Full wwPDB X-ray Structure Validation Report ⓘ

Jun 15, 2024 – 07:05 PM EDT

PDB ID	:	4N88
Title	:	Crystal structure of Tse3-Tsi3 complex with calcium ion
Authors	:	Shang, G.J.
Deposited on	:	2013-10-17
Resolution	:	2.80 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:

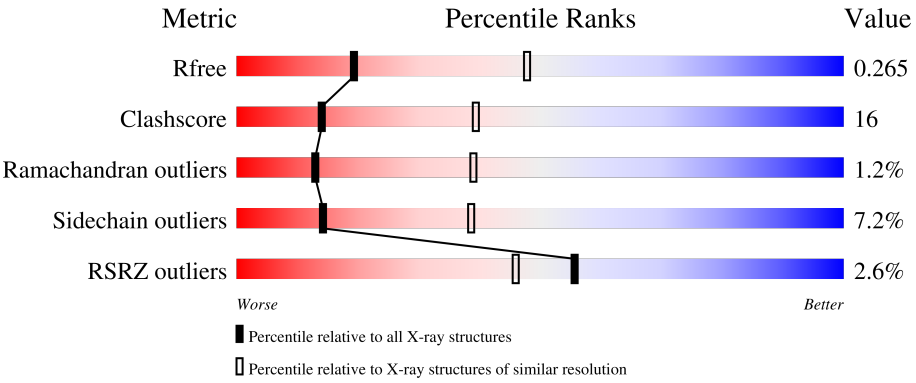
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation 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 2.80 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	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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	401	72% 24% •
1	C	401	75% 22% •
2	B	123	18% 59% 33% 5% • •
2	D	123	2% 62% 30% 5% • •

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 8151 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 Uncharacterized protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	401	Total	C	N	O	S	0	1	0
			3086	1947	545	590	4			
1	C	401	Total	C	N	O	S	0	1	0
			3086	1947	545	590	4			

- Molecule 2 is a protein called Uncharacterized protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	120	Total	C	N	O	S	0	0	0
			936	579	177	179	1			
2	D	120	Total	C	N	O	S	0	0	0
			936	579	177	179	1			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	23	SER	-	expression tag	UNP Q9HYC4
B	24	HIS	-	expression tag	UNP Q9HYC4
B	25	MET	-	expression tag	UNP Q9HYC4
B	26	MET	-	expression tag	UNP Q9HYC4
D	23	SER	-	expression tag	UNP Q9HYC4
D	24	HIS	-	expression tag	UNP Q9HYC4
D	25	MET	-	expression tag	UNP Q9HYC4
D	26	MET	-	expression tag	UNP Q9HYC4

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	4	Total	Ca	0	0
			4	4		
3	C	4	Total	Ca	0	0
			4	4		

- Molecule 4 is water.

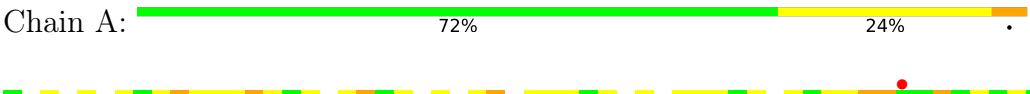
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	41	Total O 41 41	0	0
4	B	2	Total O 2 2	0	0
4	C	45	Total O 45 45	0	0
4	D	11	Total O 11 11	0	0

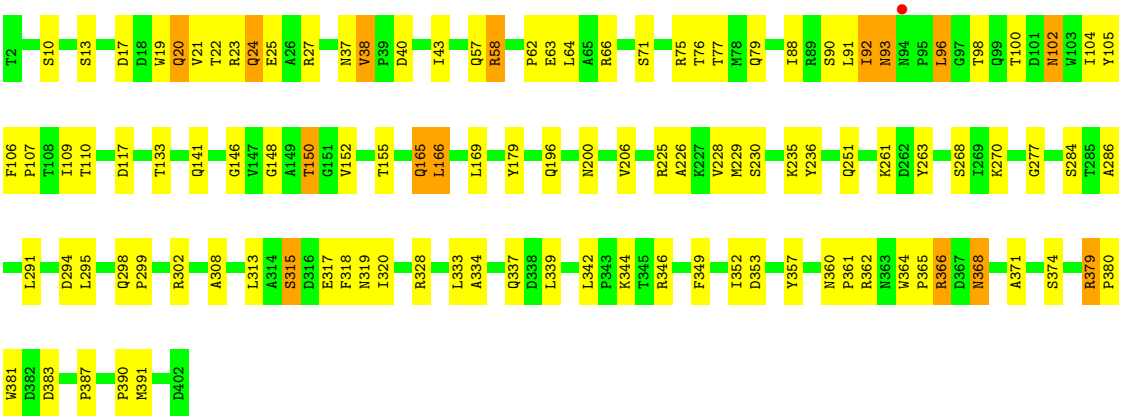
3 Residue-property plots (i)

