Full wwPDB X-ray Structure Validation Report ⓘ

Sep 11, 2023 – 08:18 AM EDT

PDB ID	:	4M3H
Title	:	Crystal structure of small laccase Ssl1 from Streptomyces sviceus
Authors	:	Gunne, M.; Hoeppner, A.; Hagedoorn, P.-L.; Urlacher, V.B.
Deposited on	:	2013-08-06
Resolution	:	2.20 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

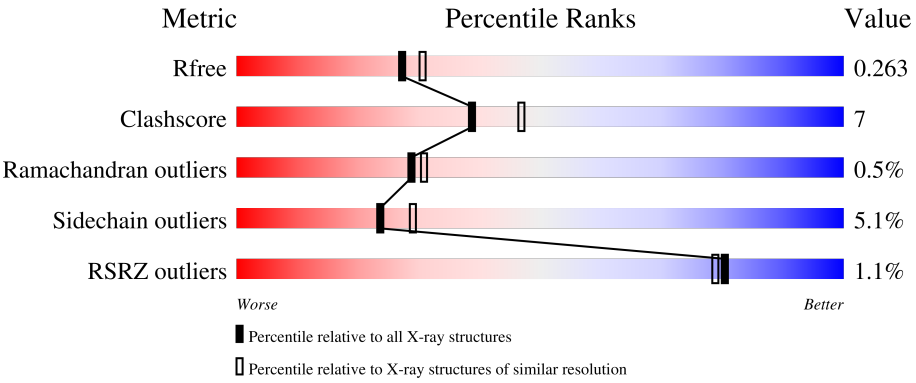
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	325	66% 14% • 17%
1	B	325	2% 68% 13% • 17%
1	C	325	% 68% 12% •• 17%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 6418 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Copper oxidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	269	Total	C	N	O	S	0	1	0
			2098	1310	386	392	10			
1	B	269	Total	C	N	O	S	0	0	0
			2087	1304	382	391	10			
1	C	270	Total	C	N	O	S	0	0	0
			2091	1306	383	392	10			

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	expression tag	UNP B5HSR1
A	2	HIS	-	expression tag	UNP B5HSR1
A	3	HIS	-	expression tag	UNP B5HSR1
A	4	HIS	-	expression tag	UNP B5HSR1
A	5	HIS	-	expression tag	UNP B5HSR1
A	6	HIS	-	expression tag	UNP B5HSR1
A	7	HIS	-	expression tag	UNP B5HSR1
B	1	MET	-	expression tag	UNP B5HSR1
B	2	HIS	-	expression tag	UNP B5HSR1
B	3	HIS	-	expression tag	UNP B5HSR1
B	4	HIS	-	expression tag	UNP B5HSR1
B	5	HIS	-	expression tag	UNP B5HSR1
B	6	HIS	-	expression tag	UNP B5HSR1
B	7	HIS	-	expression tag	UNP B5HSR1
C	1	MET	-	expression tag	UNP B5HSR1
C	2	HIS	-	expression tag	UNP B5HSR1
C	3	HIS	-	expression tag	UNP B5HSR1
C	4	HIS	-	expression tag	UNP B5HSR1
C	5	HIS	-	expression tag	UNP B5HSR1
C	6	HIS	-	expression tag	UNP B5HSR1
C	7	HIS	-	expression tag	UNP B5HSR1

- Molecule 2 is COPPER (II) ION (three-letter code: CU) (formula: Cu).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	4	Total Cu 4 4	0	1
2	B	4	Total Cu 4 4	0	1
2	C	3	Total Cu 3 3	0	0

- Molecule 3 is OXYGEN ATOM (three-letter code: O) (formula: O).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	2	Total O 2 2	0	2

- Molecule 4 is water.

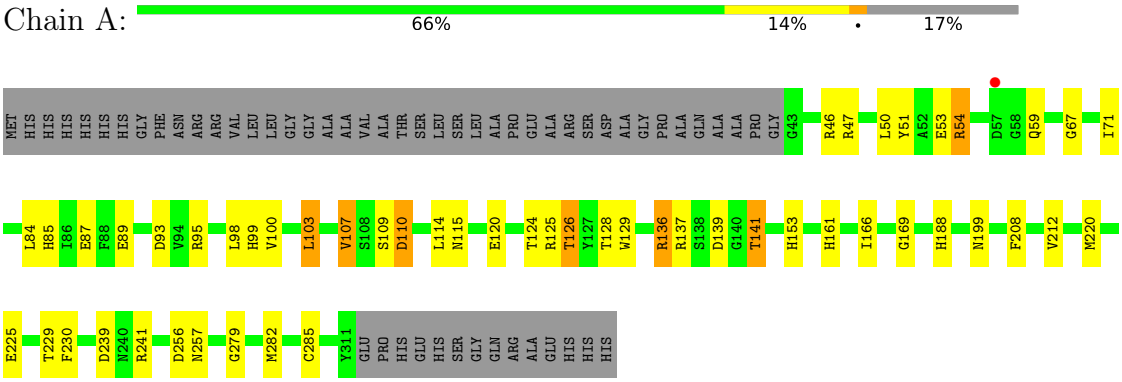
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	39	Total O 39 39	0	0
4	B	29	Total O 29 29	0	0
4	C	61	Total O 61 61	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

