Full wwPDB X-ray Structure Validation Report ⓘ

Sep 3, 2023 – 07:31 AM EDT

PDB ID	:	3T1B
Title	:	Crystal structure of the full-length AphB N100E variant
Authors	:	Taylor, J.L.; De Silva, R.S.; Kovacikova, G.; Lin, W.; Taylor, R.K.; Skorupski, K.; Kull, F.J.
Deposited on	:	2011-07-21
Resolution	:	2.70 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:

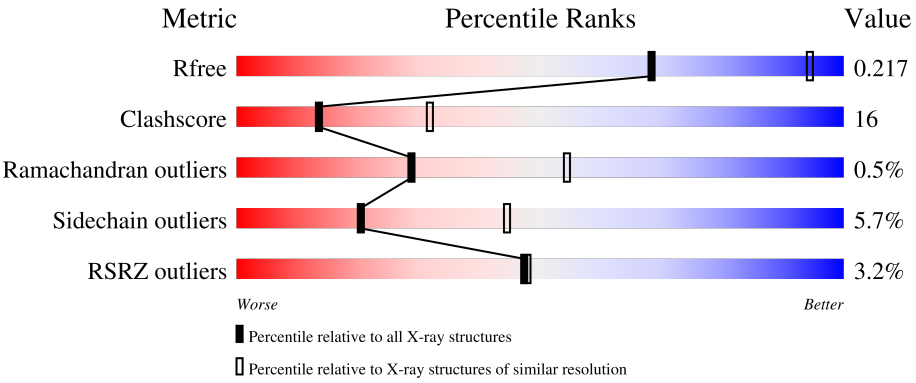
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

1 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 2.70 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	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

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	291	70% 27%
1	B	291	3% 68% 27%
1	C	291	5% 69% 27%
1	D	291	4% 70% 26%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 9502 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 Transcriptional regulator, LysR family.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	290	Total	C	N	O	S	0	0	0
			2327	1463	410	438	16			
1	B	289	Total	C	N	O	S	14	0	0
			2318	1459	409	435	15			
1	C	290	Total	C	N	O	S	14	2	0
			2339	1472	412	438	17			
1	D	289	Total	C	N	O	S	0	0	0
			2318	1458	409	435	16			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	100	GLU	ASN	engineered mutation	UNP Q9KT56
C	100	GLU	ASN	engineered mutation	UNP Q9KT56
A	100	GLU	ASN	engineered mutation	UNP Q9KT56
D	100	GLU	ASN	engineered mutation	UNP Q9KT56

- Molecule 2 is water.

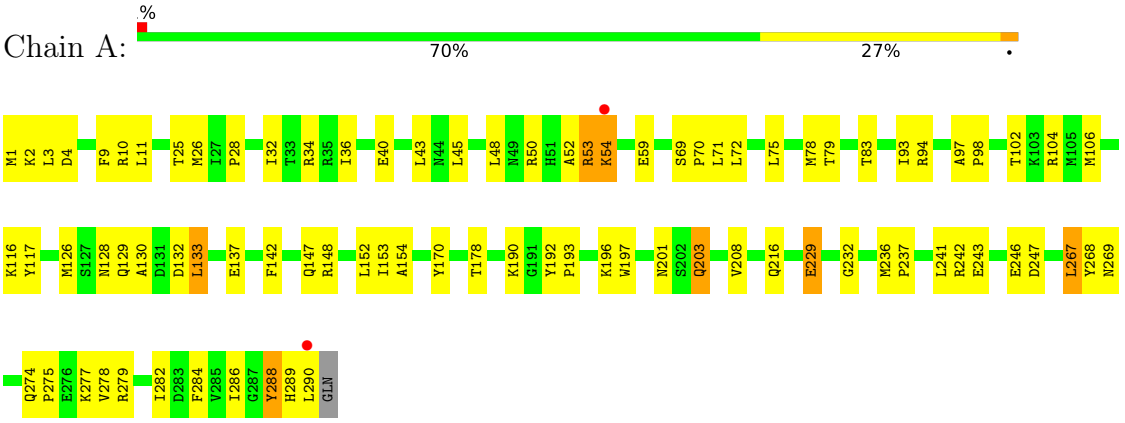
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	65	Total	O	0	0
			65	65		
2	B	57	Total	O	0	0
			57	57		
2	C	56	Total	O	0	0
			56	56		
2	D	22	Total	O	0	0
			22	22		

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.

