Full wwPDB X-ray Structure Validation Report (i)

Aug 26, 2021 – 04:20 PM EDT

PDB ID	:	7LPO
Title	:	Crystal structure of Cryptococcus neoformans sterylglucosidase 1 with tris
Authors	:	Pereira de Sa, N.; Del Poeta, M.; Airola, M.V.
Deposited on	:	2021-02-12
Resolution	:	2.13 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 (i) symbol.

The following versions of software and data (see references (1)) were used in the production of this report:

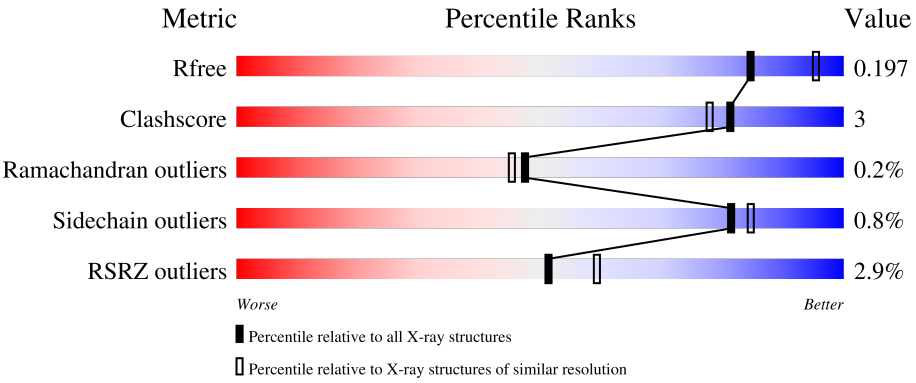
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.23.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.1

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 2.13 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	2523 (2.16-2.12)
Clashscore	141614	2653 (2.16-2.12)
Ramachandran outliers	138981	2618 (2.16-2.12)
Sidechain outliers	138945	2617 (2.16-2.12)
RSRZ outliers	127900	2485 (2.16-2.12)

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	797	2% 87% 9%
1	B	797	2% 88% 8%
1	C	797	4% 82% 8% 9%
1	D	797	3% 85% 6% 9%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 47454 atoms, of which 22138 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.

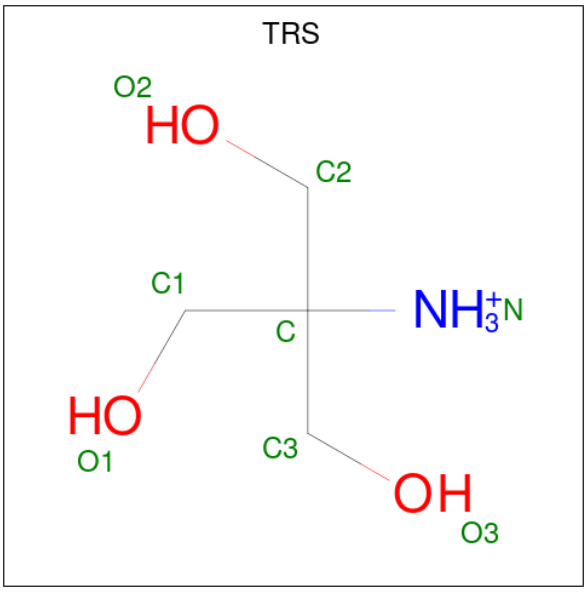
- Molecule 1 is a protein called Cytoplasmic protein.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	724	Total	C	H	N	O	S	0	2	0
			11267	3689	5507	988	1060	23			
1	B	735	Total	C	H	N	O	S	0	2	0
			11427	3742	5584	999	1079	23			
1	C	723	Total	C	H	N	O	S	0	1	0
			11210	3672	5474	978	1062	24			
1	D	726	Total	C	H	N	O	S	0	2	0
			11298	3699	5525	987	1064	23			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	SER	-	expression tag	UNP J9W473
B	0	SER	-	expression tag	UNP J9W473
C	0	SER	-	expression tag	UNP J9W473
D	0	SER	-	expression tag	UNP J9W473

- Molecule 2 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: TRS) (formula: $C_4H_{12}NO_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C H N O 20 4 12 1 3	0	0
2	B	1	Total C H N O 20 4 12 1 3	0	0
2	C	1	Total C H N O 20 4 12 1 3	0	0
2	D	1	Total C H N O 20 4 12 1 3	0	0

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total Mg 1 1	0	0

- Molecule 4 is water.

