

List of abbreviations

AA	ascorbic acid	bt	1,3-benzothiazole
AA2P	L-ascorbate-2-phosphate trisodium salt	CE	counter electrode
Ab	antibody	CEA	carcino-embryonic antigen
acac	acetylacetonato	Ce-MOF	cerium(III)-based MOF
ACE	3-amino-9-ethylcarbazole	CL	chemiluminescence
AFP	alpha fetoprotein	CMV	cytomegalovirus
AIE	aggregation-induced emission	CNDs	<i>N</i> -rich carbon nanodots
AIECL	aggregation-induced ECL	COP	covalent organic polymer
ALP	alkaline phosphatase	COVID-19	COronaVIrus Disease 2019
AMR	antimicrobial resistance	CS	chitosan
APTES	3-aminopropyltrimethoxysilane	CTAB	cetyltrimethylammonium bromide
APTMS	(3-aminopropyl) trimethoxysilane	DA	dopamine
ARET	aggregation-induced resonance energy transfer	DBAE	2-(dibutylamino)ethanol
ARGET-ATRP	activators regenerated by electron transfer-atom transfer radical polymerization	DBS	dried blood spots
ASIRs	age-standardised incidence	dcbpy	4,4'-dicarboxylic acid-2,2'-bipyridyl
AuNPs	gold nanoparticles	DDSNPs	dye-doped silica NPs
BDC-NH ₂	2-aminoterephthalic acid	dfppy	2-(2,4-difluorophenyl)pyridine
BIS-TRIS	2,2-bis(hydroxymethyl)-2,2',2''-nitrilotriethanol	D-MOF	dual-ligand metal organic framework
BL	bioluminescence	dmpq	2-(3,5-dimethylphenyl)quinoline-C,N
BN-CDs	boron and nitrogen-co-doped carbon dots	DMPDA	<i>N,N</i> -dimethyl-1,3-propanediamine
BPE	bipolar-electrode	DMSNs	dendritic mesoporous silica nanoparticles
bp-SNA	bipolar silica nanochannel array	DPIBA	<i>N</i> -dipropyl isobutyl amine
bpy	2,2'-bipyridine	dppz	dipyrido[3,2- <i>a</i> :2',3'- <i>c</i>]phenazinium
BSA	bovine serum albumin	dsDNA	double strand DNA

dSiO ₂	dendritic mesoporous silica nanospheres	HICs	high-income countries
EBV	Epstein-Barr virus	HIV	human immunodeficiency virus
EC	electrochemical	HPV	human Papillomavirus
ECL	electrochemiluminescence	ITO	indium tin oxide
ECLM	ECL combined with optical microscopy	LMICs	low-and middle-income countries
<i>E. coli</i>	<i>Escherichia coli</i>	LoD	Limit of Detection
EDA	ethylenediamine	LPS	lipopolysaccharide
ELISA	enzyme-based immunosorbent assay	<i>L. salivarius</i>	<i>Lactobacillus salivarius</i>
eT	electron transfer	LVS	live vaccine strain
Exo III	exonuclease III	MDROs	multidrug-resistant organisms
FAM	carboxyfluoresceins	MGCE	magnetic glassy carbon electrode
Fc	ferrocene	MMBs	magnetic microbeads
FNCDs	fluorine-nitrogen co-doped carbon dots	mNGS	metagenomic next-generation sequencing
<i>F. tularensis</i>	<i>Francisella tularensis</i>	MOF	metal-organic framework
GA	glutaraldehyde	MPA	3-mercaptopropionic acid
GCE	glassy carbon electrode	MPXV	monkeypox virus
GOD	glucose oxidase	MRSA	methicillin-resistant <i>Staphylococcus aureus</i>
GQDs	graphene quantum dots	MWCNTs	multi-walled carbon nanotube
HARIs	hospital-associated drug-resistant infections	NAs	nucleic acids
HAV	hepatitis A virus	NFs	nanoflowers
HBsAg	hepatitis B virus surface antigen	N-GQDs	nitrogen-doped graphene quantum dots
HBV	hepatitis B virus	N-protein	nucleocapsid protein
HCC	hepatocellular carcinoma	NPs	nanoparticles
HCR	hybridization chain reaction	NSs	nanosheets
HCV	hepatitis C virus	OECD	organisation for economic co-operation and development
HDNA	hairpin DNA	OMC	ordered mesoporous carbon
HHV-6A	human herpesvirus type 6		

o-PD	o-phenylenediamine	SDS	sodium dodecyl sulfate
Ov	oxygen vacancy	SELEX	Systematic Evolution of Ligands by Exponential Enrichment
pAb	polyclonal antibody	SiNPs	silica nanoparticles
<i>P. aeruginosa</i>	<i>Pseudomonas aeruginosa</i>	SIP	bacterial surface-imprinted polymer
PCR	polymerase chain reaction	SOT	solid organ transplant
PCT	procalcitonin	S-protein	spike protein
PDA	polydopamine	<i>S. typhimurium</i>	<i>Salmonella typhimurium</i>
PDDA	poly(diallyldimethyl) ammonium chloride	SA	succinic anhydride
PEI	polyetyhyleneimine	sppy	2-phenylpyridinato
phen	(1,10-phenanthroline)	TADF	Thermally Activated Delayed Fluorescence
PL	photoluminescence	TB	tuberculosis
PLL	poly-L-lysine	TEOS	tetraethylorthosilicate
pMB	polymethylene blue	TMV	Tobacco mosaic virus
PoC	point-of-care	TOF	turnover frequency
ppy	2-phenylpyridine	TPE	tetraphenylethene
PTLD	post-transplant lymphoproliferative disease	TPrA	tri- <i>n</i> -propylamine
pt-TEG	1-(2-(2-(2-(2-hydroxyethoxy)ethoxy)ethoxy)ethyl)-1-(4-pyridil)-1,2,3-triazole	tRNA	target RNA
QDs	quantum dots	u-SiO ₂	ultrasmall SiO ₂
RABV	Rabies virus	VMSF	vertically-ordered mesoporous silica films
RDTs	rapid diagnostic tests	<i>V. parahaemolyticus</i>	<i>Vibrio parahaemolyticus</i>
RE	reference electrode	WHO	world health organization
RET	resonance energy transfer	ZIKV	Zika virus
RPA	recombinase polymerase amplification		
SA	succinic hydride		
<i>S. aureus</i>	<i>Staphylococcus aureus</i>		
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2		