



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:57 PM UTC

PDB ID : 5MVZ / pdb_00005mvz
Title : Fab 4AB007 bound to Interleukin-1-beta
Authors : Stark, W.; Seibert, V.
Deposited on : 2017-01-17
Resolution : 2.15 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

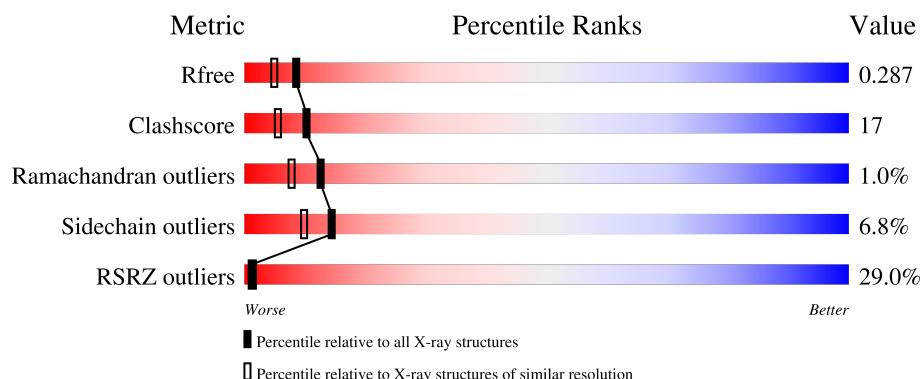
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.15 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}	180053	2057 (2.16-2.16)
Clashscore	190562	2159 (2.16-2.16)
Ramachandran outliers	187476	2134 (2.16-2.16)
Sidechain outliers	187428	2133 (2.16-2.16)
RSRZ outliers	180081	2059 (2.16-2.16)

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 $\leq 5\%$. 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	240	<div> <div>20%</div> <div>79%</div> <div>12%</div> <div>8%</div> </div>
1	H	240	<div> <div>13%</div> <div>73%</div> <div>16%</div> <div>8%</div> </div>
2	B	249	<div> <div>13%</div> <div>74%</div> <div>12%</div> <div>14%</div> </div>
2	L	249	<div> <div>10%</div> <div>72%</div> <div>14%</div> <div>14%</div> </div>
3	U	177	<div> <div>44%</div> <div>49%</div> <div>25%</div> <div>23%</div> </div>

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Mol	Chain	Length	Quality of chain
3	V	177	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	GOL	A	301	-	-	X	-
4	GOL	L	301	-	-	X	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 9536 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 Fab 4AB007 H-chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	H	221	Total	C	N	O	S	0	0	0
			1659	1053	269	328	9			
1	A	221	Total	C	N	O	S	0	0	0
			1659	1053	269	328	9			

- Molecule 2 is a protein called Fab 4AB007 L-chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	L	215	Total	C	N	O	S	0	0	0
			1662	1040	282	335	5			
2	B	214	Total	C	N	O	S	0	0	0
			1653	1035	281	332	5			

- Molecule 3 is a protein called Interleukin-1 beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	U	136	Total	C	N	O	S	0	0	0
			1084	694	175	208	7			
3	V	144	Total	C	N	O	S	0	0	0
			1137	727	187	215	8			

There are 48 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	-23	MET	-	initiating methionine	UNP B5BUQ8
U	-22	ALA	-	expression tag	UNP B5BUQ8
U	-21	HIS	-	expression tag	UNP B5BUQ8
U	-20	HIS	-	expression tag	UNP B5BUQ8
U	-19	HIS	-	expression tag	UNP B5BUQ8
U	-18	HIS	-	expression tag	UNP B5BUQ8
U	-17	HIS	-	expression tag	UNP B5BUQ8
U	-16	HIS	-	expression tag	UNP B5BUQ8

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Chain	Residue	Modelled	Actual	Comment	Reference
U	-15	HIS	-	expression tag	UNP B5BUQ8
U	-14	HIS	-	expression tag	UNP B5BUQ8
U	-13	HIS	-	expression tag	UNP B5BUQ8
U	-12	HIS	-	expression tag	UNP B5BUQ8
U	-11	HIS	-	expression tag	UNP B5BUQ8
U	-10	HIS	-	expression tag	UNP B5BUQ8
U	-9	PRO	-	expression tag	UNP B5BUQ8
U	-8	ALA	-	expression tag	UNP B5BUQ8
U	-7	GLY	-	expression tag	UNP B5BUQ8
U	-6	GLU	-	expression tag	UNP B5BUQ8
U	-5	ASN	-	expression tag	UNP B5BUQ8
U	-4	LEU	-	expression tag	UNP B5BUQ8
U	-3	TYR	-	expression tag	UNP B5BUQ8
U	-2	PHE	-	expression tag	UNP B5BUQ8
U	-1	GLN	-	expression tag	UNP B5BUQ8
U	0	GLY	-	expression tag	UNP B5BUQ8
V	-23	MET	-	initiating methionine	UNP B5BUQ8
V	-22	ALA	-	expression tag	UNP B5BUQ8
V	-21	HIS	-	expression tag	UNP B5BUQ8
V	-20	HIS	-	expression tag	UNP B5BUQ8
V	-19	HIS	-	expression tag	UNP B5BUQ8
V	-18	HIS	-	expression tag	UNP B5BUQ8
V	-17	HIS	-	expression tag	UNP B5BUQ8
V	-16	HIS	-	expression tag	UNP B5BUQ8
V	-15	HIS	-	expression tag	UNP B5BUQ8
V	-14	HIS	-	expression tag	UNP B5BUQ8
V	-13	HIS	-	expression tag	UNP B5BUQ8
V	-12	HIS	-	expression tag	UNP B5BUQ8
V	-11	HIS	-	expression tag	UNP B5BUQ8
V	-10	HIS	-	expression tag	UNP B5BUQ8
V	-9	PRO	-	expression tag	UNP B5BUQ8
V	-8	ALA	-	expression tag	UNP B5BUQ8
V	-7	GLY	-	expression tag	UNP B5BUQ8
V	-6	GLU	-	expression tag	UNP B5BUQ8
V	-5	ASN	-	expression tag	UNP B5BUQ8
V	-4	LEU	-	expression tag	UNP B5BUQ8
V	-3	TYR	-	expression tag	UNP B5BUQ8
V	-2	PHE	-	expression tag	UNP B5BUQ8
V	-1	GLN	-	expression tag	UNP B5BUQ8
V	0	GLY	-	expression tag	UNP B5BUQ8

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	H	1	Total	C	O	0	0
			6	3	3		
4	L	1	Total	C	O	0	0
			6	3	3		
4	L	1	Total	C	O	0	0
			6	3	3		
4	L	1	Total	C	O	0	0
			6	3	3		
4	A	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	H	136	Total	O	0	0
			136	136		
5	L	152	Total	O	0	0
			152	152		
5	U	28	Total	O	0	0
			28	28		
5	A	130	Total	O	0	0
			130	130		

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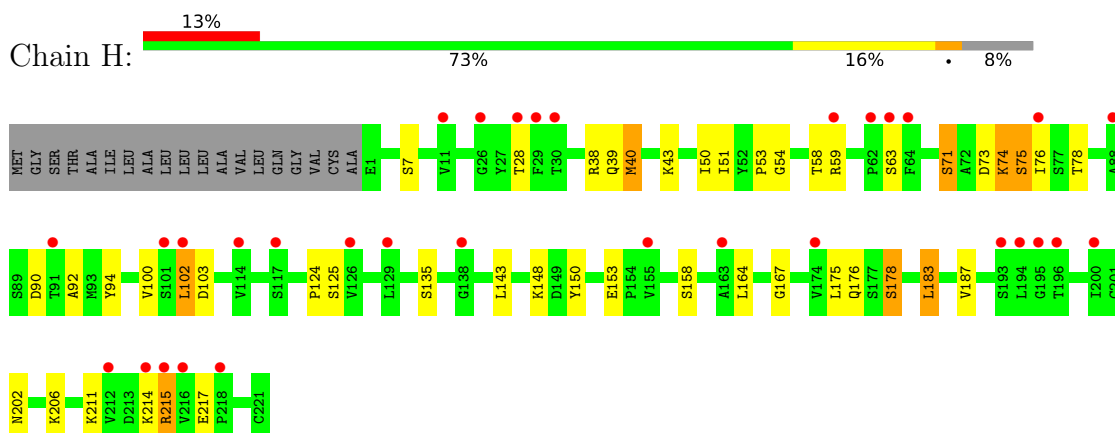
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	156	Total 156	O 156	0	0
5	V	32	Total 32	O 32	0	0