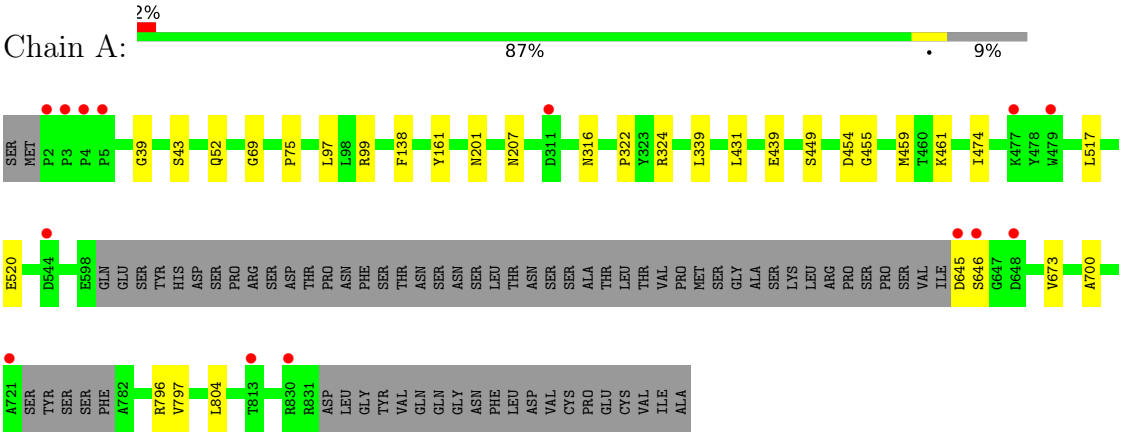
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	628	Total O 628 628	0	0
4	B	611	Total O 611 611	0	0
4	C	521	Total O 521 521	0	0
4	D	411	Total O 411 411	0	0

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.

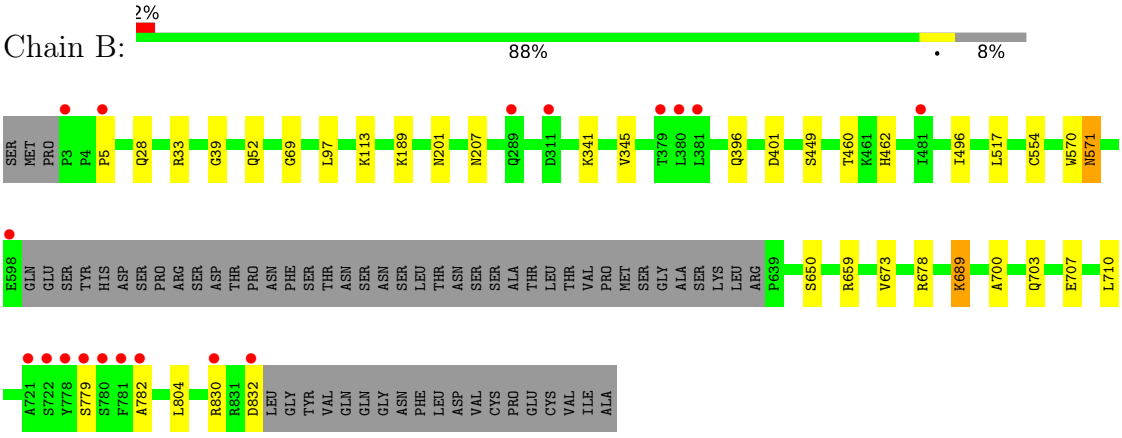
• Molecule 1: Cytoplasmic protein

Chain A:



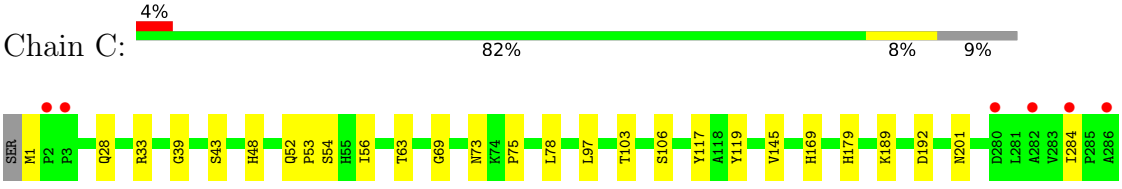
• Molecule 1: Cytoplasmic protein

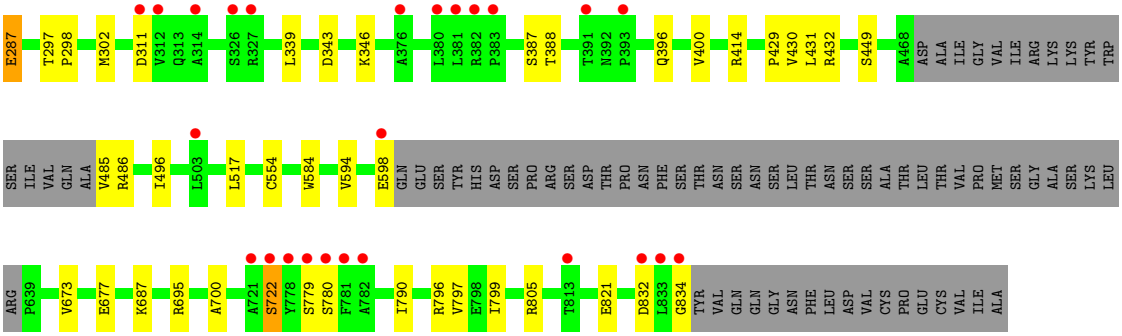
Chain B:



• Molecule 1: Cytoplasmic protein

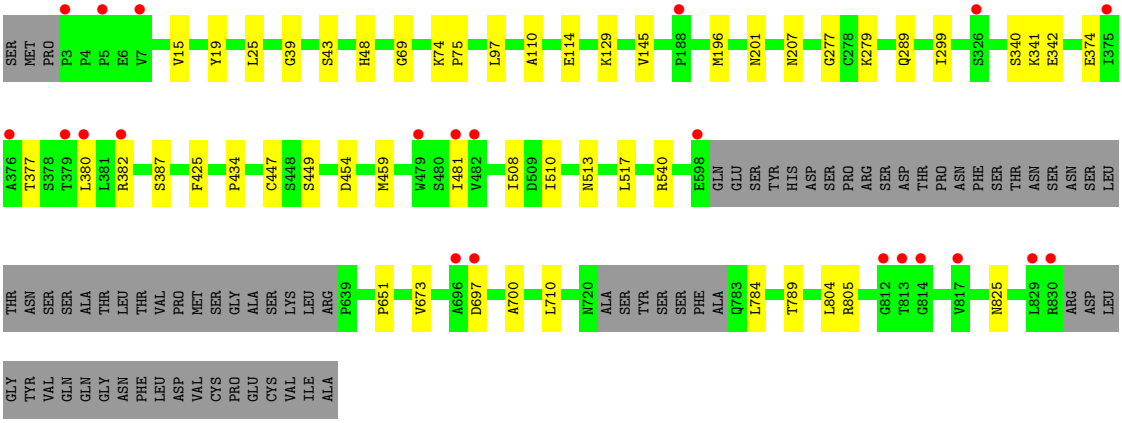
Chain C:





- Molecule 1: Cytoplasmic protein

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	98.60Å 126.61Å 126.66Å 90.00° 95.46° 90.00°	Depositor
Resolution (Å)	47.28 – 2.13 47.28 – 2.13	Depositor EDS
% Data completeness (in resolution range)	96.5 (47.28-2.13) 96.4 (47.28-2.13)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.81 (at 2.14Å)	Xtriage
Refinement program	PHENIX 1.17.1-3660	Depositor
R, R_{free}	0.157 , 0.198 0.157 , 0.197	Depositor DCC
R_{free} test set	8287 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å^2)	22.9	Xtriage
Anisotropy	0.579	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.40 , 48.0	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	0.96	EDS
Total number of atoms	47454	wwPDB-VP
Average B, all atoms (Å^2)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.04% 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: TRS, MG

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	0.35	0/5959	0.52	0/8124
1	B	0.35	0/6046	0.51	0/8244
1	C	0.35	0/5922	0.52	0/8075
1	D	0.33	0/5973	0.49	0/8144
All	All	0.35	0/23900	0.51	0/32587

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	5760	5507	5496	17	0
1	B	5843	5584	5572	28	1
1	C	5736	5474	5475	39	0
1	D	5773	5525	5511	35	1
2	A	8	12	12	1	0
2	B	8	12	12	0	0
2	C	8	12	12	0	0
2	D	8	12	12	0	0
3	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	628	0	0	5	2
4	B	611	0	0	9	1
4	C	521	0	0	8	2
4	D	411	0	0	4	1
All	All	25316	22138	22102	118	4

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 3.

