Full wwPDB X-ray Structure Validation Report ⓘ

Feb 6, 2024 – 12:57 PM EST

PDB ID	:	2FRH
Title	:	Crystal Structure of Sara, A Transcription Regulator From Staphylococcus Aureus
Authors	:	Liu, Y.; Manna, A.C.; Ingavale, S.; Cheung, A.L.; Zhang, G.
Deposited on	:	2006-01-19
Resolution	:	2.50 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:

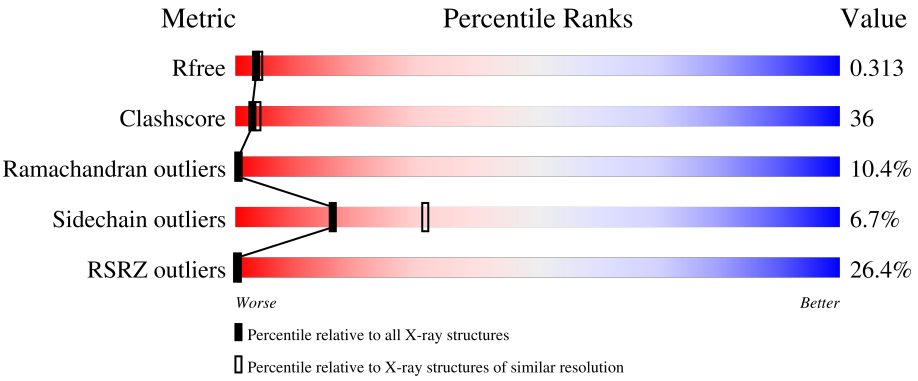
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	127	26% 43% 42% 14%
1	B	127	27% 51% 39% 9%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 2114 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 Staphylococcal accessory regulator A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	127	Total	C	N	O	S	0	0	0
			1056	673	178	202	3			
1	B	127	Total	C	N	O	S	0	0	0
			1056	673	178	202	3			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	98	GLY	-	insertion	UNP Q7A1N5
A	99	SER	-	insertion	UNP Q7A1N5
A	100	HIS	-	insertion	UNP Q7A1N5
A	101	MET	-	insertion	UNP Q7A1N5
B	98	GLY	-	insertion	UNP Q7A1N5
B	99	SER	-	insertion	UNP Q7A1N5
B	100	HIS	-	insertion	UNP Q7A1N5
B	101	MET	-	insertion	UNP Q7A1N5

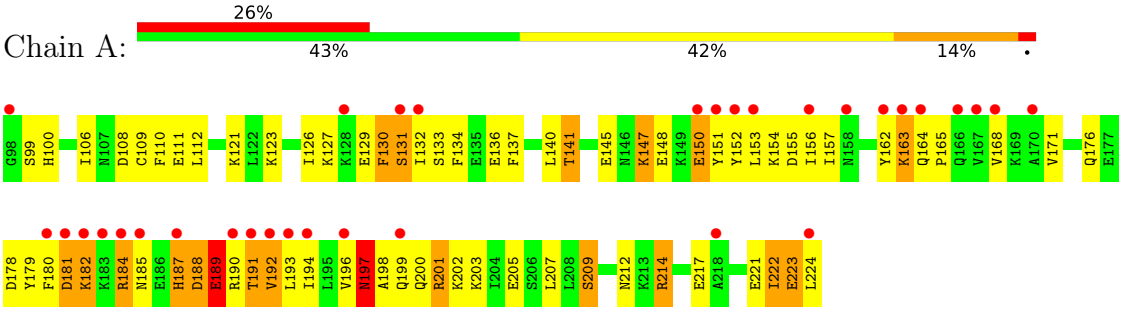
- Molecule 2 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Ca	0	0
			1	1		
2	B	1	Total	Ca	0	0
			1	1		