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: Uncharacterized protein

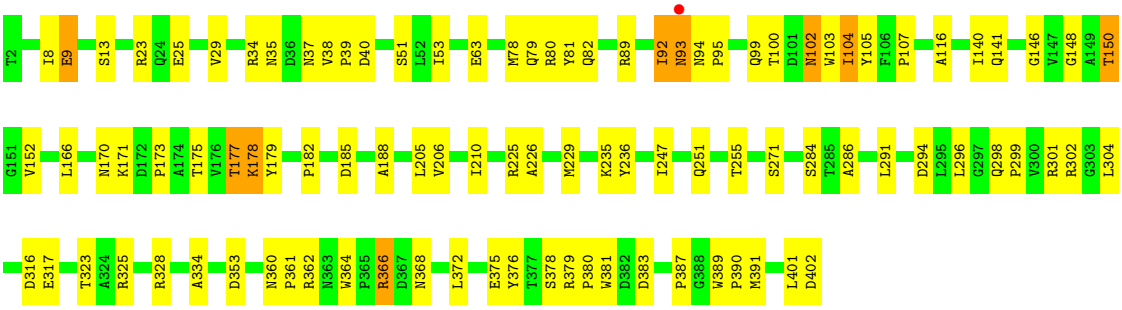
Chain A:





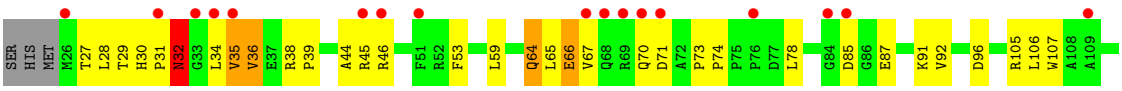
• Molecule 1: Uncharacterized protein

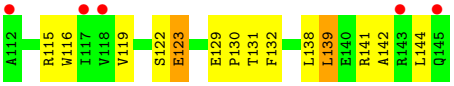
Chain C:



• Molecule 2: Uncharacterized protein

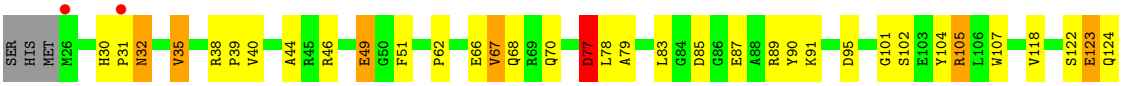
Chain B:





• Molecule 2: Uncharacterized protein

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	89.24Å 95.32Å 160.76Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.38 – 2.80 41.38 – 2.80	Depositor EDS
% Data completeness (in resolution range)	96.3 (41.38-2.80) 99.2 (41.38-2.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	7.65 (at 2.81Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6.4_486)	Depositor
R, R_{free}	0.202 , 0.269 0.201 , 0.265	Depositor DCC
R_{free} test set	1728 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	48.4	Xtriage
Anisotropy	0.669	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 29.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8151	wwPDB-VP
Average B, all atoms (Å^2)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.19% 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	0.45	0/3153	0.60	0/4297
1	C	0.45	0/3153	0.58	0/4297
2	B	0.38	0/957	0.53	0/1295
2	D	0.44	0/957	0.60	0/1295
All	All	0.44	0/8220	0.58	0/11184

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	3086	0	3080	85	0
1	C	3086	0	3079	88	0
2	B	936	0	901	49	0
2	D	936	0	901	34	0
3	A	4	0	0	0	0
3	C	4	0	0	0	0
4	A	41	0	0	5	0
4	B	2	0	0	0	0
4	C	45	0	0	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	11	0	0	1	0
All	All	8151	0	7961	251	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 16.