All (118) 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:D:342:GLU:OE2	4:D:1001:HOH:O	1.79	0.98
1:D:341:LYS:NZ	4:D:1002:HOH:O	1.96	0.97
1:B:396:GLN:NE2	4:B:1001:HOH:O	1.99	0.93
1:C:311:ASP:OD1	4:C:1001:HOH:O	1.87	0.92
1:A:324:ARG:NH1	4:A:1001:HOH:O	2.09	0.85
1:C:722:SER:O	1:C:780:SER:OG	2.05	0.75
1:D:341:LYS:H	1:D:341:LYS:HE2	1.53	0.74
1:C:790:ILE:HD11	1:C:799:ILE:HD11	1.70	0.74
1:B:689:LYS:NZ	4:B:1002:HOH:O	2.13	0.73
1:B:341:LYS:NZ	1:B:345:VAL:HG23	2.04	0.72
1:C:103:THR:O	1:C:106:SER:OG	2.09	0.70
1:B:460:THR:O	1:B:462[B]:HIS:ND1	2.27	0.67
1:D:651:PRO:HG3	1:D:784:LEU:HD21	1.77	0.66
1:B:832:ASP:OD2	4:B:1003:HOH:O	2.14	0.66
1:C:169:HIS:NE2	4:C:1005:HOH:O	2.28	0.65
1:B:707:GLU:OE1	4:B:1004:HOH:O	2.16	0.63
1:D:340:SER:HB2	4:D:1002:HOH:O	2.03	0.59
1:A:797:VAL:HB	1:A:804:LEU:HD11	1.84	0.59
1:D:277:GLY:O	1:D:279:LYS:HD3	2.03	0.58
1:D:341:LYS:H	1:D:341:LYS:CE	2.16	0.57
1:D:382:ARG:HH11	1:D:382:ARG:HG2	1.70	0.57
1:D:25:LEU:HD21	1:D:508:ILE:HD13	1.85	0.56
1:C:346:LYS:NZ	4:C:1014:HOH:O	2.38	0.56
1:B:341:LYS:HZ2	1:B:345:VAL:HG23	1.71	0.55
1:D:196:MET:HG3	1:D:459:MET:HE2	1.88	0.55
1:C:486:ARG:NH1	4:C:1009:HOH:O	2.34	0.54
1:D:145:VAL:HG11	1:D:201:ASN:HB2	1.88	0.54
1:D:481:ILE:H	1:D:481:ILE:HD12	1.73	0.53
1:A:520:GLU:OE1	2:A:901:TRS:N	2.36	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:52:GLN:HG3	4:B:1007:HOH:O	2.08	0.53
1:D:374:GLU:HG2	1:D:377:THR:HG22	1.91	0.53
1:A:431:LEU:HD22	1:A:474:ILE:HD13	1.91	0.53
1:C:189:LYS:HE2	1:C:192:ASP:OD2	2.09	0.52
1:D:299:ILE:HD13	1:D:380:LEU:HD13	1.92	0.51
1:C:449:SER:HA	1:C:517:LEU:O	2.11	0.51
1:B:678:ARG:HD3	4:B:1002:HOH:O	2.11	0.51
1:C:496:ILE:HD12	1:C:554:CYS:SG	2.51	0.50
1:D:110:ALA:HB3	1:D:114:GLU:HB3	1.93	0.50
1:B:449:SER:HA	1:B:517:LEU:O	2.11	0.50
1:D:43:SER:HB3	1:D:75:PRO:HB3	1.94	0.50
1:D:201:ASN:O	1:D:207:ASN:HB2	2.11	0.50
1:B:710:LEU:HD11	1:B:804:LEU:HD12	1.95	0.49
1:C:594:VAL:HG22	4:C:1067:HOH:O	2.13	0.49
1:C:52[B]:GLN:HE22	1:C:63:THR:HG21	1.76	0.48
1:B:341:LYS:HZ1	1:B:345:VAL:HG23	1.75	0.48
1:A:161:TYR:HD1	1:A:339:LEU:HD11	1.78	0.48
1:A:439:GLU:OE1	4:A:1002:HOH:O	2.19	0.48
1:A:449:SER:HA	1:A:517:LEU:O	2.13	0.48
1:C:54:SER:CB	1:C:179:HIS:HD1	2.26	0.48
1:D:697:ASP:OD1	1:D:697:ASP:N	2.46	0.48
1:C:673:VAL:HG11	1:C:700:ALA:HB2	1.96	0.47
1:D:710:LEU:HD11	1:D:804:LEU:HD12	1.95	0.47
1:D:341:LYS:CE	4:D:1001:HOH:O	2.61	0.47
1:B:201:ASN:O	1:B:207:ASN:HB2	2.15	0.47
1:A:796:ARG:NH1	4:A:1008:HOH:O	2.38	0.47
1:C:485:VAL:N	4:C:1030:HOH:O	2.48	0.47
1:D:39:GLY:HA3	1:D:97:LEU:O	2.16	0.46
1:C:387:SER:OG	1:C:388:THR:HG23	2.15	0.46
