



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 20, 2026 – 03:02 AM UTC

PDB ID : 9FSU / pdb\_00009fsu  
Title : Yeast 20S proteasome with human beta1i (1-51) in complex with epoxyketone inhibitor 16  
Authors : Maurits, E.; Huber, E.M.; Dekker, P.M.; Wang, X.; Heinemeyer, W.; Florea, B.I.; Groll, M.; Overkleeft, H.S.  
Deposited on : 2024-06-21  
Resolution : 2.75 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](mailto: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>.

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

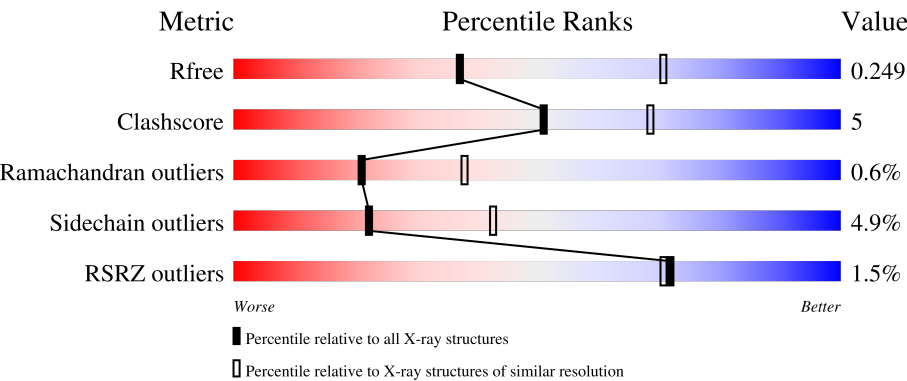
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal 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 i

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

The reported resolution of this entry is 2.75 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 <sub>free</sub>	180053	1009 (2.76-2.76)
Clashscore	190562	1044 (2.76-2.76)
Ramachandran outliers	187476	1024 (2.76-2.76)
Sidechain outliers	187428	1024 (2.76-2.76)
RSRZ outliers	180081	1009 (2.76-2.76)

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  $\geq 3$ , 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	250	<div><div>%</div><div><div></div><div></div><div></div><div></div></div><div>89%10%.</div></div>
1	O	250	<div><div>%</div><div><div></div><div></div><div></div><div></div></div><div>90%8%.</div></div>
2	B	258	<div><div>2%</div><div><div></div><div></div><div></div><div></div></div><div>78%15%5%</div></div>
2	P	258	<div><div>3%</div><div><div></div><div></div><div></div><div></div></div><div>80%14%5%</div></div>

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Mol	Chain	Length	Quality of chain
3	C	254	
3	Q	254	
4	D	260	
4	R	260	
5	E	234	
5	S	234	
6	F	288	
6	T	288	
7	G	252	
7	U	252	
8	H	232	
8	V	232	
9	I	205	
9	W	205	
10	J	198	
10	X	198	
11	K	211	
11	Y	211	
12	L	222	
12	Z	222	
13	M	246	
13	a	246	
14	N	196	
14	b	196	

## 2 Entry composition

There are 20 unique types of molecules in this entry. The entry contains 49865 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 Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	250	Total	C	N	O	S	0	0	0
			1915	1219	315	377	4			
1	O	250	Total	C	N	O	S	0	0	0
			1915	1219	315	377	4			

- Molecule 2 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	244	Total	C	N	O	S	0	0	0
			1904	1201	321	379	3			
2	P	244	Total	C	N	O	S	0	0	0
			1904	1201	321	379	3			

- Molecule 3 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	241	Total	C	N	O	S	0	0	0
			1890	1181	331	374	4			
3	Q	241	Total	C	N	O	S	0	0	0
			1890	1181	331	374	4			

- Molecule 4 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	242	Total	C	N	O	S	0	0	0
			1861	1162	314	378	7			
4	R	242	Total	C	N	O	S	0	0	0
			1861	1162	314	378	7			

- Molecule 5 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	233	Total	C	N	O	S	0	0	0
			1795	1129	312	350	4			
5	S	233	Total	C	N	O	S	0	0	0
			1795	1129	312	350	4			

- Molecule 6 is a protein called Probable proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	244	Total	C	N	O	S	0	0	0
			1896	1205	330	357	4			
6	T	244	Total	C	N	O	S	0	0	0
			1896	1205	330	357	4			

- Molecule 7 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	G	243	Total	C	N	O	S	0	0	0
			1921	1221	322	370	8			
7	U	243	Total	C	N	O	S	0	0	0
			1921	1221	322	370	8			

- Molecule 8 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	H	222	Total	C	N	O	S	0	0	0
			1684	1061	293	323	7			
8	V	222	Total	C	N	O	S	0	0	0
			1684	1061	293	323	7			

- Molecule 9 is a protein called Proteasome subunit beta type-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	I	204	Total	C	N	O	S	0	0	0
			1581	1010	258	305	8			
9	W	204	Total	C	N	O	S	0	0	0
			1581	1010	258	305	8			

- Molecule 10 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	J	196	Total	C	N	O	S	0	0	0
			1570	997	266	301	6			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	X	198	Total	C	N	O	S	0	0	0
			1585	1005	269	305	6			

- Molecule 11 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
11	K	211	Total	C	N	O	S	0	0	0
			1637	1041	279	310	7			
11	Y	211	Total	C	N	O	S	0	0	0
			1637	1041	279	310	7			

- Molecule 12 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	L	222	Total	C	N	O	S	0	0	0
			1757	1115	303	335	4			
12	Z	222	Total	C	N	O	S	0	0	0
			1757	1115	303	335	4			

- Molecule 13 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
13	M	224	Total	C	N	O	S	0	0	0
			1753	1108	300	338	7			
13	a	224	Total	C	N	O	S	0	0	0
			1753	1108	300	338	7			

- Molecule 14 is a protein called Proteasome subunit beta type-9, Proteasome subunit beta type-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
14	N	195	Total	C	N	O	S	0	0	0
			1495	946	243	299	7			
14	b	195	Total	C	N	O	S	0	0	0
			1495	946	243	299	7			

- Molecule 15 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	G	1	Total	Mg	0	0
			1	1		

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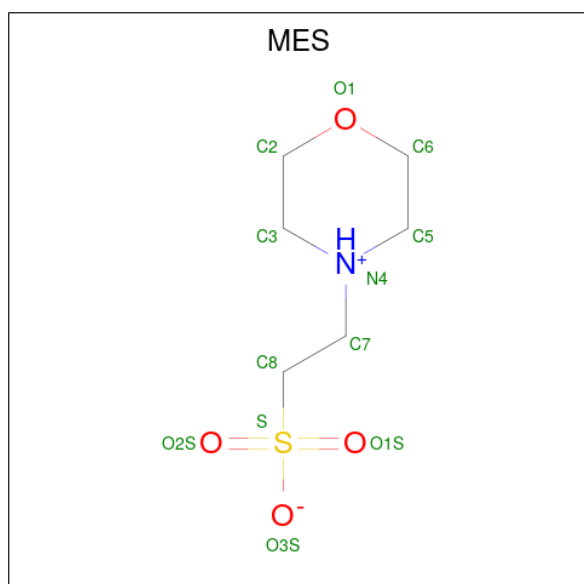
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	I	1	Total	Mg	0	0
			1	1		
15	J	1	Total	Mg	0	0
			1	1		
15	K	1	Total	Mg	0	0
			1	1		
15	N	1	Total	Mg	0	0
			1	1		
15	V	1	Total	Mg	0	0
			1	1		
15	W	1	Total	Mg	0	0
			1	1		
15	Y	1	Total	Mg	0	0
			1	1		
15	Z	1	Total	Mg	0	0
			1	1		

- Molecule 16 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

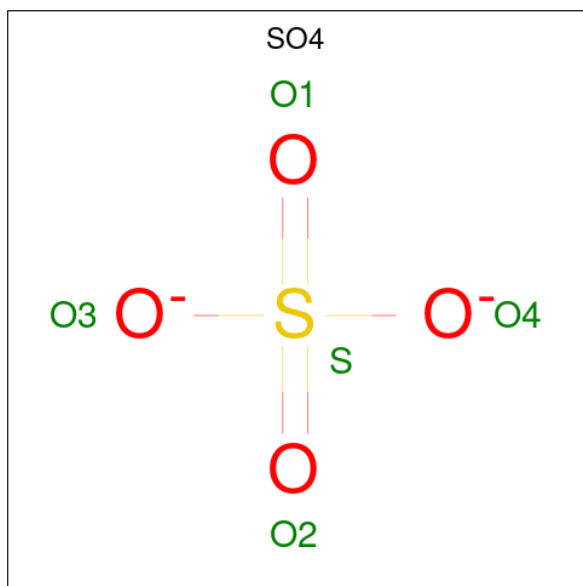
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
16	G	1	Total	Cl	0	0
			1	1		
16	U	1	Total	Cl	0	0
			1	1		

- Molecule 17 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (CCD ID: MES) (formula: C<sub>6</sub>H<sub>13</sub>NO<sub>4</sub>S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
17	J	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
17	V	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
17	X	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