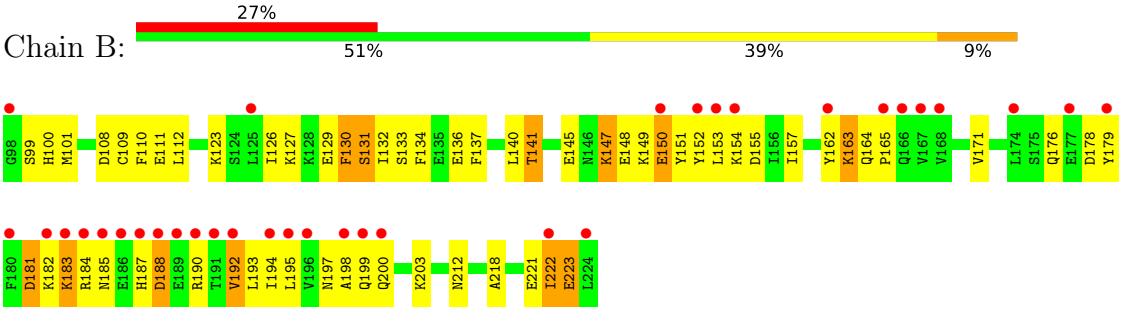
3 Residue-property plots (i)

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: Staphylococcal accessory regulator A



• Molecule 1: Staphylococcal accessory regulator A



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 61 2 2	Depositor
Cell constants a, b, c, α, β, γ	65.34Å 65.34Å 237.29Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.50 – 2.50 36.36 – 2.49	Depositor EDS
% Data completeness (in resolution range)	77.1 (19.50-2.50) 83.0 (36.36-2.49)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.10 (at 2.51Å)	Xtriage
Refinement program	CNS 0.9	Depositor
R, R_{free}	0.266 , 0.302 0.279 , 0.313	Depositor DCC
R_{free} test set	500 reflections (5.36%)	wwPDB-VP
Wilson B-factor (Å^2)	54.2	Xtriage
Anisotropy	0.194	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 63.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	2114	wwPDB-VP
Average B, all atoms (Å^2)	77.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.08% 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: CA

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	0.40	0/1070	0.58	0/1433
1	B	0.41	0/1070	0.61	0/1433
All	All	0.40	0/2140	0.59	0/2866

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	1056	0	1084	87	0
1	B	1056	0	1084	75	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
All	All	2114	0	2168	152	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 36.