1:D:434:PRO:O	1:D:510:ILE:HG21	2.15	0.46
1:C:106:SER:HB2	1:C:119:TYR:CE2	2.51	0.46
1:C:298:PRO:O	1:C:302:MET:HE2	2.16	0.46
1:B:28:GLN:HA	1:B:33:ARG:O	2.16	0.45
1:B:401:ASP:OD2	4:B:1005:HOH:O	2.21	0.45
1:D:508:ILE:HD11	1:D:513:ASN:OD1	2.16	0.45
1:D:449:SER:HA	1:D:517:LEU:O	2.14	0.45
1:D:481:ILE:HD12	1:D:481:ILE:N	2.31	0.45
1:B:5:PRO:HG3	4:B:1421:HOH:O	2.17	0.45
1:C:832:ASP:OD1	1:C:834:GLY:N	2.50	0.45
1:B:570:TRP:CD2	1:B:571:ASN:HB3	2.52	0.45
1:C:43:SER:HB3	1:C:75:PRO:HB3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:145:VAL:HG11	1:C:201:ASN:HB2	1.99	0.44
1:C:414:ARG:NH1	4:C:1025:HOH:O	2.46	0.44
1:C:790:ILE:HD11	1:C:799:ILE:CD1	2.43	0.44
1:A:43:SER:HB3	1:A:75:PRO:HB3	1.97	0.44
1:D:341:LYS:H	1:D:341:LYS:CD	2.31	0.44
1:C:339:LEU:HD22	1:C:343:ASP:HB3	2.00	0.44
1:A:39:GLY:HA3	1:A:97:LEU:O	2.18	0.44
1:C:598:GLU:HA	1:C:598:GLU:OE2	2.18	0.44
1:C:287:GLU:H	1:C:287:GLU:CD	2.21	0.43
1:C:52[B]:GLN:HE22	1:C:63:THR:CG2	2.31	0.43
1:C:54:SER:HB3	1:C:584:TRP:HA	2.00	0.43
1:B:517:LEU:C	1:B:517:LEU:HD23	2.39	0.43
1:C:400:VAL:HG22	1:C:429:PRO:HG2	2.00	0.43
1:C:73:ASN:ND2	1:C:78:LEU:H	2.17	0.43
1:D:804:LEU:C	1:D:804:LEU:HD23	2.39	0.43
1:D:517:LEU:C	1:D:517:LEU:HD23	2.39	0.43
1:B:673:VAL:HG11	1:B:700:ALA:HB2	1.99	0.43
1:B:341:LYS:C	1:B:341:LYS:HD3	2.39	0.42
1:C:39:GLY:HA3	1:C:97:LEU:O	2.19	0.42
1:A:201:ASN:O	1:A:207:ASN:HB2	2.20	0.42
1:A:461:LYS:HE2	4:A:1253:HOH:O	2.19	0.42
1:B:345:VAL:HG13	1:C:117:TYR:CD2	2.55	0.42
1:C:797:VAL:HA	1:C:805:ARG:O	2.20	0.42
1:C:430:VAL:HG12	1:C:431:LEU:HG	2.01	0.42
1:D:425:PHE:HA	1:D:447:CYS:O	2.19	0.42
1:B:39:GLY:HA3	1:B:97:LEU:O	2.20	0.42
1:B:113:LYS:NZ	4:B:1041:HOH:O	2.53	0.41
1:A:52:GLN:NE2	4:A:1020:HOH:O	2.46	0.41
1:A:455:GLY:O	1:A:459:MET:HG2	2.20	0.41
1:B:570:TRP:HA	1:B:571:ASN:HB3	2.02	0.41
1:B:830:ARG:HA	1:B:830:ARG:HD3	1.95	0.41
1:A:673:VAL:HG11	1:A:700:ALA:HB2	2.02	0.41
1:D:15:VAL:HB	1:D:19:TYR:CG	2.55	0.41
1:C:48:HIS:HE1	4:C:1097:HOH:O	2.03	0.41
1:C:284:ILE:HG12	1:C:297:THR:HG22	2.01	0.41
1:B:779:SER:HA	1:B:782:ALA:O	2.20	0.41
1:C:53:PRO:HG2	1:C:56:ILE:HD12	2.03	0.41
1:A:316:ASN:O	1:A:322:PRO:HA	2.21	0.41
1:C:28:GLN:HA	1:C:33:ARG:O	2.20	0.41
1:C:687:LYS:HE2	1:C:821:GLU:HB3	2.02	0.41
1:D:48:HIS:O	1:D:74:LYS:NZ	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:99:ARG:HD2	1:A:138:PHE:CZ	2.56	0.40
1:D:673:VAL:HG11	1:D:700:ALA:HB2	2.02	0.40
1:D:789:THR:OG1	1:D:825:ASN:OD1	2.36	0.40
1:B:804:LEU:HD23	1:B:804:LEU:C	2.41	0.40
1:D:279:LYS:HA	1:D:387:SER:OG	2.21	0.40
1:B:496:ILE:HD12	1:B:554:CYS:SG	2.61	0.40
1:D:804:LEU:HD23	1:D:805:ARG:N	2.36	0.40