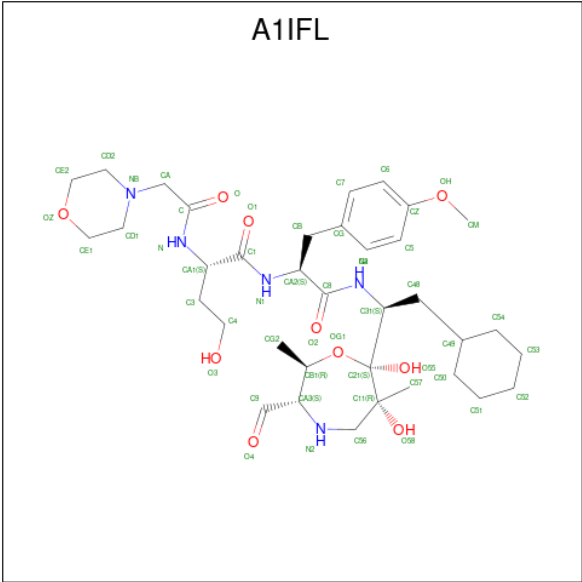
- Molecule 18 is SULFATE ION (CCD ID: SO4) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
18	K	1	Total	O	S	0	0
			5	4	1		
18	N	1	Total	O	S	0	0
			5	4	1		
18	Y	1	Total	O	S	0	0
			5	4	1		
18	b	1	Total	O	S	0	0
			5	4	1		

- Molecule 19 is (2S)-N-[(2S)-1-[(1S)-2-cyclohexyl-1-[(2R,3S,6R,7S)-3-methanoyl-2,6-dimethyl-6,7-bis(oxidanyl)-1,4-oxazepan-7-yl]ethyl]amino]-3-(4-methoxyphenyl)-1-oxidanylidene-propan-2-yl]-2-(2-morpholin-4-ylethanoylamino)-4-oxidanyl-butanamide (CCD ID: A1IFL) (formula: C<sub>36</sub>H<sub>57</sub>N<sub>5</sub>O<sub>10</sub>) (labeled as "Ligand of Interest" by depositor).





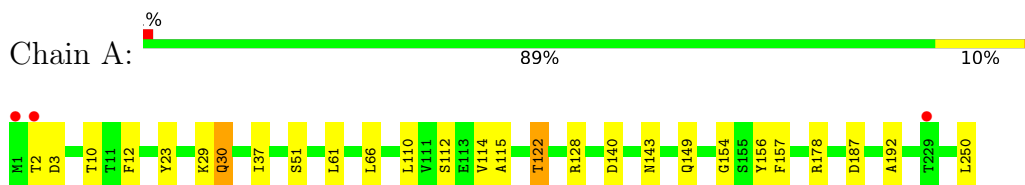
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
20	I	10	Total O 10 10	0	0
20	J	12	Total O 12 12	0	0
20	K	15	Total O 15 15	0	0
20	L	11	Total O 11 11	0	0
20	M	12	Total O 12 12	0	0
20	N	9	Total O 9 9	0	0
20	O	6	Total O 6 6	0	0
20	P	8	Total O 8 8	0	0
20	Q	5	Total O 5 5	0	0
20	R	1	Total O 1 1	0	0
20	S	6	Total O 6 6	0	0
20	T	7	Total O 7 7	0	0
20	U	9	Total O 9 9	0	0
20	V	9	Total O 9 9	0	0
20	W	8	Total O 8 8	0	0
20	X	10	Total O 10 10	0	0
20	Y	13	Total O 13 13	0	0
20	Z	11	Total O 11 11	0	0
20	a	11	Total O 11 11	0	0
20	b	14	Total O 14 14	0	0

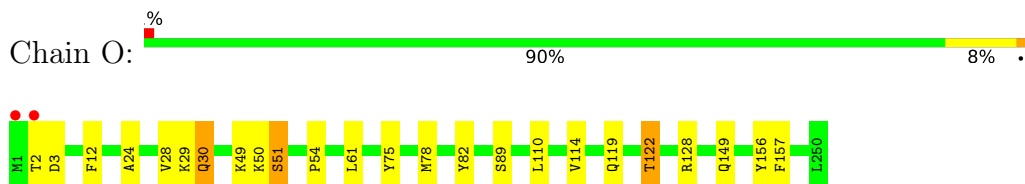
### 3 Residue-property plots [i](#)

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.

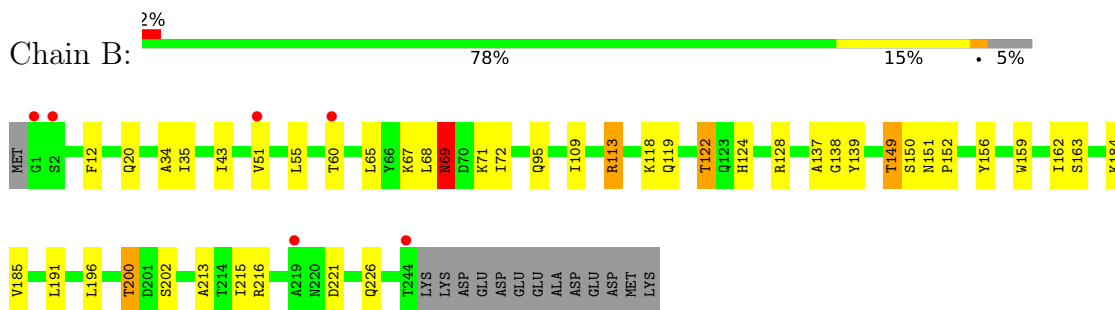
- Molecule 1: Proteasome subunit alpha type-2



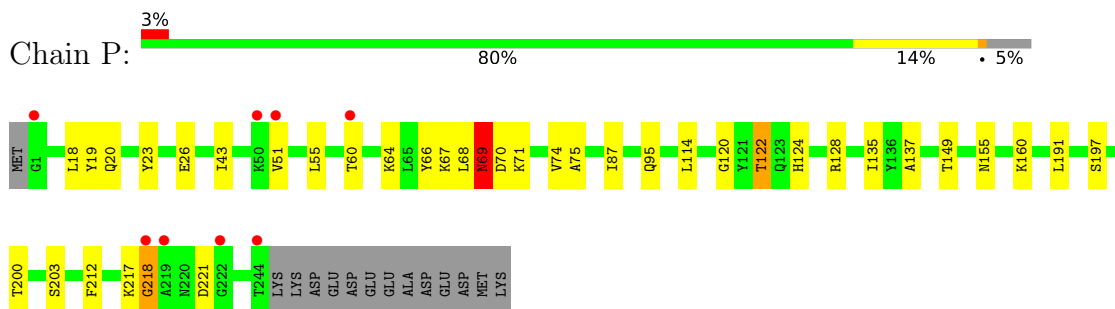
- Molecule 1: Proteasome subunit alpha type-2



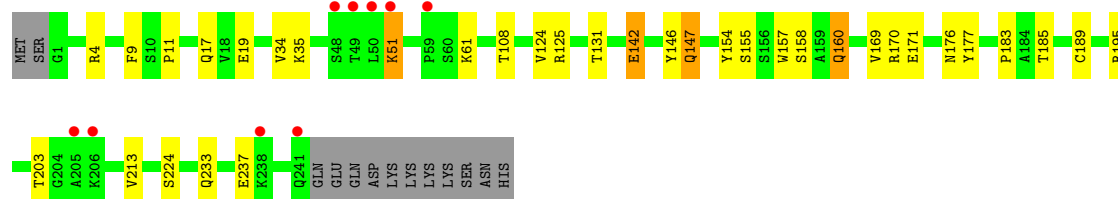
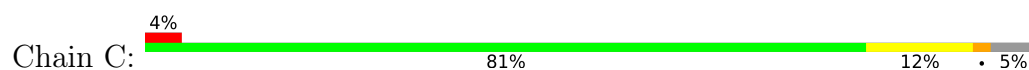
- Molecule 2: Proteasome subunit alpha type-3



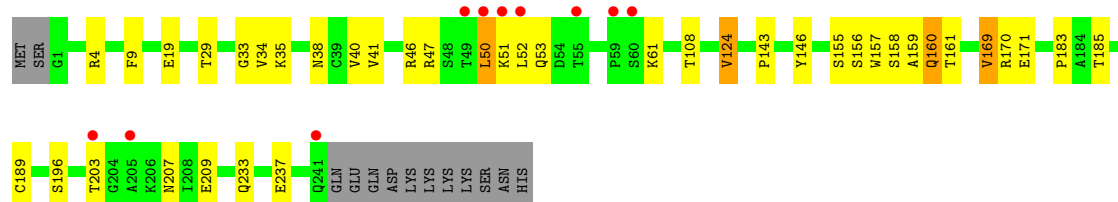
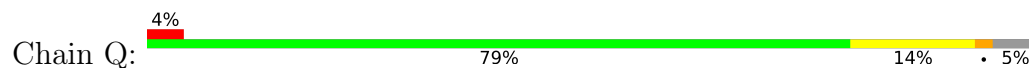
- Molecule 2: Proteasome subunit alpha type-3