All (152) 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:A:201:ARG:HH11	1:A:201:ARG:HB2	1.15	1.09
1:B:197:ASN:HD21	1:B:199:GLN:HB2	1.29	0.96
1:A:199:GLN:HA	1:A:202:LYS:HE2	1.53	0.90
1:B:222:ILE:HG13	1:B:223:GLU:H	1.39	0.88
1:A:201:ARG:HB2	1:A:201:ARG:NH1	1.95	0.82
1:A:121:LYS:NZ	1:A:224:LEU:HD12	1.95	0.81
1:A:137:PHE:O	1:A:141:THR:HG23	1.82	0.80
1:B:137:PHE:O	1:B:141:THR:HG23	1.82	0.79
1:B:222:ILE:HG13	1:B:223:GLU:N	1.99	0.77
1:B:108:ASP:OD2	1:B:111:GLU:HG3	1.87	0.75
1:A:147:LYS:HZ2	1:A:147:LYS:HB2	1.51	0.75
1:A:108:ASP:OD1	1:B:100:HIS:CD2	2.42	0.73
1:A:108:ASP:OD2	1:A:111:GLU:HG3	1.90	0.72
1:A:145:GLU:HG3	1:B:110:PHE:CD2	2.24	0.72
1:B:197:ASN:ND2	1:B:199:GLN:HB2	2.03	0.71
1:B:197:ASN:HB3	1:B:200:GLN:HG3	1.70	0.71
1:A:121:LYS:HZ2	1:A:224:LEU:HD12	1.55	0.71
1:A:110:PHE:CD2	1:B:145:GLU:HG3	2.26	0.71
1:A:197:ASN:HD21	1:A:200:GLN:H	1.39	0.71
1:A:214:ARG:NH2	1:A:217:GLU:HG2	2.06	0.71
1:A:185:ASN:HD21	1:A:191:THR:HA	1.58	0.68
1:B:197:ASN:HD22	1:B:200:GLN:HG3	1.59	0.67
1:B:147:LYS:HZ2	1:B:147:LYS:HB2	1.61	0.65
1:A:153:LEU:O	1:A:157:ILE:HG13	1.98	0.64
1:B:153:LEU:O	1:B:157:ILE:HG13	1.98	0.64
1:A:187:HIS:CG	1:A:188:ASP:H	2.16	0.64
1:A:184:ARG:HD2	1:A:192:VAL:HG22	1.78	0.64
1:A:99:SER:O	1:A:100:HIS:HB2	1.98	0.62
1:A:108:ASP:OD1	1:B:100:HIS:HD2	1.81	0.62
1:B:99:SER:O	1:B:100:HIS:HB2	1.99	0.61
1:B:152:TYR:HB2	1:B:155:ASP:OD2	2.01	0.60
1:A:152:TYR:HB2	1:A:155:ASP:OD2	2.02	0.60
1:A:100:HIS:HE1	1:A:145:GLU:OE2	1.84	0.60
1:B:100:HIS:HE1	1:B:145:GLU:OE2	1.85	0.60
1:B:127:LYS:O	1:B:131:SER:HA	2.03	0.59
1:B:153:LEU:HD23	1:B:192:VAL:HB	1.85	0.59
1:B:157:ILE:HG21	1:B:164:GLN:HG2	1.85	0.58
1:A:185:ASN:HD21	1:A:191:THR:CA	2.16	0.58
1:A:127:LYS:O	1:A:131:SER:HA	2.04	0.58
1:B:192:VAL:HG12	1:B:193:LEU:N	2.19	0.57
1:A:157:ILE:HG21	1:A:164:GLN:HG2	1.85	0.57
1:B:197:ASN:HB3	1:B:200:GLN:CG	2.34	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:212:ASN:HD21	1:B:109:CYS:H	1.53	0.56
1:A:129:GLU:C	1:A:131:SER:H	2.09	0.56
1:B:147:LYS:HZ1	1:B:147:LYS:H	1.52	0.56
1:B:218:ALA:O	1:B:222:ILE:HG12	2.05	0.56
1:A:180:PHE:CD2	1:A:194:ILE:HG23	2.40	0.56
1:B:222:ILE:CG1	1:B:223:GLU:H	2.15	0.55
1:B:154:LYS:HD2	1:B:190:ARG:HG3	1.88	0.55
1:A:100:HIS:CD2	1:B:108:ASP:OD1	2.60	0.55