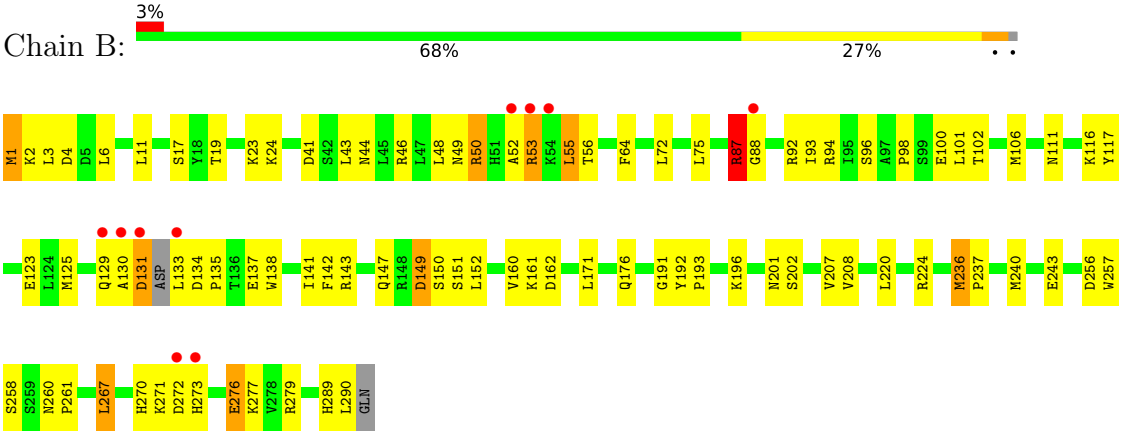
• Molecule 1: Transcriptional regulator, LysR family

Chain A:



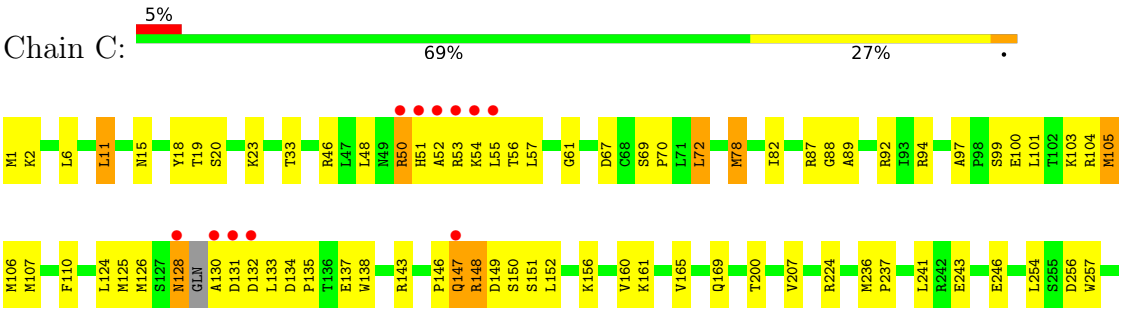
• Molecule 1: Transcriptional regulator, LysR family

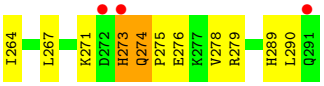
Chain B:



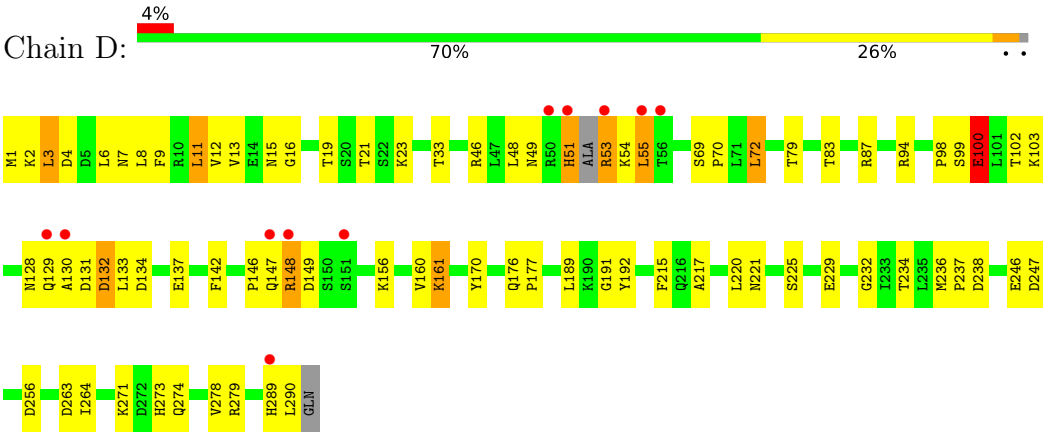
• Molecule 1: Transcriptional regulator, LysR family

Chain C:





• Molecule 1: Transcriptional regulator, LysR family



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	268.74Å 54.55Å 103.84Å 90.00° 100.95° 90.00°	Depositor
Resolution (Å)	48.08 – 2.70 37.61 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.8 (48.08-2.70) 93.0 (37.61-2.40)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.20 (at 2.39Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7.1_743)	Depositor
R, R_{free}	0.197 , 0.245 0.202 , 0.217	Depositor DCC
R_{free} test set	1990 reflections (3.42%)	wwPDB-VP
Wilson B-factor (Å^2)	44.8	Xtriage
Anisotropy	0.022	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 41.4	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	9502	wwPDB-VP
Average B, all atoms (Å^2)	56.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.12% 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	0.21	0/2372	0.41	0/3206
1	B	0.22	0/2362	0.40	0/3191
1	C	0.21	0/2390	0.40	0/3228
1	D	0.21	0/2362	0.41	0/3191
All	All	0.21	0/9486	0.40	0/12816

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	2327	0	2333	70	0
1	B	2318	0	2325	89	0
1	C	2339	0	2348	78	0
1	D	2318	0	2323	80	0
2	A	65	0	0	13	1
2	B	57	0	0	8	1
2	C	56	0	0	9	0
2	D	22	0	0	5	0
All	All	9502	0	9329	296	2

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 16.