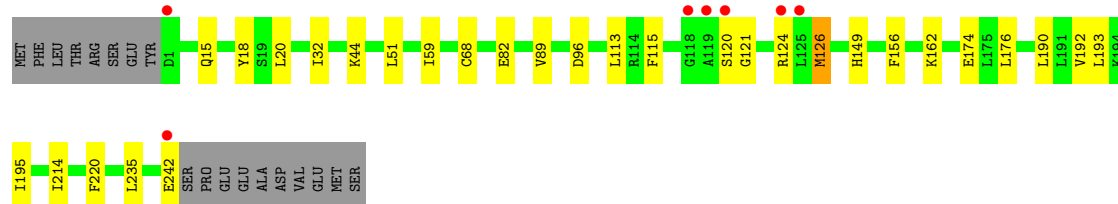
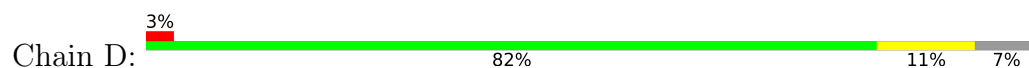
- Molecule 3: Proteasome subunit alpha type-4



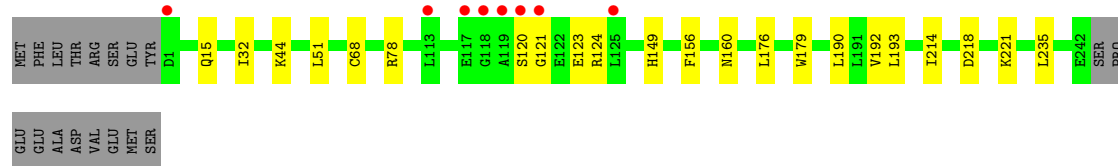
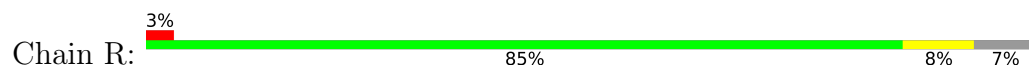
• Molecule 3: Proteasome subunit alpha type-4



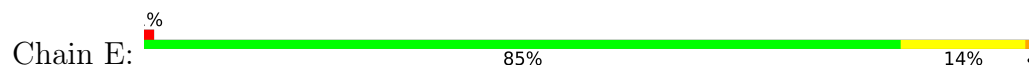
• Molecule 4: Proteasome subunit alpha type-5

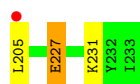


• Molecule 4: Proteasome subunit alpha type-5

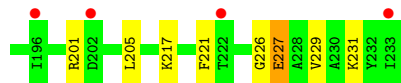
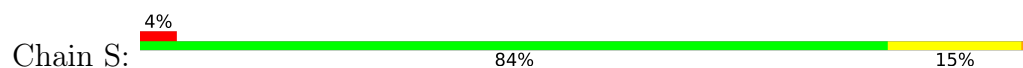


• Molecule 5: Proteasome subunit alpha type-6

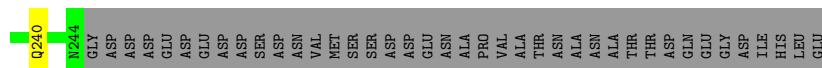
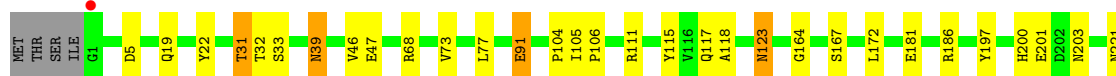




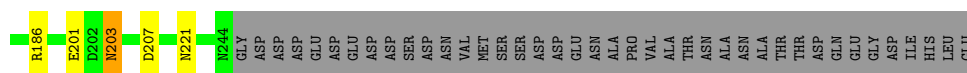
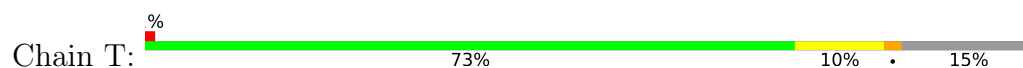
• Molecule 5: Proteasome subunit alpha type-6



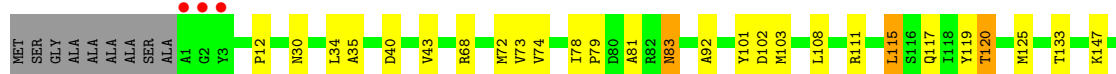
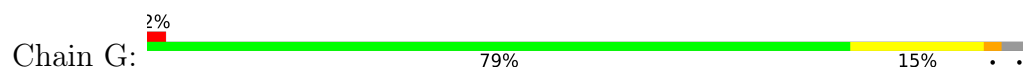
• Molecule 6: Probable proteasome subunit alpha type-7



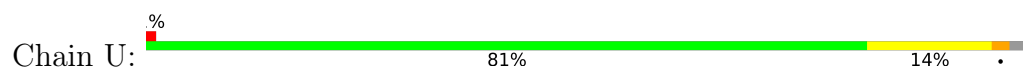
• Molecule 6: Probable proteasome subunit alpha type-7

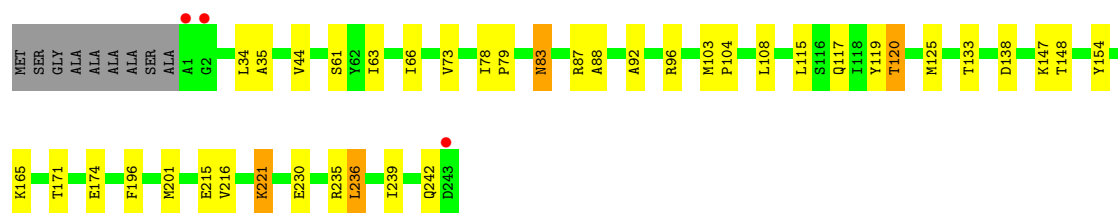


• Molecule 7: Proteasome subunit alpha type-1

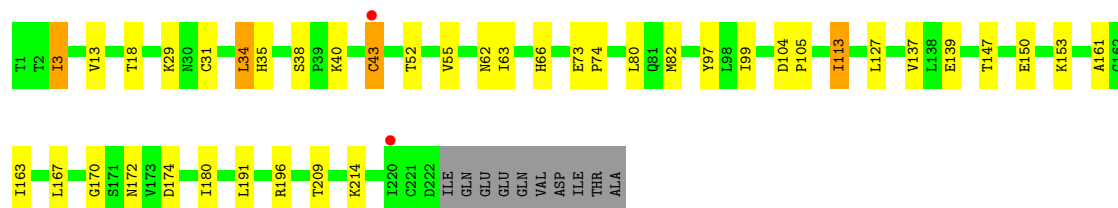
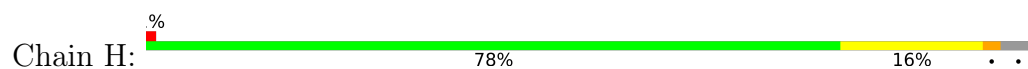


• Molecule 7: Proteasome subunit alpha type-1

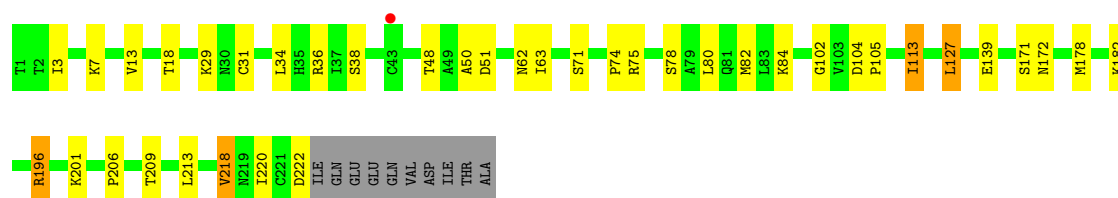
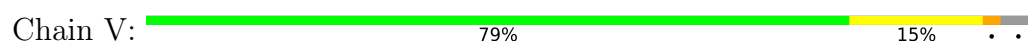




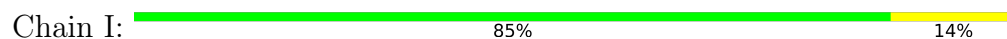
• Molecule 8: Proteasome subunit beta type-2



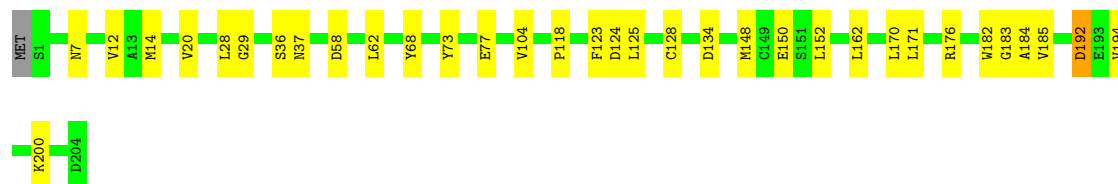
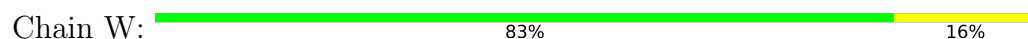
• Molecule 8: Proteasome subunit beta type-2



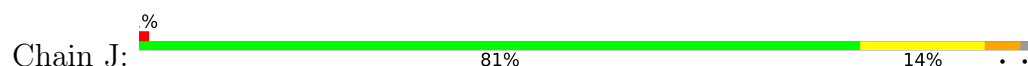
• Molecule 9: Proteasome subunit beta type-3

