

STANDARD NOMENCLATURE, DATA, AND ABBREVIATIONS

Abbreviations Used in This Manual

A	adenine or adenosine	dCMP	deoxycytidine monophosphate
Ac	acetyl	dCTP	deoxycytidine triphosphate
ADA	adenosine deaminase	DDQ	2,3-dichloro-5,6-dicyano-1,4-benzoquinone
ADP	adenosine 5'-diphosphate	DEAD	diethyl azodicarboxylate
AFM	atomic force microscopy	DEC	1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride
AMP	adenosine 5'-monophosphate	DEPC	diethylpyrocarbonate
3-APA	3-aminopicolinic acid	dG	deoxyguanosine
Ar	aryl	DG	distance geometry
ATP	adenosine 5'-triphosphate	dGMP	deoxyguanosine 5'-monophosphate
ATPase	adenosine triphosphatase	dGTP	deoxyguanosine 5'-triphosphate
BCIP	5-bromo-4-chloro-3-indolyl phosphate	DIP	4,7-diphenyl-1,10-phenanthroline
BMPM	1,1-bis(4-methoxyphenyl)-1-pyrenylmethyl	DMAEDE	2'-O-2-[2-(<i>N,N</i> -dimethylamino)ethoxy]ethyl
BSA	bovine serum albumin	DMAoE	2'-O-[2-(<i>N,N</i> -dimethylamino)ethoxy]ethyl
Bu	butyl	DMAP	4-dimethylaminopyridine
Bz	benzoyl	DMBOC	3',5'-dimethoxybenzoinoxycarbonyl
C	cytosine or cytidine	DMF	dimethylformamide
CD	circular dichroism	DMS	dimethyl sulfate
cDNA	complementary deoxyribonucleic acid	DMSO	dimethylsulfoxide
CDP	cytidine 5'-diphosphate	DMTr	4,4'-dimethoxytrityl (also DMT)
C^{ex}_p	excess heat capacity	DNA	deoxyribonucleic acid
Ci	curie	DNBSB	2-(2,4-dinitrophenylsulfenyloxy-methyl)benzoyl
CID	collision-induced dissociation	DNPEOC	2-(2,4-dinitrophenyl)ethoxycarbonyl
CMCT	1-cyclohexyl-3-(2-morpholinoethyl)carbodiimide metho- <i>p</i> -toluene sulfonate	dNTP	deoxynucleoside triphosphate
CMP	cytidine 5'-monophosphate	dpm	disintegrations per minute
COSY	correlated spectroscopy	DSC	differential scanning calorimetry
CPG	controlled-pore glass	dsDNA	double-stranded DNA
CPK	Corey-Pauling-Koltun (molecular models)	DTMT	2-(iso-propylthiomethoxymethyl)benzoyl
cpm	counts per minute	Dtr	4-decyloxytrityl
CPMB	<i>Current Protocols in Molecular Biology</i>	DTT	dithiothreitol
CSP	calf spleen phosphodiesterase	dTTP	deoxythymidine triphosphate
Ctmp	1-(2-chloro-4-methylphenyl)-4-methoxypiperidin-4-yl	dUTP	deoxyuridine triphosphate
CTP	cytidine 5'-triphosphate	EDTA	ethylenediaminetetraacetic acid
dA	deoxyadenosine	ESI	electrospray ionization (mass spectrometry)
dAMP	deoxyadenosine monophosphate	Et	ethyl
dATP	deoxyadenosine triphosphate	EtBr	ethidium bromide
DBMB	2-(dibromomethyl)benzoyl	Et₃N	triethylamine
DBU	1,8-diazabicyclo[3.4.0]undecene-7-ene	Et₂O	ethyl ether
dC	deoxycytosine	EtOAc	ethyl acetate
DCA	dichloroacetic acid	EtOH	ethanol
DCM	dichloromethane	FAM	5-carboxyfluorescein