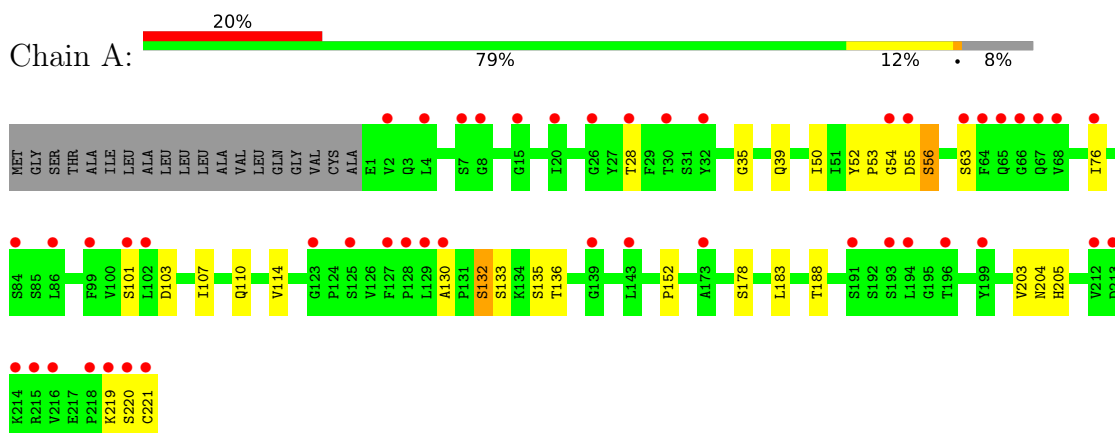
3 Residue-property plots [i](#)

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.

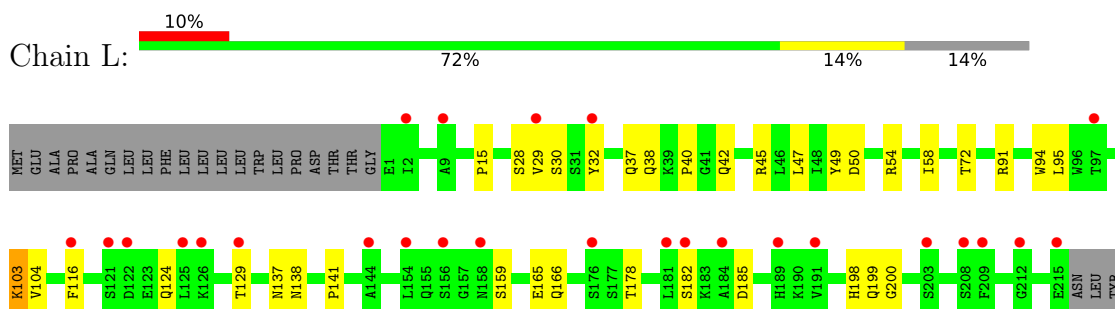
• Molecule 1: Fab 4AB007 H-chain



• Molecule 1: Fab 4AB007 H-chain



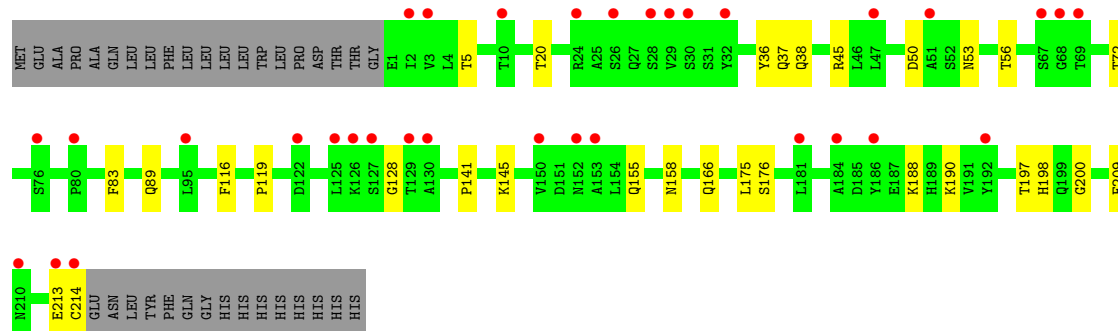
• Molecule 2: Fab 4AB007 L-chain



PHE
GLN
GLY
HIS
HIS
HIS
HIS
HIS
HIS
HIS

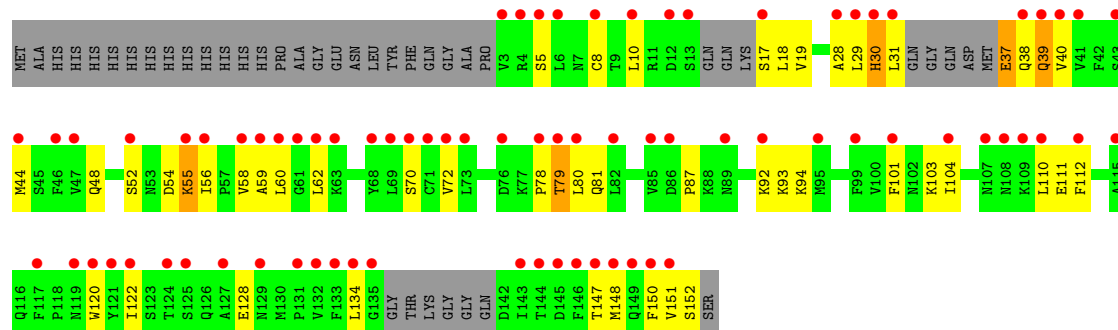
• Molecule 2: Fab 4AB007 L-chain

Chain B: 13% 74% 12% 14%



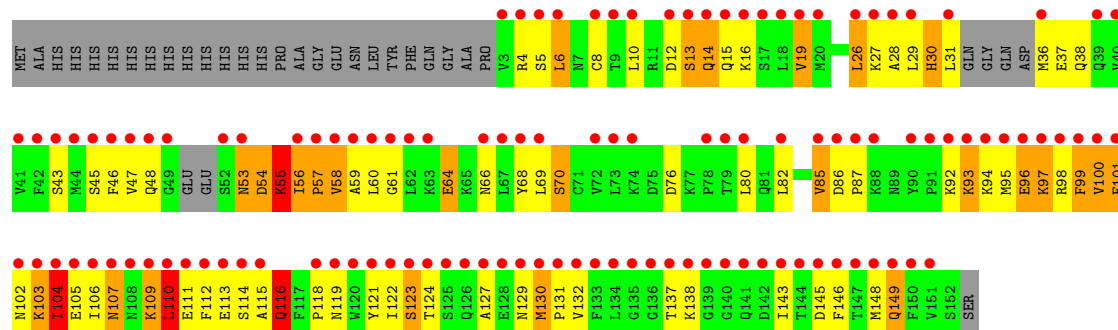
• Molecule 3: Interleukin-1 beta

Chain U: 44% 49% 25% 23%



• Molecule 3: Interleukin-1 beta

Chain V: 67% 32% 32% 15% 19%



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	111.04Å 158.38Å 153.44Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.68 – 2.15 47.68 – 2.15	Depositor EDS
% Data completeness (in resolution range)	99.6 (47.68-2.15) 99.6 (47.68-2.15)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.09 (at 2.16Å)	Xtriage
Refinement program	REFMAC 5.8.0071	Depositor
R, R_{free}	0.219 , 0.281 0.232 , 0.287	Depositor DCC
R_{free} test set	3665 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	40.1	Xtriage
Anisotropy	0.025	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 65.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	9536	wwPDB-VP
Average B, all atoms (Å ²)	66.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 27.28 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.2605e-03.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL

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	0.97	1/1702 (0.1%)	0.96	1/2316 (0.0%)
1	H	0.94	1/1702 (0.1%)	0.90	0/2316
2	B	1.02	1/1690 (0.1%)	0.98	1/2297 (0.0%)
2	L	1.05	0/1699	1.00	0/2309
3	U	0.63	0/1103	0.79	0/1484
3	V	0.92	2/1157 (0.2%)	1.17	9/1556 (0.6%)
All	All	0.95	5/9053 (0.1%)	0.97	11/12278 (0.1%)

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
3	V	0	2

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	V	110	LEU	CA-C	10.41	1.65	1.52
3	V	130	MET	CA-C	-5.90	1.45	1.52
1	H	206	LYS	C-O	-5.61	1.19	1.24
2	B	83	PHE	C-O	-5.41	1.16	1.23
1	A	132	SER	C-O	5.18	1.28	1.24

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	V	58	VAL	N-CA-C	7.85	119.79	108.48
3	V	130	MET	CA-C-N	-7.36	112.18	119.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	V	130	MET	C-N-CA	-7.36	112.18	119.76
3	V	15	GLN	N-CA-C	7.00	121.57	113.38
3	V	104	ILE	CG1-CB-CG2	6.51	130.24	110.70
3	V	116	GLN	N-CA-C	-6.09	105.51	113.12
3	V	132	VAL	N-CA-C	-5.85	102.03	109.58
1	A	203	VAL	N-CA-C	5.23	115.31	107.51
3	V	130	MET	N-CA-C	-5.07	102.48	110.14
2	B	128	GLY	N-CA-C	5.07	121.80	115.21
3	V	104	ILE	CB-CG1-CD1	5.02	124.35	113.80

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	V	137	THR	Peptide
3	V	57	PRO	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	1659	0	1626	23	9
1	H	1659	0	1625	34	0
2	B	1653	0	1603	17	0
2	L	1662	0	1608	36	0
3	U	1084	0	1066	42	0
3	V	1137	0	1124	160	10
4	A	6	0	8	4	0
4	B	18	0	24	1	0
4	H	6	0	8	3	0
4	L	18	0	24	9	0
5	A	130	0	0	0	0
5	B	156	0	0	3	1
5	H	136	0	0	6	0
5	L	152	0	0	10	1
5	U	28	0	0	2	1
5	V	32	0	0	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	9536	0	8716	301	12

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 17.