All (296) 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:B:87:ARG:HB2	1:B:88:GLY:HA3	1.30	1.07
1:D:147:GLN:H	1:D:148:ARG:HB3	1.04	1.06
1:A:178:THR:O	2:A:350:HOH:O	1.80	0.99
1:C:19:THR:HB	1:D:129:GLN:HG3	1.43	0.99
1:A:284:PHE:O	2:A:327:HOH:O	1.83	0.96
1:C:1:MET:N	1:C:2:LYS:HA	1.83	0.93
1:D:1:MET:N	1:D:2:LYS:HA	1.85	0.92
1:D:147:GLN:N	1:D:148:ARG:HB3	1.86	0.91
1:B:176:GLN:O	2:B:337:HOH:O	1.89	0.89
1:B:87:ARG:HB2	1:B:88:GLY:CA	2.05	0.86
1:B:149:ASP:HA	1:B:150:SER:HB2	1.58	0.83
1:C:147:GLN:H	1:C:148:ARG:HA	1.40	0.82
1:D:147:GLN:HG3	1:D:149:ASP:HA	1.61	0.82
1:A:104:ARG:HD3	2:A:343:HOH:O	1.79	0.82
1:C:148:ARG:N	1:C:149:ASP:HA	1.94	0.82
1:B:92:ARG:HD3	1:B:123:GLU:HG3	1.62	0.81
1:D:1:MET:H2	1:D:2:LYS:HA	1.43	0.81
1:A:288:TYR:HA	1:A:289:HIS:C	2.01	0.79
1:C:1:MET:H2	1:C:2:LYS:HA	1.47	0.79
1:B:176:GLN:NE2	2:B:341:HOH:O	2.16	0.78
1:C:276:GLU:OE1	1:C:279:ARG:NH2	2.16	0.77
1:A:132:ASP:HA	1:B:53:ARG:HD2	1.66	0.77
1:B:88:GLY:H	1:B:276:GLU:HB2	1.49	0.77
1:B:52:ALA:HB1	1:B:53:ARG:HA	1.66	0.76
1:A:147:GLN:HB3	1:A:267:LEU:HD21	1.68	0.76
1:A:53:ARG:NH2	2:A:349:HOH:O	1.97	0.76
1:B:94:ARG:NH1	1:B:137:GLU:O	2.19	0.75
1:C:200:THR:OG1	2:C:336:HOH:O	2.05	0.74
1:A:274:GLN:NE2	2:A:340:HOH:O	2.20	0.74
1:D:99:SER:O	1:D:100:GLU:HB2	1.88	0.73
1:C:87:ARG:HG2	1:C:88:GLY:H	1.55	0.71
1:D:105:MET:O	2:D:308:HOH:O	2.08	0.71
1:D:53:ARG:HD2	1:D:54:LYS:H	1.55	0.71
1:A:104:ARG:NH1	2:A:343:HOH:O	2.25	0.70
1:C:147:GLN:N	1:C:148:ARG:HA	2.06	0.69
1:D:33:THR:O	2:D:301:HOH:O	2.09	0.69
1:B:236:MET:HG3	1:B:237:PRO:HD2	1.74	0.68
1:B:279:ARG:NE	2:B:348:HOH:O	2.04	0.68
1:A:142:PHE:O	2:A:300:HOH:O	2.11	0.67
1:B:150:SER:O	1:B:151:SER:OG	2.09	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:79:THR:O	1:D:83:THR:HG23	1.94	0.67
1:C:134:ASP:OD2	2:C:340:HOH:O	2.12	0.67
1:A:54:LYS:HE3	1:A:54:LYS:HA	1.77	0.66
1:D:160:VAL:HG13	1:D:264:ILE:HD11	1.76	0.66
1:D:289:HIS:CD2	1:D:290:LEU:HG	2.30	0.66
1:A:246:GLU:OE2	2:A:345:HOH:O	2.14	0.66
1:A:53:ARG:O	1:A:53:ARG:HG2	1.95	0.66
1:C:128:ASN:N	2:C:346:HOH:O	2.26	0.65
1:A:75:LEU:HD21	1:C:72:LEU:HD13	1.77	0.65
1:A:130:ALA:O	1:A:133:LEU:HD22	1.96	0.65
1:C:1:MET:HE1	1:C:6:LEU:HB2	1.77	0.64
1:A:274:GLN:HG3	1:A:275:PRO:HD2	1.79	0.64
1:C:131:ASP:HB2	1:C:132:ASP:HA	1.80	0.64
1:C:236:MET:HG3	1:C:237:PRO:HD2	1.79	0.64
1:B:129:GLN:HB2	1:B:192:TYR:OH	1.99	0.63
1:B:133:LEU:HD23	2:B:340:HOH:O	1.97	0.63
1:C:2:LYS:N	2:C:330:HOH:O	2.06	0.63
1:D:46:ARG:HH11	1:D:46:ARG:HB2	1.64	0.62
1:C:271:LYS:HB3	1:C:274:GLN:HG2	1.81	0.62
1:D:102:THR:HG23	1:D:106:MET:HB2	1.81	0.62
1:D:94:ARG:NH1	1:D:137:GLU:O	2.32	0.62
1:D:256:ASP:OD1	2:D:300:HOH:O	2.16	0.62
1:B:276:GLU:HG2	1:B:279:ARG:NH2	2.16	0.61
1:C:131:ASP:HB2	1:C:133:LEU:HA	1.83	0.61
1:B:162:ASP:OD2	2:B:345:HOH:O	2.16	0.61
1:B:116:LYS:HG2	1:B:117:TYR:CE2	2.36	0.61
1:A:104:ARG:NH2	1:A:243:GLU:OE1	2.33	0.60
1:A:236:MET:HB3	1:A:241:LEU:HD11	1.83	0.60
1:B:196:LYS:O	2:B:320:HOH:O	2.17	0.60
1:A:53:ARG:N	2:A:334:HOH:O	2.33	0.60
1:D:48:LEU:HD12	1:D:55:LEU:HD12	1.84	0.60
1:A:288:TYR:HA	1:A:290:LEU:N	2.15	0.60
1:C:148:ARG:H	1:C:149:ASP:HA	1.67	0.60
1:A:1:MET:HB2	1:A:2:LYS:HA	1.82	0.60
1:B:1:MET:H2	1:B:2:LYS:C	2.04	0.60
