethylethylenediamine
TMS	tetramethylsilane
TMSCl	trimethylsilyl chloride
TMSIM	1-(trimethylsilyl)imidazole
TMSOTf	trimethylsilyl trifluoromethanesulfonate
TrocCl	2,2,2-trichloroethyl chloroformate

Substituents and Protecting Groups

Ac	acetyl
acac	acetylacetonato
Alk	alkyl
All	allyl
Ar	aryl
9-BBN	9-borabicyclo[3.3.1]nonyl
BINAP	2,2'-bis(diphenylphosphanyl)-1,1'-binaphthyl
Bn	benzyl
Boc	<i>tert</i> -butoxycarbonyl
BOM	benzyloxymethyl
bpy	2,2'-bipyridyl
Bu or <i>n</i> -Bu	<i>n</i> -butyl
<i>i</i> -Bu	isobutyl
<i>s</i> -Bu	<i>sec</i> -butyl
<i>t</i> -Bu	<i>tert</i> -butyl
Bz	benzoyl
Cbz	benzyloxycarbonyl
CDA	cyclohexane-1,2-diacetal
Cp	cyclopentadienyl
Cy	cyclohexyl
DMB	2,4- or 3,4-dimethoxybenzyl / 2,4- or 3,4-dimethoxyphenylmethyl
DMIPS	dimethylisopropylsilyl
DPS or TBDPS	<i>tert</i> -butyldiphenylsilyl
EE	1-ethoxyethyl
Et	ethyl
Fc	ferrocenyl
Fmoc	9-fluorenylmethoxycarbonyl
HetAr	hetaryl
Me	methyl
MEM	(2-methoxyethoxy)methyl
Mes	mesityl / 2,4,6-trimethylphenyl
MOM	methoxymethyl
Ms	mesyl / methanesulfonyl
Naph	2-naphthyl
PBB	<i>p</i> -bromobenzyl
PCB	<i>p</i> -chlorobenzyl
Ph	phenyl
Phth	phthaloyl
Pr	propyl
<i>i</i> -Pr	isopropyl
PMB	<i>p</i> -methoxybenzyl
PMBM	<i>p</i> -methoxybenzyloxymethyl
PMP	<i>p</i> -methoxyphenyl
Pv	pivaloyl
py	2-pyridyl
R	various substituents
SEM	[2-(trimethylsilyl)ethoxy]methyl
TBDMS or TBS	<i>tert</i> -butyldimethylsilyl
TBDPS or DPS	<i>tert</i> -butyldiphenylsilyl
TCE	2,2,2-trichloroethyl
TES	triethylsilyl
Tf	triflyl / trifluoromethanesulfonyl
THP	tetrahydropyran-2-yl
TIPS	triisopropylsilyl
TMS	trimethylsilyl
Tol	4-methylphenyl
TPS	triphenylsilyl
Tr	trityl / triphenylmethyl
Troc	2,2,2-trichloroethoxycarbonyl
Ts	tosyl / <i>p</i> -toluenesulfonyl