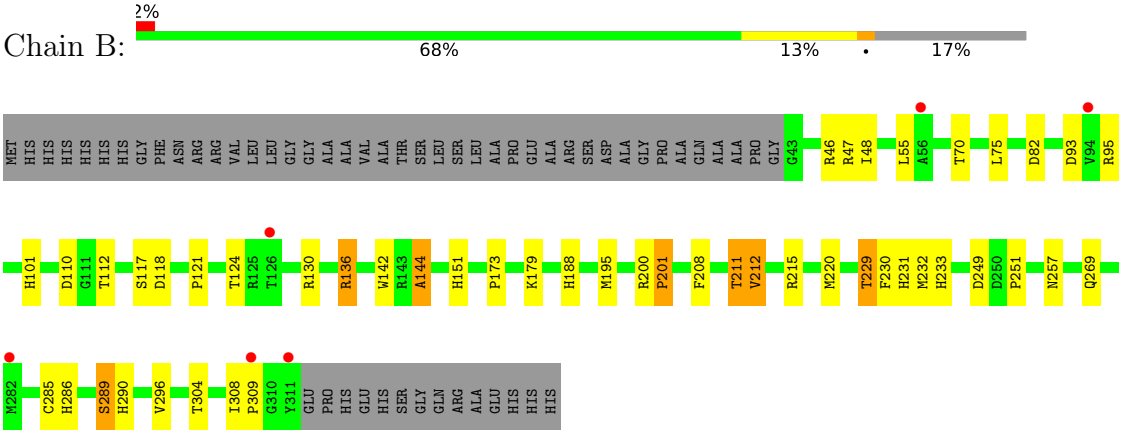
• Molecule 1: Copper oxidase

Chain A:



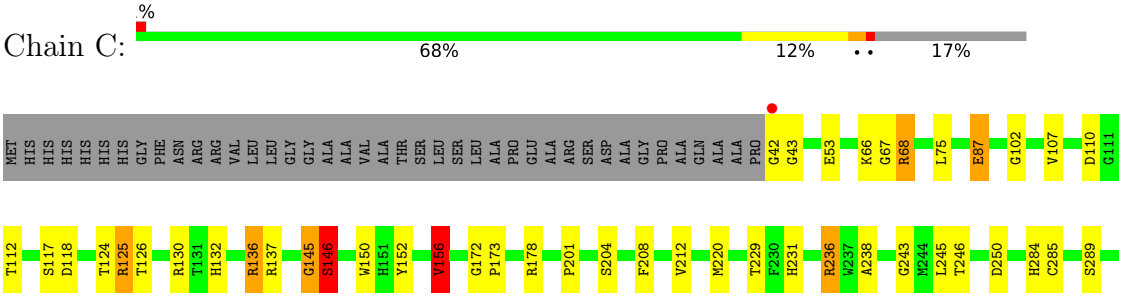
• Molecule 1: Copper oxidase

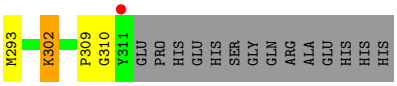
Chain B:



• Molecule 1: Copper oxidase

Chain C:




M293
K302
P309
G310
Y311
GLU
PRO
HIS
GLU
HIS
SER
GLY
GLN
ARG
ALA
GLU
HIS
HIS
HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	51.54Å 103.82Å 162.26Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.97 – 2.20 47.97 – 2.20	Depositor EDS
% Data completeness (in resolution range)	99.6 (47.97-2.20) 99.5 (47.97-2.20)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.39 (at 2.20Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.206 , 0.268 0.205 , 0.263	Depositor DCC
R_{free} test set	2259 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	31.6	Xtriage
Anisotropy	0.144	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 43.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	6418	wwPDB-VP
Average B, all atoms (Å^2)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.37% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: O, CU