All (4) 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)
4:C:1489:HOH:O	4:D:1410:HOH:O[2_544]	1.95	0.25
1:B:703:GLN:OE1	4:A:1610:HOH:O[2_555]	2.07	0.13
4:A:1624:HOH:O	4:C:1311:HOH:O[2_544]	2.12	0.08
1:D:114:GLU:OE2	4:B:1581:HOH:O[1_554]	2.15	0.05

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	720/797 (90%)	697 (97%)	21 (3%)	2 (0%)	41	36
1	B	733/797 (92%)	709 (97%)	23 (3%)	1 (0%)	51	51
1	C	718/797 (90%)	691 (96%)	26 (4%)	1 (0%)	51	51
1	D	722/797 (91%)	696 (96%)	24 (3%)	2 (0%)	41	36
All	All	2893/3188 (91%)	2793 (96%)	94 (3%)	6 (0%)	47	45

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	454	ASP
1	A	454	ASP
1	D	69	GLY
1	C	69	GLY
1	A	69	GLY
1	B	69	GLY

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	605/670 (90%)	603 (100%)	2 (0%)	92 94
1	B	616/670 (92%)	611 (99%)	5 (1%)	81 85
1	C	605/670 (90%)	596 (98%)	9 (2%)	65 68
1	D	609/670 (91%)	606 (100%)	3 (0%)	88 91
All	All	2435/2680 (91%)	2416 (99%)	19 (1%)	81 85

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	645	ASP
1	A	646	SER
1	B	189	LYS
1	B	571	ASN
1	B	650	SER
1	B	659	ARG
1	B	689	LYS
1	C	1	MET
1	C	287	GLU
1	C	396	GLN
1	C	432	ARG
1	C	677	GLU
1	C	695	ARG
1	C	722	SER
1	C	779	SER
1	C	796	ARG

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Mol	Chain	Res	Type
1	D	129	LYS
1	D	289	GLN
1	D	540	ARG

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

Mol	Chain	Res	Type
1	A	52	GLN
1	A	549	GLN
1	C	48	HIS
1	C	73	ASN
1	C	505	GLN
1	D	823	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 5 ligands modelled in this entry, 1 is monoatomic - leaving 4 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	TRS	B	901	-	7,7,7	1.66	1 (14%)	9,9,9	2.12	2 (22%)
2	TRS	D	901	-	7,7,7	1.69	1 (14%)	9,9,9	2.05	3 (33%)
2	TRS	C	901	-	7,7,7	1.65	1 (14%)	9,9,9	2.21	3 (33%)
2	TRS	A	901	-	7,7,7	1.68	1 (14%)	9,9,9	2.16	3 (33%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	TRS	B	901	-	-	5/9/9/9	-
2	TRS	D	901	-	-	0/9/9/9	-
2	TRS	C	901	-	-	2/9/9/9	-
2	TRS	A	901	-	-	0/9/9/9	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	901	TRS	C-N	3.93	1.62	1.49
2	C	901	TRS	C-N	3.89	1.62	1.49
2	A	901	TRS	C-N	3.88	1.62	1.49
2	B	901	TRS	C-N	3.82	1.62	1.49

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	901	TRS	C2-C-N	4.66	121.89	107.98
2	A	901	TRS	C3-C-N	4.41	121.13	107.98
2	B	901	TRS	C2-C-N	4.41	121.13	107.98
2	D	901	TRS	C3-C-N	3.81	119.34	107.98
2	B	901	TRS	C2-C-C1	-3.05	101.36	110.81
2	C	901	TRS	C2-C-C1	-3.03	101.43	110.81
2	A	901	TRS	C3-C-C1	-2.84	102.01	110.81
2	D	901	TRS	C3-C-C1	-2.70	102.43	110.81
2	D	901	TRS	C2-C-N	2.51	115.47	107.98
2	A	901	TRS	C2-C-N	2.14	114.38	107.98
2	C	901	TRS	C3-C-C1	-2.02	104.56	110.81

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	901	TRS	N-C-C3-O3
2	C	901	TRS	N-C-C1-O1
2	B	901	TRS	C2-C-C1-O1
2	B	901	TRS	C3-C-C1-O1
2	B	901	TRS	C1-C-C3-O3
2	C	901	TRS	C3-C-C1-O1
2	B	901	TRS	N-C-C1-O1