1:A:133:LEU:O	1:A:133:LEU:HD23	2.03	0.59
1:D:49:ASN:OD1	1:D:51:HIS:HB2	2.02	0.59
1:C:104:ARG:NH2	1:C:243:GLU:OE1	2.35	0.59
1:A:98:PRO:HD2	1:A:106:MET:HE1	1.84	0.58
1:D:83:THR:O	1:D:87:ARG:HG2	2.03	0.58
1:C:101:LEU:HD13	1:C:160:VAL:HG11	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:101:LEU:HB3	1:C:105:MET:HE2	1.84	0.58
1:B:50:ARG:HH11	1:B:50:ARG:HG2	1.69	0.57
1:D:1:MET:N	1:D:2:LYS:CA	2.65	0.57
1:C:273:HIS:O	1:C:274:GLN:HB2	2.03	0.57
1:B:102:THR:HA	1:B:106:MET:HG2	1.86	0.57
1:B:125:MET:HG2	1:B:138:TRP:HH2	1.70	0.57
1:B:1:MET:O	1:B:1:MET:HG2	2.03	0.57
1:D:130:ALA:HA	1:D:131:ASP:HB3	1.85	0.57
1:B:125:MET:HG2	1:B:138:TRP:CH2	2.39	0.57
1:B:129:GLN:O	1:B:131:ASP:N	2.37	0.57
1:C:236:MET:HB3	1:C:241:LEU:HD11	1.87	0.56
1:C:1:MET:H3	1:C:2:LYS:HA	1.68	0.56
1:D:147:GLN:HB3	1:D:148:ARG:HA	1.86	0.56
1:C:1:MET:N	1:C:2:LYS:CA	2.66	0.56
1:D:130:ALA:HB1	1:D:133:LEU:H	1.71	0.56
1:B:46:ARG:HD2	2:B:343:HOH:O	2.06	0.56
1:B:133:LEU:HG	1:B:138:TRP:HE1	1.70	0.56
1:C:100:GLU:HG2	1:C:101:LEU:HG	1.88	0.56
1:C:132:ASP:CG	1:C:133:LEU:HB2	2.25	0.55
1:B:87:ARG:CB	1:B:88:GLY:HA3	2.20	0.55
1:C:69:SER:HB3	1:C:70:PRO:HD3	1.89	0.55
1:D:156:LYS:HD3	1:D:263:ASP:HB3	1.89	0.55
1:D:1:MET:HE3	1:D:6:LEU:HB2	1.87	0.55
1:B:50:ARG:HG2	1:B:50:ARG:NH1	2.21	0.55
1:C:20:SER:HA	1:C:23:LYS:NZ	2.22	0.55
1:A:78:MET:SD	1:C:67:ASP:HB3	2.47	0.55
1:B:64:PHE:HZ	1:D:83:THR:HG22	1.73	0.54
1:A:116:LYS:HG2	1:A:117:TYR:CE2	2.42	0.54
1:B:143:ARG:HB3	1:B:147:GLN:OE1	2.07	0.54
1:C:48:LEU:HD13	1:C:57:LEU:HD23	1.89	0.54
1:B:149:ASP:CA	1:B:150:SER:HB2	2.32	0.54
1:D:69:SER:N	1:D:70:PRO:HD2	2.22	0.54
1:B:271:LYS:C	1:B:273:HIS:H	2.10	0.54
1:B:1:MET:N	1:B:2:LYS:CA	2.71	0.54
1:B:2:LYS:HB3	1:D:4:ASP:OD2	2.08	0.54
1:C:92:ARG:NH2	2:C:331:HOH:O	2.17	0.54
1:B:4:ASP:OD2	1:D:3:LEU:N	2.41	0.53
1:B:135:PRO:HB3	1:B:152:LEU:HD21	1.90	0.53
1:A:53:ARG:NH1	2:A:349:HOH:O	2.42	0.53
1:C:254:LEU:C	1:C:256:ASP:N	2.61	0.53
1:C:94:ARG:NH1	1:C:137:GLU:O	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:131:ASP:N	1:C:132:ASP:HB2	2.24	0.53
1:C:11:LEU:O	1:C:15:ASN:ND2	2.41	0.52
1:D:147:GLN:CB	1:D:148:ARG:HA	2.38	0.52
1:B:271:LYS:O	1:B:272:ASP:HB2	2.10	0.52
1:B:88:GLY:N	1:B:276:GLU:HB2	2.21	0.52
1:D:7:ASN:O	1:D:11:LEU:HD22	2.09	0.52
1:D:55:LEU:HD23	1:D:55:LEU:O	2.09	0.52
1:D:247:ASP:OD1	1:D:249:SER:HB3	2.10	0.52
1:B:129:GLN:C	1:B:131:ASP:H	2.13	0.52
1:D:103:LYS:HA	1:D:107:MET:HG2	1.91	0.52
1:B:149:ASP:HA	1:B:151:SER:H	1.75	0.52
1:C:124:LEU:O	1:D:217:ALA:HA	2.10	0.52
1:C:150:SER:OG	1:C:151:SER:N	2.41	0.51
1:D:192:TYR:O	2:D:302:HOH:O	2.19	0.51
1:A:132:ASP:HA	1:B:53:ARG:CD	2.39	0.51
1:B:4:ASP:OD2	1:D:2:LYS:HB3	2.11	0.50
1:B:53:ARG:HA	1:B:53:ARG:NE	2.26	0.50
1:D:1:MET:H3	1:D:2:LYS:HA	1.74	0.50
1:C:20:SER:HA	1:C:23:LYS:HZ3	1.76	0.50
1:B:171:LEU:HD22	1:B:176:GLN:HB3	1.94	0.50
1:A:52:ALA:C	1:A:54:LYS:H	2.16	0.50
1:A:69:SER:OG	1:A:70:PRO:HD3	2.12	0.49
1:A:274:GLN:O	1:A:279:ARG:NH1	2.41	0.49
1:A:170:TYR:CE1	1:A:232:GLY:HA2	2.48	0.49
1:B:149:ASP:HA	1:B:151:SER:N	2.27	0.49
1:C:99:SER:HA	1:C:126:MET:HG2	1.94	0.49
1:D:16:GLY:O	1:D:55:LEU:HD22	2.14	0.48
1:A:4:ASP:OD2	1:C:2:LYS:HB3	2.13	0.48
1:A:9:PHE:HE1	1:A:48:LEU:HD13	1.78	0.48