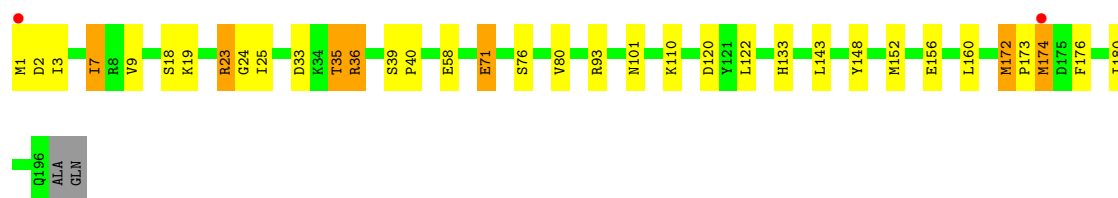


• Molecule 9: Proteasome subunit beta type-3

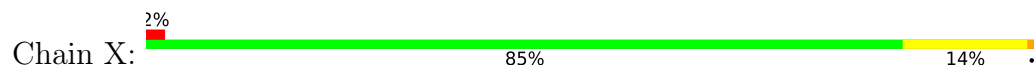


• Molecule 10: Proteasome subunit beta type-4

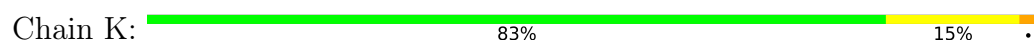




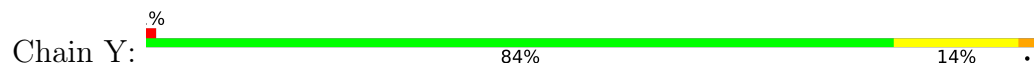
- Molecule 10: Proteasome subunit beta type-4



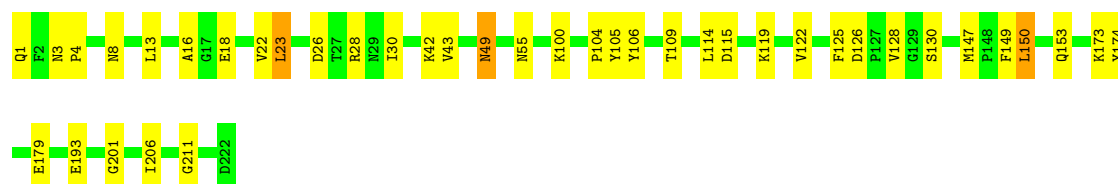
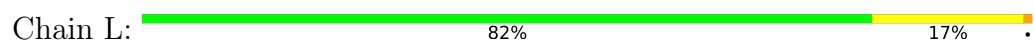
- Molecule 11: Proteasome subunit beta type-5



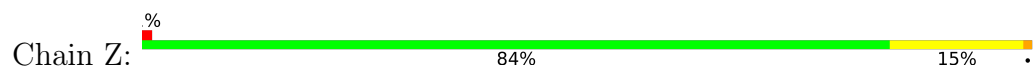
- Molecule 11: Proteasome subunit beta type-5

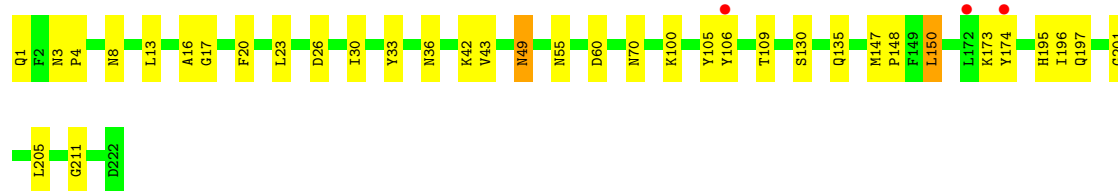


- Molecule 12: Proteasome subunit beta type-6

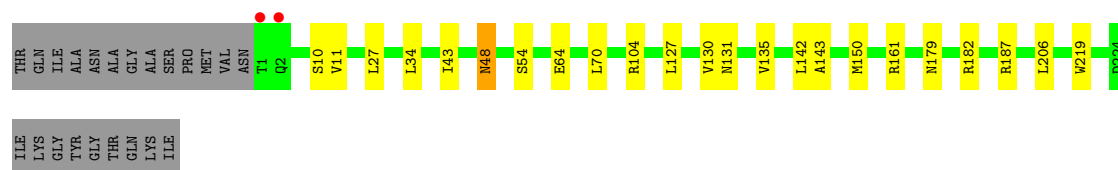
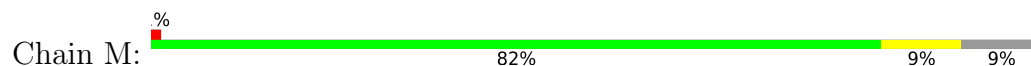


- Molecule 12: Proteasome subunit beta type-6

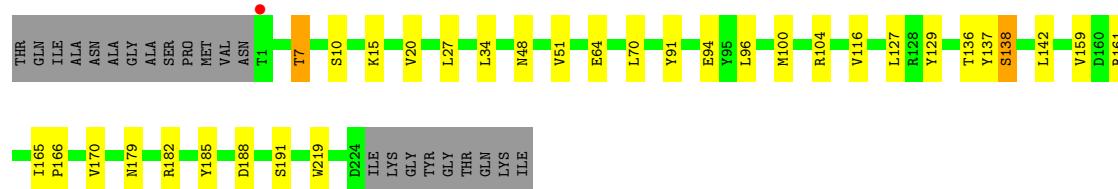
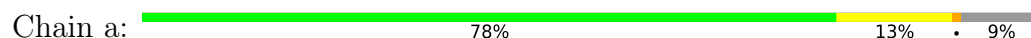




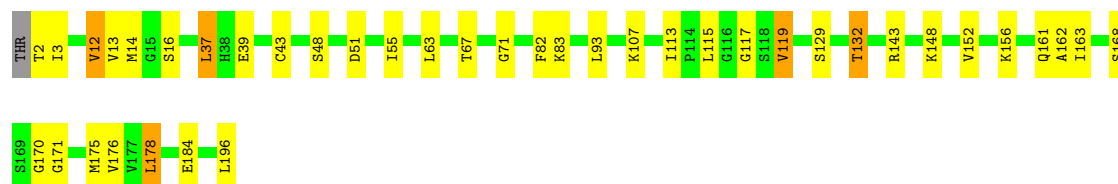
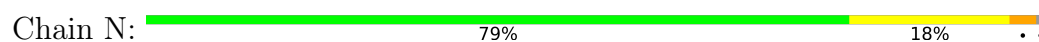
• Molecule 13: Proteasome subunit beta type-7



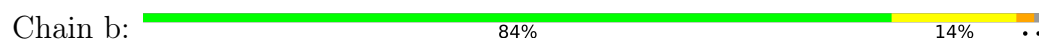
• Molecule 13: Proteasome subunit beta type-7



• Molecule 14: Proteasome subunit beta type-9, Proteasome subunit beta type-1



• Molecule 14: Proteasome subunit beta type-9, Proteasome subunit beta type-1





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	135.94Å 301.90Å 145.06Å 90.00° 113.05° 90.00°	Depositor
Resolution (Å)	30.00 – 2.75 30.00 – 2.75	Depositor EDS
% Data completeness (in resolution range)	97.1 (30.00-2.75) 97.1 (30.00-2.75)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.30 (at 2.76Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, $R_{free}$	0.203 , 0.245 0.211 , 0.249	Depositor DCC
$R_{free}$ test set	13480 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	67.3	Xtriage
Anisotropy	0.401	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 32.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	49865	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	83.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.66% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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 ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MES, CL, SO4, A1IFL, 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	1.02	0/1952	1.42	0/2642
1	O	1.05	0/1952	1.46	2/2642 (0.1%)
2	B	1.02	0/1934	1.49	1/2618 (0.0%)
2	P	1.03	0/1934	1.48	2/2618 (0.1%)
3	C	1.05	0/1919	1.51	1/2598 (0.0%)
3	Q	1.05	0/1919	1.50	0/2598
4	D	1.04	0/1886	1.49	0/2541
4	R	1.04	0/1886	1.48	0/2541
5	E	1.03	0/1823	1.46	2/2463 (0.1%)
5	S	1.05	0/1823	1.45	0/2463
6	F	1.04	0/1936	1.48	4/2614 (0.2%)
6	T	1.05	0/1936	1.47	4/2614 (0.2%)
7	G	1.03	0/1959	1.48	2/2652 (0.1%)
7	U	1.04	0/1959	1.50	4/2652 (0.2%)
8	H	1.04	0/1715	1.44	0/2326
8	V	1.02	0/1715	1.45	0/2326
9	I	1.05	0/1611	1.44	1/2174 (0.0%)
9	W	1.04	0/1611	1.43	3/2174 (0.1%)
10	J	1.01	0/1598	1.43	0/2154
10	X	1.00	0/1613	1.43	2/2173 (0.1%)
11	K	1.03	0/1674	1.46	0/2264
11	Y	1.04	0/1674	1.46	0/2264
12	L	1.00	0/1795	1.42	2/2420 (0.1%)
12	Z	1.01	0/1795	1.40	0/2420
13	M	1.03	0/1783	1.43	2/2420 (0.1%)
13	a	1.03	0/1783	1.44	5/2420 (0.2%)
14	N	1.04	0/1524	1.44	0/2063
14	b	1.03	0/1524	1.43	0/2063
All	All	1.03	0/50233	1.46	37/67917 (0.1%)

There are no bond length outliers.