All (251) 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:353:ASP:H	1:C:368:ASN:HD21	1.10	0.94
1:C:53:ILE:HD12	1:C:53:ILE:H	1.35	0.89
1:C:150:THR:HG22	1:C:152:VAL:H	1.39	0.86
1:A:360:ASN:HD22	1:A:362:ARG:H	1.23	0.86
2:B:30:HIS:ND1	2:B:31:PRO:HD2	1.93	0.82
2:D:38:ARG:HD3	2:D:44:ALA:HB2	1.64	0.80
1:C:92:ILE:O	1:C:93:ASN:HB2	1.81	0.80
1:A:353:ASP:H	1:A:368:ASN:HD21	1.30	0.76
2:B:30:HIS:HD2	2:B:32:ASN:ND2	1.84	0.76
1:A:13:SER:HA	4:A:634:HOH:O	1.86	0.75
1:A:148:GLY:H	1:A:251:GLN:NE2	1.84	0.75
2:D:78:LEU:HD22	2:D:91:LYS:HB2	1.69	0.74
1:C:353:ASP:N	1:C:368:ASN:HD21	1.85	0.74
1:C:104:ILE:HG22	1:C:105:TYR:CD2	2.23	0.74
1:C:206:VAL:HG13	1:C:226:ALA:HB2	1.69	0.73
1:A:150:THR:CG2	1:A:152:VAL:H	2.02	0.72
1:C:89:ARG:HG3	1:C:89:ARG:HH11	1.55	0.72
2:B:28:LEU:HD13	2:B:38:ARG:HB2	1.72	0.72
2:B:38:ARG:HD2	2:B:44:ALA:HB2	1.71	0.72
1:C:334:ALA:HB2	1:C:381:TRP:CE2	2.25	0.71
2:D:70:GLN:HE21	2:D:118:VAL:HG21	1.54	0.71
1:A:360:ASN:ND2	1:A:362:ARG:H	1.88	0.71
2:B:30:HIS:CG	2:B:31:PRO:HD2	2.25	0.71
1:C:150:THR:HG21	4:C:603:HOH:O	1.89	0.71
1:A:379:ARG:HG3	2:B:96:ASP:O	1.91	0.70
1:A:21:VAL:HG21	1:A:58:ARG:HB3	1.74	0.69
2:D:70:GLN:HE21	2:D:118:VAL:CG2	2.06	0.69
1:C:9:GLU:O	1:C:13:SER:HB3	1.93	0.69
1:A:179:TYR:O	1:A:261:LYS:HE3	1.93	0.68
2:B:65:LEU:O	2:B:66:GLU:HB2	1.92	0.68
1:C:140:ILE:HG13	1:C:141:GLN:HE21	1.57	0.68
1:C:298:GLN:HE21	1:C:302:ARG:NH2	1.92	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:23:ARG:HD3	1:A:27:ARG:HH21	1.59	0.68
2:B:70:GLN:O	2:B:115:ARG:HB3	1.94	0.68
1:C:104:ILE:HG22	1:C:105:TYR:CE2	2.28	0.67
2:D:67:VAL:HG22	2:D:138:LEU:HD21	1.77	0.67
2:D:78:LEU:HB2	2:D:89:ARG:HG3	1.77	0.67
1:C:182:PRO:HG3	1:C:255:THR:HG23	1.77	0.66
2:B:105:ARG:HH12	2:B:107:TRP:HD1	1.40	0.66
2:B:67:VAL:CG2	2:B:138:LEU:HD21	2.25	0.66
1:C:79:GLN:NE2	1:C:82:GLN:OE1	2.29	0.65
2:D:105:ARG:HH22	2:D:107:TRP:HD1	1.44	0.65
1:C:13:SER:O	4:C:644:HOH:O	2.14	0.65
1:C:148:GLY:H	1:C:251:GLN:NE2	1.95	0.65
1:A:102:ASN:H	1:A:102:ASN:HD22	1.46	0.64
1:A:150:THR:HG22	1:A:152:VAL:H	1.60	0.64
1:A:206:VAL:CG1	1:A:226:ALA:HB2	2.27	0.64
1:C:328:ARG:O	1:C:328:ARG:HD3	1.98	0.63
1:C:298:GLN:O	1:C:302:ARG:HG2	1.98	0.63
1:A:353:ASP:H	1:A:368:ASN:ND2	1.95	0.63
1:A:22:THR:OG1	1:A:25:GLU:HG3	1.99	0.63