1:B:224:ARG:HD2	1:B:224:ARG:O	2.13	0.48
1:B:100:GLU:O	1:B:101:LEU:HB2	2.13	0.48
1:B:1:MET:N	1:B:2:LYS:HA	2.27	0.48
1:D:130:ALA:HA	1:D:132:ASP:N	2.28	0.48
1:A:79:THR:O	1:A:83:THR:HG23	2.13	0.48
1:B:41:ASP:OD1	1:D:273:HIS:NE2	2.39	0.48
1:D:130:ALA:CB	1:D:133:LEU:H	2.27	0.48
1:A:75:LEU:HD21	1:C:72:LEU:CD1	2.43	0.48
1:C:267:LEU:HD22	1:C:267:LEU:N	2.29	0.48
1:D:100:GLU:OE2	1:D:220:LEU:N	2.47	0.48
1:B:98:PRO:HD3	1:B:142:PHE:O	2.14	0.47
1:B:138:TRP:CG	1:B:141:ILE:HD11	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:141:ILE:HB	1:B:267:LEU:HB2	1.95	0.47
1:B:141:ILE:HG22	1:B:143:ARG:HD3	1.96	0.47
1:D:170:TYR:CE1	1:D:232:GLY:HA2	2.49	0.47
1:B:75:LEU:HD21	1:D:72:LEU:HD13	1.96	0.47
1:A:196:LYS:HE3	1:A:208:VAL:HG11	1.97	0.47
1:A:277:LYS:HB2	2:A:297:HOH:O	2.14	0.47
1:A:288:TYR:CD1	1:A:288:TYR:C	2.88	0.47
1:C:46:ARG:HG3	1:C:46:ARG:HH11	1.79	0.47
1:A:43:LEU:O	1:A:45:LEU:HG	2.15	0.47
1:C:169:GLN:OE1	2:C:305:HOH:O	2.21	0.47
1:B:161:LYS:NZ	1:B:258:SER:OG	2.47	0.47
1:D:53:ARG:HD2	1:D:54:LYS:N	2.25	0.47
1:D:130:ALA:HA	1:D:131:ASP:CB	2.43	0.47
1:C:132:ASP:OD1	1:C:133:LEU:HB2	2.15	0.47
1:D:19:THR:O	1:D:23:LYS:HG3	2.15	0.47
1:B:191:GLY:HA3	1:B:220:LEU:HD23	1.97	0.46
1:C:156:LYS:NZ	2:C:299:HOH:O	2.25	0.46
1:B:289:HIS:O	1:B:290:LEU:HB2	2.16	0.46
1:C:133:LEU:O	1:C:135:PRO:HD3	2.15	0.46
1:D:238:ASP:OD1	1:D:238:ASP:N	2.48	0.46
1:C:160:VAL:HG13	1:C:264:ILE:HD11	1.98	0.46
1:D:236:MET:CG	1:D:237:PRO:HD2	2.45	0.46
1:C:146:PRO:CB	1:C:147:GLN:HA	2.45	0.46
1:B:53:ARG:O	1:B:53:ARG:HD3	2.16	0.46
1:A:1:MET:HA	1:A:3:LEU:HD22	1.97	0.46
1:C:56:THR:HG22	1:C:57:LEU:H	1.81	0.46
1:D:1:MET:CE	1:D:6:LEU:HB2	2.46	0.46
1:D:8:LEU:O	1:D:12:VAL:HG23	2.15	0.45
1:A:93:ILE:CG2	1:A:277:LYS:HG2	2.46	0.45
1:A:102:THR:HA	1:A:106:MET:HE2	1.98	0.45
1:A:133:LEU:HD23	1:A:133:LEU:C	2.36	0.45
1:C:1:MET:HE1	1:C:6:LEU:HD22	1.99	0.45
1:B:17:SER:HA	1:B:55:LEU:HD22	1.98	0.45
1:B:138:TRP:CB	1:B:141:ILE:HD11	2.47	0.45
1:A:32:ILE:O	1:A:36:ILE:HG12	2.17	0.45
1:B:1:MET:H2	1:B:2:LYS:CA	2.30	0.45
1:C:56:THR:HG22	1:C:57:LEU:N	2.31	0.45
1:D:46:ARG:HB2	1:D:46:ARG:NH1	2.30	0.45
1:A:153:ILE:N	1:A:268:TYR:O	2.42	0.45
1:B:100:GLU:HG3	1:B:240:MET:HE1	1.98	0.45
1:B:43:LEU:O	1:B:44:ASN:HB2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:133:LEU:HB3	2:B:340:HOH:O	2.17	0.44
1:A:288:TYR:C	1:A:288:TYR:HD1	2.19	0.44
1:C:19:THR:HG21	1:D:132:ASP:HB2	1.99	0.44
1:C:130:ALA:C	1:C:132:ASP:HB2	2.37	0.44
1:C:143:ARG:HG2	1:C:267:LEU:HD21	2.00	0.44
1:C:289:HIS:HB2	2:C:344:HOH:O	2.15	0.44
1:D:225:SER:O	1:D:229:GLU:HG2	2.18	0.44
1:D:274:GLN:HG3	1:D:278:VAL:HB	1.98	0.44
1:A:190:LYS:O	1:A:216:GLN:HA	2.18	0.44
1:C:89:ALA:HB2	1:C:276:GLU:HG2	2.00	0.44
1:D:9:PHE:O	1:D:13:VAL:HG23	2.17	0.44
1:C:52:ALA:HA	2:C:328:HOH:O	2.17	0.44
1:B:4:ASP:CG	1:D:3:LEU:H	2.21	0.43
1:C:97:ALA:O	1:C:126:MET:HA	2.17	0.43
1:C:207:VAL:HG13	1:C:257:TRP:CZ3	2.53	0.43
1:C:275:PRO:HG2	1:C:278:VAL:CG2	2.48	0.43
1:A:128:ASN:HB2	1:B:23:LYS:HZ2	1.84	0.43
1:C:53:ARG:NH2	1:D:134:ASP:HB2	2.34	0.43
1:B:49:ASN:HB2	1:B:56:THR:OG1	2.18	0.43
1:C:53:ARG:HD2	1:D:132:ASP:O	2.18	0.43
1:D:148:ARG:CD	1:D:148:ARG:O	2.67	0.43
1:A:10:ARG:HG3	1:A:69:SER:HB2	2.01	0.43
