Full wwPDB X-ray Structure Validation Report ⓘ

Oct 5, 2024 – 01:26 pm BST

PDB ID : 6HZE
Title : BP0997, GH138 enzyme targeting pectin rhamnogalacturonan II
Authors : Basle, A.; Cartmell, A.; Labourel, A.; Gilbert, H.
Deposited on : 2018-10-23
Resolution : 2.70 Å(reported)

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

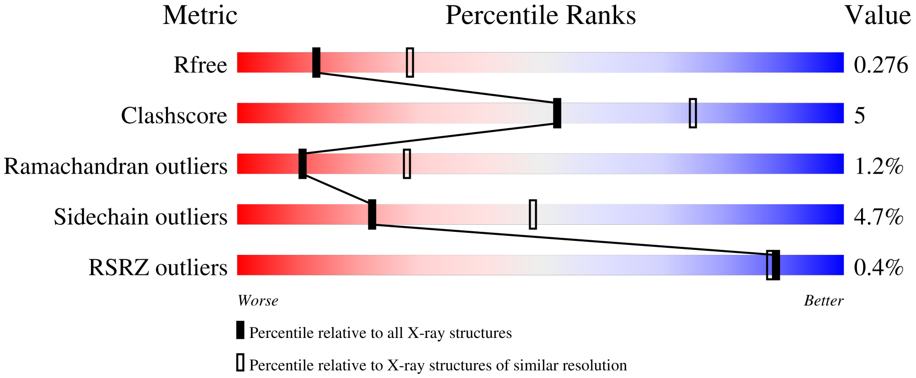
MolProbity	4.02b-467
Mogul	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	1.13
EDS	3.0
Percentile statistics	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	9.0.003 (Gargrove)
Density-Fitness	1.0.11
Ideal geometry (proteins)	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	2.39

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

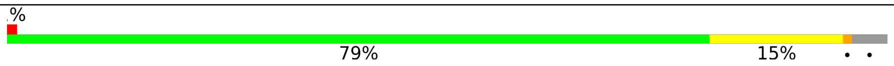
The reported resolution of this entry is 2.70 Å.

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}	164625	3333 (2.70-2.70)
Clashscore	180529	3684 (2.70-2.70)
Ramachandran outliers	177936	3633 (2.70-2.70)
Sidechain outliers	177891	3633 (2.70-2.70)
RSRZ outliers	164620	3333 (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	893	
1	B	893	

2 Entry composition

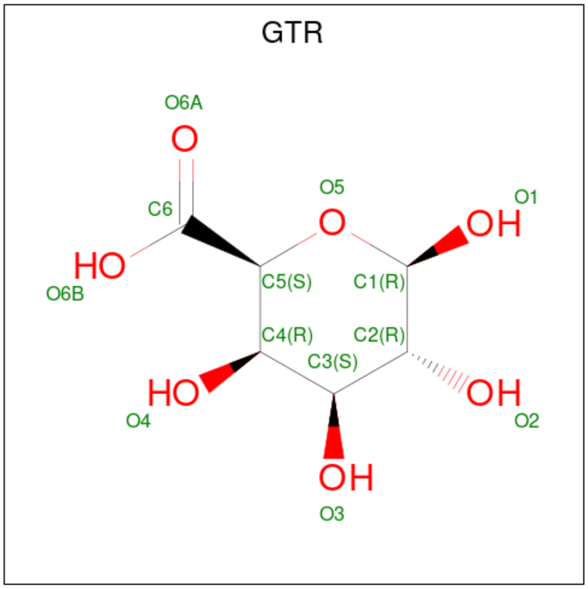
There are 3 unique types of molecules in this entry. The entry contains 13962 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 BPa0997.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	859	Total 6975	C 4483	N 1166	O 1295	S 31	0	0	0
1	B	856	Total 6951	C 4469	N 1162	O 1289	S 31	0	0	0

- Molecule 2 is beta-D-galactopyranuronic acid (three-letter code: GTR) (formula: $C_6H_{10}O_7$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 13	C 6	O 7	0	0
2	B	1	Total 13	C 6	O 7	0	0

