Full wwPDB X-ray Structure Validation Report ⓘ

Jun 15, 2024 – 04:33 PM EDT

PDB ID	:	4QVG
Title	:	Crystal structure of S-adenosylmethionine-dependent methyltransferase SibL in its apo form
Authors	:	Liu, J.S.; Chen, S.C.; Huang, C.H.; Yang, C.S.; Chen, Y.
Deposited on	:	2014-07-15
Resolution	:	2.90 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:

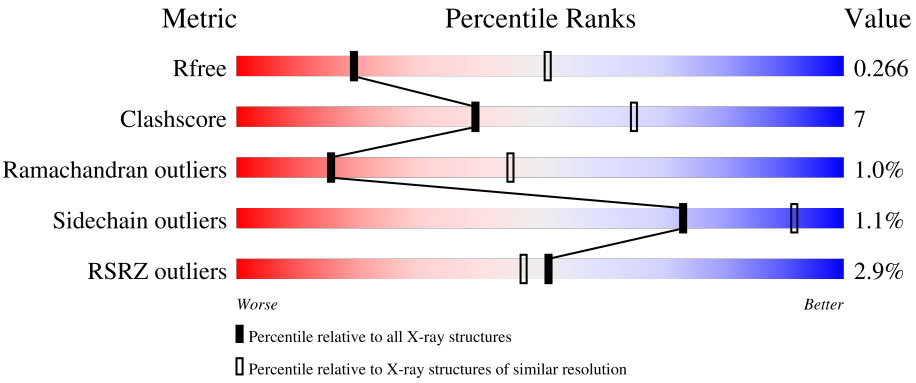
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.90 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	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	355	85% 11%
1	B	355	4% 74% 22%
1	C	355	3% 83% 14%
1	D	355	4% 74% 20%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 10596 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 SibL.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	341	Total	C	N	O	S	0	0	0
			2639	1673	480	482	4			
1	B	340	Total	C	N	O	S	0	0	0
			2628	1667	476	481	4			
1	C	349	Total	C	N	O	S	0	0	0
			2701	1711	494	492	4			
1	D	340	Total	C	N	O	S	0	0	0
			2628	1667	476	481	4			

There are 44 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	345	ALA	-	expression tag	UNP C0LTM6
A	346	ALA	-	expression tag	UNP C0LTM6
A	347	ALA	-	expression tag	UNP C0LTM6
A	348	LEU	-	expression tag	UNP C0LTM6
A	349	GLU	-	expression tag	UNP C0LTM6
A	350	HIS	-	expression tag	UNP C0LTM6
A	351	HIS	-	expression tag	UNP C0LTM6
A	352	HIS	-	expression tag	UNP C0LTM6
A	353	HIS	-	expression tag	UNP C0LTM6
A	354	HIS	-	expression tag	UNP C0LTM6
A	355	HIS	-	expression tag	UNP C0LTM6
B	345	ALA	-	expression tag	UNP C0LTM6
B	346	ALA	-	expression tag	UNP C0LTM6
B	347	ALA	-	expression tag	UNP C0LTM6
B	348	LEU	-	expression tag	UNP C0LTM6
B	349	GLU	-	expression tag	UNP C0LTM6
B	350	HIS	-	expression tag	UNP C0LTM6
B	351	HIS	-	expression tag	UNP C0LTM6
B	352	HIS	-	expression tag	UNP C0LTM6
B	353	HIS	-	expression tag	UNP C0LTM6
B	354	HIS	-	expression tag	UNP C0LTM6