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.94	0/2156	0.94	6/2924 (0.2%)
1	B	0.88	1/2145 (0.0%)	0.86	1/2910 (0.0%)
1	C	0.99	2/2149 (0.1%)	1.01	10/2915 (0.3%)
All	All	0.94	3/6450 (0.0%)	0.94	17/8749 (0.2%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	144	ALA	C-O	7.29	1.37	1.23
1	C	146	SER	N-CA	7.07	1.60	1.46
1	C	208	PHE	CE1-CZ	6.30	1.49	1.37

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	136	ARG	NE-CZ-NH1	9.96	125.28	120.30
1	C	136	ARG	NE-CZ-NH2	-9.12	115.74	120.30
1	C	125	ARG	NE-CZ-NH2	-8.24	116.18	120.30
1	A	256	ASP	CB-CG-OD1	7.74	125.27	118.30
1	C	130	ARG	NE-CZ-NH2	-6.71	116.94	120.30
1	C	145	GLY	O-C-N	-6.23	112.73	122.70
1	B	130	ARG	NE-CZ-NH1	-6.21	117.20	120.30
1	C	110	ASP	CB-CG-OD2	6.00	123.70	118.30
1	A	241	ARG	NE-CZ-NH1	-5.81	117.40	120.30
1	C	145	GLY	N-CA-C	5.80	127.60	113.10
1	A	136	ARG	NE-CZ-NH2	-5.75	117.43	120.30
1	C	178	ARG	NE-CZ-NH1	5.57	123.08	120.30
1	C	137	ARG	NE-CZ-NH1	5.55	123.07	120.30
1	A	103	LEU	CA-CB-CG	5.37	127.64	115.30
1	C	145	GLY	C-N-CA	-5.33	108.37	121.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	136	ARG	NE-CZ-NH1	5.18	122.89	120.30
1	A	239	ASP	CB-CG-OD2	5.13	122.92	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2098	0	1984	40	0
1	B	2087	0	1972	28	0
1	C	2091	0	1975	29	0
2	A	4	0	0	0	0
2	B	4	0	0	0	0
2	C	3	0	0	0	0
3	B	2	0	0	1	0
4	A	39	0	0	0	0
4	B	29	0	0	0	0
4	C	61	0	0	0	0
All	All	6418	0	5931	91	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (91) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:145:GLY:O	1:C:146:SER:HB2	1.25	1.07
1:C:145:GLY:O	1:C:146:SER:CB	2.00	1.01
1:A:137:ARG:HH11	1:A:141:THR:HG23	1.24	0.97
1:A:137:ARG:HH11	1:A:141:THR:CG2	1.82	0.91
1:A:137:ARG:NH1	1:A:141:THR:HG23	1.94	0.82
1:C:289:SER:O	1:C:293:MET:HG3	1.83	0.77
1:A:54[B]:ARG:HH12	1:A:93:ASP:H	1.36	0.72
1:B:93:ASP:HA	1:B:121:PRO:HB3	1.73	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:229:THR:O	1:B:285:CYS:HA	1.92	0.70
1:A:139:ASP:OD1	1:A:141:THR:HG22	1.96	0.66
1:C:87:GLU:OE2	1:C:124:THR:CG2	2.48	0.61
1:A:54[B]:ARG:NH1	1:A:93:ASP:CG	2.54	0.60
1:A:54[B]:ARG:NH1	1:A:93:ASP:H	1.99	0.60
1:A:71:ILE:HD13	1:A:169:GLY:HA3	1.85	0.57
1:A:137:ARG:NH1	1:A:141:THR:CG2	2.60	0.57
1:A:54[B]:ARG:HH12	1:A:93:ASP:N	2.02	0.57
1:B:101:HIS:CD2	1:B:151:HIS:CE1	2.94	0.56
1:A:139:ASP:OD1	1:A:141:THR:CG2	2.54	0.55
1:A:54[B]:ARG:NH1	1:A:93:ASP:OD1	2.39	0.55
1:A:53:GLU:OE1	1:A:67:GLY:N	2.34	0.55
1:C:53:GLU:OE2	1:C:66:LYS:HA	2.06	0.55
1:B:215:ARG:HD3	1:B:269:GLN:OE1	2.07	0.54
1:B:249:ASP:O	1:B:251:PRO:HD3	2.08	0.53
1:B:231:HIS:HB2	1:B:257:ASN:OD1	2.09	0.52
1:B:229:THR:HG22	1:B:286:HIS:H	1.74	0.51
1:C:201:PRO:O	1:C:204:SER:HB2	2.10	0.51
1:A:230:PHE:O	1:A:257:ASN:HA	2.10	0.50
1:A:53:GLU:CD	1:A:67:GLY:H	2.14	0.50
1:B:229:THR:CG2	1:B:286:HIS:HB3	2.41	0.50
1:C:53:GLU:OE2	1:C:67:GLY:N	2.43	0.50
1:A:137:ARG:HB2	1:A:141:THR:HG22	1.94	0.49