FMOC	9-fluorenylmethoxycarbonyl	NAB	nucleic acid builder (computer program)
Fpmp	1-(2-fluorophenyl)-4-methoxy-piperidin-4-yl	NBT	nitroblue tetrazolium
FTICR	Fourier-transform ion-cyclotron resonance mass spectrometry	<i>n</i>-Bu	<i>n</i> -butyl
G	guanine or guanosine	NDB	Nucleic Acid Database
GDP	guanosine 5'-diphosphate	NMR	nuclear magnetic resonance
GMP	guanosine 5'-monophosphate	NOE	nuclear Overhauser effect
GTP	guanosine 5'-triphosphate	NOESY	nuclear Overhauser effect spectroscopy
HEG	hexa(ethylene glycol)	N-P	phosphoramidate
HEPES	<i>N</i> -2-hydroxyethylpiperazine- <i>N'</i> -2-ethanesulfonic acid	NPE	4-nitrophenylethyl
HEPPSO	<i>N</i> -(2-hydroxyethyl)piperazine- <i>N'</i> -(2-hydroxypropanesulfonic acid)	NPEOC	2-(4-nitrophenyl)ethoxycarbonyl
3-HPA	3-hydroxypicolinic acid	NPOC	nitrophenyloxycarbonyl
HPLC	high-performance liquid chromatography	nt	nucleotide
HQDA	hydroquinone- <i>O,O'</i> -diacetic acid	PA	picolinic acid
HSDIS	hydroxystyryldiisopropylsilyl	PAGE	polyacrylamide gel electrophoresis
HSDMS	hydroxystyryldimethylsilyl	PAPOC	<i>p</i> -phenylazophenyloxycarbonyl
<i>i</i>-Bu	isobutyl	PASS	product-anchored sequential synthesis
<i>i</i>-Pr	isopropyl	PBS	phosphate-buffered saline
ITC	isothermal titration calorimetry	PCR	polymerase chain reaction
IUB	International Union of Biochemistry	PFPC	bis(pentafluorophenyl) carbonate
IUPAC	International Union of Pure and Applied Chemistry	Ph	phenyl
JOE	6-carboxy-4',5'-dichloro-2',7'-dimethoxyfluorescein	PIPES	piperazine- <i>N,N'</i> -bis(2-ethanesulfonic acid)
LCAA	long-chain alkylamine	pixyl	9-phenylxanthen-9-yl
LNA	locked nucleic acid	PMSF	phenylmethylsulfonyl fluoride
L-TOF	linear time-of-flight (mass spectrometry)	PNA	peptide nucleic acid
MALDI	matrix-assisted laser desorption/ionization (mass spectrometry)	PNK	polynucleotide kinase
MDMP	1,5-dimethoxycarbonyl-3-methoxypentan-3-yl	Pr	propyl
Me	methyl	PS-PTFE	polystyrene-polytetrafluoroethylene
MeNPOC	methylnitropiperonyloxycarbonyl	PTMT	2-(isopropylthiomethoxymethyl)-benzoyl
MeOH	methanol	Pu	purine
Me-P	methylphosphonate	Px	9-phenylxanthen-9-yl
MMI	methylenemethylimino	Py	pyrimidine
MMTr	4-monomethoxytrityl	RFP	radiofrequency plasma
MOPS	3-(<i>N</i> -morpholino)propane sulfonic acid	rMD	restrained molecular dynamics
MOTr	4-methoxy-4'-octyloxytrityl	RNA	ribonucleic acid
MOX	9-(<i>p</i> -anisyl)xanthen-9-yl	RNAP	RNA polymerase
MS	mass spectrometry	R,R'	alkyl
MSNT	1-(mesitylene-2-sulfonyl)-3-nitro-1,2,4-triazole	RT-PCR	reverse transcription/polymerase chain reaction
MTHP	4-methoxytetrahydropyran-4-yl	SA	sinapinic acid
MTMB	2-(methylthiomethoxymethyl)-butyryl	SDS	sodium dodecyl sulfate
MTMT	2-(methylthiomethoxymethyl)benzoyl	<i>sec</i>-Bu	<i>sec</i> -butyl
MWCO	molecular weight cutoff	SELEX	Systematic Evolution of Ligands by Exponential Enrichment
		3SR	self-sustained sequence replication
		SSC	sodium chloride/sodium citrate (buffer)
		ssDNA	single-stranded DNA
		SSPE	saline sodium phosphate/EDTA buffer
		STM	scanning tunneling microscopy
		SVPD	snake venom phosphodiesterase
		TAE	Tris/acetate/EDTA (buffer)

TBAF	tetrabutylammonium fluoride	THP	tetrahydropyran-2-yl
TBDMS	<i>tert</i> -butylmethylsilyl	TLC	thin-layer chromatography
TBE	Tris/borate EDTA (buffer)	TMP	3,4,7,8-tetramethyl-1,10-phenanthroline, thymidine 5'-monophosphate
TBF	4-[17-tetrabenz(<i>a,c,g,i</i>)fluorenyl-methyl]	TMSE	trimethylsilylethyl
TBS	Tris-buffered saline	TMTR	trimethoxytrityl
<i>t</i>-Bu	<i>tert</i> -butyl	TOF	time-of-flight (mass spectrometry)
TCA	trichloroacetic acid	<i>t</i>-Pac	tertiary butylphenoxyacetyl
TCEP	tris-(2-carboxyethyl)phosphine	Tris	tris(hydroxymethyl)aminomethane
TE	Tris/EDTA (buffer)	trityl	diphenylmethyl
TEA	triethylamine	TsOH	toluene-4-sulfonic acid
TEMED	<i>N,N,N',N'</i> -tetramethylethylenediamine	TTP	thymidine 5'-triphosphate
TES	<i>N</i> -tris(hydroxymethyl)methyl-2-aminoethanesulfonic acid	U	uracil
TFC	triplex-forming circle	UDP	uridine 5'-diphosphate
THF	tetrahydrofuran-2-yl	UMP	uridine 5'-monophosphate
		UTP	uridine 5'-triphosphate
		UV	ultraviolet