All (301) 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)
3:V:4:ARG:CZ	5:V:201:HOH:O	1.75	1.26
3:V:45:SER:O	3:V:59:ALA:HB3	1.31	1.24
3:V:104:ILE:HD12	3:V:110:LEU:CA	1.72	1.17
3:V:104:ILE:CD1	3:V:109:LYS:O	1.93	1.16
3:V:47:VAL:HG22	3:V:58:VAL:CG1	1.77	1.14
3:V:104:ILE:HD12	3:V:110:LEU:HA	1.21	1.14
3:V:104:ILE:HG21	3:V:110:LEU:HG	1.27	1.11
3:V:104:ILE:HD12	3:V:109:LYS:C	1.77	1.09
3:V:127:ALA:HB1	5:V:208:HOH:O	1.49	1.08
3:V:4:ARG:NH1	5:V:201:HOH:O	1.75	1.07
3:V:4:ARG:NH2	5:V:202:HOH:O	1.87	1.06
3:V:104:ILE:HD12	3:V:109:LYS:O	1.54	1.04
3:V:104:ILE:HG21	3:V:110:LEU:CG	1.87	1.03
3:V:47:VAL:HG22	3:V:58:VAL:HG11	1.36	1.02
3:V:57:PRO:HA	3:V:103:LYS:HB3	1.02	1.01
3:V:57:PRO:CA	3:V:103:LYS:HB3	1.91	0.99
3:V:6:LEU:HD21	3:V:46:PHE:CE1	1.97	0.99
3:V:104:ILE:CD1	3:V:110:LEU:CA	2.35	0.99
3:V:56:ILE:O	3:V:103:LYS:HB2	1.63	0.98
3:V:57:PRO:HA	3:V:103:LYS:CB	1.94	0.97
1:H:100:VAL:HG23	1:H:102:LEU:HD22	1.47	0.97
3:V:56:ILE:O	3:V:103:LYS:CB	2.12	0.96
3:V:104:ILE:CD1	3:V:110:LEU:HA	1.64	0.96
3:V:104:ILE:HD12	3:V:110:LEU:N	1.79	0.96
3:V:104:ILE:CG2	3:V:110:LEU:HG	1.96	0.95
3:V:104:ILE:HG21	3:V:110:LEU:CB	1.97	0.94
3:V:121:TYR:O	3:V:123:SER:OG	1.86	0.93
3:V:45:SER:O	3:V:59:ALA:CB	2.17	0.92
3:V:47:VAL:CG2	3:V:58:VAL:HG11	2.03	0.89
3:V:61:GLY:HA3	5:V:219:HOH:O	1.72	0.88
3:V:104:ILE:CG2	3:V:110:LEU:CB	2.50	0.88
1:H:153:GLU:OE2	5:H:401:HOH:O	1.92	0.87
1:A:188:THR:HG21	5:B:442:HOH:O	1.73	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:U:52:SER:C	3:U:55:LYS:NZ	2.29	0.86
3:V:104:ILE:CG2	3:V:110:LEU:CG	2.55	0.85
3:V:104:ILE:CD1	3:V:109:LYS:C	2.45	0.84
3:V:6:LEU:HD21	3:V:46:PHE:CZ	2.13	0.83
3:V:6:LEU:N	3:V:6:LEU:HD23	1.93	0.83
3:V:104:ILE:HD13	3:V:105:GLU:CA	2.09	0.83
1:A:55:ASP:OD1	1:A:56:SER:N	2.12	0.82
3:V:104:ILE:CG2	3:V:110:LEU:CA	2.58	0.81
1:H:39:GLN:HE22	2:L:38:GLN:HE22	1.30	0.80
1:H:211:LYS:NZ	5:H:404:HOH:O	2.14	0.80
1:H:215:ARG:NH2	1:H:217:GLU:OE2	2.14	0.80
2:L:166:GLN:HB2	4:L:301:GOL:H32	1.67	0.77
2:B:36:TYR:HE2	2:B:89:GLN:HG2	1.51	0.76
3:V:10:LEU:HD21	3:V:148:MET:HE3	1.68	0.74
1:A:55:ASP:OD1	1:A:55:ASP:C	2.29	0.74
3:V:104:ILE:HD13	3:V:105:GLU:N	2.03	0.74
3:V:104:ILE:CB	3:V:110:LEU:HA	2.03	0.74
3:V:104:ILE:HG21	3:V:110:LEU:CA	2.17	0.74
3:U:112:PHE:HB2	3:U:122:ILE:HD12	1.69	0.73
1:A:152:PRO:O	1:A:205:HIS:HE1	1.71	0.73
3:U:30:HIS:N	3:U:128:GLU:OE2	2.22	0.72
3:V:104:ILE:HG21	3:V:110:LEU:C	2.15	0.72
3:V:104:ILE:CB	3:V:110:LEU:CA	2.65	0.71
3:V:104:ILE:HD13	3:V:105:GLU:HA	1.72	0.71
3:V:101:PHE:CE2	3:V:103:LYS:HA	2.26	0.70
1:A:110:GLN:HE21	4:A:301:GOL:C1	2.05	0.70
1:A:220:SER:HA	1:A:221:CYS:OXT	1.90	0.70
3:V:149:GLN:OE1	5:V:203:HOH:O	2.09	0.69
3:V:47:VAL:HG21	3:V:100:VAL:HG11	1.74	0.69
3:V:104:ILE:HD11	3:V:109:LYS:O	1.89	0.69
3:U:19:VAL:HA	3:U:40:VAL:HG23	1.73	0.68
3:V:56:ILE:O	3:V:103:LYS:HB3	1.92	0.68
3:V:58:VAL:HG13	3:V:100:VAL:HB	1.76	0.68
2:B:36:TYR:CE2	2:B:89:GLN:HG2	2.28	0.68
3:V:97:LYS:HD2	3:V:116:GLN:HB2	1.76	0.68
1:H:71:SER:OG	5:H:402:HOH:O	2.11	0.68
1:A:132:SER:HB2	1:A:221:CYS:HB3	1.74	0.68
2:B:36:TYR:HE2	2:B:89:GLN:CG	2.07	0.67
2:B:20:THR:HG23	2:B:72:THR:HG23	1.75	0.67
3:U:112:PHE:CB	3:U:122:ILE:HD12	2.24	0.66
3:V:97:LYS:HB2	3:V:100:VAL:N	2.11	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:U:52:SER:N	3:U:55:LYS:NZ	2.37	0.66
1:H:73:ASP:OD2	5:H:403:HOH:O	2.14	0.65
2:B:166:GLN:HB2	4:B:302:GOL:H2	1.78	0.65
3:V:101:PHE:CE2	3:V:112:PHE:HD1	2.15	0.65
3:V:29:LEU:HD13	3:V:129:ASN:OD1	1.95	0.65
3:V:16:LYS:HD2	3:V:29:LEU:HA	1.76	0.65
3:V:6:LEU:HD21	3:V:46:PHE:HE1	1.59	0.64
1:H:102:LEU:C	1:H:102:LEU:HD23	2.23	0.64
1:H:51:ILE:HD12	1:H:58:THR:OG1	1.97	0.64
3:V:102:ASN:O	3:V:103:LYS:HG2	1.98	0.64
1:H:28:THR:HG21	3:U:87:PRO:HD2	1.79	0.63
3:V:104:ILE:HG23	3:V:110:LEU:CB	2.27	0.63
3:U:19:VAL:HA	3:U:40:VAL:CG2	2.28	0.63
3:V:112:PHE:CB	3:V:122:ILE:HD12	2.29	0.62
2:L:124:GLN:HG2	2:L:129:THR:O	2.00	0.62
3:V:104:ILE:HB	3:V:111:GLU:O	2.00	0.62
1:H:100:VAL:HG23	1:H:102:LEU:CD2	2.28	0.61
1:A:110:GLN:HE21	4:A:301:GOL:H11	1.66	0.61
1:A:220:SER:HA	1:A:221:CYS:C	2.26	0.61
3:V:54:ASP:HB2	3:V:103:LYS:HE2	1.82	0.61
1:A:52:TYR:O	1:A:55:ASP:O	2.19	0.61
2:L:40:PRO:HB2	5:L:516:HOH:O	1.99	0.60
3:V:12:ASP:OD2	3:V:16:LYS:NZ	2.30	0.60
3:V:104:ILE:CG2	3:V:110:LEU:HA	2.29	0.60
3:U:78:PRO:HD2	3:U:120:TRP:CH2	2.37	0.59
3:V:6:LEU:CD2	3:V:46:PHE:CE1	2.79	0.59
3:V:102:ASN:O	3:V:103:LYS:CG	2.49	0.59
2:L:166:GLN:H	4:L:301:GOL:C3	2.15	0.59
3:U:44:MET:HE2	3:U:60:LEU:HD21	1.84	0.59
3:V:47:VAL:HG22	3:V:58:VAL:HG12	1.80	0.59
2:L:166:GLN:H	4:L:301:GOL:H32	1.67	0.59
3:V:47:VAL:CG2	3:V:100:VAL:HG11	2.33	0.58
3:V:16:LYS:HG2	3:V:30:HIS:ND1	2.17	0.58
3:V:104:ILE:HB	3:V:111:GLU:C	2.23	0.58
3:U:44:MET:SD	3:U:58:VAL:HG21	2.43	0.58
3:V:110:LEU:HD23	3:V:146:PHE:HB2	1.85	0.58
1:H:135:SER:HA	2:L:116:PHE:CD1	2.39	0.58
3:V:14:GLN:NE2	3:V:30:HIS:CE1	2.72	0.58
2:B:198:HIS:CD2	2:B:200:GLY:H	2.22	0.57
2:L:103:LYS:HE3	5:L:422:HOH:O	2.04	0.57
1:H:183:LEU:C	1:H:183:LEU:HD12	2.30	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:28:THR:HG21	3:U:87:PRO:CD	2.36	0.56
3:V:112:PHE:HB3	3:V:122:ILE:HD12	1.87	0.56
3:U:44:MET:CG	3:U:58:VAL:HG21	2.36	0.56
3:V:6:LEU:CD2	3:V:46:PHE:HE1	2.17	0.56
1:H:175:LEU:HB3	5:H:498:HOH:O	2.05	0.56
2:B:155:GLN:HE21	2:B:158:ASN:HD21	1.54	0.56
2:L:15:PRO:HB2	4:L:302:GOL:H31	1.86	0.56
3:V:54:ASP:OD2	3:V:54:ASP:N	2.40	0.55
3:V:56:ILE:C	3:V:103:LYS:HD3	2.31	0.55
3:V:101:PHE:CE2	3:V:112:PHE:CD1	2.94	0.55
2:L:199:GLN:HG2	5:L:536:HOH:O	2.06	0.55
3:V:56:ILE:O	3:V:56:ILE:HG12	2.06	0.55
3:U:18:LEU:O	3:U:39:GLN:HG2	2.05	0.55
3:V:97:LYS:HD3	3:V:116:GLN:N	2.22	0.55
3:V:104:ILE:HG23	3:V:110:LEU:HB2	1.89	0.55
2:L:198:HIS:CD2	2:L:200:GLY:H	2.24	0.55
3:V:104:ILE:HG23	3:V:104:ILE:O	2.07	0.55
3:V:101:PHE:CD2	3:V:103:LYS:HA	2.42	0.55
3:V:112:PHE:HB2	3:V:122:ILE:HD12	1.88	0.54
2:L:40:PRO:CB	5:L:516:HOH:O	2.55	0.54
2:L:166:GLN:CB	4:L:301:GOL:H32	2.37	0.54
1:A:135:SER:HA	2:B:116:PHE:CD1	2.42	0.54
3:V:57:PRO:O	3:V:101:PHE:O	2.25	0.54
3:V:104:ILE:CD1	3:V:110:LEU:N	2.55	0.54
3:V:112:PHE:HB2	3:V:122:ILE:HB	1.88	0.54
3:V:16:LYS:HG3	3:V:30:HIS:CE1	2.43	0.54
1:H:76:ILE:HG22	1:H:76:ILE:O	2.08	0.53
3:V:53:ASN:C	3:V:53:ASN:OD1	2.51	0.53
3:V:12:ASP:HB2	3:V:16:LYS:H	1.74	0.53
3:V:45:SER:C	3:V:59:ALA:HB3	2.26	0.53
3:V:27:LYS:HG2	3:V:131:PRO:HA	1.91	0.53
1:H:76:ILE:HG22	1:H:78:THR:OG1	2.09	0.53
3:V:64:GLU:CB	5:V:210:HOH:O	2.56	0.52
2:L:42:GLN:NE2	5:L:407:HOH:O	2.40	0.52