1:B:136:ARG:HG2	1:B:142:TRP:CE3	2.47	0.49
1:B:95:ARG:HD2	1:B:118:ASP:OD2	2.12	0.49
1:C:87:GLU:OE2	1:C:124:THR:HG21	2.12	0.49
1:A:153:HIS:ND1	1:A:166:ILE:HD11	2.28	0.49
1:C:238:ALA:O	1:C:243:GLY:HA2	2.14	0.48
1:B:46:ARG:NH2	1:B:82:ASP:OD2	2.47	0.48
1:B:93:ASP:CA	1:B:121:PRO:HB3	2.42	0.48
1:A:225:GLU:OE2	1:B:289:SER:HB3	2.14	0.47
1:A:107:VAL:HG22	1:A:115:ASN:CG	2.34	0.47
1:B:211:THR:O	1:B:212:VAL:C	2.53	0.47
1:C:132:HIS:O	1:C:145:GLY:O	2.32	0.47
1:C:75:LEU:HA	1:C:173:PRO:HG2	1.95	0.46
1:A:54[B]:ARG:HH12	1:A:93:ASP:CG	2.18	0.46
1:A:110:ASP:CG	1:A:115:ASN:HD22	2.19	0.46
1:A:125:ARG:HG2	1:A:126:THR:N	2.31	0.46
1:C:284:HIS:ND1	1:C:285:CYS:O	2.29	0.45
1:A:99:HIS:CE1	1:B:233:HIS:CE1	3.04	0.45
1:A:107:VAL:HG22	1:A:115:ASN:ND2	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:68:ARG:N	1:C:68:ARG:HD3	2.32	0.45
1:A:229:THR:O	1:A:285:CYS:HA	2.17	0.45
1:C:112:THR:H	1:C:117:SER:HB3	1.82	0.45
1:B:200:ARG:HA	1:B:201:PRO:HD2	1.85	0.44
1:A:188:HIS:HB3	1:A:208:PHE:CE1	2.52	0.44
1:B:188:HIS:HB3	1:B:208:PHE:CE1	2.52	0.44
1:A:59:GLN:HE22	1:A:199:ASN:HB3	1.82	0.44
1:B:101:HIS:CE1	1:C:231:HIS:CE1	3.05	0.44
1:C:67:GLY:C	1:C:68:ARG:HD3	2.39	0.44
1:B:75:LEU:HA	1:B:173:PRO:HG2	2.00	0.43
1:B:308:ILE:HG23	1:B:309:PRO:HD2	2.00	0.43
1:C:246:THR:OG1	1:C:250:ASP:HB2	2.19	0.43
1:B:195:MET:HE1	1:B:290:HIS:CD2	2.54	0.43
1:A:100:VAL:HB	1:A:129:TRP:CZ2	2.53	0.43
1:C:42:GLY:HA2	1:C:43:GLY:HA2	1.57	0.43
1:A:51:TYR:HD1	1:A:89:GLU:HB3	1.84	0.43
1:B:47:ARG:O	1:B:48:ILE:CG2	2.67	0.43
1:A:161:HIS:CE1	1:B:296:VAL:HG21	2.54	0.43
1:A:85:HIS:CE1	1:A:128:THR:HG1	2.36	0.42
1:A:282:MET:HE2	1:A:282:MET:HB3	1.76	0.42
1:A:95:ARG:NH1	1:A:120:GLU:HG3	2.35	0.42
1:B:112:THR:H	1:B:117:SER:HB3	1.84	0.42
1:A:59:GLN:NE2	1:A:199:ASN:HD22	2.17	0.42
1:B:286:HIS:NE2	3:B:403[B]:O:O	2.52	0.42
1:A:47:ARG:NH2	1:A:87:GLU:OE1	2.53	0.42
1:C:212:VAL:HG23	1:C:302:LYS:O	2.20	0.42
1:C:229:THR:O	1:C:285:CYS:HA	2.20	0.42
1:C:87:GLU:OE2	1:C:124:THR:HG23	2.20	0.41
1:C:309:PRO:HA	1:C:310:GLY:HA2	1.83	0.41
1:A:139:ASP:OD1	1:A:141:THR:HB	2.20	0.41
1:C:236:ARG:NH1	1:C:236:ARG:HG2	2.36	0.41
1:A:279:GLY:HA3	1:C:107:VAL:HG11	2.02	0.41
1:B:144:ALA:HA	1:C:245:LEU:HD12	2.03	0.41
1:A:50:LEU:HD12	1:A:50:LEU:HA	1.94	0.41
1:A:98:LEU:HA	1:A:98:LEU:HD23	1.86	0.41
1:B:230:PHE:O	1:B:257:ASN:HA	2.21	0.41
1:C:102:GLY:HA3	1:C:150:TRP:CD2	2.55	0.41
1:C:125:ARG:HG2	1:C:126:THR:N	2.36	0.41
1:B:136:ARG:HH11	1:B:136:ARG:CG	2.34	0.40
1:A:137:ARG:HD2	1:A:141:THR:CG2	2.51	0.40
1:C:152:TYR:CZ	1:C:172:GLY:HA3	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:118:ASP:HB3	1:C:156:VAL:HG21	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	268/325 (82%)	260 (97%)	8 (3%)	0	100	100
1	B	267/325 (82%)	255 (96%)	10 (4%)	2 (1%)	22	22
1	C	268/325 (82%)	256 (96%)	10 (4%)	2 (1%)	22	22
All	All	803/975 (82%)	771 (96%)	28 (4%)	4 (0%)	29	31