1:A:150:THR:HG21	4:A:602:HOH:O	1.98	0.63
1:A:339:LEU:HD11	1:A:346:ARG:HB2	1.81	0.62
1:C:93:ASN:O	1:C:95:PRO:HD3	1.99	0.62
1:C:146:GLY:O	1:C:150:THR:HB	1.99	0.62
1:C:8:ILE:HG12	1:C:29:VAL:HG13	1.81	0.62
1:C:102:ASN:HD22	1:C:102:ASN:H	1.46	0.61
2:D:70:GLN:NE2	2:D:118:VAL:HG21	2.14	0.61
2:D:67:VAL:CG2	2:D:138:LEU:HD21	2.31	0.60
2:B:78:LEU:HD22	2:B:91:LYS:HB2	1.83	0.60
2:B:106:LEU:HD12	2:B:107:TRP:H	1.66	0.60
2:B:71:ASP:HA	2:B:115:ARG:HD2	1.83	0.60
1:C:92:ILE:O	1:C:92:ILE:HD13	2.00	0.60
2:D:144:LEU:O	2:D:145:GLN:HB2	2.00	0.60
1:A:146:GLY:O	1:A:150:THR:HB	2.00	0.60
1:C:236:TYR:CZ	1:C:325:ARG:HB2	2.37	0.60
1:C:150:THR:CG2	1:C:152:VAL:HB	2.31	0.59
1:C:185:ASP:HB3	1:C:188:ALA:HB3	1.83	0.59
1:C:34:ARG:HG2	1:C:34:ARG:HH11	1.66	0.59
1:C:372:LEU:C	1:C:372:LEU:HD23	2.23	0.59
1:A:334:ALA:HB2	1:A:381:TRP:CZ2	2.37	0.58
1:C:286:ALA:HA	1:C:291:LEU:HD12	1.85	0.58
1:A:206:VAL:HG12	1:A:226:ALA:HB2	1.84	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:342:LEU:HD23	1:A:383:ASP:HB2	1.85	0.58
1:C:80:ARG:HD3	1:C:116:ALA:HB1	1.86	0.58
1:A:58:ARG:NH1	4:A:634:HOH:O	2.37	0.58
1:C:150:THR:CG2	1:C:152:VAL:H	2.14	0.57
2:B:122:SER:O	2:B:123:GLU:HB2	2.03	0.57
1:C:81:TYR:CG	1:C:82:GLN:N	2.73	0.57
1:C:140:ILE:HG13	1:C:141:GLN:NE2	2.18	0.57
1:C:298:GLN:HE21	1:C:302:ARG:HH21	1.51	0.57
1:A:268:SER:OG	1:A:270:LYS:HE2	2.03	0.57
2:B:35:VAL:HG22	2:B:35:VAL:O	2.04	0.57
1:C:53:ILE:H	1:C:53:ILE:CD1	2.10	0.57
2:D:32:ASN:C	2:D:32:ASN:HD22	2.08	0.56
2:D:122:SER:O	2:D:123:GLU:HB3	2.06	0.56
1:A:21:VAL:CG2	1:A:58:ARG:HG2	2.36	0.56
1:A:63:GLU:HA	1:A:66:ARG:NH1	2.20	0.56
1:C:35:ASN:O	1:C:35:ASN:ND2	2.38	0.56
1:C:206:VAL:CG1	1:C:226:ALA:HB2	2.36	0.55
1:C:89:ARG:HG3	1:C:89:ARG:NH1	2.20	0.55
1:C:102:ASN:H	1:C:102:ASN:ND2	2.04	0.55
2:B:30:HIS:CE1	2:B:31:PRO:HD2	2.40	0.55
1:C:34:ARG:HG2	1:C:34:ARG:NH1	2.21	0.55
2:B:138:LEU:O	2:B:138:LEU:HG	2.07	0.54
1:A:236:TYR:OH	1:A:294:ASP:OD2	2.11	0.54
2:B:73:PRO:HB3	2:B:116:TRP:CH2	2.43	0.54
2:B:38:ARG:CD	2:B:44:ALA:HB2	2.37	0.54
2:B:92:VAL:HG11	2:B:129:GLU:OE2	2.08	0.54
2:D:30:HIS:CG	2:D:31:PRO:HD2	2.43	0.54
1:A:37:ASN:OD1	1:A:38:VAL:HG22	2.08	0.54
2:B:30:HIS:HD2	2:B:32:ASN:CG	2.10	0.53
1:C:171:LYS:O	1:C:173:PRO:HD3	2.08	0.53