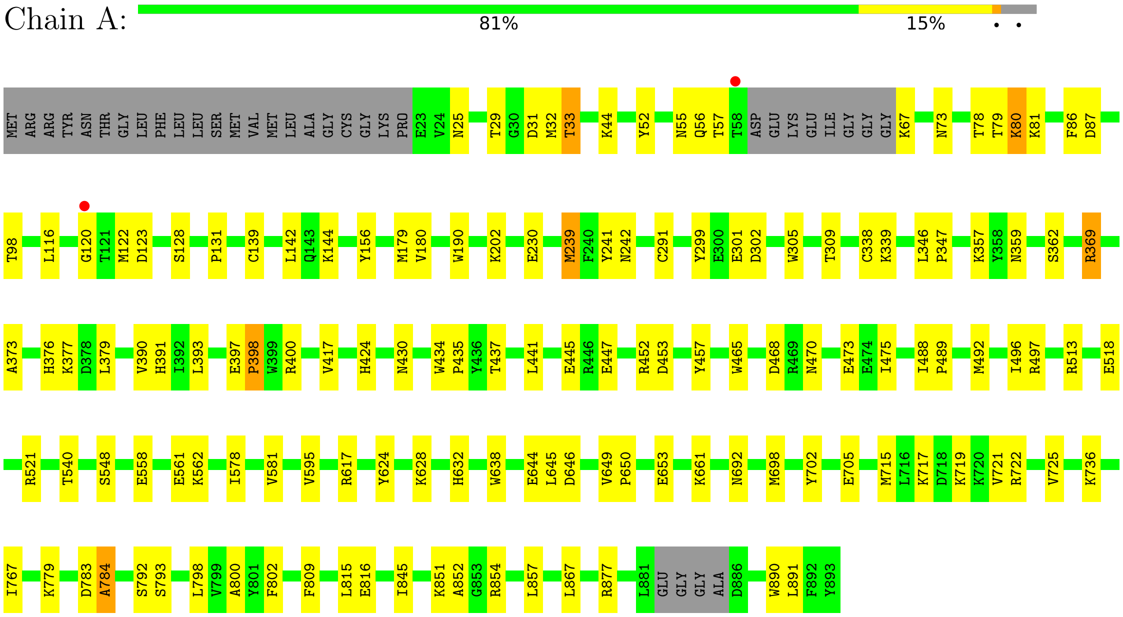
- Molecule 3 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	8	Total Na 8 8	0	0
3	B	2	Total Na 2 2	0	0