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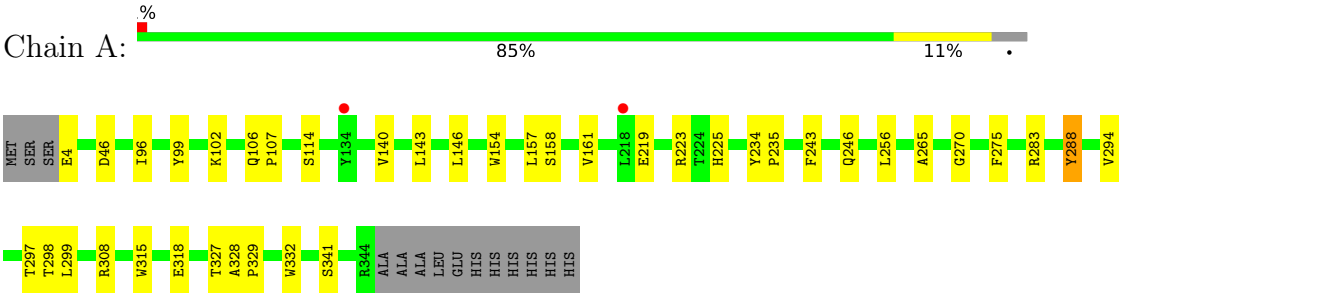
Chain	Residue	Modelled	Actual	Comment	Reference
B	355	HIS	-	expression tag	UNP C0LTM6
C	345	ALA	-	expression tag	UNP C0LTM6
C	346	ALA	-	expression tag	UNP C0LTM6
C	347	ALA	-	expression tag	UNP C0LTM6
C	348	LEU	-	expression tag	UNP C0LTM6
C	349	GLU	-	expression tag	UNP C0LTM6
C	350	HIS	-	expression tag	UNP C0LTM6
C	351	HIS	-	expression tag	UNP C0LTM6
C	352	HIS	-	expression tag	UNP C0LTM6
C	353	HIS	-	expression tag	UNP C0LTM6
C	354	HIS	-	expression tag	UNP C0LTM6
C	355	HIS	-	expression tag	UNP C0LTM6
D	345	ALA	-	expression tag	UNP C0LTM6
D	346	ALA	-	expression tag	UNP C0LTM6
D	347	ALA	-	expression tag	UNP C0LTM6
D	348	LEU	-	expression tag	UNP C0LTM6
D	349	GLU	-	expression tag	UNP C0LTM6
D	350	HIS	-	expression tag	UNP C0LTM6
D	351	HIS	-	expression tag	UNP C0LTM6
D	352	HIS	-	expression tag	UNP C0LTM6
D	353	HIS	-	expression tag	UNP C0LTM6
D	354	HIS	-	expression tag	UNP C0LTM6
D	355	HIS	-	expression tag	UNP C0LTM6

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.

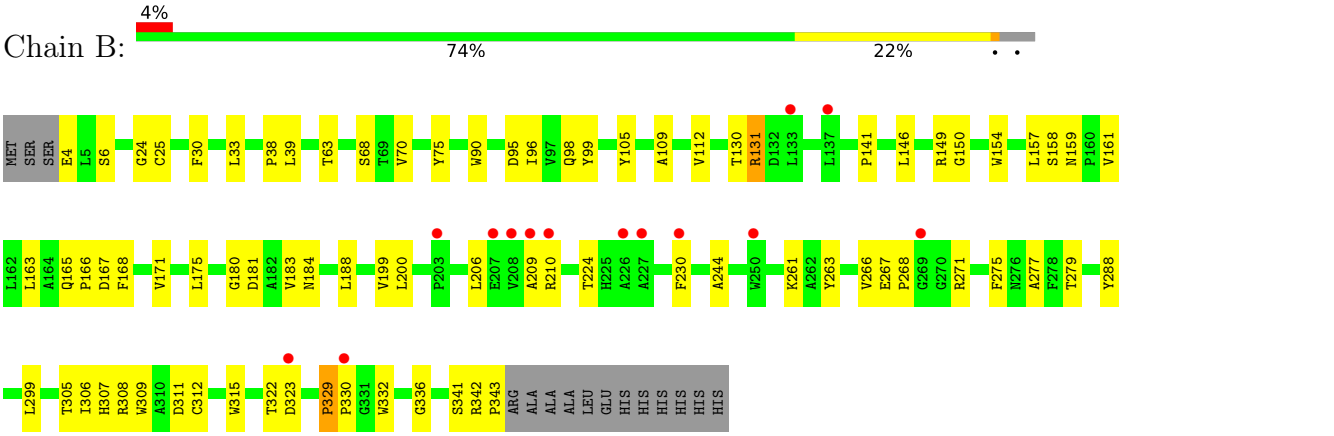
• Molecule 1: SibL

Chain A:



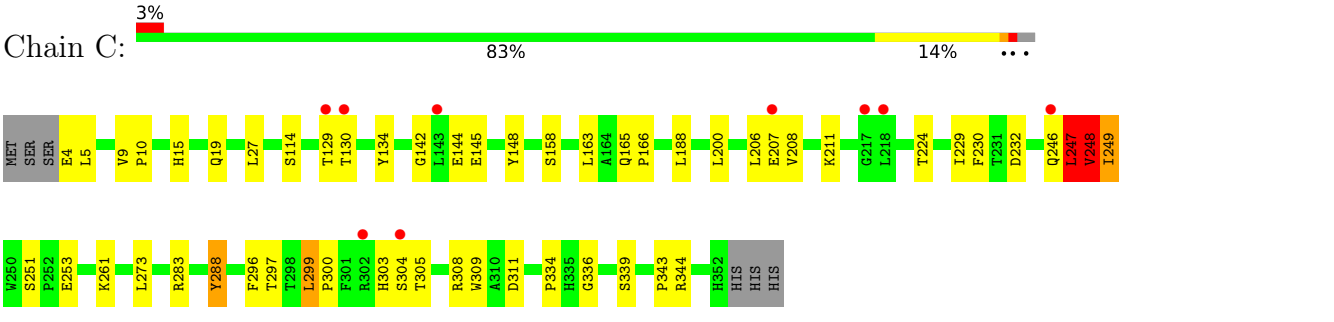
• Molecule 1: SibL

Chain B:



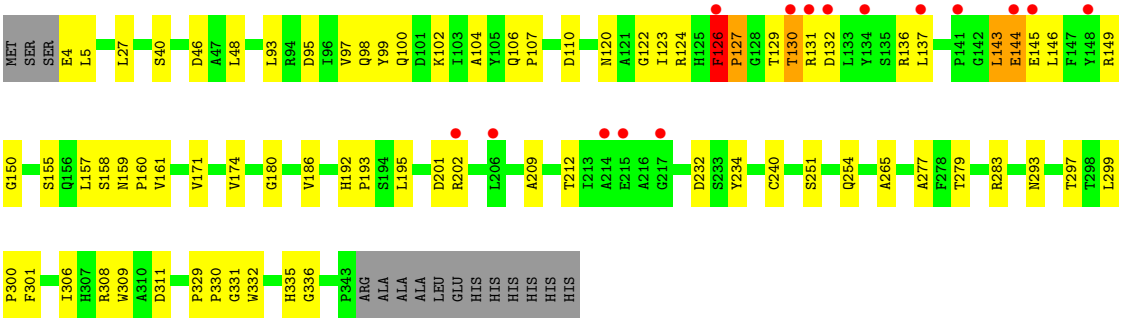
• Molecule 1: SibL

Chain C:



• Molecule 1: SibL

Chain D:


MET SER SER E4 L5 L27 S40 D46 A47 L48 L93 R94 D95 I96 V97 Q98 Y99 Q100 D101 K102 I103 A104 Y105 Q106 P107 D110 N120 A121 G122 I123 R124 H125 F126 P127 G128 T129 T130 R131 D132 L133 Y134 S135 R136 L137 P141 G142 L143 E144 E145 L146 F147 Y148 R149
G150 S155 Q156 L157 S158 N159 P160 V161 V171 V174 G180 V186 H192 P193 S194 L195 D201 R202 L206 A209 T212 I213 A214 E215 A216 G217 D232 S233 Y234 C240 S251 Q254 A265 A277 F278 T279 R283 N293 T297 T298 L299
P300 F301 I306 H307 R308 W309 A310 D311 P329 P330 G331 W332 H335 G336 P343 ARG ALA ALA ALA LEU GLU HIS HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	F 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	102.93Å 295.42Å 322.23Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	28.12 – 2.90 28.12 – 2.89	Depositor EDS
% Data completeness (in resolution range)	99.2 (28.12-2.90) 91.8 (28.12-2.89)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.35 (at 2.90Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8.1_1168)	Depositor
R, R_{free}	0.211 , 0.266 0.213 , 0.266	Depositor DCC
R_{free} test set	2003 reflections (3.66%)	wwPDB-VP
Wilson B-factor (Å^2)	60.7	Xtriage
Anisotropy	0.557	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 32.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	10596	wwPDB-VP
Average B, all atoms (Å^2)	69.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.58% 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

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	0.50	0/2707	0.64	0/3696
1	B	0.48	0/2696	0.64	0/3682
1	C	0.50	0/2772	0.72	2/3785 (0.1%)
1	D	0.47	0/2696	0.69	1/3682 (0.0%)
All	All	0.48	0/10871	0.67	3/14845 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1
1	D	0	2
All	All	0	3