1:C:334:ALA:HB2	1:C:381:TRP:CZ2	2.43	0.53
2:D:35:VAL:HG21	2:D:143:ARG:HH21	1.73	0.53
1:A:150:THR:CG2	1:A:152:VAL:HB	2.39	0.52
2:D:138:LEU:HD12	4:D:206:HOH:O	2.08	0.52
1:A:155:THR:HG22	1:A:263:TYR:CE1	2.45	0.52
2:D:66:GLU:HG2	2:D:68:GLN:NE2	2.25	0.52
2:D:144:LEU:O	2:D:145:GLN:CB	2.57	0.52
1:A:148:GLY:N	1:A:251:GLN:NE2	2.56	0.51
1:A:150:THR:HG23	1:A:152:VAL:H	1.72	0.51
1:C:99:GLN:OE1	1:C:107:PRO:HA	2.11	0.51
1:A:235:LYS:HE2	1:A:294:ASP:OD1	2.09	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:177:THR:O	1:C:179:TYR:N	2.43	0.51
1:A:92:ILE:O	1:A:93:ASN:HB2	2.10	0.50
1:A:365:PRO:O	1:A:368:ASN:HB2	2.11	0.50
2:B:34:LEU:HD12	2:B:35:VAL:N	2.25	0.50
1:A:66:ARG:HG3	1:A:98:THR:HB	1.92	0.50
2:B:64:GLN:HG3	2:B:122:SER:HB2	1.93	0.50
1:C:361:PRO:HA	1:C:364:TRP:CG	2.46	0.50
1:C:206:VAL:HG22	1:C:229:MET:CE	2.42	0.50
1:C:366:ARG:CG	1:C:366:ARG:HH11	2.24	0.49
2:B:39:PRO:HD3	2:B:53:PHE:CE2	2.47	0.49
1:C:298:GLN:N	1:C:299:PRO:CD	2.75	0.49
1:C:298:GLN:NE2	1:C:302:ARG:HH21	2.10	0.49
1:C:401:LEU:O	1:C:402:ASP:HB3	2.11	0.49
2:D:35:VAL:HG21	2:D:143:ARG:NH2	2.26	0.49
1:A:102:ASN:H	1:A:102:ASN:ND2	2.08	0.49
1:C:205:LEU:HD21	1:C:247:ILE:HG22	1.93	0.49
1:C:378:SER:HA	2:D:124:GLN:HE22	1.77	0.49
2:B:74:PRO:HB3	2:B:78:LEU:HD12	1.94	0.49
1:C:361:PRO:HA	1:C:364:TRP:CD2	2.48	0.49
1:A:225:ARG:O	1:A:229:MET:HE2	2.12	0.49
2:D:95:ASP:O	2:D:102:SER:HB3	2.12	0.49
2:B:45:ARG:HH11	2:B:46:ARG:H	1.61	0.48
1:C:206:VAL:HG22	1:C:229:MET:HE3	1.94	0.48
1:C:89:ARG:O	1:C:92:ILE:HD12	2.13	0.48
1:C:387:PRO:HG2	2:D:62:PRO:HG3	1.95	0.48
2:D:104:TYR:CD2	2:D:130:PRO:HD3	2.48	0.48
2:B:30:HIS:CD2	2:B:32:ASN:ND2	2.74	0.48
2:B:27:THR:HG22	2:B:27:THR:O	2.14	0.48
2:D:101:GLY:HA3	2:D:125:SER:O	2.14	0.48
2:D:46:ARG:HB3	2:D:51:PHE:CE2	2.49	0.47
1:A:17:ASP:HA	1:A:19:TRP:CZ3	2.48	0.47
2:B:45:ARG:NH1	2:B:46:ARG:HG2	2.28	0.47
1:A:40:ASP:O	1:A:79:GLN:HG3	2.15	0.47
1:A:344:LYS:HD2	1:A:383:ASP:O	2.14	0.47
1:A:92:ILE:O	1:A:92:ILE:CG2	2.63	0.47
1:A:96:LEU:HG	1:A:100:THR:HG22	1.97	0.47
1:A:24:GLN:HE21	1:A:24:GLN:HB2	1.56	0.46
1:C:235:LYS:HE2	1:C:294:ASP:OD1	2.14	0.46
1:C:301:ARG:HA	1:C:304:LEU:HD12	1.97	0.46
2:B:105:ARG:NH1	2:B:107:TRP:HD1	2.12	0.46