3:U:151:VAL:O	3:U:152:SER:C	2.51	0.52
3:V:97:LYS:CD	3:V:116:GLN:N	2.73	0.52
1:H:74:LYS:HG2	5:H:454:HOH:O	2.10	0.52
3:U:103:LYS:HG2	3:U:110:LEU:HD22	1.92	0.52
3:V:97:LYS:HA	3:V:99:PHE:N	2.24	0.52
3:V:66:ASN:HB3	3:V:85:VAL:O	2.10	0.52
3:U:44:MET:CG	3:U:58:VAL:CG2	2.88	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:V:100:VAL:HG23	3:V:100:VAL:O	2.10	0.51
3:V:104:ILE:HD13	3:V:104:ILE:C	2.35	0.51
1:A:110:GLN:NE2	4:A:301:GOL:H11	2.26	0.51
3:U:8:CYS:SG	3:U:44:MET:HE3	2.50	0.51
3:V:97:LYS:HA	3:V:99:PHE:H	1.76	0.51
3:V:5:SER:C	3:V:6:LEU:HD23	2.35	0.51
3:U:55:LYS:HA	3:U:103:LYS:O	2.11	0.50
3:V:61:GLY:CA	5:V:219:HOH:O	2.43	0.50
3:V:96:GLU:O	3:V:99:PHE:CD1	2.65	0.49
3:V:36:MET:CB	3:V:38:GLN:OE1	2.61	0.49
3:V:55:LYS:O	3:V:57:PRO:HD3	2.13	0.49
3:V:69:LEU:O	3:V:99:PHE:HA	2.13	0.49
3:V:47:VAL:HB	3:V:93:LYS:O	2.13	0.49
2:L:54:ARG:NE	5:L:408:HOH:O	2.44	0.49
3:V:57:PRO:CG	3:V:58:VAL:HG23	2.43	0.49
3:V:103:LYS:CG	3:V:104:ILE:N	2.74	0.49
1:H:102:LEU:HG	2:L:49:TYR:CD2	2.48	0.49
1:A:76:ILE:HG22	1:A:76:ILE:O	2.13	0.49
3:V:96:GLU:OE1	3:V:96:GLU:HA	2.12	0.48
2:L:42:GLN:NE2	5:L:411:HOH:O	2.46	0.48
3:U:5:SER:HA	3:U:44:MET:O	2.13	0.48
1:A:130:ALA:HB1	1:A:219:LYS:HB2	1.94	0.48
1:A:110:GLN:HE21	4:A:301:GOL:H12	1.78	0.48
3:V:97:LYS:HD2	3:V:116:GLN:CB	2.42	0.48
3:V:56:ILE:O	3:V:103:LYS:HD3	2.14	0.48
2:L:15:PRO:CB	4:L:302:GOL:H31	2.44	0.48
3:V:4:ARG:HD3	3:V:46:PHE:CD1	2.49	0.48
3:U:87:PRO:HG3	5:U:212:HOH:O	2.13	0.48
1:A:39:GLN:HE22	2:B:38:GLN:HE22	1.62	0.48
3:V:19:VAL:HG11	3:V:29:LEU:HD21	1.94	0.48
3:V:70:SER:HA	3:V:98:ARG:O	2.13	0.48
4:H:301:GOL:O3	2:L:137:ASN:ND2	2.47	0.47
3:V:37:GLU:N	3:V:38:GLN:HB3	2.29	0.47
3:U:37:GLU:CG	3:U:37:GLU:O	2.62	0.47
3:U:55:LYS:O	3:U:55:LYS:HG2	2.14	0.47
3:V:30:HIS:O	3:V:31:LEU:HD23	2.14	0.47
3:V:8:CYS:SG	3:V:148:MET:HE2	2.55	0.47
3:V:68:TYR:HB3	3:V:99:PHE:HD2	1.80	0.47
1:A:28:THR:HG21	3:V:86:ASP:HA	1.96	0.47
2:L:166:GLN:N	4:L:301:GOL:H32	2.29	0.46
3:V:14:GLN:O	3:V:30:HIS:NE2	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:U:17:SER:O	3:U:28:ALA:HA	2.14	0.46
3:V:104:ILE:CB	3:V:111:GLU:O	2.62	0.46
1:H:40:MET:HB3	1:H:43:LYS:HD2	1.96	0.46
2:B:37:GLN:HE22	2:B:45:ARG:HH21	1.62	0.46
3:U:30:HIS:O	3:U:31:LEU:C	2.59	0.46
3:V:37:GLU:HA	3:V:38:GLN:HB3	1.97	0.46
3:V:121:TYR:O	3:V:122:ILE:C	2.57	0.46
3:U:148:MET:HE3	3:U:150:PHE:CZ	2.51	0.46
2:L:91:ARG:HA	2:L:95:LEU:O	2.16	0.46
1:H:73:ASP:OD1	1:H:75:SER:OG	2.25	0.45
3:U:101:PHE:CE1	3:U:122:ILE:HD11	2.51	0.45
3:V:37:GLU:CA	3:V:38:GLN:HB3	2.46	0.45
1:H:164:LEU:HD21	1:H:187:VAL:HG21	1.98	0.45
3:V:36:MET:HB3	3:V:38:GLN:OE1	2.17	0.45
3:V:112:PHE:O	3:V:122:ILE:N	2.46	0.45
2:B:141:PRO:O	2:B:198:HIS:HE1	1.98	0.45
3:V:47:VAL:CG2	3:V:58:VAL:CG1	2.66	0.45
3:V:54:ASP:CB	3:V:103:LYS:HE2	2.47	0.45
1:H:40:MET:HE3	1:H:92:ALA:HB2	1.98	0.45
3:U:19:VAL:CA	3:U:40:VAL:CG2	2.93	0.45
3:V:57:PRO:CB	3:V:58:VAL:HG23	2.47	0.45
1:H:124:PRO:HB3	1:H:150:TYR:HB3	1.99	0.45
3:U:19:VAL:CA	3:U:40:VAL:HG23	2.43	0.45
3:V:103:LYS:HD2	3:V:104:ILE:C	2.42	0.45
2:B:175:LEU:HD23	2:B:176:SER:N	2.32	0.45
2:L:72:THR:HG23	5:L:529:HOH:O	2.16	0.44
3:V:64:GLU:HB2	5:V:210:HOH:O	2.14	0.44
2:L:199:GLN:CG	5:L:536:HOH:O	2.65	0.44
3:U:30:HIS:HB2	3:U:128:GLU:OE2	2.17	0.44
3:V:16:LYS:CG	3:V:30:HIS:CE1	3.00	0.44
3:V:43:SER:HB3	5:V:219:HOH:O	2.17	0.44
1:H:102:LEU:C	1:H:102:LEU:CD2	2.91	0.44
3:V:28:ALA:HB3	3:V:124:THR:CG2	2.48	0.44
1:H:59:ARG:HG3	2:L:94:TRP:CE3	2.52	0.44
3:V:26:LEU:HD22	3:V:26:LEU:HA	1.90	0.44
3:V:61:GLY:HA2	3:V:68:TYR:HA	2.00	0.43
3:V:102:ASN:O	3:V:103:LYS:CB	2.66	0.43
3:V:4:ARG:HD3	3:V:46:PHE:CE1	2.53	0.43
3:U:44:MET:HG3	3:U:58:VAL:CG2	2.48	0.43
3:U:72:VAL:O	3:U:79:THR:N	2.52	0.43
2:L:37:GLN:HE22	2:L:45:ARG:HH21	1.67	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:141:PRO:O	2:L:198:HIS:HE1	2.02	0.43
3:V:118:PRO:O	3:V:119:ASN:HB2	2.19	0.43
3:U:94:LYS:O	3:U:94:LYS:NZ	2.31	0.43
2:L:32:TYR:HA	2:L:50:ASP:HA	2.01	0.43
2:L:199:GLN:CB	5:L:536:HOH:O	2.67	0.42
3:U:58:VAL:HG22	3:U:59:ALA:N	2.34	0.42
3:V:57:PRO:HG2	3:V:58:VAL:HG23	2.00	0.42
3:V:97:LYS:HD3	3:V:115:ALA:C	2.44	0.42
2:L:182:SER:OG	2:L:185:ASP:OD1	2.36	0.42
3:V:104:ILE:HD11	3:V:109:LYS:C	2.36	0.42
3:V:111:GLU:HG2	3:V:145:ASP:HA	2.01	0.42
1:A:188:THR:CG2	5:B:442:HOH:O	2.49	0.42
3:V:92:LYS:HB3	3:V:95:MET:SD	2.59	0.42
2:B:119:PRO:HB3	2:B:209:PHE:CZ	2.54	0.42
3:V:47:VAL:H	3:V:58:VAL:HG11	1.85	0.42
3:V:103:LYS:O	3:V:112:PHE:HA	2.19	0.42
3:V:13:SER:OG	3:V:143:ILE:CG2	2.67	0.42
3:V:113:GLU:O	3:V:114:SER:C	2.62	0.42
1:H:158:SER:OG	1:H:202:ASN:OD1	2.38	0.42
1:A:221:CYS:SG	2:B:214:CYS:HB2	2.59	0.42
3:V:57:PRO:HB2	3:V:58:VAL:HG23	2.01	0.42
2:L:165:GLU:HB3	4:L:301:GOL:H31	2.02	0.42
3:V:104:ILE:CD1	3:V:104:ILE:C	2.93	0.42
1:H:90:ASP:O	1:H:94:TYR:OH	2.31	0.42
2:L:103:LYS:HE2	2:L:104:VAL:O	2.20	0.42
3:U:52:SER:HB3	5:U:219:HOH:O	2.18	0.42
1:H:167:GLY:HA2	4:H:301:GOL:H11	2.01	0.41
1:A:28:THR:HG21	3:V:87:PRO:HD2	2.02	0.41
2:B:50:ASP:HB3	2:B:53:ASN:ND2	2.35	0.41
3:V:86:ASP:OD1	3:V:87:PRO:HD2	2.20	0.41
1:H:183:LEU:C	1:H:183:LEU:CD1	2.92	0.41
3:U:70:SER:OG	3:U:81:GLN:NE2	2.53	0.41
3:V:107:ASN:HD22	3:V:107:ASN:HA	1.66	0.41
2:L:29:VAL:HG12	2:L:30:SER:N	2.35	0.41
3:U:44:MET:HE2	3:U:60:LEU:CD2	2.50	0.41
3:V:12:ASP:HB2	3:V:16:LYS:N	2.34	0.41
1:H:148:LYS:NZ	1:H:176:GLN:OE1	2.53	0.41
2:B:5:THR:HG23	5:B:402:HOH:O	2.21	0.41
2:L:47:LEU:HD23	2:L:58:ILE:HD12	2.02	0.41
3:U:104:ILE:HB	3:U:111:GLU:HB2	2.03	0.41
1:A:35:GLY:CA	1:A:50:ILE:HD12	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:53:PRO:O	1:A:54:GLY:C	2.64	0.41
3:V:55:LYS:H	3:V:55:LYS:HG2	1.08	0.41
3:U:10:LEU:O	3:U:39:GLN:NE2	2.54	0.41
1:A:101:SER:C	1:A:103:ASP:N	2.76	0.41
3:U:80:LEU:HB2	3:U:134:LEU:HB2	2.03	0.40
3:V:69:LEU:HD22	3:V:80:LEU:HD11	2.04	0.40
3:V:96:GLU:O	3:V:99:PHE:HD1	2.04	0.40
3:V:6:LEU:N	3:V:6:LEU:CD2	2.69	0.40
3:V:26:LEU:HD23	3:V:82:LEU:HD11	2.03	0.40
3:V:36:MET:HB2	3:V:38:GLN:OE1	2.21	0.40
3:V:47:VAL:H	3:V:58:VAL:CG1	2.34	0.40
3:V:97:LYS:NZ	3:V:115:ALA:HB3	2.36	0.40
1:H:38:ARG:HD2	1:H:40:MET:HE1	2.03	0.40
1:H:53:PRO:O	1:H:54:GLY:C	2.63	0.40
3:U:110:LEU:CD1	3:U:148:MET:HE2	2.51	0.40
2:B:213:GLU:O	2:B:214:CYS:HB3	2.21	0.40
1:H:38:ARG:CZ	1:H:40:MET:HE1	2.52	0.40
4:H:301:GOL:H2	2:L:138:ASN:HD21	1.86	0.40
3:V:16:LYS:CG	3:V:30:HIS:ND1	2.85	0.40
2:L:103:LYS:NZ	4:L:301:GOL:H2	2.37	0.40
2:L:159:SER:HA	2:L:178:THR:O	2.22	0.40
3:U:18:LEU:O	3:U:40:VAL:HG23	2.22	0.40