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	126	PHE	C-N-CD	7.17	143.45	128.40
1	C	248	VAL	CB-CA-C	-5.88	100.23	111.40
1	C	249	ILE	N-CA-C	-5.39	96.45	111.00

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	247	LEU	Peptide
1	D	130	THR	Peptide
1	D	143	LEU	Peptide

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	2639	0	2587	21	0
1	B	2628	0	2574	52	0
1	C	2701	0	2640	38	0
1	D	2628	0	2574	50	0
All	All	10596	0	10375	155	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 (155) 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:246:GLN:HG3	1:C:248:VAL:HG13	1.55	0.87
1:C:4:GLU:HG3	1:C:5:LEU:H	1.39	0.86
1:B:98:GLN:OE1	1:B:149:ARG:NH2	2.15	0.79
1:A:219:GLU:O	1:A:223:ARG:NH1	2.18	0.77
1:D:283:ARG:NH1	1:D:308:ARG:HD2	2.00	0.77
1:C:247:LEU:HG	1:C:248:VAL:HA	1.68	0.76
1:B:95:ASP:OD1	1:B:149:ARG:NH1	2.23	0.72
1:C:232:ASP:O	1:C:261:LYS:NZ	2.20	0.70
1:A:46:ASP:OD2	1:C:308:ARG:NH2	2.26	0.68
1:D:98:GLN:OE1	1:D:149:ARG:NH1	2.22	0.68
1:B:308:ARG:NH1	1:B:311:ASP:OD1	2.26	0.68
1:C:283:ARG:HH11	1:C:308:ARG:HD2	1.58	0.68
1:D:4:GLU:HG2	1:D:5:LEU:HD12	1.77	0.67
1:D:126:PHE:HB3	1:D:127:PRO:HD3	1.76	0.66
1:C:248:VAL:HG23	1:C:303:HIS:HB3	1.77	0.66
1:D:155:SER:OG	1:D:159:ASN:ND2	2.28	0.65
1:B:158:SER:O	1:B:161:VAL:HG12	1.97	0.63
1:B:157:LEU:HD21	1:B:332:TRP:HZ2	1.63	0.63
1:C:308:ARG:NH1	1:C:311:ASP:OD1	2.31	0.63
1:C:283:ARG:NH1	1:C:308:ARG:HD2	2.14	0.62
1:B:267:GLU:CD	1:B:268:PRO:HD2	2.19	0.62
1:C:4:GLU:HG3	1:C:5:LEU:HD12	1.83	0.61
1:B:175:LEU:HD11	1:B:200:LEU:HB2	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:127:PRO:HD2	1:D:136:ARG:HD2	1.82	0.61
1:B:263:TYR:O	1:B:342:ARG:NH1	2.34	0.61
1:A:294:VAL:O	1:A:298:THR:OG1	2.19	0.60
1:B:277:ALA:O	1:B:306:ILE:HG23	2.03	0.59
1:C:251:SER:HB2	1:C:253:GLU:OE1	2.03	0.58
1:C:248:VAL:HB	1:C:249:ILE:O	2.03	0.58
1:D:131:ARG:HB2	1:D:301:PHE:CE2	2.39	0.58
1:A:283:ARG:NH1	1:A:308:ARG:HD2	2.20	0.57
1:B:157:LEU:HD21	1:B:332:TRP:CZ2	2.40	0.57
1:D:171:VAL:HG11	1:D:240:CYS:HB2	1.89	0.55
1:D:234:TYR:HB2	1:D:265:ALA:HB2	1.88	0.55
1:D:137:LEU:HD22	1:D:143:LEU:HD13	1.89	0.55
1:A:158:SER:O	1:A:161:VAL:HG12	2.06	0.55
1:D:95:ASP:OD1	1:D:149:ARG:NH2	2.39	0.54
1:C:299:LEU:HB2	1:C:300:PRO:HD3	1.90	0.54
1:D:158:SER:O	1:D:161:VAL:HG12	2.08	0.53
1:B:180:GLY:O	1:B:209:ALA:HB2	2.09	0.53
1:B:308:ARG:NH2	1:D:46:ASP:OD2	2.41	0.53
1:D:130:THR:HG22	1:D:131:ARG:H	1.73	0.53
1:C:246:GLN:H	1:C:247:LEU:HA	1.74	0.53
1:D:4:GLU:OE1	1:D:4:GLU:N	2.41	0.53
1:B:199:VAL:HB	1:B:224:THR:HG22	1.90	0.53