1:A:71:SER:O	1:A:75:ARG:HG3	2.16	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:166:LEU:HB3	1:C:166:LEU:HD13	1.97	0.46
1:C:225:ARG:O	1:C:229:MET:HE2	2.15	0.46
2:B:34:LEU:HA	2:B:144:LEU:HD23	1.97	0.46
2:B:78:LEU:CD2	2:B:91:LYS:HB2	2.45	0.46
2:D:67:VAL:HG22	2:D:138:LEU:CD2	2.44	0.46
2:B:39:PRO:CD	2:B:53:PHE:CE2	2.99	0.46
1:A:346:ARG:HH11	1:A:346:ARG:HB3	1.80	0.46
2:B:129:GLU:HA	2:B:130:PRO:HD3	1.72	0.45
1:A:352:ILE:HG13	1:A:368:ASN:ND2	2.32	0.45
1:A:117:ASP:HB3	1:A:295:LEU:O	2.16	0.45
1:A:21:VAL:HG21	1:A:58:ARG:HG2	1.99	0.45
2:B:38:ARG:HA	2:B:39:PRO:HD3	1.78	0.45
1:A:23:ARG:HD3	1:A:27:ARG:NH2	2.31	0.45
1:A:57:GLN:HG3	1:A:90:SER:HB2	1.99	0.45
1:C:334:ALA:HB2	1:C:381:TRP:NE1	2.31	0.45
1:A:107:PRO:O	1:A:110:THR:HB	2.16	0.45
1:A:225:ARG:C	1:A:229:MET:HE2	2.37	0.45
1:A:251:GLN:NE2	4:A:609:HOH:O	2.49	0.45
1:C:99:GLN:CG	1:C:99:GLN:O	2.65	0.44
1:A:387:PRO:HD2	2:B:59:LEU:O	2.17	0.44
2:B:39:PRO:HD2	2:B:53:PHE:CD2	2.52	0.44
1:C:379:ARG:HA	1:C:380:PRO:HD3	1.88	0.44
2:D:131:THR:O	2:D:132:PHE:HB2	2.18	0.44
1:C:360:ASN:HD22	1:C:362:ARG:H	1.65	0.44
2:B:106:LEU:HD22	2:B:132:PHE:CG	2.53	0.44
1:A:361:PRO:HA	1:A:364:TRP:CG	2.53	0.44
1:C:23:ARG:NH2	1:C:63:GLU:OE2	2.49	0.44
1:C:366:ARG:CG	1:C:366:ARG:NH1	2.80	0.44
2:D:66:GLU:HG2	2:D:68:GLN:HE21	1.82	0.44
2:D:91:LYS:HE2	2:D:91:LYS:HB3	1.64	0.44
1:C:53:ILE:HD12	1:C:53:ILE:N	2.16	0.44
1:A:286:ALA:HA	1:A:291:LEU:HD12	2.00	0.44
1:A:374:SER:HB2	1:A:390:PRO:HG3	2.00	0.44
1:A:334:ALA:HB2	1:A:381:TRP:CE2	2.53	0.43
1:A:328:ARG:O	1:A:328:ARG:HD3	2.18	0.43
1:A:361:PRO:HA	1:A:364:TRP:CD1	2.53	0.43
1:C:102:ASN:HB2	1:C:103:TRP:CE3	2.53	0.43
1:A:43:ILE:HG13	1:A:76:THR:HG21	2.00	0.43
1:C:38:VAL:N	1:C:39:PRO:CD	2.82	0.43
2:B:32:ASN:ND2	2:B:32:ASN:C	2.72	0.43
2:B:38:ARG:HG3	2:B:53:PHE:HE2	1.83	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:177:THR:HG22	1:C:178:LYS:N	2.33	0.43
1:C:225:ARG:C	1:C:229:MET:HE2	2.39	0.43
1:A:333:LEU:O	1:A:337:GLN:HG2	2.18	0.43
1:A:109:ILE:HA	1:A:109:ILE:HD12	1.72	0.43
1:A:277:GLY:HA3	1:A:319:ASN:ND2	2.33	0.43
1:C:170:ASN:O	1:C:171:LYS:HB2	2.19	0.43
1:C:401:LEU:HD23	1:C:401:LEU:HA	1.84	0.43
1:A:196:GLN:HE21	1:A:200:ASN:HD21	1.67	0.43
1:C:182:PRO:CG	1:C:255:THR:HG23	2.45	0.43
1:A:165:GLN:HE21	1:A:165:GLN:HB3	1.55	0.43