1:A:282:ILE:O	1:A:286:ILE:HG13	2.19	0.43
1:D:15:ASN:HD22	1:D:21:THR:HG23	1.84	0.43
1:A:229:GLU:HG2	1:B:111:ASN:HB3	2.00	0.43
1:A:28:PRO:O	1:A:32:ILE:HG13	2.17	0.42
1:B:129:GLN:OE1	1:B:131:ASP:HB2	2.19	0.42
1:D:147:GLN:CG	1:D:149:ASP:HA	2.41	0.42
1:B:46:ARG:HD3	1:B:46:ARG:HA	1.89	0.42
1:A:274:GLN:CG	1:A:278:VAL:HB	2.50	0.42
1:D:161:LYS:HE3	1:D:161:LYS:HB2	1.84	0.42
1:A:236:MET:HE3	1:A:236:MET:HB2	1.97	0.42
1:B:260:ASN:HA	1:B:261:PRO:HD3	1.91	0.42
1:C:78:MET:O	1:C:82:ILE:HG13	2.20	0.42
1:D:271:LYS:HG2	1:D:279:ARG:HG2	2.01	0.42
1:A:192:TYR:CG	1:A:193:PRO:HA	2.55	0.42
1:A:94:ARG:NH1	1:A:137:GLU:O	2.47	0.42
1:A:201:ASN:CG	1:A:203:GLN:HG2	2.40	0.42
1:A:289:HIS:O	1:A:289:HIS:CG	2.71	0.42
1:B:129:GLN:HE22	1:B:131:ASP:CG	2.20	0.42
1:C:1:MET:HE3	1:C:1:MET:HB3	1.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:18:TYR:HE2	1:C:33:THR:HA	1.85	0.42
1:D:98:PRO:HD3	1:D:142:PHE:O	2.20	0.42
1:D:130:ALA:HA	1:D:131:ASP:C	2.39	0.42
1:D:146:PRO:HA	1:D:147:GLN:HA	1.81	0.42
1:A:197:TRP:O	1:A:208:VAL:HA	2.20	0.42
1:C:57:LEU:HD22	1:C:61:GLY:HA3	2.02	0.42
1:A:154:ALA:HA	1:A:267:LEU:HD12	2.00	0.42
1:B:224:ARG:HD2	1:B:224:ARG:C	2.40	0.42
1:C:165:VAL:HG11	1:C:241:LEU:HD13	2.01	0.42
1:D:12:VAL:HA	1:D:21:THR:OG1	2.20	0.42
1:A:236:MET:CG	1:A:237:PRO:HD2	2.50	0.41
1:D:102:THR:HA	1:D:106:MET:HG2	2.02	0.41
1:D:156:LYS:HG3	1:D:156:LYS:O	2.19	0.41
1:A:34:ARG:NH2	2:A:328:HOH:O	2.47	0.41
1:A:40:GLU:OE1	2:A:306:HOH:O	2.21	0.41
1:B:96:SER:HB3	1:B:141:ILE:HD13	2.03	0.41
1:B:149:ASP:HA	1:B:150:SER:CB	2.28	0.41
1:C:11:LEU:HD12	1:C:11:LEU:HA	1.80	0.41
1:C:147:GLN:HB3	1:C:148:ARG:C	2.40	0.41
1:B:196:LYS:HD3	1:B:208:VAL:CG1	2.51	0.41
1:D:53:ARG:HD2	1:D:53:ARG:N	2.34	0.41
1:B:93:ILE:HD11	1:B:277:LYS:O	2.20	0.41
1:B:207:VAL:HG13	1:B:257:TRP:CZ3	2.55	0.41
1:D:189:LEU:HB2	1:D:234:THR:HB	2.01	0.41
1:A:75:LEU:HD12	1:A:75:LEU:HA	1.86	0.41
1:A:129:GLN:HG2	1:B:19:THR:HB	2.02	0.41
1:B:201:ASN:HA	1:B:256:ASP:O	2.21	0.41
1:C:135:PRO:HB3	1:C:152:LEU:HD21	2.02	0.41
1:C:224:ARG:HD2	1:C:224:ARG:O	2.20	0.41
1:D:189:LEU:HD22	1:D:215:PHE:HB3	2.01	0.41
1:D:191:GLY:HA3	1:D:220:LEU:HD23	2.02	0.41
1:C:50:ARG:O	1:C:51:HIS:C	2.58	0.41
1:A:247:ASP:C	1:A:247:ASP:OD1	2.59	0.41
1:C:106:MET:HB3	1:C:110:PHE:CZ	2.56	0.41
1:A:190:LYS:HE2	1:A:197:TRP:CE2	2.55	0.41
1:B:24:LYS:HG3	1:B:94:ARG:NH2	2.36	0.41
1:B:192:TYR:CE2	1:B:193:PRO:HB3	2.56	0.41
1:D:128:ASN:ND2	2:D:302:HOH:O	2.23	0.41
1:D:176:GLN:HG3	1:D:177:PRO:HD2	2.03	0.41
1:B:1:MET:HE3	1:B:6:LEU:HB2	2.02	0.40
1:B:24:LYS:HG3	1:B:94:ARG:HH21	1.85	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:94:ARG:HG2	1:B:138:TRP:CE3	2.56	0.40
1:B:102:THR:HG23	1:B:106:MET:HB2	2.02	0.40
1:C:103:LYS:HA	1:C:107:MET:HG2	2.03	0.40
1:A:25:THR:O	1:A:26:MET:HB2	2.22	0.40
1:C:125[A]:MET:HG3	1:C:138:TRP:CH2	2.55	0.40
1:A:97:ALA:O	1:A:126:MET:HA	2.21	0.40
1:B:192:TYR:CG	1:B:193:PRO:HA	2.56	0.40
1:A:1:MET:HA	1:A:3:LEU:N	2.37	0.40
1:D:100:GLU:OE2	1:D:221:ASN:N	2.29	0.40
1:D:236:MET:HG3	1:D:237:PRO:HD2	2.03	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:323:HOH:O	2:B:324:HOH:O[1_545]	1.56	0.64
2:A:352:HOH:O	2:A:354:HOH:O[1_556]	2.11	0.09