1:B:129:GLU:C	1:B:131:SER:H	2.09	0.55
1:A:179:TYR:O	1:A:200:GLN:HB3	2.06	0.54
1:A:185:ASN:ND2	1:A:191:THR:HA	2.21	0.54
1:B:162:TYR:O	1:B:163:LYS:HB2	2.07	0.54
1:A:162:TYR:O	1:A:163:LYS:HB2	2.06	0.54
1:A:201:ARG:HH11	1:A:201:ARG:CB	2.05	0.54
1:B:182:LYS:NZ	1:B:184:ARG:HG3	2.23	0.54
1:A:132:ILE:HG12	1:A:136:GLU:HB2	1.89	0.53
1:B:129:GLU:O	1:B:131:SER:N	2.41	0.53
1:A:121:LYS:HZ1	1:A:224:LEU:HD12	1.70	0.53
1:A:187:HIS:O	1:A:189:GLU:N	2.40	0.53
1:A:129:GLU:O	1:A:131:SER:N	2.40	0.53
1:A:109:CYS:H	1:B:212:ASN:HD21	1.56	0.53
1:A:197:ASN:ND2	1:A:200:GLN:H	2.06	0.53
1:A:187:HIS:CG	1:A:188:ASP:N	2.76	0.52
1:B:147:LYS:HZ1	1:B:147:LYS:N	2.07	0.52
1:B:182:LYS:HG3	1:B:194:ILE:HG22	1.90	0.52
1:A:187:HIS:CD2	1:A:188:ASP:H	2.28	0.52
1:A:126:ILE:O	1:A:130:PHE:HB2	2.10	0.52
1:B:182:LYS:HD3	1:B:183:LYS:N	2.25	0.52
1:B:132:ILE:HG12	1:B:136:GLU:HB2	1.90	0.52
1:A:190:ARG:HE	1:A:193:LEU:HD11	1.75	0.51
1:B:222:ILE:CG1	1:B:223:GLU:N	2.72	0.51
1:B:126:ILE:O	1:B:130:PHE:HB2	2.10	0.51
1:A:111:GLU:OE2	1:B:101:MET:N	2.44	0.51
1:A:184:ARG:HD2	1:A:192:VAL:CG2	2.40	0.51
1:B:182:LYS:HB2	1:B:194:ILE:HB	1.92	0.51
1:A:181:ASP:O	1:A:182:LYS:HB3	2.11	0.51
1:A:185:ASN:HB3	1:A:188:ASP:OD2	2.11	0.51
1:A:222:ILE:HG22	1:A:223:GLU:N	2.25	0.51
1:B:182:LYS:HA	1:B:194:ILE:HA	1.94	0.50
1:B:149:LYS:HE2	1:B:198:ALA:HB2	1.93	0.50
1:B:192:VAL:O	1:B:193:LEU:HD23	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:164:GLN:HB2	1:B:165:PRO:HD3	1.93	0.49
1:A:214:ARG:HH21	1:A:217:GLU:HG2	1.78	0.48
1:B:181:ASP:HB2	1:B:195:LEU:HB3	1.94	0.48
1:B:179:TYR:CE1	1:B:203:LYS:HG2	2.48	0.48
1:A:187:HIS:C	1:A:189:GLU:H	2.17	0.48
1:A:197:ASN:HD22	1:A:197:ASN:N	2.10	0.48
1:A:199:GLN:HA	1:A:202:LYS:CE	2.36	0.48
1:B:182:LYS:CG	1:B:194:ILE:HG22	2.44	0.48
1:A:197:ASN:HD21	1:A:200:GLN:CB	2.26	0.48
1:A:134:PHE:HD2	1:A:162:TYR:OH	1.97	0.48
1:A:197:ASN:HD21	1:A:200:GLN:HG3	1.78	0.48
1:B:130:PHE:O	1:B:131:SER:C	2.52	0.48
1:B:152:TYR:HA	1:B:193:LEU:CD2	2.43	0.48
1:A:164:GLN:HB2	1:A:165:PRO:HD3	1.94	0.47
1:B:126:ILE:O	1:B:129:GLU:O	2.32	0.47
1:B:134:PHE:HD2	1:B:162:TYR:OH	1.97	0.47
1:B:147:LYS:H	1:B:147:LYS:NZ	2.12	0.47
1:A:100:HIS:HD2	1:B:108:ASP:OD1	1.97	0.47
1:A:196:VAL:HG13	1:A:196:VAL:O	2.15	0.46
1:A:197:ASN:HD21	1:A:200:GLN:CG	2.28	0.46