All (37) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	O	78	MET	CA-C-N	7.63	126.70	121.13
1	O	78	MET	C-N-CA	7.63	126.70	121.13
2	P	70	ASP	N-CA-C	-6.89	104.76	113.72
7	U	216	VAL	CA-C-N	6.89	126.33	121.65
7	U	216	VAL	C-N-CA	6.89	126.33	121.65
6	F	104	PRO	CA-C-N	6.57	125.58	120.33
6	F	104	PRO	C-N-CA	6.57	125.58	120.33
2	B	69	ASN	CB-CA-C	-6.37	98.44	113.02
7	G	216	VAL	CA-C-N	6.19	125.86	121.65
7	G	216	VAL	C-N-CA	6.19	125.86	121.65
10	X	53	THR	CB-CA-C	6.15	120.43	110.96
5	E	91	CYS	CA-C-N	6.02	128.63	120.44
5	E	91	CYS	C-N-CA	6.02	128.63	120.44
9	I	183	GLY	CA-C-O	-5.99	118.09	122.23
13	a	188	ASP	CA-CB-CG	5.92	118.52	112.60
13	a	7	THR	CA-C-N	5.79	126.18	122.18
13	a	7	THR	C-N-CA	5.79	126.18	122.18
7	U	165	LYS	CA-C-N	5.77	128.33	120.54
7	U	165	LYS	C-N-CA	5.77	128.33	120.54
9	W	134	ASP	CA-CB-CG	5.72	118.33	112.60
2	P	69	ASN	CB-CA-C	-5.69	101.33	114.41
3	C	142	GLU	CB-CA-C	5.55	116.47	110.08
12	L	173	LYS	CA-C-N	5.54	128.97	120.82
12	L	173	LYS	C-N-CA	5.54	128.97	120.82
6	F	77	LEU	CA-C-N	5.51	124.74	120.33
6	F	77	LEU	C-N-CA	5.51	124.74	120.33
10	X	145	ASP	CA-CB-CG	5.43	118.03	112.60
6	T	34	ILE	CA-C-N	5.22	125.63	121.61
6	T	34	ILE	C-N-CA	5.22	125.63	121.61
13	a	64	GLU	CA-C-N	5.15	127.18	120.28
13	a	64	GLU	C-N-CA	5.15	127.18	120.28
9	W	124	ASP	CA-CB-CG	5.12	117.72	112.60
13	M	219	TRP	CA-C-N	5.10	127.62	120.28
13	M	219	TRP	C-N-CA	5.10	127.62	120.28
9	W	183	GLY	CA-C-O	-5.10	118.78	122.45
6	T	104	PRO	CA-C-N	5.07	124.39	120.33
6	T	104	PRO	C-N-CA	5.07	124.39	120.33

