

Supporting Information

Table S1. The druggable enzymatic structome of *S. aureus* containing 125 functionally essential enzymes and their high-resolution crystal structures

Enzyme	PDB
Guanylate monophosphate kinase	2J41
Metalloproteinase	1BQB
Thiol proteinase	1CV8
Dihydropteroate synthase	4HB7
EutD phosphotransacetylase	4E4R
Thymidylate kinase	4GSY
Uracil-DNA glycosylase	3WDF
Aminotransferase	2O1B
mRNA interferase	2MF2
<i>S</i> -adenosylhomocysteine nucleosidase	4GMH
Biotin protein ligase	3V7R
Phosphoglycerate mutase	4MY4
AmiA hydrolase	4KNL
Lactate dehydrogenase	3D0O
PknB serine/threonine kinase	4EQM
Carotenoid dehydrosqualene synthase	3ACX
Dihydroorotate	3GRI
Amidohydrolase	3NUR
TenA type II thiaminase	4FN6
GNAT family acetyltransferase	3T9Y
Serine hydroxymethyltransferase	3PGY
Esterase	3D7R
V8 protease	1QY6
Dihydrofolate reductase	2W9H
SplD protease	4INK
<i>N</i> -acetyltransferase	4 LUA
Spl serine protease	2W7S
Sortase A	1T2P
Dihydrodipicolinate synthase	3DI1
PcrB barrel-fold prenyl transferase	3W01
GyrB ATPase	3U2K
Clp protease	3ST9
Adenylosuccinate lyase	2X75
Dihydrodipicolinate reductase	3QY9
Pantothenate kinase	4NB4
Kanamycin nucleotidyltransferase	1KNY
CoA ligase	3IPL

Coenzyme A disulfide reductase	4EQX
NAD(+-)dependent DNA ligase	3JSN
Carbon-nitrogen family hydrolase	3P8K
Nucleoside diphosphate kinase	3Q83
Imidazoleglycerol-phosphate dehydratase	2AE8
D-tagatose-6-phosphate kinase	2Q5R
Sortase B	4LFD
3-oxoacyl-acyl carrier protein reductase	3OSU
Tripeptidase	3RZA
Metallo-beta-lactamase	3R2U
Lipoteichoic acid synthesis	2W5Q
Peptide deformylase	3U7K
FosB metallothiol transferase	4NB2
Membrane-bound transglycosylase	3VMQ
Tagatose 1,6-diphosphate aldolase	3KAO
Betaine aldehyde dehydrogenase	4MPB
Virginiamycin B lyase	2Z2O
Antibiotic acetyltransferase	4HUS
Galactoside O-acetyltransferase	3FTT
Alanine racemase	3OO2
NADH-dependent flavin oxidoreductase	3L5A
D-alanine:D-alanine ligase	2I80
Capsular polysaccharide synthase	3W1V
Glycerophosphodiester phosphodiesterase	2P76
Caffeoyl-CoA O-methyltransferase	3NTV
Glucose 6-phosphate isomerase	3FF1
2-dehydropantoate 2-reductase	3G17
Integrase	3NKH
Aldehyde dehydrogenase	3TY7
Thioredoxine reductase	4GCM
Glycerophosphoryl diester phosphodiesterase	2OOG
Pyrimidine-nucleoside phosphorylase	3H5Q
CocE/NonD family hydrolase	3IB3
Inositol monophosphatase	3T0J
Pyruvate carboxylase	3BG5
Metallopeptidase	3KI9
3-methyladenine DNA glycosylase I	4AI4
UDP-N-acetyl-mannosamine dehydrogenase	3OJL
Triosephosphate isomerase	3UWY
N5-carboxyaminoimidazole synthetase	3ORQ
CTP:glycerol-3-phosphate cytidylyltransferase	2B7L
Peptide deformylase	1Q1Y
tRNA (guanine-7)-methyltransferase	3KY7

tRNA adenosine deaminase	2B3J
Triosephosphate isomerase	3UWU
Gly-Ser-SplB protease	4K1T
Capsular polysaccharide synthesizing enzyme	4G5H
Pyridoxal kinase	4C5K
4-phosphopanthetheine adenylyltransferase	4NAT
Phosphatidylinositol-specific phospholipase	4I90
N-acetylneurameric acid lyase	4AHO
Type II TenA thiaminase	4FN6
Enoyl-ACP reductase	4FS3
DnaG RNA polymerase	4EDK
Ribokinase	3RY7
Acyl-carrier-protein synthase	4DXE
HPPK pyrophosphokinase	3QBC
Pyruvate kinase	3T0T
PtpA tyrosine phosphatase	3ROF
D-ribose pyranase	3P13
Glyceraldehyde-3-phosphate dehydrogenase	3LVF
Type Iia topoisomerase	2XCS
4-oxalocrotonate tautomerase	2X4K
Pantothenate synthetase	3AG6
Metallopeptidase	3KI9
Malonyl-CoA-acyl carrier protein transacylase	3IM9
Methionine aminopeptidase	1QXY
Peptidoglycan glycosyltransferase	2OLU
Phosphoenolpyruvate sugar phosphotransferase	2WQD
MtgA glycosyltransferase	3HZS
Pyrrolidone-carboxylate peptidase	3GIU
Glycerol kinase	3G25
Biotin carboxylase	2VPQ
IsdG heme-degrading enzyme	2ZDO
Diacylglycerol kinase	2QV7
Molybdopterin synthase	2Q5W
1,4-dihydroxy-2-naphthoyl CoA synthase	2UZF
ABC ATPase	2IHY
Dihydronicopterin aldolase	2NM3
Glutamate racemase	2JFQ
DNA-3-methyladenine glycosidase	2JG6
Carboxyltransferase	2F9I
Nicotinic acid mononucleotide adenylyltransferase	2H29
Cytidine monophosphate kinase	2H92
ManNAc-6-P epimerase	1Y0E
Tyrosyl-tRNA synthetase	1JIL

Cysteine protease	1CV8
<i>S</i> -adenosylmethionine dependent enzyme	1TV7