1:B:130:THR:HG22	1:B:131:ARG:H	1.75	0.52
1:C:273:LEU:HD23	1:C:339:SER:HB3	1.91	0.52
1:C:206:LEU:HD22	1:C:224:THR:HB	1.92	0.52
1:B:167:ASP:OD2	1:B:271:ARG:HD3	2.10	0.51
1:B:268:PRO:HB3	1:B:343:PRO:C	2.30	0.51
1:C:207:GLU:O	1:C:211:LYS:HG2	2.09	0.51
1:D:4:GLU:HG2	1:D:5:LEU:H	1.76	0.51
1:B:279:THR:OG1	1:B:306:ILE:HG22	2.10	0.50
1:C:246:GLN:HG3	1:C:248:VAL:CG1	2.34	0.50
1:C:296:PHE:HB3	1:C:304:SER:HA	1.92	0.50
1:C:200:LEU:HD22	1:C:229:ILE:HG22	1.94	0.49
1:D:309:TRP:HH2	1:D:336:GLY:HA3	1.78	0.48
1:B:112:VAL:HG13	1:C:27:LEU:HD21	1.95	0.48
1:C:114:SER:HB3	1:C:297:THR:HG22	1.95	0.48
1:D:159:ASN:N	1:D:160:PRO:HD2	2.28	0.48
1:D:180:GLY:O	1:D:209:ALA:HB2	2.14	0.47
1:B:154:TRP:HZ3	1:B:288:TYR:HH	1.63	0.47
1:B:161:VAL:HG23	1:B:329:PRO:HG2	1.96	0.47
1:C:142:GLY:HA2	1:C:145:GLU:OE2	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:246:GLN:N	1:C:247:LEU:HA	2.27	0.47
1:A:161:VAL:HG13	1:A:275:PHE:HE1	1.79	0.47
1:B:70:VAL:HB	1:B:75:TYR:CE2	2.49	0.47
1:D:132:ASP:OD1	1:D:132:ASP:N	2.47	0.47
1:A:327:THR:O	1:A:329:PRO:HD3	2.15	0.47
1:B:230:PHE:O	1:B:261:LYS:NZ	2.44	0.47
1:D:120:ASN:ND2	1:D:301:PHE:HA	2.30	0.47
1:D:123:ILE:HD11	1:D:136:ARG:HG3	1.97	0.47
1:B:163:LEU:HD22	1:B:188:LEU:HA	1.96	0.47
1:B:210:ARG:NH2	1:B:224:THR:OG1	2.48	0.47
1:D:129:THR:O	1:D:136:ARG:NH2	2.48	0.47
1:D:293:ASN:O	1:D:297:THR:HG23	2.14	0.47
1:B:168:PHE:HA	1:B:171:VAL:HG22	1.97	0.46
1:B:206:LEU:HB3	1:B:210:ARG:NH1	2.30	0.46
1:D:100:GLN:HA	1:D:104:ALA:HB3	1.97	0.46
1:B:309:TRP:HH2	1:B:336:GLY:HA3	1.81	0.46
1:D:120:ASN:HD22	1:D:300:PRO:C	2.18	0.46
1:D:309:TRP:CH2	1:D:336:GLY:HA3	2.50	0.46
1:A:114:SER:HB3	1:A:297:THR:HG22	1.97	0.46
1:B:266:VAL:O	1:B:342:ARG:NH1	2.49	0.45
1:D:4:GLU:HG2	1:D:5:LEU:N	2.31	0.45
1:D:110:ASP:OD2	1:D:122:GLY:HA2	2.16	0.45
1:D:144:GLU:HG2	1:D:145:GLU:H	1.81	0.45
1:B:38:PRO:O	1:B:39:LEU:HD23	2.17	0.45
1:D:95:ASP:CG	1:D:149:ARG:HH21	2.19	0.45
1:C:134:TYR:HE1	1:C:144:GLU:HG3	1.82	0.45
1:A:4:GLU:N	1:A:4:GLU:OE1	2.49	0.45
1:D:174:VAL:HG23	1:D:195:LEU:HD11	1.99	0.45
1:C:129:THR:OG1	1:C:130:THR:N	2.49	0.45
1:D:99:TYR:CD2	1:D:150:GLY:HA3	2.51	0.45
1:C:288:TYR:CG	1:C:334:PRO:HD3	2.51	0.45
1:A:140:VAL:HB	1:A:143:LEU:HD12	1.98	0.44
1:B:210:ARG:NE	1:B:224:THR:OG1	2.50	0.44
1:D:93:LEU:O	1:D:97:VAL:HG23	2.16	0.44
1:D:123:ILE:HD13	1:D:301:PHE:CZ	2.53	0.44
1:B:33:LEU:HD22	1:B:75:TYR:O	2.17	0.44
1:A:154:TRP:HZ3	1:A:288:TYR:HH	1.65	0.44
1:A:315:TRP:HA	1:A:318:GLU:OE1	2.18	0.44
1:B:96:ILE:O	1:B:99:TYR:HB3	2.17	0.44
1:B:165:GLN:HA	1:B:166:PRO:HD3	1.86	0.44