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	1915	0	1929	17	0
1	O	1915	0	1929	16	0
2	B	1904	0	1904	30	0
2	P	1904	0	1904	19	0
3	C	1890	0	1903	23	0
3	Q	1890	0	1903	24	0
4	D	1861	0	1839	15	0
4	R	1861	0	1839	9	0
5	E	1795	0	1800	13	0
5	S	1795	0	1800	22	0
6	F	1896	0	1889	17	0
6	T	1896	0	1889	18	0
7	G	1921	0	1913	35	0
7	U	1921	0	1913	26	0
8	H	1684	0	1688	20	0
8	V	1684	0	1688	25	0
9	I	1581	0	1574	17	0
9	W	1581	0	1574	25	0
10	J	1570	0	1577	24	0
10	X	1585	0	1590	15	0
11	K	1637	0	1585	25	0
11	Y	1637	0	1585	21	0
12	L	1757	0	1711	23	0
12	Z	1757	0	1711	20	0
13	M	1753	0	1754	16	0
13	a	1753	0	1754	15	0
14	N	1495	0	1450	29	0
14	b	1495	0	1450	21	0
15	G	1	0	0	0	0
15	I	1	0	0	0	0
15	J	1	0	0	0	0
15	K	1	0	0	0	0
15	N	1	0	0	0	0
15	V	1	0	0	0	0
15	W	1	0	0	0	0
15	Y	1	0	0	0	0
15	Z	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
16	G	1	0	0	1	0
16	U	1	0	0	0	0
17	J	12	0	13	4	0
17	V	12	0	13	1	0
17	X	12	0	13	0	0
18	K	5	0	0	0	0
18	N	5	0	0	0	0
18	Y	5	0	0	0	0
18	b	5	0	0	0	0
19	K	51	0	0	6	0
19	N	51	0	0	3	0
19	Y	51	0	0	3	0
19	b	51	0	0	2	0
20	A	9	0	0	0	0
20	B	9	0	0	0	0
20	C	8	0	0	0	0
20	D	10	0	0	0	0
20	E	6	0	0	0	0
20	F	15	0	0	0	0
20	G	7	0	0	0	0
20	H	10	0	0	0	0
20	I	10	0	0	0	0
20	J	12	0	0	0	0
20	K	15	0	0	0	0
20	L	11	0	0	0	0
20	M	12	0	0	1	0
20	N	9	0	0	0	0
20	O	6	0	0	0	0
20	P	8	0	0	0	0
20	Q	5	0	0	2	0
20	R	1	0	0	0	0
20	S	6	0	0	2	0
20	T	7	0	0	0	0
20	U	9	0	0	1	0
20	V	9	0	0	0	0
20	W	8	0	0	0	0
20	X	10	0	0	0	0
20	Y	13	0	0	0	0
20	Z	11	0	0	0	0
20	a	11	0	0	0	0
20	b	14	0	0	0	0
All	All	49865	0	49084	515	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 (515) 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)
7:U:92:ALA:HA	7:U:103:MET:HE2	1.48	0.93
2:P:66:TYR:CD2	2:P:87:ILE:HD13	2.07	0.89
14:N:2:THR:HG21	14:N:162:ALA:CB	2.03	0.88
14:N:152:VAL:HA	14:N:175:MET:HE1	1.61	0.83
3:C:160:GLN:HE21	3:C:160:GLN:HA	1.46	0.81
6:T:91:GLU:HG2	6:T:111:ARG:HB3	1.64	0.80
7:G:92:ALA:HA	7:G:103:MET:HE2	1.63	0.78
14:b:152:VAL:HA	14:b:175:MET:HE1	1.65	0.78
2:P:66:TYR:CD2	2:P:87:ILE:CD1	2.69	0.76
14:N:2:THR:HG21	14:N:162:ALA:HB1	1.67	0.76
3:Q:160:GLN:HA	3:Q:160:GLN:HE21	1.52	0.73
1:O:122:THR:HG22	2:P:128:ARG:HH21	1.53	0.72
11:Y:2:THR:OG1	11:Y:132:GLY:HA3	1.91	0.71
14:N:83:LYS:HG3	14:N:119:VAL:CG2	2.19	0.71
6:F:31:THR:HG21	6:F:47:GLU:O	1.90	0.71
12:L:13:LEU:CD1	12:L:150:LEU:HD21	2.20	0.70
14:b:2:THR:HG21	14:b:162:ALA:CB	2.21	0.70
3:Q:9:PHE:H	4:R:15:GLN:HE22	1.40	0.69
13:M:150:MET:HE1	13:M:187:ARG:HG3	1.75	0.69
7:U:35:ALA:HB2	7:U:44:VAL:HG12	1.73	0.69
12:L:13:LEU:HD11	12:L:150:LEU:HD21	1.74	0.69
10:J:23:ARG:NH1	17:J:202:MES:H22	2.09	0.68
1:A:128:ARG:HH21	7:G:120:THR:HG22	1.58	0.68
2:B:67:LYS:CG	2:B:226:GLN:OE1	2.42	0.67
3:C:9:PHE:H	4:D:15:GLN:HE22	1.43	0.67
7:G:72:MET:HE3	7:G:74:VAL:CG2	2.25	0.67
14:N:67:THR:HA	14:N:71:GLY:O	1.94	0.67
1:O:122:THR:CG2	2:P:128:ARG:HH21	2.08	0.66
11:K:73:ARG:NH2	11:K:104:TYR:O	2.29	0.65
2:P:43:ILE:HG21	2:P:137:ALA:HB1	1.78	0.65
14:N:2:THR:HG21	14:N:162:ALA:HB3	1.77	0.65
12:L:42:LYS:HD2	12:L:55:ASN:HD22	1.62	0.65
2:B:119:GLN:O	2:B:122:THR:HB	1.97	0.65
14:b:83:LYS:HG3	14:b:119:VAL:CG2	2.27	0.65
11:K:212:GLY:HA2	8:V:213:LEU:HD13	1.78	0.65
2:B:122:THR:CG2	3:C:125:ARG:HH21	2.10	0.64
1:A:128:ARG:HH21	7:G:120:THR:CG2	2.11	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:4:LEU:HD22	11:K:4:LEU:C	2.23	0.64
2:B:67:LYS:HG3	2:B:226:GLN:OE1	1.98	0.64
10:X:7:ILE:HD11	10:X:160:LEU:HD23	1.81	0.63
2:B:12:PHE:H	3:C:17:GLN:HE22	1.47	0.63
5:E:12:PHE:H	6:F:19:GLN:HE22	1.47	0.62
1:O:12:PHE:H	2:P:20:GLN:HE22	1.47	0.62
12:Z:135:GLN:HG3	12:Z:174:TYR:OH	2.00	0.62
5:S:68:HIS:HE1	5:S:102:LEU:O	1.83	0.62
1:O:30:GLN:HA	1:O:30:GLN:HE21	1.65	0.61
11:Y:2:THR:HG22	11:Y:161:ILE:CD1	2.30	0.61
1:O:128:ARG:HH21	7:U:120:THR:HG22	1.64	0.61
3:C:160:GLN:HE22	3:C:170:ARG:HE	1.47	0.61
10:X:119:ILE:HA	10:X:124:THR:O	2.00	0.61
3:C:157:TRP:CE2	4:D:51:LEU:HD23	2.35	0.61
8:H:3:ILE:HG13	8:H:99:ILE:HD12	1.83	0.61
3:Q:51:LYS:NZ	3:Q:207:ASN:OD1	2.33	0.61
7:G:83:ASN:C	7:G:83:ASN:HD22	2.10	0.60
2:B:69:ASN:HB3	2:B:71:LYS:H	1.65	0.60
8:V:29:LYS:NZ	9:W:150:GLU:OE1	2.34	0.60
8:H:73:GLU:OE1	8:H:73:GLU:HA	2.02	0.60
10:J:23:ARG:HH11	17:J:202:MES:H22	1.67	0.60
13:M:179:ASN:HD22	13:M:182:ARG:HH11	1.50	0.59
17:J:202:MES:O1S	19:K:303:A1IFL:O58	2.20	0.59
12:L:100:LYS:HD3	12:L:105:TYR:CE1	2.36	0.59
12:Z:42:LYS:HD2	12:Z:55:ASN:HD22	1.67	0.59
6:T:31:THR:HG21	6:T:47:GLU:O	2.02	0.59
14:b:2:THR:HG21	14:b:162:ALA:HB3	1.84	0.59
14:b:82:PHE:CE1	14:b:97:ILE:HD13	2.38	0.59
5:S:12:PHE:HB2	6:T:19:GLN:HE22	1.68	0.59
2:B:122:THR:HG22	3:C:125:ARG:HH21	1.66	0.59
14:b:128:GLY:HA3	19:b:202:A1IFL:O4	2.02	0.59
11:K:99:THR:HG22	11:K:115:VAL:O	2.02	0.59
2:P:160:LYS:HE3	3:Q:53:GLN:O	2.04	0.58
14:b:83:LYS:HG3	14:b:119:VAL:HG22	1.85	0.58
7:G:73:VAL:CG1	7:G:133:THR:HB	2.34	0.58
14:N:148:LYS:NZ	14:N:184:GLU:OE2	2.36	0.57
5:S:118:ASN:N	5:S:118:ASN:HD22	2.02	0.57
11:K:4:LEU:HD22	11:K:4:LEU:O	2.04	0.57
7:U:221:LYS:HA	7:U:221:LYS:HE3	1.86	0.57
4:D:89:VAL:HG21	11:K:65:LEU:HD13	1.86	0.57
6:F:32:THR:HG22	6:F:47:GLU:OE2	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:U:83:ASN:C	7:U:83:ASN:HD22	2.12	0.57
12:Z:13:LEU:HD13	12:Z:150:LEU:HD21	1.86	0.57
2:B:113:ARG:HH11	2:B:113:ARG:HG2	1.70	0.57
13:M:127:LEU:HG	13:M:142:LEU:HD12	1.85	0.57
6:F:91:GLU:HG2	6:F:111:ARG:HB3	1.86	0.57
6:T:123:ASN:C	6:T:123:ASN:HD22	2.13	0.57
7:U:117:GLN:O	7:U:120:THR:HB	2.05	0.56
7:G:119:TYR:CE1	7:G:125:MET:HE2	2.40	0.56
11:K:104:TYR:CE1	11:K:182:GLU:OE2	2.58	0.56
7:U:78:ILE:N	7:U:79:PRO:HD2	2.20	0.56
5:S:70:GLY:HA3	5:S:221:PHE:CE2	2.41	0.56
12:Z:3:ASN:HD22	12:Z:4:PRO:HD2	1.69	0.56
8:V:62:ASN:HB3	8:V:82:MET:HE1	1.87	0.56
8:H:172:ASN:HB3	8:H:191:LEU:O	2.06	0.56
7:G:117:GLN:O	7:G:120:THR:HB	2.05	0.56
5:S:87:LEU:HD11	5:S:107:ALA:HB1	1.88	0.56
6:T:123:ASN:HD22	6:T:124:SER:N	2.04	0.56
14:b:82:PHE:HB3	14:b:113:ILE:HD13	1.86	0.56
11:K:4:LEU:C	11:K:4:LEU:CD2	2.79	0.55
14:N:37:LEU:HD21	14:N:43:CYS:HB3	1.87	0.55
1:A:110:LEU:O	1:A:114:VAL:HG23	2.06	0.55