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	146	SER
1	B	212	VAL
1	B	201	PRO
1	C	156	VAL

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	217/256 (85%)	202 (93%)	15 (7%)	15	16
1	B	216/256 (84%)	204 (94%)	12 (6%)	21	25
1	C	216/256 (84%)	209 (97%)	7 (3%)	39	50
All	All	649/768 (84%)	615 (95%)	34 (5%)	24	28

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	46	ARG
1	A	54[A]	ARG
1	A	54[B]	ARG
1	A	84	LEU
1	A	103	LEU
1	A	107	VAL
1	A	109	SER
1	A	110	ASP
1	A	114	LEU
1	A	124	THR
1	A	126	THR
1	A	136	ARG
1	A	141	THR
1	A	212	VAL
1	A	220	MET
1	B	55	LEU
1	B	70	THR
1	B	110	ASP
1	B	124	THR
1	B	136	ARG
1	B	179	LYS
1	B	211	THR
1	B	220	MET
1	B	229	THR
1	B	232	MET
1	B	289	SER
1	B	304	THR
1	C	68	ARG
1	C	87	GLU
1	C	136	ARG
1	C	156	VAL
1	C	220	MET
1	C	236	ARG
1	C	302	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	59	GLN
1	A	115	ASN
1	A	161	HIS
1	B	223	HIS
1	C	99	HIS
1	C	161	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 13 ligands modelled in this entry, 13 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	269/325 (82%)	-0.16	1 (0%)	92	91	16, 29, 51, 58	14 (5%)
1	B	269/325 (82%)	-0.05	6 (2%)	62	59	20, 33, 51, 86	12 (4%)
1	C	270/325 (83%)	-0.45	2 (0%)	87	86	13, 23, 36, 63	13 (4%)
All	All	808/975 (82%)	-0.22	9 (1%)	80	79	13, 27, 50, 86	39 (4%)

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	42	GLY	5.1
1	B	309	PRO	4.9
1	A	57	ASP	4.2
1	B	56	ALA	3.5
1	C	311	TYR	3.0
1	B	311	TYR	2.5
1	B	282	MET	2.2
1	B	126	THR	2.1
1	B	94	VAL	2.1

6.2 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	CU	B	402	1/1	0.96	0.04	54,54,54,54	0
2	CU	A	404[A]	1/1	0.97	0.22	50,50,50,50	1
2	CU	A	402	1/1	0.98	0.05	44,44,44,44	0
3	O	B	403[B]	1/1	0.98	0.36	9,9,9,9	1
3	O	B	406[B]	1/1	0.98	0.10	2,2,2,2	1
2	CU	B	404	1/1	0.99	0.04	36,36,36,36	0
2	CU	C	401	1/1	0.99	0.07	30,30,30,30	0
2	CU	C	403	1/1	0.99	0.04	48,48,48,48	0
2	CU	B	401	1/1	0.99	0.07	28,28,28,28	0
2	CU	A	403	1/1	0.99	0.05	40,40,40,40	0
2	CU	B	405[A]	1/1	1.00	0.07	47,47,47,47	1
2	CU	A	401	1/1	1.00	0.12	22,22,22,22	0
2	CU	C	402	1/1	1.00	0.11	26,26,26,26	0

6.5 Other polymers (i)

There are no such residues in this entry.