1:B:268:PRO:HB3	1:B:343:PRO:O	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:279:THR:OG1	1:D:306:ILE:HG22	2.17	0.44
1:D:277:ALA:O	1:D:306:ILE:HG23	2.17	0.44
1:A:157:LEU:HD11	1:A:332:TRP:HZ2	1.83	0.44
1:B:244:ALA:HA	1:B:275:PHE:O	2.18	0.44
1:A:225:HIS:NE2	1:A:235:PRO:HG3	2.33	0.44
1:D:106:GLN:HB3	1:D:107:PRO:HD3	1.99	0.44
1:C:148:TYR:CE1	1:C:208:VAL:HG11	2.52	0.43
1:B:305:THR:HB	1:B:307:HIS:NE2	2.32	0.43
1:B:342:ARG:HA	1:B:343:PRO:HD3	1.85	0.43
1:C:9:VAL:HB	1:C:10:PRO:HD3	2.00	0.43
1:D:251:SER:OG	1:D:254:GLN:OE1	2.34	0.43
1:B:159:ASN:O	1:B:163:LEU:HG	2.17	0.43
1:B:312:CYS:HA	1:B:315:TRP:CE3	2.54	0.43
1:B:25:CYS:HG	1:B:90:TRP:HH2	1.66	0.43
1:B:308:ARG:HH22	1:D:46:ASP:CG	2.21	0.43
1:C:247:LEU:N	1:C:248:VAL:HA	2.34	0.43
1:D:308:ARG:NH1	1:D:311:ASP:OD1	2.46	0.43
1:B:99:TYR:HD2	1:B:150:GLY:HA3	1.84	0.43
1:D:192:HIS:HA	1:D:193:PRO:HD2	1.88	0.43
1:D:330:PRO:HA	1:D:331:GLY:HA2	1.70	0.43
1:C:163:LEU:HD22	1:C:188:LEU:HA	2.00	0.43
1:C:309:TRP:HH2	1:C:336:GLY:HA3	1.84	0.42
1:D:126:PHE:HB3	1:D:127:PRO:CD	2.48	0.42
1:B:181:ASP:OD1	1:B:183:VAL:HG13	2.19	0.42
1:D:201:ASP:OD1	1:D:202:ARG:N	2.44	0.42
1:A:96:ILE:O	1:A:99:TYR:HB3	2.20	0.42
1:A:106:GLN:HB3	1:A:107:PRO:HD3	2.02	0.42
1:A:256:LEU:HD21	1:A:318:GLU:HB2	2.02	0.42
1:A:270:GLY:O	1:A:341:SER:HA	2.18	0.42
1:D:157:LEU:HD21	1:D:332:TRP:CZ2	2.55	0.42
1:B:184:ASN:O	1:B:188:LEU:HB2	2.20	0.42
1:B:322:THR:HG22	1:B:323:ASP:N	2.34	0.42
1:C:248:VAL:HG21	1:C:305:THR:OG1	2.20	0.41
1:D:102:LYS:HB2	1:D:146:LEU:HD21	2.02	0.41
1:B:95:ASP:CG	1:B:149:ARG:NH1	2.74	0.41
1:C:4:GLU:HG3	1:C:5:LEU:N	2.20	0.41
1:B:63:THR:HA	1:B:68:SER:O	2.20	0.41
1:B:109:ALA:HA	1:C:19:GLN:NE2	2.36	0.41
1:A:243:PHE:HB3	1:A:246:GLN:HB2	2.03	0.41
1:C:165:GLN:HA	1:C:166:PRO:HD3	1.87	0.41
1:A:234:TYR:HB2	1:A:265:ALA:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:105:TYR:HA	1:C:15:HIS:CD2	2.56	0.40
1:D:27:LEU:O	1:D:48:LEU:HD22	2.21	0.40
1:D:186:VAL:HG21	1:D:212:THR:HG22	2.03	0.40
1:B:161:VAL:HG13	1:B:275:PHE:HE1	1.86	0.40
1:B:4:GLU:HG3	1:B:6:SER:H	1.86	0.40
1:B:24:GLY:HA3	1:B:30:PHE:CE2	2.56	0.40
1:A:102:LYS:HB2	1:A:146:LEU:HD21	2.03	0.40
1:C:230:PHE:CZ	1:C:247:LEU:HD11	2.57	0.40
1:D:158:SER:HB2	1:D:335:HIS:CD2	2.57	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	339/355 (96%)	330 (97%)	7 (2%)	2 (1%)	25	58
1	B	338/355 (95%)	323 (96%)	11 (3%)	4 (1%)	13	40
1	C	347/355 (98%)	332 (96%)	13 (4%)	2 (1%)	25	58
1	D	338/355 (95%)	324 (96%)	9 (3%)	5 (2%)	10	34
All	All	1362/1420 (96%)	1309 (96%)	40 (3%)	13 (1%)	15	45