5:E:118:ASN:N	5:E:118:ASN:HD22	2.04	0.55
14:N:156:LYS:HD3	14:N:196:LEU:HD11	1.86	0.55
1:O:30:GLN:HE21	1:O:30:GLN:CA	2.19	0.55
7:G:103:MET:HE3	7:G:108:LEU:HD13	1.88	0.55
1:A:122:THR:HG22	2:B:128:ARG:HH21	1.70	0.55
19:K:303:A1IFL:C57	19:K:303:A1IFL:C8	2.85	0.55
4:R:160:ASN:HB3	4:R:179:TRP:CE2	2.42	0.55
6:F:200:HIS:CG	6:F:200:HIS:O	2.60	0.55
12:L:30:ILE:HD12	12:L:30:ILE:C	2.32	0.55
12:Z:195:HIS:HD2	12:Z:197:GLN:H	1.55	0.55
8:V:196:ARG:HH11	8:V:196:ARG:HB3	1.72	0.54
2:B:35:ILE:HD12	2:B:196:LEU:HG	1.88	0.54
1:O:128:ARG:HH21	7:U:120:THR:CG2	2.20	0.54
3:Q:157:TRP:CE2	4:R:51:LEU:HD23	2.42	0.54
13:M:48:ASN:H	13:M:48:ASN:HD22	1.55	0.54
19:N:203:A1IFL:C8	19:N:203:A1IFL:C57	2.86	0.54
5:S:12:PHE:H	6:T:19:GLN:HE22	1.56	0.54
6:F:123:ASN:C	6:F:123:ASN:HD22	2.15	0.54
4:D:174:GLU:HG2	4:D:195:ILE:HG12	1.90	0.54
5:S:70:GLY:HA3	5:S:221:PHE:CZ	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:Q:50:LEU:CD2	20:Q:303:HOH:O	2.56	0.53
11:K:9:GLN:NE2	11:K:148:LEU:O	2.41	0.53
2:P:69:ASN:HB3	2:P:71:LYS:H	1.72	0.53
9:I:176:ARG:NH2	12:Z:147:MET:HE3	2.23	0.53
14:N:13:VAL:HG11	14:N:175:MET:HE2	1.91	0.53
5:S:127:TYR:O	5:S:148:PRO:HB3	2.08	0.53
6:T:12:SER:OG	6:T:14:ASP:OD2	2.27	0.53
3:C:51:LYS:HD2	3:C:51:LYS:C	2.33	0.53
11:Y:145:LYS:HB2	11:Y:148:LEU:CD1	2.38	0.53
8:V:104:ASP:HB2	8:V:105:PRO:HD2	1.91	0.53
12:Z:8:ASN:HA	12:Z:30:ILE:O	2.07	0.53
7:G:101:TYR:OH	8:H:66:HIS:HE1	1.91	0.53
11:Y:9:GLN:NE2	11:Y:148:LEU:O	2.42	0.53
14:N:161:GLN:HE21	14:b:136:GLY:HA2	1.73	0.53
17:J:202:MES:S	19:K:303:A1IFL:O58	2.67	0.53
3:C:158:SER:HB3	3:C:177:TYR:CE1	2.44	0.52
8:H:139:GLU:OE2	8:H:139:GLU:HA	2.09	0.52
13:M:48:ASN:HD22	13:M:48:ASN:N	2.07	0.52
12:Z:49:ASN:HD21	12:Z:211:GLY:HA2	1.74	0.52
3:Q:160:GLN:HE22	3:Q:170:ARG:HE	1.55	0.52
3:C:34:VAL:HG23	3:C:189:CYS:SG	2.49	0.52
9:W:192:ASP:OD1	9:W:192:ASP:N	2.41	0.52
19:K:303:A1IFL:C57	19:K:303:A1IFL:N4	2.72	0.52
2:B:185:VAL:HG11	2:B:216:ARG:HD3	1.91	0.52
3:C:35:LYS:HG2	3:C:158:SER:O	2.10	0.52
3:C:160:GLN:HE21	3:C:160:GLN:CA	2.17	0.52
7:G:78:ILE:N	7:G:79:PRO:HD2	2.25	0.52
11:K:3:THR:HG22	11:K:16:VAL:HG12	1.91	0.52
10:X:7:ILE:CD1	10:X:160:LEU:HD23	2.39	0.52
10:X:152:MET:HE2	10:X:156:GLU:HB3	1.91	0.52
4:D:113:LEU:HD12	5:E:78:PRO:HB2	1.92	0.52
7:G:221:LYS:O	7:G:222:ASP:HB2	2.11	0.51
7:G:30:ASN:HD22	7:G:164:PRO:HG2	1.75	0.51
1:A:149:GLN:O	1:A:156:TYR:HA	2.11	0.51
6:F:197:TYR:HE2	6:F:240:GLN:HE21	1.57	0.51
7:G:68:ARG:HH11	7:G:222:ASP:HB3	1.75	0.51
9:I:14:MET:HB3	9:I:162:LEU:HD11	1.91	0.51
13:a:51:VAL:HG22	13:a:116:VAL:HG22	1.92	0.51
14:N:83:LYS:HG3	14:N:119:VAL:HG22	1.91	0.51
5:E:9:THR:HG21	5:E:119:THR:HA	1.92	0.51
7:U:104:PRO:HB3	7:U:138:ASP:OD1	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:122:THR:CG2	2:B:128:ARG:HH21	2.24	0.50
5:S:9:THR:HG21	5:S:119:THR:HA	1.93	0.50
1:A:10:THR:O	2:B:128:ARG:HD3	2.11	0.50
10:J:19:LYS:HD3	10:J:180:ILE:HG13	1.93	0.50
11:K:86:LEU:C	11:K:86:LEU:HD13	2.37	0.50
7:G:167:GLN:HE21	7:G:171:THR:HG23	1.76	0.50
6:F:31:THR:CG2	6:F:47:GLU:O	2.58	0.50
10:X:101:ASN:HB3	10:X:133:HIS:CE1	2.46	0.50
11:Y:45:MET:HG2	11:Y:52:CYS:HB3	1.92	0.50
14:b:48:SER:HB3	14:b:51:ASP:HB2	1.93	0.50
14:b:168:SER:O	19:b:202:A1IFL:C56	2.60	0.50
9:I:125:LEU:HD23	9:I:125:LEU:H	1.77	0.50
3:Q:108:THR:HG21	3:Q:146:TYR:HB3	1.93	0.50
12:L:8:ASN:HA	12:L:30:ILE:O	2.12	0.49
14:N:37:LEU:HB3	14:N:63:LEU:HD12	1.93	0.49
9:W:62:LEU:CD1	9:W:104:VAL:HG21	2.42	0.49
5:S:92:ASN:HD21	12:Z:70:ASN:HD21	1.59	0.49
10:X:3:ILE:HB	10:X:18:SER:HB3	1.95	0.49
3:Q:50:LEU:HD21	20:Q:303:HOH:O	2.11	0.49
5:S:205:LEU:HD23	5:S:205:LEU:H	1.77	0.49
12:Z:100:LYS:HD3	12:Z:105:TYR:CZ	2.48	0.49
10:J:3:ILE:HB	10:J:18:SER:HB3	1.94	0.49
14:b:3:ILE:HG22	14:b:16:SER:HB2	1.95	0.49
9:W:148:MET:HE3	9:W:152:LEU:HD11	1.94	0.49
11:Y:4:LEU:C	11:Y:4:LEU:HD22	2.38	0.49
3:Q:34:VAL:HG23	3:Q:189:CYS:SG	2.53	0.49
7:U:61:SER:HA	7:U:215:GLU:OE2	2.13	0.49
11:Y:2:THR:HG22	11:Y:161:ILE:HD13	1.94	0.49
14:b:82:PHE:CD1	14:b:97:ILE:HD13	2.48	0.49
8:V:220:ILE:HD11	9:W:194:VAL:HG21	1.94	0.49
7:G:40:ASP:HB2	7:G:221:LYS:HE3	1.94	0.49
10:J:7:ILE:HD11	10:J:160:LEU:HD23	1.94	0.49
12:L:18:GLU:HG3	12:L:174:TYR:CE2	2.48	0.49
11:Y:6:PHE:HA	11:Y:125:ASP:O	2.12	0.49
5:E:51:ASN:ND2	5:E:53:ASP:O	2.46	0.48
12:L:3:ASN:HD22	12:L:4:PRO:HD2	1.78	0.48
7:U:236:LEU:O	7:U:239:ILE:HG13	2.13	0.48
10:X:167:GLU:OE2	10:X:167:GLU:HA	2.13	0.48
2:B:67:LYS:HG2	2:B:226:GLN:OE1	2.13	0.48
10:J:23:ARG:NH2	11:K:118:ASP:OD1	2.46	0.48
13:M:27:LEU:HD21	13:M:34:LEU:HD22	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:2:THR:CG2	14:N:162:ALA:HB1	2.40	0.48
7:U:34:LEU:C	7:U:34:LEU:HD12	2.38	0.48
5:E:14:PRO:HA	6:F:22:TYR:CD1	2.49	0.48
14:N:129:SER:O	14:N:132:THR:HG23	2.14	0.48
7:G:34:LEU:HD23	7:G:201:MET:HE3	1.96	0.48
14:N:83:LYS:HG2	14:N:117:GLY:O	2.12	0.48
11:K:104:TYR:HE1	11:K:182:GLU:OE2	1.94	0.48
12:Z:26:ASP:HA	12:Z:201:GLY:O	2.14	0.48
10:J:152:MET:HE2	10:J:156:GLU:HB3	1.94	0.48
12:L:147:MET:HE3	9:W:176:ARG:NH2	2.29	0.48
9:W:148:MET:CE	9:W:152:LEU:HD11	2.43	0.48
13:M:131:ASN:OD1	13:M:131:ASN:C	2.55	0.48
12:L:16:ALA:HB2	12:L:122:VAL:HG23	1.95	0.48
11:Y:83:LEU:HD21	11:Y:99:THR:HG21	1.96	0.48
3:C:160:GLN:HA	3:C:160:GLN:NE2	2.22	0.47
7:G:68:ARG:HH11	7:G:222:ASP:CB	2.27	0.47
9:W:7:ASN:HA	9:W:29:GLY:O	2.13	0.47
9:W:14:MET:HB3	9:W:162:LEU:HD11	1.97	0.47
7:U:63:ILE:HD12	7:U:215:GLU:HG2	1.94	0.47
8:V:127:LEU:HD22	17:V:302:MES:H61	1.95	0.47
4:R:149:HIS:O	4:R:156:PHE:HA	2.14	0.47
14:N:3:ILE:HG22	14:N:16:SER:CB	2.44	0.47
5:E:68:HIS:HE1	5:E:102:LEU:O	1.98	0.47
12:L:147:MET:CE	9:W:176:ARG:NH2	2.78	0.47
5:S:177:THR:HG21	20:S:305:HOH:O	2.15	0.47
4:D:149:HIS:O	4:D:156:PHE:HA	2.14	0.47
7:G:147:LYS:O	7:G:154:TYR:HA	2.14	0.47
9:I:82:GLU:OE2	9:I:113:SER:OG	2.32	0.47
12:L:26:ASP:HA	12:L:201:GLY:O	2.15	0.47
3:Q:29:THR:OG1	3:Q:61:LYS:NZ	2.36	0.47
13:M:34:LEU:HD12	14:b:164:LYS:O	2.15	0.47
12:L:22:VAL:HG12	12:L:206:ILE:HG13	1.97	0.47
13:M:43:ILE:HG12	13:M:64:GLU:HG3	1.97	0.47
14:N:171:GLY:HA2	13:a:219:TRP:CH2	2.50	0.47