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	288/291 (99%)	277 (96%)	10 (4%)	1 (0%)	41	66
1	B	285/291 (98%)	274 (96%)	8 (3%)	3 (1%)	14	34
1	C	288/291 (99%)	275 (96%)	12 (4%)	1 (0%)	41	66
1	D	285/291 (98%)	276 (97%)	8 (3%)	1 (0%)	34	60
All	All	1146/1164 (98%)	1102 (96%)	38 (3%)	6 (0%)	29	54

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	87	ARG
1	B	130	ALA
1	B	134	ASP
1	D	100	GLU
1	A	148	ARG
1	C	274	GLN

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	262/263 (100%)	247 (94%)	15 (6%)	20	44
1	B	260/263 (99%)	242 (93%)	18 (7%)	15	35
1	C	264/263 (100%)	250 (95%)	14 (5%)	22	48
1	D	261/263 (99%)	248 (95%)	13 (5%)	24	51
All	All	1047/1052 (100%)	987 (94%)	60 (6%)	20	44

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	LEU
1	A	50	ARG
1	A	53	ARG
1	A	54	LYS
1	A	59	GLU
1	A	71	LEU
1	A	72	LEU
1	A	133	LEU
1	A	152	LEU
1	A	203	GLN
1	A	229	GLU
1	A	242	ARG
1	A	267	LEU
1	A	269	ASN
1	A	288	TYR
1	B	1	MET