1:A:333:LEU:O	1:A:333:LEU:HD12	2.19	0.43
1:C:210:ILE:HB	1:C:316:ASP:HB2	2.00	0.42
1:C:323:THR:HG23	1:C:376:TYR:OH	2.20	0.42
1:A:228:VAL:HG12	1:A:320:ILE:HG21	2.00	0.42
1:A:298:GLN:HE21	1:A:302:ARG:HE	1.66	0.42
1:C:37:ASN:OD1	1:C:38:VAL:HG13	2.18	0.42
1:A:313:LEU:HD23	1:A:313:LEU:HA	1.76	0.42
2:B:131:THR:O	2:B:132:PHE:HB2	2.19	0.42
1:A:104:ILE:HG22	1:A:105:TYR:CD2	2.55	0.42
2:B:36:VAL:HG13	2:B:142:ALA:HB2	2.02	0.42
1:C:40:ASP:OD1	1:C:79:GLN:HB2	2.19	0.42
1:C:205:LEU:O	1:C:225:ARG:HD2	2.19	0.42
2:B:45:ARG:HD2	2:B:45:ARG:HA	1.82	0.42
2:B:92:VAL:HG11	2:B:129:GLU:CD	2.40	0.42
2:B:119:VAL:HG23	2:B:139:LEU:HD13	2.01	0.42
1:C:366:ARG:NH1	1:C:366:ARG:HG2	2.33	0.42
1:A:62:PRO:O	1:A:66:ARG:HB2	2.20	0.42
2:D:104:TYR:HE2	2:D:125:SER:HB3	1.85	0.42
1:A:349:PHE:CD2	1:A:371:ALA:HB2	2.54	0.42
2:B:53:PHE:CD1	2:B:53:PHE:N	2.88	0.42
1:A:379:ARG:HA	1:A:380:PRO:HD3	1.93	0.41
1:A:353:ASP:N	1:A:368:ASN:HD21	2.05	0.41
1:C:389:TRP:N	1:C:390:PRO:CD	2.84	0.41
1:A:380:PRO:HG3	4:A:603:HOH:O	2.20	0.41
2:B:119:VAL:HG23	2:B:139:LEU:HD22	2.03	0.41
1:A:366:ARG:HA	1:A:366:ARG:HD3	1.82	0.41
1:C:286:ALA:HA	1:C:291:LEU:CD1	2.50	0.41
2:D:77:ASP:OD2	2:D:77:ASP:C	2.58	0.41
2:B:29:THR:HG22	2:B:35:VAL:HB	2.03	0.41
1:C:25:GLU:O	1:C:29:VAL:HG23	2.19	0.41
1:A:104:ILE:HG22	1:A:105:TYR:CE2	2.55	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:298:GLN:CG	1:C:302:ARG:HE	2.34	0.41
2:D:129:GLU:HA	2:D:130:PRO:HD3	1.76	0.41
1:A:23:ARG:HG3	1:A:64:LEU:HD11	2.03	0.41
1:A:106:PHE:HE1	1:A:308:ALA:HB1	1.85	0.41
1:A:20:GLN:HE21	1:A:20:GLN:HB3	1.66	0.40
1:A:315:SER:HB3	1:A:318:PHE:HD1	1.87	0.40
2:D:49:GLU:H	2:D:49:GLU:CD	2.25	0.40
2:B:38:ARG:HG3	2:B:53:PHE:CE2	2.55	0.40
1:C:296:LEU:O	1:C:301:ARG:HD3	2.21	0.40
2:D:90:TYR:HA	2:D:107:TRP:O	2.21	0.40
1:A:96:LEU:HD12	1:A:96:LEU:HA	1.89	0.40
1:C:298:GLN:N	1:C:299:PRO:HD2	2.36	0.40
1:A:155:THR:HG22	1:A:263:TYR:CZ	2.56	0.40
2:D:38:ARG:HA	2:D:39:PRO:HD3	1.91	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	400/401 (100%)	383 (96%)	15 (4%)	2 (0%)	29 61
1	C	400/401 (100%)	373 (93%)	23 (6%)	4 (1%)	15 44
2	B	118/123 (96%)	105 (89%)	10 (8%)	3 (2%)	5 19
2	D	118/123 (96%)	106 (90%)	9 (8%)	3 (2%)	5 19
All	All	1036/1048 (99%)	967 (93%)	57 (6%)	12 (1%)	13 39

