

List of Abbreviations

%F	Oral bioavailability
ADP	Adenosine diphosphate
AF	Atrial fibrillation
AID	Activation-induced cytosine deaminase
Akt	Protein kinase B
AP-1	Activator protein-1
ATP	Adenosine triphosphate
AUC	Area under curve
BCAP	B-cell PI3K adaptor protein
BCL	B cell lymphomas
BCL10	B-cell lymphoma/leukemia 10
Bcl-xL	B-cell lymphoma-extra large
BCR	B-cell receptor
BID	Twice a day
BL	Burkitt lymphoma
BMX	Bone marrow expressed kinase
Boc	Tert-Butyloxycarbonyl
Br	Bromine
BTk	Bruton's tyrosine kinase
CAD11	Cadherin-11
CAN	Acetonitrile
CCl ₄	Carbon tetrachloride
CD ₃ OD	Deuterated methanol

CD79	Cluster of Differentiation 79
CDCl ₃	Deuterated chloroform
CHNS	Carbon, Hydrogen, Nitrogen, Sulphur,
CIA	Collagen-induced arthritis
Cl	Clearance
CLL	Chronic lymphocytic leukaemia
C _{max}	Maximum (or peak) serum concentration of a drug
CNS	Central nervous system
CO ₂	Carbon dioxide
CTLA4	Cytotoxic T-lymphocyte antigen 4
CYP	Cytochromes P450
Cys481	Cysteine481
DAG	Diacylglycerol
DIPEA	N,N-Diisopropylethylamine
DLBCL	Diffuse large B-cell lymphoma
DMARDs	Disease-modifying anti-rheumatic drugs
DMF	Dimethylformamide
DMSO	Dimethyl sulfoxide
DNA	Deoxyribonucleic acid
EBV	Epstein-Barr virus
EGFR	Epidermal growth factor receptor
ERBB2 / HER2	Receptor tyrosine-protein kinase erbB-2
ERKs	Extracellular signal-regulated kinases
ESI-MS	Electrospray ionisation mass spectrometry

EtOAc	Ethyl acetate
FcR	Fc receptor
FDA	Food and Drug Administration
FDCs	Follicular dendritic cells
FL	Follicular lymphoma
FOXOs	Fork head transcription factors
GC	Germinal center
GLU475	Glutamic acid475
H ₂ SO ₄	Sulfuric acid
HCL	Hairy cell leukaemia
HCl	Hydrochloric acid
HDAC	Histone deacetylase
hERG	Human ether-a-go-go-related gene
IBD	Inflammatory bowel diseases
IBR	Ibrutinib
IC ₅₀	Half maximal inhibitory concentration
Ig	Immunoglobulin
IKK	Inhibitory-κB kinase
IL-10	Interleukin-10
IL-7	Interleukin-7
IP ₃	Inositol trisphosphate
IRAK1	Interleukin-1 receptor-associated kinase 1
IRF3	Interferon regulatory factor 3
ITAMs	Immuno receptor Tyrosine-Based Activation Motifs

ITK	Inducible T cell kinase
ITP	Immune thrombocytopenia
ITT	Ig tail tyrosine
<i>J</i>	Coupling constant
JAK	Janus kinase
K ₂ CO ₃	Potassium carbonate
KHCO ₃	Potassium bicarbonate
KOAc	Potassium acetate
KOH	Potassium hydroxide
L	Litre
LYN	Tyrosine-protein kinase Lyn
MALT	Mucosa-associated lymphoid tissue
MALT1	Mucosa-associated lymphoid tissue lymphoma translocation protein 1
MAPK	Mitogen-activated protein kinase
MCL	Mantle cell lymphoma
MeOH	Methanol
Met477	Methionine477
MHz	Megahertz
MIC	Minimum inhibitory concentration
Min	Minute
MM	Multiple myeloma
mmol	Millimoles
MS	Multiple sclerosis
mTOR	Mammalian target of rapamycin

MYC	Myelocytomatosis oncogene cellular homolog
MYD88	Myeloid differentiation primary response 88
MZL	Marginal zone lymphomas
NaH	Sodium hydride
NaHCO ₃	Sodium bicarbonate
NaOH	Sodium hydroxide
NaOCH ₃	Sodium methoxide
NBS	N-Bromosuccinimide
NFAT	Nuclear factor of activated T-cells
NF-κB	Nuclear factor kappa-light-chain-enhancer of activated B cells
NHL	Non-Hodgkin Lymphoma
NIS	N-iodosuccinimide
nM	Nano molar
NMR	Nuclear magnetic resonance
NSAIDs	Non-steroidal anti-inflammatory drugs
°C	Degree Celsius
PD	Pharmacodynamics
PDB ID	Protein data bank identification code
PdCl ₂ (PPh ₃) ₂	Bis triphenylphosphine palladium dichloride
PH	Pleckstrin homology
Phe540	Phenylalanine540
Pi	Inorganic phosphate
PI(3,4,5)P ₃ / PIP ₃	Phosphatidylinositol-3,4,5-trisphosphate
PI(4)P / PIP	Phosphatidylinositol-4-phosphate

PI(4,5)P ₂ / PIP ₂	Phosphatidylinositol-4,5-bisphosphate
PI3K	Phosphatidylinositol-3-kinase
PK	Pharmacokinetic
PLC γ	Phospholipase C
POCl ₃	Phosphorus oxychloride
ppm	Parts per million
PTPN22	Protein tyrosine phosphatase, non-receptor type 22
QD	Four times a day
RA	Rheumatoid arthritis
RBC	Red blood cells
RF	Rheumatoid factor
RLK	Resting lymphocyte kinase
SD	Standard deviation
SEM	Standard error of the mean
Ser	Serine
SH	Src homology
SjS	Stevens-Johnson syndrome
SK	Sphingosine kinases
SLE	Systemic lupus erythematosus
SLL	Small lymphocytic lymphoma
SnCl ₂	Stannous chloride
SYK	Spleen tyrosine kinase
t _{1/2}	Half life
T2D	Type 2 diabetes

TBILI	Total bilirubin
TBST	Tris-buffered saline with 0.1% Tween® 20
t-BuOK	Potassium tert-butoxide
TEA	Triethylamine
TH	Tec homology
THF	Tetrahydrofuran
Thr	Threonine
Thr474	Threonine474
TIR	Toll-interleukin 1 receptor
TIRAP	Toll-interleukin 1 receptor adaptor protein
TLC	Thin layer chromatography
TLRs	Toll-like receptors
$t_{\max}$	Time for maximum (or peak) serum concentration of a drug
TMS	Tetramethyl silane
TNF	Tumor necrosis factor
Tyr	Tyrosine
UPLC	Ultra performance liquid chromatography
UV	Ultraviolet
VCAM-1	Vascular cell adhesion molecule-1
WASP	Wiskott-Aldrich syndrome protein
WBC	White blood cell
WHO	World Health Organization
WM	Waldenström macroglobulinemia
XLA	X-linked agammaglobulinemia

Y223	Tyrosine223
δ	Chemical shifts
λ_{max}	Wavelength of maximum absorbance
μM	Micro molar