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Mol	Chain	Res	Type
1	B	3	LEU
1	B	11	LEU
1	B	48	LEU
1	B	50	ARG
1	B	53	ARG
1	B	55	LEU
1	B	72	LEU
1	B	87	ARG
1	B	131	ASP
1	B	149	ASP
1	B	160	VAL
1	B	202	SER
1	B	236	MET
1	B	243	GLU
1	B	267	LEU
1	B	270	HIS
1	B	276	GLU
1	C	11	LEU
1	C	50	ARG
1	C	54	LYS
1	C	55	LEU
1	C	72	LEU
1	C	78	MET
1	C	105	MET
1	C	128	ASN
1	C	147	GLN
1	C	148	ARG
1	C	161	LYS
1	C	246	GLU
1	C	273	HIS
1	C	290	LEU
1	D	3	LEU
1	D	11	LEU
1	D	51	HIS
1	D	53	ARG
1	D	55	LEU
1	D	72	LEU
1	D	100	GLU
1	D	132	ASP
1	D	148	ARG
1	D	161	LYS
1	D	246	GLU

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Mol	Chain	Res	Type
1	D	249	SER
1	D	251	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	128	ASN
1	B	273	HIS
1	D	15	ASN
1	D	169	GLN
1	D	289	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

There are no ligands in this entry.

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	290/291 (99%)	-0.21	2 (0%)	87	89	24, 46, 77, 106	0
1	B	289/291 (99%)	-0.15	10 (3%)	44	44	27, 46, 105, 153	3 (1%)
1	C	290/291 (99%)	0.04	14 (4%)	30	28	30, 50, 111, 197	4 (1%)
1	D	289/291 (99%)	0.09	11 (3%)	40	39	37, 60, 101, 184	0
All	All	1158/1164 (99%)	-0.06	37 (3%)	47	48	24, 50, 99, 197	7 (0%)

All (37) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	131	ASP	10.5
1	D	51	HIS	9.6
1	C	147	GLN	7.0
1	D	129	GLN	6.6
1	C	291	GLN	6.0
1	B	131	ASP	5.3
1	D	148	ARG	5.2
1	C	52	ALA	5.2
1	C	273	HIS	5.1
1	B	133	LEU	4.4
1	B	53	ARG	4.2
1	C	132	ASP	4.1
1	D	55	LEU	3.9
1	B	52	ALA	3.8
1	B	130	ALA	3.8
1	D	53	ARG	3.7
1	C	128	ASN	3.5
1	D	147	GLN	3.5
1	C	55	LEU	3.4
1	B	272	ASP	3.1
1	C	51	HIS	3.1

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Mol	Chain	Res	Type	RSRZ
1	C	50	ARG	3.0
1	C	130	ALA	3.0
1	B	273	HIS	2.8
1	B	129	GLN	2.6
1	C	53	ARG	2.6
1	B	54	LYS	2.5
1	D	289	HIS	2.5
1	A	290	LEU	2.3
1	A	54	LYS	2.2
1	D	50	ARG	2.2
1	B	88	GLY	2.2
1	C	272	ASP	2.1
1	C	54	LYS	2.1
1	D	56	THR	2.1
1	D	130	ALA	2.0
1	D	151	SER	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.