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	66	GLU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	178	LYS
2	D	79	ALA
2	B	32	ASN
2	B	123	GLU
1	C	93	ASN
2	D	77	ASP
1	A	93	ASN
1	A	299	PRO
2	D	123	GLU
1	C	177	THR
1	C	94	ASN

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	324/323 (100%)	298 (92%)	26 (8%)	12 34
1	C	324/323 (100%)	308 (95%)	16 (5%)	25 57
2	B	93/96 (97%)	85 (91%)	8 (9%)	10 30
2	D	93/96 (97%)	83 (89%)	10 (11%)	6 19
All	All	834/838 (100%)	774 (93%)	60 (7%)	14 38

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

Mol	Chain	Res	Type
1	A	10	SER
1	A	20	GLN
1	A	24	GLN
1	A	38	VAL
1	A	58	ARG
1	A	77	THR
1	A	88	ILE
1	A	91	LEU
1	A	92	ILE
1	A	96	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	102	ASN
1	A	133	THR
1	A	141	GLN
1	A	150	THR
1	A	165	GLN
1	A	166	LEU
1	A	169	LEU
1	A	230	SER
1	A	284	SER
1	A	315	SER
1	A	317	GLU
1	A	357	TYR
1	A	366	ARG
1	A	368	ASN
1	A	379	ARG
1	A	391	MET
2	B	32	ASN
2	B	35	VAL
2	B	36	VAL
2	B	64	GLN
2	B	85	ASP
2	B	87	GLU
2	B	139	LEU
2	B	141	ARG
1	C	9	GLU
1	C	51	SER
1	C	78	MET
1	C	92	ILE
1	C	100	THR
1	C	102	ASN
1	C	104	ILE
1	C	150	THR
1	C	175	THR
1	C	271	SER
1	C	284	SER
1	C	317	GLU
1	C	366	ARG
1	C	375	GLU
1	C	383	ASP
1	C	391	MET
2	D	32	ASN
2	D	35	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	D	40	VAL
2	D	49	GLU
2	D	67	VAL
2	D	77	ASP
2	D	83	LEU
2	D	85	ASP
2	D	87	GLU
2	D	105	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	GLN
1	A	24	GLN
1	A	79	GLN
1	A	102	ASN
1	A	165	GLN
1	A	196	GLN
1	A	208	GLN
1	A	251	GLN
1	A	298	GLN
1	A	337	GLN
1	A	360	ASN
1	A	368	ASN
2	B	30	HIS
2	B	32	ASN
2	B	64	GLN
1	C	24	GLN
1	C	35	ASN
1	C	79	GLN
1	C	102	ASN
1	C	141	GLN
1	C	165	GLN
1	C	170	ASN
1	C	208	GLN
1	C	251	GLN
1	C	298	GLN
1	C	337	GLN
1	C	360	ASN
1	C	368	ASN
2	D	32	ASN
2	D	68	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	D	70	GLN

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 8 ligands modelled in this entry, 8 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	401/401 (100%)	-0.44	1 (0%) 95 94	29, 47, 68, 92	0
1	C	401/401 (100%)	-0.35	1 (0%) 95 94	29, 50, 76, 98	0
2	B	120/123 (97%)	0.80	22 (18%) 1 1	35, 99, 135, 142	0
2	D	120/123 (97%)	-0.00	3 (2%) 57 47	36, 71, 91, 105	0
All	All	1042/1048 (99%)	-0.21	27 (2%) 56 46	29, 52, 105, 142	0

All (27) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	145	GLN	3.9
1	C	93	ASN	3.8
2	B	85	ASP	3.6
2	B	143	ARG	3.6
2	B	68	GLN	3.4
2	B	67	VAL	3.4
2	B	26	MET	3.4
2	B	84	GLY	3.4
2	B	69	ARG	3.3
2	B	76	PRO	3.0
2	B	71	ASP	2.9
2	B	33	GLY	2.9
2	B	45	ARG	2.8
2	D	31	PRO	2.8
2	B	145	GLN	2.7
2	B	70	GLN	2.7
2	B	118	VAL	2.7
1	A	94	ASN	2.6
2	B	109	ALA	2.6
2	B	46	ARG	2.6
2	B	31	PRO	2.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	B	34	LEU	2.5
2	B	35	VAL	2.3
2	B	51	PHE	2.3
2	D	26	MET	2.1
2	B	112	ALA	2.1
2	B	117	ILE	2.1

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
3	CA	C	501	1/1	0.96	0.16	65,65,65,65	0
3	CA	C	504	1/1	0.96	0.17	49,49,49,49	0
3	CA	A	501	1/1	0.97	0.10	81,81,81,81	0
3	CA	A	502	1/1	0.97	0.21	57,57,57,57	0
3	CA	C	502	1/1	0.98	0.17	53,53,53,53	0
3	CA	C	503	1/1	0.98	0.16	38,38,38,38	0
3	CA	A	504	1/1	0.98	0.21	40,40,40,40	0
3	CA	A	503	1/1	0.99	0.19	39,39,39,39	0

6.5 Other polymers (i)

There are no such residues in this entry.