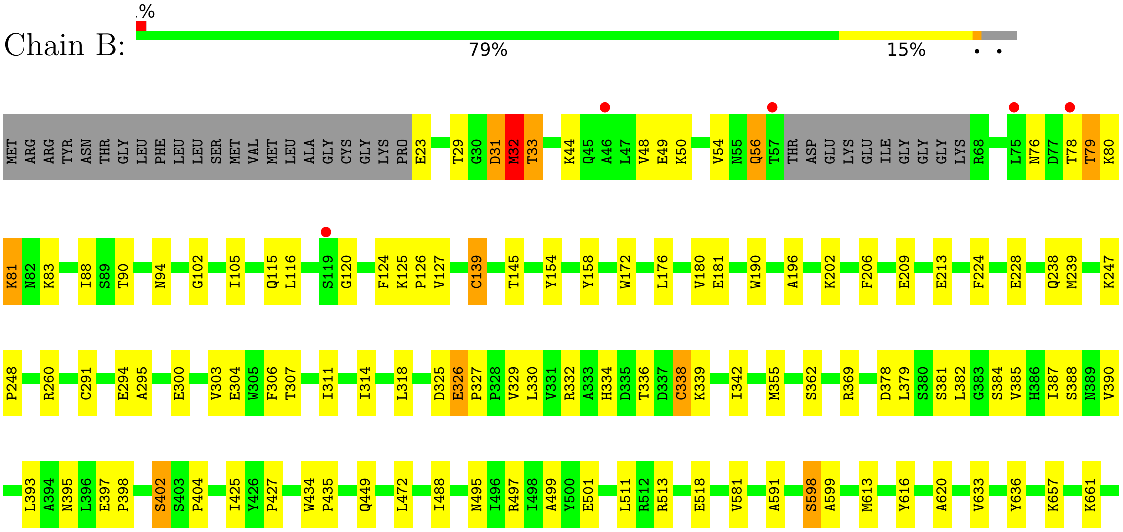
3 Residue-property plots ⓘ

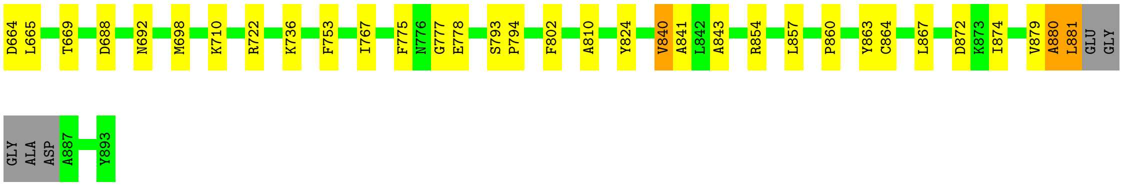
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: BPa0997



- Molecule 1: BPa0997




D664
L665
T669
D688
N692
M698
K710
R722
K736
F753
I767
F775
N776
G777
E778
S793
P794
F802
A810
Y824
V840
A841
L842
A843
R854
L857
P860
Y863
C864
L867
D872
K873
I874
V879
A880
L881
GLU
GLY
GLY
ALA
ASP
A887
Y893

4 Data and refinement statistics ⓘ

Property	**Value**	**Source**
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	69.50Å 107.38Å 139.21Å 90.00° 98.68° 90.00°	Depositor
Resolution (Å)	45.91 – 2.70 45.91 – 2.70	Depositor EDS
% Data completeness (in resolution range)	99.7 (45.91-2.70) 99.7 (45.91-2.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.11 (at 2.69Å)	Xtriage
Refinement program	REFMAC 5.8.0232	Depositor
R, R_{free}	0.213 , 0.282 0.215 , 0.276	Depositor DCC
R_{free} test set	2737 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å^2)	41.3	Xtriage
Anisotropy	0.633	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 31.6	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	13962	wwPDB-VP
Average B, all atoms (Å^2)	48.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.56% 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: GTR, NA

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	0.75	1/7153 (0.0%)	0.90	3/9678 (0.0%)
1	B	0.70	0/7129	0.82	0/9646
All	All	0.72	1/14282 (0.0%)	0.86	3/19324 (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	A	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	301	GLU	CG-CD	6.27	1.61	1.51

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	468	ASP	CB-CA-C	5.71	121.83	110.40
1	A	369	ARG	CG-CD-NE	-5.53	100.20	111.80
1	A	617	ARG	NE-CZ-NH1	-5.20	117.70	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	120	GLY	Peptide

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	6975	0	6859	64	0
1	B	6951	0	6836	71	0
2	A	13	0	9	0	0
2	B	13	0	9	1	0
3	A	8	0	0	0	0
3	B	2	0	0	0	0
All	All	13962	0	13713	135	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 5.

