

List of Abbreviations

2D	Two-dimensional
3D	Three-dimensional
AFB	Acid-fast bacilli
ALD	Atomic layer deposition
β -gal	Beta-galactosidase
bp	Base pair
BSA	Bovine serum albumin
BRCA1	Breast cancer-related gene 1
CNTs	Carbon nanotubes
CuO	Copper oxide
CuSO ₄	Copper sulfate
CV	Cyclic voltammetry
CVD	Chemical vapor deposition
cDNA	Complementary deoxyribonucleic acid
DET	Direct electron transfer
DNA	Deoxyribonucleic acid
ECD	Electrochemical deposition
ECIS	Electrical cell substrate impedance sensing
EDTA	Ethylenediaminetetraacetic acid
EIS	Electrochemical impedance spectroscopy
ELISA	Enzyme-linked immunosorbent assay
EPA	Environmental protection agency
FEG-SEM	Field emission gun scanning electron microscopy
FID	Flame ionization detection
GaOX	Galactose oxidase
GCE	Glassy carbon electrode
GNPs	Gold nanoparticles
GO	Graphene oxide
H ₂ O ₂	Hydrogen peroxide
HPLC	High performance liquid chromatograph
HQ	Hydroquinone
HPSF	High purity salt free

IDEs	Interdigitated electrodes
IMS	Immunomagnetic separation
IPC	Cathodic peak current
IPA	Anodic peak current
IUPAC	International union of pure and applied chemistry
ITC	Isothermal titration calorimetry
KCl	Potassium chloride
Lac	Laccase
LAPS	Light addressable potentiometric sensing
MB	Methylene blue
mM	Millimolar
MIPs	Molecularly imprinted polymers
MOF	Meta-organic framework
MONPs	Metal oxide nanoparticles
MQ water	Milli-Q water
MRI	Magnetic resonance imaging
Mtb	Mycobacterium tuberculosis
MWCNTs	Multiwalled carbon nanotubes
MWCNTs-COOH	Carboxylic acid functionalized carbon nanotubes
Na ₂ HPO ₄	Disodium hydrogen phosphate
NAATs	Nucleic acid amplification test
NIR	Near-infrared
NPs	Nanoparticles
Nsp3	Non-structural protein 3
OCT	Optical coherence tomography
PVD	Physical vapor deposition
PNA	Peptide nucleic acid
POC	Point of care
Pup	Proteosome system
PupE gene	Prokaryotic ubiquitin-like protein E gene
PB	Phosphate buffer
PLD	Pulsed laser deposition
qPCR	Quantitative polymerase chain reaction
QCM	Quartz crystal microbalance
QDs	Quantum dots
RNA	Ribonucleic acid
SAW	Surface acoustic wave
SDS	Sodium dodecyl sulfate
SEM	Scanning electron microscopy
SELEX	Systematic Evolution of Ligands by Exponential enrichment

SNPs	Single nucleotide polymorphisms
SPCE	Screen printed carbon electrode
SPE	Screen printed electrode
SPR	Surface plasmon resonance
ssDNA	Single strand deoxyribonucleic acid
SWCNTs	Single-walled carbon nanotubes
TB	Tuberculosis
TEM	Transmission electron microscopy
TGA	Triglyceride
TiO ₂	Titanium dioxide
T _m	Melting temperature
UCNPs	Upconversion nanoparticles
WHO	World Health Organization