All (12) 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)
1:A:132:SER:O	3:V:55:LYS:NZ[5_555]	1.12	1.08
1:A:133:SER:CA	3:V:55:LYS:CE[5_555]	1.33	0.87
1:A:133:SER:N	3:V:55:LYS:CE[5_555]	1.61	0.59
1:A:133:SER:CA	3:V:55:LYS:CD[5_555]	1.67	0.53
1:A:136:THR:OG1	3:V:55:LYS:NZ[5_555]	1.90	0.30
1:A:132:SER:C	3:V:55:LYS:CE[5_555]	1.92	0.28
1:A:132:SER:O	3:V:55:LYS:CE[5_555]	1.93	0.27
1:A:132:SER:C	3:V:55:LYS:NZ[5_555]	2.09	0.11
5:L:477:HOH:O	5:B:535:HOH:O[8_445]	2.11	0.09
1:A:133:SER:C	3:V:55:LYS:CE[5_555]	2.13	0.07
5:U:211:HOH:O	5:U:211:HOH:O[3_654]	2.17	0.03
3:V:14:GLN:NE2	3:V:14:GLN:NE2[3_555]	2.17	0.03

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	219/240 (91%)	214 (98%)	3 (1%)	2 (1%)	14	9
1	H	219/240 (91%)	209 (95%)	8 (4%)	2 (1%)	14	9
2	B	212/249 (85%)	203 (96%)	9 (4%)	0	100	100
2	L	213/249 (86%)	204 (96%)	9 (4%)	0	100	100
3	U	128/177 (72%)	123 (96%)	5 (4%)	0	100	100
3	V	138/177 (78%)	114 (83%)	17 (12%)	7 (5%)	1	0
All	All	1129/1332 (85%)	1067 (94%)	51 (4%)	11 (1%)	12	8

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	V	103	LYS
1	H	178	SER
3	V	101	PHE
3	V	138	LYS
1	A	56	SER
1	A	178	SER
3	V	30	HIS
3	V	55	LYS
1	H	103	ASP
3	V	100	VAL
3	V	106	ILE

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	188/201 (94%)	183 (97%)	5 (3%)	39	41
1	H	188/201 (94%)	174 (93%)	14 (7%)	13	8
2	B	186/217 (86%)	181 (97%)	5 (3%)	39	41
2	L	187/217 (86%)	185 (99%)	2 (1%)	65	72
3	U	125/160 (78%)	111 (89%)	14 (11%)	6	2
3	V	128/160 (80%)	100 (78%)	28 (22%)	1	0
All	All	1002/1156 (87%)	934 (93%)	68 (7%)	14	10

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	7	SER
1	H	40	MET
1	H	50	ILE
1	H	63	SER
1	H	71	SER
1	H	74	LYS
1	H	75	SER
1	H	102	LEU
1	H	125	SER
1	H	143	LEU
1	H	178	SER
1	H	183	LEU
1	H	214	LYS
1	H	215	ARG
2	L	28	SER
2	L	103	LYS
3	U	29	LEU
3	U	30	HIS
3	U	37	GLU
3	U	38	GLN
3	U	39	GLN
3	U	48	GLN
3	U	54	ASP
3	U	55	LYS
3	U	56	ILE
3	U	62	LEU
3	U	79	THR
3	U	92	LYS
3	U	93	LYS
3	U	147	THR

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Mol	Chain	Res	Type
1	A	63	SER
1	A	107	ILE
1	A	114	VAL
1	A	183	LEU
1	A	204	ASN
2	B	56	THR
2	B	145	LYS
2	B	188	LYS
2	B	190	LYS
2	B	197	THR
3	V	6	LEU
3	V	13	SER
3	V	14	GLN
3	V	19	VAL
3	V	26	LEU
3	V	48	GLN
3	V	53	ASN
3	V	54	ASP
3	V	55	LYS
3	V	56	ILE
3	V	60	LEU
3	V	64	GLU
3	V	70	SER
3	V	76	ASP
3	V	85	VAL
3	V	93	LYS
3	V	94	LYS
3	V	96	GLU
3	V	97	LYS
3	V	99	PHE
3	V	104	ILE
3	V	107	ASN
3	V	109	LYS
3	V	110	LEU
3	V	116	GLN
3	V	123	SER
3	V	130	MET
3	V	149	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	H	39	GLN
2	L	37	GLN
2	L	53	ASN
2	L	89	GLN
2	L	138	ASN
2	L	155	GLN
2	L	198	HIS
2	L	210	ASN
3	U	102	ASN
1	A	3	GLN
1	A	65	GLN
1	A	176	GLN
1	A	204	ASN
1	A	205	HIS
2	B	37	GLN
2	B	38	GLN
2	B	155	GLN
2	B	198	HIS
3	V	14	GLN
3	V	107	ASN
3	V	116	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

8 ligands are modelled in this entry.

