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Bioorthogonal labeling tools to study pathogenic intracellular bacteria

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Bioorthogonal Labeling Tools to Study Pathogenic Intracellular Bacteria

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“Failure is only the opportunity to begin again.”

- Iroh (Avatar The Last Airbender)

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List of Abbreviations

ABP	Activity-Based Probe
ABPP	Activity-Based Protein Profiling
Ac4ManNAz	1,3,4,6-Tetra- <i>O</i> -acetyl- <i>N</i> -azidoacetylmannosamine
AG	Arabinogalactan
AGM	Arabinogalactan mycolate
Ag85	Mycolyltransferase complex antigen 85
Aha	Azidohomoalanine
alkDala	Alkyne-modified D-alanine (= D-propargylglycine)
ANL	Azidonorleucine
AOA	2-Aminooctynoic acid
APC	Antigen-Presenting Cell
azDala	Azide-modified D-alanine (= 2-amino-3-azidopropanoic acid)
B-CLEM	Bioorthogonal Correlative Light-Electron Microscopy
BCN	Bicyclo[6.1.0]nonyne
bcnDala	BCN-modified D-alanine
BMDC	Bone marrow-derived dendritic cell
BONCAT	Bioorthogonal Non-Canonical Amino acid Tagging
BSA	Bovine serum albumin
CatS	Cathepsin S
ccHc	Copper catalyzed Huisgen cycloaddition (= CuAAC)
CLEM	Correlative Light-Electron Microscopy
CuAAC	Cu-catalyzed Azide-Alkyne Cycloaddition (= ccHc)
DAA	D-amino acid
DABCYL	4-(Dimethylaminoazo)benzene-4-carboxylic acid
DAPI	4',6-Diamidino-2-phenylindole
DBCO	Dibenzocyclooctyne
DC	Dendritic cell
DMN	4- <i>N,N</i> -Dimethylamino-1,8-naphthalimide
DMN-Tre	DMN-modified trehalose
<i>E. coli</i>	<i>Escherichia coli</i>
EdU	5-Ethynyl-2'-deoxyuridine
EM	Electron microscopy
EMB	Ethambutol
FACS	Fluorescence-Activated Cell Sorting
FITC	Fluorescein isothiocyanate

FITC-Tre	FITC-modified trehalose
FDAA	Fluorescent D-amino acid
FDL	Fluorescein-modified D-lysine
FM	Fluorescence microscopy
FRAP	Fluorescence Recovery After Photobleaching
GEN	Gentamycin
GILT	Gamma Interferon-inducible Lysosomal Thioreductase
GM-CSF	Granulocyte-Macrophage Colony-Stimulating Factor
GSH	Glutathione
HADA	HCC-amino-D-alanine
HCC	7-Hydroxycoumarin-3-carboxylic acid
HOCl	Hypochlorous acid
Hpg	Homopropargylglycine
IEDDA	Inverse Electron-Demand Diels-Alder
INH	Isoniazid
LAMP1	Lysosomal-Associated Membrane Protein 1
LPS	Lipopolysaccharide
ManNAc	<i>N</i> -Acetylmannosamine
ManNAI	Alkyne-modified <i>N</i> -acetylmannosamine
ManNAz	Azide-modified <i>N</i> -acetylmannosamine
ManLev	Levulinoyl-modified <i>N</i> -acetylmannosamine
MDR	Multi-drug resistant
Met	Methionine
MetRS	Methionyl-tRNA synthetase
MHC I/II	Major Histocompatibility Complex class I/II
MM	Mycomembrane
MPO	Myeloperoxidase
<i>Mtb</i>	<i>Mycobacterium tuberculosis</i>
MurNAc	<i>N</i> -Acetyl muramic acid
MurNAI	Alkyne-modified <i>N</i> -acetyl muramic acid
MurNAz	Azide-modified <i>N</i> -acetyl muramic acid
NADA	NBD-amino-D-alanine
NBD	4-Chloro-7-nitrobenzofurazan
ncAA	Non-canonical amino acid
NIR	Near-infrared
nitroneDala	Nitron-modified D-alanine
NLL-MetRS	L13N/Y260L/H301L mutant form of the <i>E. coli</i> MetRS

NOX2	NADPH oxidase-2 complex
O-AlkTMM	<i>O</i> -alkyne-trehalose (6-heptynoyl trehalose analogue)
PALM	Photoactivated Localization Microscopy
pAz	<i>p</i> -Azidophenylalanine
pBPA	<i>p</i> -Benzoyl-L-phenylalanine
PDR	Pan-drug resistant
PET	Positron Emission Tomography
PFA	Paraformaldehyde
PG	Peptidoglycan
QTF	Quencher-Trehalose-Fluorophore
RADA	TAMRA-amino-D-alanine
RIF	Rifampicin
ROS	Reactive Oxygen Species
RPI	Free radical photoinitiator
SDS-PAGE	Sodium Dodecyl Sulfate-Polyacrylamide Gel Electrophoresis
SEM	Scanning Electron Microscopy
SNak	Alkyne-modified short <i>N</i> -acetyl cysteamine (acetyl-CoA analogue)
SNAz	Azide-modified short <i>N</i> -acetyl cysteamine (acetyl-CoA analogue)
SPAAC	Strain-Promoted Azide-Alkyne Cycloaddition (= spHc)
SPANC	Strain-Promoted Alkyne-Nitrone Cycloaddition
spHc	Strain-promoted Huisgen cycloaddition (= SPAAC)
StA	Sterculic acid
STED	Stimulated Emission Depletion
<i>Stm</i>	<i>Salmonella enterica</i> serovar Typhimurium
STORM	Stochastic Optical Reconstruction Microscopy
TAMRA	Carboxy-tetramethylrhodamine
TB	Tuberculosis
TCO	Trans-cyclooctene
TDL	TAMRA-modified D-lysine
TDM	Trehalose dimycolate
TEM	Transmission Electron Microscopy
TMM	Trehalose monomycolate
TreAz	Azide-modified trehalose
XDR	Extensive drug resistant
3HC	3-Hydroxychromone
3HC-Tre	3HC-modified trehalose