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	901	TRS	1	0

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	724/797 (90%)	-0.15	14 (1%)	66	72	14, 22, 46, 109	0
1	B	735/797 (92%)	-0.07	18 (2%)	59	65	14, 22, 47, 96	0
1	C	723/797 (90%)	0.08	31 (4%)	35	43	15, 24, 48, 93	0
1	D	726/797 (91%)	0.02	22 (3%)	50	58	17, 31, 52, 104	0
All	All	2908/3188 (91%)	-0.03	85 (2%)	51	59	14, 25, 49, 109	0

All (85) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	781	PHE	9.6
1	B	778	TYR	8.7
1	C	781	PHE	7.8
1	A	2	PRO	6.8
1	D	479	TRP	6.4
1	A	3	PRO	5.4
1	B	722	SER	5.4
1	C	833	LEU	5.0
1	C	834	GLY	5.0
1	B	3	PRO	4.8
1	C	778	TYR	4.7
1	D	7	VAL	4.5
1	D	814	GLY	4.4
1	C	311	ASP	4.3
1	A	721	ALA	4.3
1	B	782	ALA	4.2
1	B	779	SER	4.2
1	C	722	SER	4.1
1	B	721	ALA	4.1
1	D	813	THR	4.1
1	A	479	TRP	4.0

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Mol	Chain	Res	Type	RSRZ
1	B	780	SER	3.9
1	C	721	ALA	3.6
1	A	544	ASP	3.6
1	D	3	PRO	3.6
1	D	696	ALA	3.4
1	C	393	PRO	3.3
1	C	779	SER	3.3
1	B	830	ARG	3.2
1	A	648	ASP	3.2
1	C	780	SER	3.2
1	C	832	ASP	3.2
1	C	2	PRO	3.1
1	D	379	THR	3.1
1	B	832	ASP	3.1
1	C	286	ALA	3.0
1	C	326	SER	3.0
1	C	380	LEU	2.9
1	D	376	ALA	2.9
1	D	380	LEU	2.7
1	A	477	LYS	2.7
1	C	312	VAL	2.6
1	D	598	GLU	2.6
1	B	289	GLN	2.6
1	A	4	PRO	2.5
1	C	284	ILE	2.5
1	D	188	PRO	2.5
1	B	598	GLU	2.5
1	A	813	THR	2.4
1	B	311	ASP	2.4
1	D	812	GLY	2.4
1	C	813	THR	2.4
1	C	314	ALA	2.4
1	D	5	PRO	2.4
1	B	380	LEU	2.4
1	B	5	PRO	2.4
1	A	646	SER	2.3
1	D	829	LEU	2.3
1	C	391	THR	2.3
1	D	697	ASP	2.3
1	A	645	ASP	2.2
1	C	280	ASP	2.2
1	A	5	PRO	2.2

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Mol	Chain	Res	Type	RSRZ
1	D	482	VAL	2.2
1	B	379	THR	2.2
1	C	376	ALA	2.2
1	C	327	ARG	2.2
1	C	382	ARG	2.2
1	A	830	ARG	2.2
1	D	375	ILE	2.1
1	B	381	LEU	2.1
1	D	481	ILE	2.1
1	C	383	PRO	2.1
1	D	382	ARG	2.1
1	D	830	ARG	2.1
1	D	326	SER	2.1
1	C	782	ALA	2.1
1	C	598	GLU	2.1
1	B	481	ILE	2.1
1	C	503	LEU	2.1
1	C	282	ALA	2.1
1	D	817	VAL	2.0
1	C	3	PRO	2.0
1	C	381	LEU	2.0
1	A	311	ASP	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	TRS	B	901	8/8	0.90	0.17	25,31,37,40	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	TRS	D	901	8/8	0.91	0.17	30,36,40,40	0
2	TRS	C	901	8/8	0.92	0.22	30,36,43,44	0
2	TRS	A	901	8/8	0.93	0.14	23,28,33,35	0
3	MG	B	902	1/1	0.97	0.12	24,24,24,24	0

6.5 Other polymers (i)

There are no such residues in this entry.