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	$\# Z > 2$
4	GOL	B	302	-	5,5,5	0.69	0	5,5,5	0.71	0
4	GOL	L	302	-	5,5,5	0.61	0	5,5,5	1.02	0
4	GOL	H	301	-	5,5,5	0.27	0	5,5,5	0.45	0
4	GOL	B	303	-	5,5,5	0.25	0	5,5,5	0.61	0
4	GOL	A	301	-	5,5,5	0.73	0	5,5,5	1.51	1 (20%)
4	GOL	L	303	-	5,5,5	0.46	0	5,5,5	0.27	0
4	GOL	L	301	-	5,5,5	0.64	0	5,5,5	1.28	1 (20%)
4	GOL	B	301	-	5,5,5	0.69	0	5,5,5	0.93	0

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
4	GOL	B	302	-	-	2/4/4/4	-
4	GOL	L	302	-	-	2/4/4/4	-
4	GOL	H	301	-	-	2/4/4/4	-
4	GOL	B	303	-	-	4/4/4/4	-
4	GOL	A	301	-	-	0/4/4/4	-
4	GOL	L	303	-	-	2/4/4/4	-
4	GOL	L	301	-	-	2/4/4/4	-
4	GOL	B	301	-	-	0/4/4/4	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	301	GOL	O2-C2-C1	-2.24	99.92	109.18
4	L	301	GOL	O3-C3-C2	2.14	120.03	110.38

There are no chirality outliers.

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	H	301	GOL	C1-C2-C3-O3
4	L	301	GOL	O1-C1-C2-C3
4	L	303	GOL	O1-C1-C2-C3
4	B	302	GOL	O1-C1-C2-C3
4	B	302	GOL	O1-C1-C2-O2
4	B	303	GOL	O1-C1-C2-C3
4	B	303	GOL	C1-C2-C3-O3
4	H	301	GOL	O2-C2-C3-O3
4	L	301	GOL	O1-C1-C2-O2
4	L	303	GOL	O1-C1-C2-O2
4	B	303	GOL	O1-C1-C2-O2
4	B	303	GOL	O2-C2-C3-O3
4	L	302	GOL	O2-C2-C3-O3
4	L	302	GOL	C1-C2-C3-O3

There are no ring outliers.

5 monomers are involved in 17 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	302	GOL	1	0
4	L	302	GOL	2	0
4	H	301	GOL	3	0
4	A	301	GOL	4	0
4	L	301	GOL	7	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, 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	221/240 (92%)	1.38	47 (21%) 2 3	45, 59, 77, 94	0
1	H	221/240 (92%)	1.25	32 (14%) 6 6	48, 61, 79, 91	0
2	B	214/249 (85%)	1.13	33 (15%) 5 5	40, 55, 79, 108	0
2	L	215/249 (86%)	1.04	26 (12%) 8 9	41, 54, 76, 125	0
3	U	136/177 (76%)	2.28	78 (57%) 0 0	51, 87, 107, 125	0
3	V	144/177 (81%)	3.44	118 (81%) 0 0	60, 86, 116, 131	0
All	All	1151/1332 (86%)	1.61	334 (29%) 1 1	40, 62, 100, 131	0

All (334) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	V	100	VAL	8.3
3	V	110	LEU	8.2
3	V	112	PHE	7.7
3	V	58	VAL	7.3
3	V	18	LEU	7.0
3	V	101	PHE	7.0
3	V	56	ILE	6.5
3	V	60	LEU	6.4
3	V	3	VAL	6.3
3	U	31	LEU	6.2
3	V	19	VAL	6.1
3	V	10	LEU	6.1
3	V	122	ILE	5.9
3	V	6	LEU	5.9
3	V	62	LEU	5.8
3	V	151	VAL	5.8
3	V	41	VAL	5.7
3	V	69	LEU	5.6
3	V	46	PHE	5.5

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Mol	Chain	Res	Type	RSRZ
3	V	61	GLY	5.5
3	V	146	PHE	5.5
3	V	31	LEU	5.1
3	V	121	TYR	5.0
3	U	38	GLN	4.9
3	V	57	PRO	4.9
3	V	26	LEU	4.8
3	V	28	ALA	4.7
3	U	135	GLY	4.7
3	V	115	ALA	4.6
3	V	104	ILE	4.6
3	V	39	GLN	4.6
3	V	47	VAL	4.5
3	V	131	PRO	4.5
3	V	140	GLY	4.5
3	V	139	GLY	4.4
3	V	53	ASN	4.4
3	U	120	TRP	4.4
3	V	91	PRO	4.4
3	V	106	ILE	4.4
3	V	43	SER	4.3
3	V	127	ALA	4.2
2	B	29	VAL	4.2
3	V	141	GLN	4.2
3	U	150	PHE	4.2
3	U	143	ILE	4.2
3	V	105	GLU	4.2
3	V	68	TYR	4.2
3	V	133	PHE	4.1
3	V	44	MET	4.0
3	V	147	THR	4.0
3	V	42	PHE	3.9
3	U	134	LEU	3.9
1	H	28	THR	3.9
3	V	144	THR	3.9
3	V	132	VAL	3.9
1	A	101	SER	3.9
2	L	125	LEU	3.9
3	U	29	LEU	3.9
3	V	143	ILE	3.9
3	U	127	ALA	3.9
3	V	13	SER	3.9

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Mol	Chain	Res	Type	RSRZ
3	V	103	LYS	3.9
3	U	61	GLY	3.8
1	A	221	CYS	3.8
3	U	101	PHE	3.8
3	U	10	LEU	3.8
3	V	36	MET	3.8
3	V	145	ASP	3.8
3	V	40	VAL	3.8
3	V	125	SER	3.7
3	V	124	THR	3.7
3	U	80	LEU	3.7
3	U	115	ALA	3.7
3	V	14	GLN	3.7
1	A	84	SER	3.7
3	U	107	ASN	3.6
3	V	17	SER	3.6
3	V	59	ALA	3.6
2	B	3	VAL	3.6
3	U	59	ALA	3.6
3	U	62	LEU	3.6
3	U	3	VAL	3.5
1	A	194	LEU	3.5
3	U	82	LEU	3.5
3	V	99	PHE	3.5
3	V	135	GLY	3.5
1	A	76	ILE	3.5
3	V	137	THR	3.5
3	V	49	GLY	3.4
3	U	110	LEU	3.4
3	V	109	LYS	3.4
2	B	192	TYR	3.4
3	V	67	LEU	3.4
3	V	8	CYS	3.4
2	L	126	LYS	3.4
3	V	29	LEU	3.4
1	A	216	VAL	3.4
3	V	136	GLY	3.4
3	V	138	LYS	3.4
2	L	2	ILE	3.4
2	B	125	LEU	3.4
3	U	147	THR	3.3
1	H	63	SER	3.3