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	126	PHE
1	D	127	PRO
1	B	329	PRO
1	D	329	PRO
1	C	299	LEU
1	D	144	GLU

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Mol	Chain	Res	Type
1	D	299	LEU
1	A	299	LEU
1	B	299	LEU
1	C	343	PRO
1	A	328	ALA
1	B	330	PRO
1	B	141	PRO

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	270/281 (96%)	269 (100%)	1 (0%)	91 97
1	B	269/281 (96%)	266 (99%)	3 (1%)	73 92
1	C	275/281 (98%)	270 (98%)	5 (2%)	59 85
1	D	269/281 (96%)	266 (99%)	3 (1%)	73 92
All	All	1083/1124 (96%)	1071 (99%)	12 (1%)	73 92

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	288	TYR
1	B	131	ARG
1	B	146	LEU
1	B	341	SER
1	C	158	SER
1	C	247	LEU
1	C	248	VAL
1	C	288	TYR
1	C	344	ARG
1	D	40	SER
1	D	124	ARG
1	D	232	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such

sidechains are listed below:

Mol	Chain	Res	Type
1	B	246	GLN
1	C	303	HIS
1	D	159	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

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	341/355 (96%)	-0.29	2 (0%)	89	89	34, 55, 84, 104	0
1	B	340/355 (95%)	0.12	14 (4%)	37	32	42, 76, 110, 119	0
1	C	349/355 (98%)	-0.08	9 (2%)	56	52	43, 64, 103, 118	0
1	D	340/355 (95%)	0.01	15 (4%)	34	30	46, 69, 105, 131	0
All	All	1370/1420 (96%)	-0.06	40 (2%)	51	47	34, 66, 105, 131	0

All (40) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	304	SER	3.8
1	D	130	THR	3.6
1	B	269	GLY	3.5
1	C	246	GLN	3.4
1	B	203	PRO	3.4
1	D	134	TYR	3.3
1	B	210	ARG	3.3
1	D	145	GLU	3.0
1	C	302	ARG	2.9
1	B	250	TRP	2.8
1	A	218	LEU	2.8
1	D	148	TYR	2.8
1	B	207	GLU	2.7
1	B	330	PRO	2.7
1	B	226	ALA	2.7
1	D	206	LEU	2.6
1	C	129	THR	2.6
1	D	131	ARG	2.6
1	D	214	ALA	2.6
1	D	132	ASP	2.5
1	D	141	PRO	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	144	GLU	2.3
1	D	137	LEU	2.3
1	B	227	ALA	2.2
1	B	323	ASP	2.2
1	B	208	VAL	2.2
1	C	207	GLU	2.2
1	B	209	ALA	2.2
1	C	217	GLY	2.2
1	C	143	LEU	2.1
1	B	230	PHE	2.1
1	D	215	GLU	2.1
1	C	130	THR	2.1
1	B	133	LEU	2.1
1	B	137	LEU	2.1
1	D	217	GLY	2.1
1	A	134	TYR	2.0
1	C	218	LEU	2.0
1	D	126	PHE	2.0
1	D	202	ARG	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)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.