All (135) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:239:MET:HE3	1:A:241:TYR:CE1	2.15	0.81
1:B:32:MET:O	1:B:33:THR:O	1.98	0.80
1:B:206:PHE:O	1:B:248:PRO:HB2	1.87	0.75
1:A:783:ASP:O	1:A:784:ALA:HB3	1.86	0.74
1:B:190:TRP:HA	1:B:239:MET:HG3	1.71	0.73
1:A:87:ASP:OD1	1:A:128:SER:OG	2.11	0.69
1:A:239:MET:CE	1:A:241:TYR:CE1	2.77	0.67
1:A:190:TRP:HA	1:A:239:MET:HG3	1.76	0.66
1:A:338:CYS:HB2	1:A:379:LEU:HD21	1.76	0.66
1:A:488:ILE:HG22	1:A:489:PRO:O	1.96	0.66
1:A:437:THR:HG21	1:A:452:ARG:HD3	1.78	0.65
1:B:499:ALA:HB1	1:B:613:MET:HE2	1.78	0.64
1:A:25:ASN:HD21	1:A:67:LYS:HE2	1.61	0.64
1:B:172:TRP:O	1:B:176:LEU:HD12	1.97	0.64
1:A:390:VAL:HG12	1:A:393:LEU:HD21	1.79	0.63
1:A:692:ASN:HB3	1:A:698:MET:HE2	1.81	0.62
1:B:338:CYS:SG	1:B:339:LYS:N	2.73	0.62
1:B:824:TYR:CZ	1:B:857:LEU:HD12	2.35	0.61
1:B:665:LEU:O	1:B:669:THR:OG1	2.18	0.60
1:B:115:GLN:OE1	1:B:124:PHE:HA	2.02	0.59
1:B:472:LEU:HD12	1:B:472:LEU:O	2.03	0.59

Continued on next page...

Continued from previous page...

Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
1:A:578:ILE:HD12	1:A:624:TYR:CD1	2.37	0.59
1:B:32:MET:O	1:B:32:MET:SD	2.61	0.59
1:B:692:ASN:HB3	1:B:698:MET:HE1	1.84	0.59
1:A:715:MET:HE3	1:A:721:VAL:HG23	1.85	0.58
1:B:325:ASP:O	1:B:325:ASP:CG	2.43	0.57
1:A:558:GLU:O	1:A:562:LYS:HG3	2.03	0.57
1:B:497:ARG:NH1	1:B:501:GLU:OE1	2.38	0.57
1:A:377:LYS:HE3	1:A:417:VAL:O	2.05	0.56
1:A:144:LYS:HB2	1:A:156:TYR:CE2	2.41	0.56
1:B:102:GLY:O	1:B:105:ILE:HG22	2.06	0.55
1:A:434:TRP:CG	1:A:435:PRO:HA	2.41	0.55
1:B:306:PHE:CE2	1:B:311:ILE:HD11	2.42	0.55
1:A:492:MET:HG3	1:A:595:VAL:HG23	1.89	0.54
1:A:44:LYS:HE2	1:A:56:GLN:HB3	1.89	0.54
1:A:632:HIS:O	1:A:644:GLU:HG3	2.08	0.54
1:B:338:CYS:HB2	1:B:379:LEU:HD21	1.88	0.54
1:A:139:CYS:HB3	1:A:424:HIS:CE1	2.43	0.54
1:B:294:GLU:OE2	1:B:334:HIS:NE2	2.38	0.53
1:B:224:PHE:CZ	1:B:228:GLU:HG3	2.44	0.53
1:A:645:LEU:HD21	1:A:891:LEU:HD13	1.91	0.53
1:A:646:ASP:OD1	1:A:717:LYS:NZ	2.42	0.53
1:A:242:ASN:ND2	1:A:291:CYS:O	2.40	0.52
1:A:190:TRP:CE3	1:A:239:MET:HE2	2.45	0.52
1:A:783:ASP:O	1:A:784:ALA:CB	2.54	0.52
1:B:499:ALA:O	1:B:613:MET:HE3	2.09	0.52
1:B:753:PHE:HA	1:B:775:PHE:O	2.09	0.52
1:B:810:ALA:HB1	1:B:860:PRO:HB2	1.92	0.51
1:B:125:LYS:O	1:B:127:VAL:HG23	2.10	0.51
1:B:802:PHE:CD2	1:B:843:ALA:HB2	2.45	0.51
1:A:79:THR:C	1:A:81:LYS:H	2.15	0.51
1:A:357:LYS:HE2	1:A:391:HIS:CE1	2.46	0.50
1:B:31:ASP:N	1:B:31:ASP:OD1	2.45	0.50
1:B:44:LYS:HD3	1:B:56:GLN:OE1	2.13	0.49
1:A:649:VAL:O	1:A:653:GLU:HG2	2.12	0.49
1:A:692:ASN:HB3	1:A:698:MET:CE	2.42	0.49
1:B:384:SER:OG	1:B:385:VAL:N	2.45	0.49
1:B:260:ARG:HA	1:B:295:ALA:HA	1.94	0.49
1:B:88:ILE:O	1:B:126:PRO:HA	2.13	0.49
1:A:719:LYS:HB2	1:A:721:VAL:HG22	1.95	0.48
1:A:346:LEU:N	1:A:347:PRO:CD	2.76	0.48
1:A:470:ASN:HB3	1:A:473:GLU:HB2	1.96	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:581:VAL:HG12	1:B:620:ALA:HB1	1.96	0.48
1:B:325:ASP:O	1:B:327:PRO:HD3	2.14	0.47
1:B:48:VAL:C	1:B:50:LYS:H	2.16	0.47
1:B:633:VAL:O	1:B:636:TYR:HB3	2.14	0.47
1:B:390:VAL:HG12	1:B:393:LEU:HD21	1.97	0.47
1:B:692:ASN:HB3	1:B:698:MET:CE	2.44	0.47
1:B:314:ILE:HD13	1:B:329:VAL:HG21	1.97	0.47
1:B:425:ILE:O	1:B:425:ILE:HG13	2.14	0.47
1:B:362:SER:HB3	1:B:395:ASN:OD1	2.14	0.47
1:B:402:SER:O	1:B:404:PRO:HD3	2.15	0.47
1:B:499:ALA:HB1	1:B:613:MET:CE	2.45	0.47
1:A:702:TYR:O	1:A:705:GLU:HB3	2.14	0.46
1:A:369:ARG:O	1:A:548:SER:HA	2.15	0.46
1:A:649:VAL:HB	1:A:650:PRO:HD3	1.98	0.46
1:A:767:ILE:CD1	1:A:798:LEU:HD13	2.45	0.46
1:B:880:ALA:C	1:B:881:LEU:HD23	2.35	0.46
1:A:86:PHE:HA	1:A:98:THR:O	2.16	0.46
1:B:824:TYR:CE2	1:B:857:LEU:HD12	2.50	0.46