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Mol	Chain	Res	Type	RSRZ
3	U	129	ASN	3.3
3	V	102	ASN	3.3
2	B	32	TYR	3.3
3	U	58	VAL	3.3
3	U	40	VAL	3.3
3	U	41	VAL	3.3
2	L	181	LEU	3.3
3	V	150	PHE	3.3
3	U	122	ILE	3.2
1	A	127	PHE	3.2
3	V	12	ASP	3.2
1	A	193	SER	3.2
3	V	95	MET	3.2
3	U	117	PHE	3.2
3	U	30	HIS	3.2
3	V	9	THR	3.2
3	V	113	GLU	3.2
3	V	16	LYS	3.2
3	V	97	LYS	3.2
1	A	143	LEU	3.1
3	V	5	SER	3.1
3	V	52	SER	3.1
3	V	126	GLN	3.1
1	H	216	VAL	3.1
3	U	132	VAL	3.1
3	V	80	LEU	3.1
1	H	138	GLY	3.1
3	V	72	VAL	3.1
3	V	92	LYS	3.1
2	L	144	ALA	3.1
1	H	212	VAL	3.1
1	A	15	GLY	3.0
1	A	219	LYS	3.0
1	H	102	LEU	3.0
2	B	150	VAL	3.0
3	U	104	ILE	3.0
3	V	118	PRO	3.0
3	U	148	MET	3.0
3	V	98	ARG	3.0
1	A	54	GLY	3.0
3	U	144	THR	3.0
1	A	213	ASP	3.0

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Mol	Chain	Res	Type	RSRZ
1	H	29	PHE	3.0
1	H	193	SER	2.9
2	B	184	ALA	2.9
3	V	114	SER	2.9
2	L	154	LEU	2.9
2	L	212	GLY	2.9
1	A	214	LYS	2.9
3	U	4	ARG	2.9
3	U	112	PHE	2.9
3	V	27	LYS	2.9
1	A	2	VAL	2.9
3	U	146	PHE	2.9
2	B	152	ASN	2.9
3	V	74	LYS	2.9
3	U	60	LEU	2.9
3	V	134	LEU	2.9
3	U	151	VAL	2.9
3	V	86	ASP	2.9
3	V	149	GLN	2.9
3	V	90	TYR	2.9
3	V	129	ASN	2.9
3	U	28	ALA	2.9
3	V	96	GLU	2.8
2	B	130	ALA	2.8
3	V	130	MET	2.8
3	U	124	THR	2.8
2	B	126	LYS	2.8
3	V	108	ASN	2.8
3	U	46	PHE	2.8
3	V	148	MET	2.8
2	B	153	ALA	2.8
1	A	191	SER	2.8
3	U	39	GLN	2.8
1	H	163	ALA	2.8
3	U	121	TYR	2.8
1	H	91	THR	2.8
3	V	85	VAL	2.8
1	H	215	ARG	2.7
3	V	4	ARG	2.7
1	A	26	GLY	2.7
3	U	99	PHE	2.7
3	U	6	LEU	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	28	THR	2.7
3	U	131	PRO	2.7
3	V	107	ASN	2.7
1	H	129	LEU	2.7
1	A	65	GLN	2.7
2	L	203	SER	2.7
3	U	55	LYS	2.7
3	U	68	TYR	2.7
2	L	182	SER	2.7
1	A	67	GLN	2.6
2	B	51	ALA	2.6
1	H	196	THR	2.6
1	A	102	LEU	2.6
1	A	130	ALA	2.6
3	U	108	ASN	2.6
2	B	2	ILE	2.6
1	A	123	GLY	2.6
3	U	149	GLN	2.6
1	A	128	PRO	2.6
1	A	220	SER	2.6
3	V	111	GLU	2.6
2	B	210	ASN	2.6
1	A	55	ASP	2.6
2	B	76	SER	2.6
3	U	52	SER	2.6
1	A	199	TYR	2.5
3	U	8	CYS	2.5
3	V	119	ASN	2.5
3	V	82	LEU	2.5
2	B	28	SER	2.5
3	U	125	SER	2.5
3	U	73	LEU	2.5
3	V	120	TRP	2.5
3	V	93	LYS	2.5
1	H	126	VAL	2.5
1	H	174	VAL	2.5
3	U	119	ASN	2.5
3	U	71	CYS	2.5
3	V	79	THR	2.5
1	H	88	ALA	2.5
3	U	95	MET	2.5
2	L	215	GLU	2.4

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Mol	Chain	Res	Type	RSRZ
1	H	30	THR	2.4
2	B	67	SER	2.4
3	U	5	SER	2.4
3	U	78	PRO	2.4
2	B	47	LEU	2.4
2	B	24	ARG	2.4
1	H	26	GLY	2.4
2	B	186	TYR	2.4
3	U	70	SER	2.4
2	L	184	ALA	2.4
3	U	109	LYS	2.4
2	L	189	HIS	2.4
3	U	69	LEU	2.4
3	V	15	GLN	2.4
2	B	122	ASP	2.4
1	H	155	VAL	2.4
3	U	85	VAL	2.4
3	U	79	THR	2.4
3	U	56	ILE	2.4
3	U	63	LYS	2.4
3	U	92	LYS	2.4
3	V	66	ASN	2.3
3	U	76	ASP	2.3
3	V	20	MET	2.3
1	H	76	ILE	2.3
3	V	45	SER	2.3
2	L	122	ASP	2.3
3	U	47	VAL	2.3
1	H	62	PRO	2.3
1	H	218	PRO	2.3
3	V	48	GLN	2.3
1	A	66	GLY	2.3
1	A	129	LEU	2.3
3	V	94	LYS	2.3
1	H	11	VAL	2.3
1	A	30	THR	2.3
2	L	121	SER	2.2
2	B	26	SER	2.2
3	U	13	SER	2.2
2	L	129	THR	2.2
1	A	8	GLY	2.2
1	A	86	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
2	B	181	LEU	2.2
1	A	7	SER	2.2
1	A	125	SER	2.2
2	B	30	SER	2.2
2	L	97	THR	2.2
2	B	129	THR	2.2
1	H	114	VAL	2.2
2	B	214	CYS	2.2
3	V	128	GLU	2.2
1	A	32	TYR	2.2
1	A	63	SER	2.2
3	U	17	SER	2.2
1	H	64	PHE	2.2
2	L	209	PHE	2.2
1	H	59	ARG	2.2
3	U	43	SER	2.2
3	V	123	SER	2.2
2	B	10	THR	2.2
2	B	80	PRO	2.1
2	L	116	PHE	2.1
3	U	72	VAL	2.1
2	L	9	ALA	2.1
3	U	12	ASP	2.1
3	U	86	ASP	2.1
1	A	196	THR	2.1
1	A	218	PRO	2.1
3	V	78	PRO	2.1
1	A	20	ILE	2.1
2	B	68	GLY	2.1
2	L	158	ASN	2.1
3	U	44	MET	2.1
3	U	145	ASP	2.1
2	L	32	TYR	2.1
3	V	87	PRO	2.1
1	H	195	GLY	2.1
3	V	63	LYS	2.1
1	H	101	SER	2.1
1	H	194	LEU	2.1
2	L	156	SER	2.1
2	B	213	GLU	2.1
1	H	200	ILE	2.1
1	A	64	PHE	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	68	VAL	2.1
1	A	99	PHE	2.1
2	L	29	VAL	2.1
3	U	133	PHE	2.1
1	H	117	SER	2.1
1	A	173	ALA	2.1
2	L	176	SER	2.1
2	B	127	SER	2.1
2	B	95	LEU	2.0
3	U	89	ASN	2.0
3	V	142	ASP	2.0
1	A	212	VAL	2.0
2	L	191	VAL	2.0
2	L	208	SER	2.0
1	A	4	LEU	2.0
3	V	73	LEU	2.0
1	A	215	ARG	2.0
1	H	214	LYS	2.0
3	V	88	LYS	2.0
2	B	69	THR	2.0
1	A	139	GLY	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 oligosaccharides 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, 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(\AA^2)	Q<0.9
4	GOL	H	301	6/6	0.73	0.18	70,75,82,87	0
4	GOL	L	303	6/6	0.86	0.17	60,73,76,79	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	GOL	L	301	6/6	0.87	0.17	49,56,68,69	0
4	GOL	A	301	6/6	0.88	0.15	46,59,63,70	0
4	GOL	B	303	6/6	0.88	0.18	65,74,78,82	0
4	GOL	B	302	6/6	0.92	0.12	48,57,59,66	0
4	GOL	L	302	6/6	0.92	0.15	64,65,66,78	0
4	GOL	B	301	6/6	0.94	0.10	53,54,59,62	0

6.5 Other polymers [i](#)

There are no such residues in this entry.