1:A:130:PHE:O	1:A:131:SER:C	2.53	0.46
1:A:126:ILE:O	1:A:129:GLU:O	2.33	0.46
1:A:147:LYS:H	1:A:147:LYS:NZ	2.13	0.46
1:B:182:LYS:HE2	1:B:184:ARG:HG3	1.96	0.46
1:A:156:ILE:HD12	1:A:194:ILE:HD12	1.98	0.46
1:A:123:LYS:O	1:A:127:LYS:HG3	2.17	0.45
1:A:179:TYR:CE1	1:A:203:LYS:HE3	2.52	0.45
1:B:181:ASP:O	1:B:182:LYS:HB3	2.16	0.45
1:B:123:LYS:O	1:B:127:LYS:HG3	2.17	0.45
1:A:197:ASN:ND2	1:A:197:ASN:N	2.64	0.45
1:A:150:GLU:H	1:A:150:GLU:CD	2.21	0.45
1:B:150:GLU:H	1:B:150:GLU:CD	2.21	0.44
1:A:189:GLU:C	1:A:191:THR:H	2.21	0.44
1:B:147:LYS:HB2	1:B:147:LYS:NZ	2.32	0.44
1:A:133:SER:OG	1:A:136:GLU:HG3	2.18	0.43
1:B:136:GLU:O	1:B:140:LEU:HG	2.19	0.43
1:A:157:ILE:HD13	1:A:164:GLN:HG2	2.01	0.42
1:A:176:GLN:C	1:A:178:ASP:N	2.72	0.42
1:A:191:THR:O	1:A:191:THR:HG22	2.19	0.42
1:B:182:LYS:CE	1:B:184:ARG:HG3	2.49	0.42
1:A:108:ASP:HA	1:B:212:ASN:ND2	2.33	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:133:SER:OG	1:B:136:GLU:HG3	2.19	0.42
1:B:151:TYR:HB2	1:B:194:ILE:HG12	2.01	0.42
1:B:222:ILE:O	1:B:223:GLU:C	2.57	0.42
1:B:153:LEU:CD1	1:B:171:VAL:HG21	2.49	0.42
1:A:151:TYR:HE1	1:A:196:VAL:CG1	2.32	0.42
1:A:197:ASN:ND2	1:A:198:ALA:N	2.68	0.42
1:A:106:ILE:HD12	1:A:106:ILE:C	2.40	0.42
1:A:147:LYS:HZ2	1:A:147:LYS:CB	2.26	0.42
1:A:168:VAL:HG11	1:A:184:ARG:HH22	1.84	0.42
1:B:176:GLN:C	1:B:178:ASP:N	2.72	0.42
1:A:221:GLU:O	1:A:222:ILE:C	2.57	0.41
1:A:150:GLU:CD	1:A:150:GLU:N	2.74	0.41
1:A:152:TYR:C	1:A:154:LYS:N	2.73	0.41
1:B:134:PHE:O	1:B:137:PHE:HB3	2.20	0.41
1:A:153:LEU:CD1	1:A:171:VAL:HG21	2.50	0.41
1:A:136:GLU:O	1:A:140:LEU:HG	2.19	0.41
1:A:207:LEU:C	1:A:207:LEU:HD13	2.41	0.41
1:B:197:ASN:HB3	1:B:200:GLN:OE1	2.20	0.41
1:B:152:TYR:C	1:B:154:LYS:N	2.73	0.41
1:B:157:ILE:HD13	1:B:164:GLN:HG2	2.02	0.41
1:B:179:TYR:O	1:B:200:GLN:HB3	2.21	0.41
1:A:205:GLU:O	1:A:209:SER:HB2	2.21	0.41
1:A:134:PHE:O	1:A:137:PHE:HB3	2.21	0.41
1:B:181:ASP:N	1:B:195:LEU:O	2.54	0.41
1:A:129:GLU:C	1:A:131:SER:N	2.74	0.40
1:B:150:GLU:CD	1:B:150:GLU:N	2.74	0.40
1:B:152:TYR:HA	1:B:193:LEU:HD22	2.02	0.40
1:A:182:LYS:HG2	1:A:192:VAL:HG13	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	125/127 (98%)	103 (82%)	8 (6%)	14 (11%)	0 0
1	B	125/127 (98%)	100 (80%)	13 (10%)	12 (10%)	0 0
All	All	250/254 (98%)	203 (81%)	21 (8%)	26 (10%)	0 0