1:B:342:ILE:HG21	1:B:382:LEU:HD13	1.98	0.46
1:A:25:ASN:ND2	1:A:67:LYS:HE2	2.30	0.46
1:A:359:ASN:HB2	1:A:362:SER:O	2.16	0.46
1:A:434:TRP:CD2	1:A:435:PRO:HA	2.51	0.46
1:B:864:CYS:O	1:B:864:CYS:SG	2.73	0.46
1:A:692:ASN:CB	1:A:698:MET:HE2	2.45	0.45
1:A:400:ARG:NH2	1:A:447:GLU:OE1	2.49	0.45
1:B:154:TYR:OH	1:B:294:GLU:OE1	2.26	0.45
1:A:793:SER:HA	1:A:852:ALA:HB2	1.98	0.45
1:B:314:ILE:O	1:B:318:LEU:HG	2.17	0.45
1:A:397:GLU:HA	1:A:398:PRO:HA	1.74	0.45
1:B:48:VAL:HG13	1:B:54:VAL:HG21	1.99	0.45
1:B:247:LYS:HB3	1:B:248:PRO:HD3	1.99	0.45
1:B:291:CYS:HB2	1:B:332:ARG:HD3	1.99	0.45
1:B:330:LEU:HD12	1:B:330:LEU:N	2.32	0.45
1:B:139:CYS:O	1:B:427:PRO:HD3	2.16	0.44
1:A:722:ARG:HB2	1:A:890:TRP:CZ3	2.53	0.44
1:A:373:ALA:O	1:A:376:HIS:HB2	2.17	0.44
1:A:561:GLU:HG3	1:A:638:TRP:CZ2	2.52	0.44
1:B:206:PHE:O	1:B:248:PRO:CB	2.63	0.44
1:A:802:PHE:HB2	1:A:809:PHE:CD1	2.53	0.44
1:B:158:TYR:OH	1:B:238:GLN:NE2	2.50	0.44
1:A:845:ILE:HD12	1:A:867:LEU:CD1	2.47	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:434:TRP:CD2	1:B:435:PRO:HA	2.53	0.43
1:B:196:ALA:HB3	1:B:209:GLU:HG3	2.01	0.43
1:B:434:TRP:CG	1:B:435:PRO:HA	2.53	0.43
1:B:840:VAL:HG12	1:B:841:ALA:N	2.34	0.43
1:A:239:MET:HE1	1:A:241:TYR:CZ	2.53	0.43
1:A:441:LEU:N	1:A:441:LEU:HD12	2.34	0.43
1:B:378:ASP:O	1:B:381:SER:OG	2.37	0.43
1:A:29:THR:CG2	1:A:73:ASN:OD1	2.66	0.43
1:A:299:TYR:O	1:A:302:ASP:HB2	2.19	0.43
1:A:521:ARG:HD3	1:A:815:LEU:HD12	2.00	0.43
1:B:495:ASN:HB3	1:B:591:ALA:O	2.19	0.43
1:A:475:ILE:HG23	1:A:497:ARG:NE	2.34	0.42
1:A:496:ILE:HG13	1:A:595:VAL:HG11	2.01	0.42
1:B:777:GLY:HA3	1:B:863:TYR:CZ	2.53	0.42
1:B:294:GLU:OE2	2:B:901:GTR:H5	2.19	0.42
1:A:800:ALA:HB2	1:A:867:LEU:HD11	2.00	0.42
1:B:793:SER:HB2	1:B:794:PRO:CD	2.49	0.42
1:A:131:PRO:HB3	1:A:465:TRP:CE3	2.54	0.42
1:B:879:VAL:O	1:B:880:ALA:HB3	2.19	0.42
1:B:303:VAL:O	1:B:307:THR:OG1	2.25	0.41
1:B:395:ASN:HB3	1:B:511:LEU:HD22	2.02	0.41
1:A:453:ASP:O	1:A:457:TYR:CD2	2.72	0.41
1:A:578:ILE:HD12	1:A:624:TYR:CE1	2.55	0.41
1:B:355:MET:HA	1:B:387:ILE:O	2.20	0.41
1:B:427:PRO:HB3	1:B:449:GLN:OE1	2.21	0.41
1:B:767:ILE:HG21	1:B:867:LEU:HD13	2.02	0.41
1:B:397:GLU:HA	1:B:398:PRO:HA	1.81	0.41
1:A:725:VAL:HG11	1:A:877:ARG:HD3	2.03	0.41
1:A:521:ARG:NH2	1:A:816:GLU:OE2	2.38	0.41
1:A:305:TRP:CH2	1:A:309:THR:HG21	2.55	0.41
1:B:488:ILE:HG12	1:B:598:SER:HB2	2.03	0.41
1:B:472:LEU:HD12	1:B:472:LEU:C	2.41	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	853/893 (96%)	804 (94%)	43 (5%)	6 (1%)	19	42
1	B	850/893 (95%)	776 (91%)	59 (7%)	15 (2%)	7	18
All	All	1703/1786 (95%)	1580 (93%)	102 (6%)	21 (1%)	11	28

All (21) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	31	ASP
1	B	33	THR
1	B	81	LYS
1	A	52	TYR
1	B	49	GLU
1	B	79	THR
1	B	338	CYS
1	B	402	SER
1	B	599	ALA
1	B	880	ALA
1	A	31	ASP
1	A	32	MET
1	A	784	ALA
1	B	32	MET
1	B	78	THR
1	B	80	LYS
1	A	33	THR
1	A	80	LYS
1	B	326	GLU
1	B	840	VAL
1	B	120	GLY

5.3.2 Protein sidechains ⓘ

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	743/767 (97%)	713 (96%)	30 (4%)	27	55
1	B	740/767 (96%)	701 (95%)	39 (5%)	19	43
All	All	1483/1534 (97%)	1414 (95%)	69 (5%)	22	49

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	THR
1	A	55	ASN
1	A	57	THR
1	A	78	THR
1	A	80	LYS
1	A	116	LEU
1	A	122	MET
1	A	123	ASP
1	A	142	LEU
1	A	179	MET
1	A	180	VAL
1	A	202	LYS
1	A	230	GLU
1	A	239	MET
1	A	339	LYS
1	A	398	PRO
1	A	430	ASN
1	A	445	GLU
1	A	513	ARG
1	A	518	GLU
1	A	540	THR
1	A	581	VAL
1	A	628	LYS
1	A	661	LYS
1	A	736	LYS
1	A	779	LYS
1	A	792	SER
1	A	851	LYS
1	A	854	ARG
1	A	857	LEU
1	B	23	GLU
1	B	29	THR
1	B	32	MET
1	B	56	GLN
1	B	76	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	79	THR
1	B	81	LYS
1	B	83	LYS
1	B	90	THR
1	B	94	ASN
1	B	116	LEU
1	B	139	CYS
1	B	145	THR
1	B	180	VAL
1	B	181	GLU
1	B	202	LYS
1	B	213	GLU
1	B	300	GLU
1	B	304	GLU
1	B	326	GLU
1	B	336	THR
1	B	369	ARG
1	B	388	SER
1	B	513	ARG
1	B	518	GLU
1	B	598	SER
1	B	616	TYR
1	B	657	LYS
1	B	661	LYS
1	B	664	ASP
1	B	688	ASP
1	B	710	LYS
1	B	722	ARG
1	B	736	LYS
1	B	778	GLU
1	B	854	ARG
1	B	872	ASP
1	B	874	ILE
1	B	881	LEU

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

Mol	Chain	Res	Type
1	A	25	ASN
1	A	55	ASN
1	B	94	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 12 ligands modelled in this entry, 10 are monoatomic - leaving 2 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	GTR	A	901	-	13,13,13	0.84	0	18,19,19	0.97	1 (5%)
2	GTR	B	901	-	13,13,13	0.70	0	18,19,19	0.83	1 (5%)

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	GTR	A	901	-	-	0/4/24/24	0/1/1/1
2	GTR	B	901	-	-	0/4/24/24	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	901	GTR	O5-C5-C6	2.13	111.61	105.88
2	A	901	GTR	C4-C3-C2	-2.00	107.33	110.82

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	901	GTR	1	0

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, 95th 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	859/893 (96%)	-0.43	2 (0%)	92	91	26, 35, 51, 65	0
1	B	856/893 (95%)	0.09	5 (0%)	85	85	47, 58, 81, 98	0
All	All	1715/1786 (96%)	-0.17	7 (0%)	89	88	26, 50, 73, 98	0

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	78	THR	3.3
1	A	120	GLY	2.9
1	B	57	THR	2.5
1	B	75	LEU	2.4
1	B	119	SER	2.3
1	B	46	ALA	2.1
1	A	58	THR	2.1

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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, 95th 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	NA	A	902	1/1	0.87	0.18	53,53,53,53	0
2	GTR	A	901	13/13	0.90	0.11	39,42,44,46	0
3	NA	A	909	1/1	0.91	0.14	49,49,49,49	0
2	GTR	B	901	13/13	0.93	0.08	45,49,52,54	0
3	NA	A	906	1/1	0.94	0.06	26,26,26,26	0
3	NA	A	907	1/1	0.94	0.19	30,30,30,30	0
3	NA	A	905	1/1	0.94	0.06	17,17,17,17	0
3	NA	A	908	1/1	0.95	0.07	30,30,30,30	0
3	NA	A	903	1/1	0.97	0.12	11,11,11,11	0
3	NA	B	902	1/1	0.97	0.08	24,24,24,24	0
3	NA	B	903	1/1	0.97	0.18	31,31,31,31	0
3	NA	A	904	1/1	0.98	0.08	18,18,18,18	0

6.5 Other polymers

There are no such residues in this entry.