All (26) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	187	HIS
1	A	188	ASP
1	A	192	VAL
1	A	197	ASN
1	A	222	ILE
1	B	187	HIS
1	B	188	ASP
1	B	192	VAL
1	B	222	ILE
1	A	131	SER
1	B	131	SER
1	B	185	ASN
1	B	221	GLU
1	A	130	PHE
1	B	130	PHE
1	B	183	LYS
1	B	223	GLU
1	A	163	LYS
1	A	182	LYS
1	B	163	LYS
1	B	181	ASP
1	A	181	ASP
1	A	184	ARG
1	A	189	GLU
1	A	191	THR
1	A	223	GLU

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	120/120 (100%)	110 (92%)	10 (8%)	11	22
1	B	120/120 (100%)	114 (95%)	6 (5%)	24	46
All	All	240/240 (100%)	224 (93%)	16 (7%)	16	31

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	112	LEU
1	A	141	THR
1	A	147	LYS
1	A	148	GLU
1	A	150	GLU
1	A	189	GLU
1	A	197	ASN
1	A	201	ARG
1	A	209	SER
1	A	214	ARG
1	B	112	LEU
1	B	141	THR
1	B	147	LYS
1	B	148	GLU
1	B	150	GLU
1	B	188	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	100	HIS
1	A	146	ASN
1	A	158	ASN
1	A	176	GLN
1	A	185	ASN
1	A	197	ASN
1	A	212	ASN
1	A	220	ASN
1	B	100	HIS
1	B	146	ASN
1	B	158	ASN
1	B	176	GLN
1	B	197	ASN
1	B	212	ASN

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Mol	Chain	Res	Type
1	B	219	ASN

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 2 ligands modelled in this entry, 2 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

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	127/127 (100%)	1.34	33 (25%)	0	0	27, 71, 135, 146	0
1	B	127/127 (100%)	1.94	34 (26%)	0	0	30, 71, 151, 164	0
All	All	254/254 (100%)	1.64	67 (26%)	0	0	27, 71, 143, 164	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	190	ARG	19.5
1	B	191	THR	13.6
1	B	185	ASN	13.0
1	B	184	ARG	11.9
1	B	192	VAL	11.5
1	A	98	GLY	10.0
1	A	185	ASN	8.7
1	A	191	THR	8.0
1	B	98	GLY	7.6
1	B	224	LEU	7.1
1	B	188	ASP	6.8
1	A	192	VAL	6.0
1	B	162	TYR	6.0
1	B	194	ILE	5.9
1	B	186	GLU	4.6
1	B	153	LEU	4.6
1	A	193	LEU	4.2
1	B	187	HIS	4.1
1	B	152	TYR	4.1
1	B	174	LEU	4.0
1	B	183	LYS	3.8
1	A	163	LYS	3.6
1	A	131	SER	3.6
1	B	166	GLN	3.6

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Mol	Chain	Res	Type	RSRZ
1	A	132	ILE	3.1
1	A	156	ILE	3.0
1	B	167	VAL	3.0
1	A	164	GLN	3.0
1	A	187	HIS	3.0
1	B	182	LYS	3.0
1	A	152	TYR	3.0
1	B	168	VAL	2.9
1	B	200	GLN	2.9
1	B	189	GLU	2.8
1	A	224	LEU	2.8
1	A	184	ARG	2.8
1	B	179	TYR	2.7
1	A	128	LYS	2.7
1	A	167	VAL	2.7
1	A	181	ASP	2.7
1	A	170	ALA	2.6
1	B	196	VAL	2.6
1	A	151	TYR	2.6
1	A	162	TYR	2.6
1	A	196	VAL	2.5
1	B	222	ILE	2.5
1	B	195	LEU	2.5
1	A	199	GLN	2.5
1	A	168	VAL	2.4
1	B	180	PHE	2.4
1	A	183	LYS	2.4
1	A	166	GLN	2.4
1	B	177	GLU	2.4
1	B	154	LYS	2.4
1	A	158	ASN	2.3
1	A	194	ILE	2.3
1	A	182	LYS	2.3
1	B	150	GLU	2.3
1	B	198	ALA	2.3
1	A	180	PHE	2.2
1	B	165	PRO	2.2
1	A	190	ARG	2.1
1	B	125	LEU	2.1
1	A	150	GLU	2.1
1	A	218	ALA	2.0
1	A	153	LEU	2.0

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Mol	Chain	Res	Type	RSRZ
1	B	199	GLN	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (i)

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

6.3 Carbohydrates (i)

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	CA	A	501	1/1	0.94	0.56	53,53,53,53	1
2	CA	B	601	1/1	0.98	0.45	54,54,54,54	1

6.5 Other polymers (i)

There are no such residues in this entry.