7:G:73:VAL:HG12	7:G:133:THR:HB	1.96	0.47
12:L:193:GLU:HG3	8:V:196:ARG:HD3	1.96	0.47
1:O:119:GLN:O	1:O:122:THR:HB	2.14	0.47
3:Q:35:LYS:HG2	3:Q:158:SER:O	2.14	0.47
11:Y:31:VAL:HG11	19:Y:303:A1IFL:C53	2.45	0.47
6:F:32:THR:HB	6:F:164:GLY:H	1.79	0.46
2:P:120:GLY:C	2:P:122:THR:H	2.23	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:V:18:THR:HG21	8:V:172:ASN:HB2	1.97	0.46
9:W:36:SER:HB2	10:X:126:VAL:HG21	1.96	0.46
3:C:155:SER:HB2	4:D:51:LEU:HD21	1.97	0.46
4:D:32:ILE:HD12	4:D:192:VAL:HG23	1.97	0.46
12:Z:60:ASP:OD1	12:Z:105:TYR:HA	2.16	0.46
8:H:62:ASN:HB3	8:H:82:MET:HE1	1.98	0.46
14:N:163:ILE:HG23	14:N:170:GLY:HA2	1.97	0.46
1:A:29:LYS:HE2	1:A:29:LYS:HA	1.97	0.46
6:F:39:ASN:C	6:F:39:ASN:HD22	2.24	0.46
2:B:34:ALA:O	2:B:163:SER:HA	2.16	0.46
13:M:187:ARG:NH1	8:V:139:GLU:OE1	2.43	0.46
8:V:63:ILE:HG23	8:V:74:PRO:HB3	1.98	0.46
10:J:33:ASP:OD2	10:J:35:THR:HG22	2.15	0.46
4:R:32:ILE:HD12	4:R:192:VAL:HG23	1.98	0.46
1:A:250:LEU:HD13	1:A:250:LEU:C	2.41	0.46
7:G:72:MET:HE3	7:G:74:VAL:HG23	1.94	0.46
7:G:78:ILE:CG2	7:G:79:PRO:HD3	2.46	0.46
10:X:33:ASP:OD2	10:X:35:THR:HG22	2.15	0.46
10:J:1:MET:HG2	10:J:2:ASP:H	1.81	0.45
5:S:71:LEU:HA	5:S:132:LEU:O	2.16	0.45
7:U:73:VAL:HG12	7:U:133:THR:HB	1.97	0.45
9:W:170:LEU:HD21	9:W:184:ALA:HB1	1.97	0.45
8:H:35:HIS:O	8:H:43:CYS:N	2.49	0.45
8:H:104:ASP:HB2	8:H:105:PRO:HD2	1.99	0.45
6:T:86:ASN:O	6:T:90:GLU:HG3	2.16	0.45
8:V:218:VAL:HG23	9:W:194:VAL:HB	1.98	0.45
2:B:139:TYR:CD1	2:B:139:TYR:C	2.94	0.45
8:H:137:VAL:HG21	8:H:161:ALA:HB2	1.99	0.45
13:M:150:MET:HE1	13:M:187:ARG:CG	2.42	0.45
5:E:80:ALA:HB2	5:E:129:VAL:HG21	1.98	0.45
11:K:130:GLY:HA3	19:K:303:A1IFL:O4	2.17	0.45
12:L:49:ASN:HD21	12:L:211:GLY:HA2	1.81	0.45
8:V:48:THR:HB	8:V:51:ASP:HB2	1.99	0.45
13:a:127:LEU:HG	13:a:142:LEU:HD12	1.99	0.45
2:B:109:ILE:HD11	10:J:71:GLU:CG	2.46	0.45
12:Z:147:MET:N	12:Z:148:PRO:CD	2.80	0.45
1:A:115:ALA:HB1	1:A:154:GLY:O	2.17	0.45
3:C:233:GLN:O	3:C:237:GLU:HG2	2.16	0.45
7:G:83:ASN:C	7:G:83:ASN:ND2	2.75	0.45
5:S:109:HIS:HB3	6:T:82:ARG:NH2	2.31	0.45
6:T:110:ASP:O	6:T:114:GLN:HG2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:115:PHE:HA	4:D:126:MET:O	2.17	0.45
7:G:68:ARG:NH2	7:G:102:ASP:OD1	2.49	0.45
10:J:174:MET:HE3	10:X:174:MET:CE	2.47	0.45
3:Q:35:LYS:HE3	3:Q:143:PRO:O	2.17	0.45
8:V:196:ARG:HB3	8:V:196:ARG:NH1	2.31	0.45
1:A:23:TYR:CD1	7:G:12:PRO:HA	2.52	0.45
7:G:74:VAL:HG11	7:G:81:ALA:HB2	1.99	0.45
11:K:5:ALA:HA	11:K:13:ILE:O	2.17	0.45
12:L:23:LEU:HD13	12:L:43:VAL:HG13	1.97	0.45
2:P:74:VAL:HA	2:P:135:ILE:O	2.16	0.45
12:L:100:LYS:O	12:L:104:PRO:HA	2.17	0.45
5:S:98:PHE:O	13:a:91:TYR:HA	2.17	0.45
9:W:73:TYR:CE1	9:W:77:GLU:HG3	2.52	0.45
13:a:27:LEU:HD21	13:a:34:LEU:HD22	1.98	0.45
2:P:43:ILE:HG21	2:P:137:ALA:CB	2.47	0.44
3:Q:233:GLN:O	3:Q:237:GLU:HG2	2.17	0.44
9:W:36:SER:CB	10:X:126:VAL:HG21	2.47	0.44
11:K:45:MET:HG2	11:K:52:CYS:HB3	1.99	0.44
19:N:203:A1IFL:C57	19:N:203:A1IFL:N4	2.78	0.44
1:O:149:GLN:O	1:O:156:TYR:HA	2.18	0.44
5:S:65:CYS:SG	5:S:71:LEU:HD22	2.57	0.44
9:W:20:VAL:HG13	9:W:118:PRO:HB3	1.99	0.44
6:F:105:ILE:HB	6:F:106:PRO:HD3	1.99	0.44
3:Q:35:LYS:HA	3:Q:40:VAL:HA	1.99	0.44
6:T:39:ASN:HD22	6:T:39:ASN:C	2.25	0.44
13:a:96:LEU:O	13:a:100:MET:HG2	2.18	0.44
7:G:73:VAL:HG13	7:G:133:THR:HB	2.00	0.44
9:I:10:ILE:HG21	9:I:141:ALA:HB3	2.00	0.44
2:P:64:LYS:O	2:P:75:ALA:HA	2.18	0.44
5:S:99:ASN:HB2	13:a:94:GLU:HG2	1.99	0.44
11:K:6:PHE:HA	11:K:125:ASP:O	2.17	0.44
11:K:31:VAL:HG11	19:K:303:A1IFL:C53	2.48	0.44
14:N:3:ILE:HG22	14:N:16:SER:HB2	1.99	0.44
14:N:55:ILE:HD11	14:N:93:LEU:HD13	1.98	0.44
1:O:75:TYR:HB3	1:O:82:TYR:CD1	2.52	0.44
6:T:32:THR:HG22	6:T:47:GLU:OE2	2.17	0.44
2:B:95:GLN:HE22	9:I:71:ASN:HD22	1.66	0.44
6:F:91:GLU:HG3	6:F:111:ARG:HH11	1.83	0.44
3:Q:156:SER:O	4:R:51:LEU:HD22	2.18	0.44
8:V:213:LEU:HD21	9:W:200:LYS:HB2	2.00	0.44
13:a:127:LEU:O	13:a:138:SER:OG	2.33	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:a:179:ASN:HD22	13:a:182:ARG:HH11	1.66	0.44
3:C:131:THR:O	3:C:147:GLN:HA	2.18	0.44
3:C:157:TRP:CZ2	4:D:51:LEU:HD23	2.53	0.44
7:U:66:ILE:HD12	7:U:88:ALA:HB3	2.00	0.44
10:X:36:ARG:NH1	10:X:58:GLU:OE2	2.51	0.44
7:G:227:LEU:HB3	7:G:231:ASN:HB2	1.99	0.44
8:H:18:THR:HG23	8:H:172:ASN:O	2.18	0.44
2:P:66:TYR:CD2	2:P:87:ILE:HD11	2.52	0.44
7:U:148:THR:HG22	7:U:154:TYR:HB2	1.99	0.44
11:Y:37:ILE:HB	11:Y:41:LEU:HB3	2.00	0.44
14:b:83:LYS:HG2	14:b:117:GLY:O	2.18	0.44
2:B:151:ASN:HB2	2:B:152:PRO:CD	2.48	0.44
6:F:115:TYR:O	6:F:118:ALA:HB3	2.18	0.44
19:Y:303:A1IFL:C8	19:Y:303:A1IFL:C57	2.96	0.44
2:B:200:THR:HG22	2:B:202:SER:H	1.82	0.43
10:J:152:MET:HE1	10:J:160:LEU:HD22	2.00	0.43
8:V:78:SER:O	8:V:82:MET:HG3	2.18	0.43
11:Y:2:THR:HG21	11:Y:164:ALA:HB3	2.00	0.43
11:Y:85:ASN:HD22	11:Y:85:ASN:HA	1.68	0.43
6:T:31:THR:CG2	6:T:47:GLU:O	2.64	0.43
7:U:147:LYS:O	7:U:154:TYR:HA	2.17	0.43
8:V:80:LEU:HD12	8:V:113:ILE:HD11	2.00	0.43
14:N:55:ILE:HD11	14:N:93:LEU:HD22	1.99	0.43
14:b:134:ILE:HG21	14:b:158:SER:O	2.18	0.43
6:F:33:SER:HB3	6:F:46:VAL:HG23	2.00	0.43
8:H:52:THR:O	8:H:55:VAL:HG12	2.19	0.43
11:K:2:THR:HG21	11:K:164:ALA:CB	2.48	0.43
12:L:114:LEU:HA	12:L:119:LYS:O	2.18	0.43
2:B:124:HIS:HB3	3:C:124:VAL:HG12	2.01	0.43
5:E:200:LEU:HD11	5:E:205:LEU:HD22	1.99	0.43
3:Q:34:VAL:HG12	3:Q:159:ALA:HB1	1.99	0.43
9:W:58:ASP:OD1	10:X:93:ARG:NH2	2.51	0.43
14:b:176:VAL:HG12	14:b:178:LEU:HD13	2.01	0.43
2:P:114:LEU:HD23	2:P:114:LEU:HA	1.87	0.43
3:Q:169:VAL:HG23	3:Q:196:SER:HB2	2.00	0.43
12:Z:16:ALA:O	12:Z:174:TYR:OH	2.29	0.43
13:a:129:TYR:O	13:a:136:THR:HA	2.18	0.43
10:J:36:ARG:NH1	10:J:58:GLU:OE2	2.52	0.43
14:N:171:GLY:HA2	13:a:219:TRP:CZ3	2.53	0.43
3:Q:155:SER:HB2	4:R:51:LEU:HD21	2.01	0.43
2:B:43:ILE:HG21	2:B:137:ALA:HB1	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:U:103:MET:HE3	7:U:108:LEU:HD13	2.01	0.43
3:C:176:ASN:OD1	3:C:195:ARG:NH2	2.51	0.43
7:G:74:VAL:HG11	7:G:81:ALA:CB	2.49	0.43
12:L:179:GLU:OE2	8:V:201:LYS:HE2	2.19	0.43
14:N:12:VAL:HG12	14:N:178:LEU:HB2	2.01	0.43
1:O:29:LYS:HA	1:O:29:LYS:HE2	2.00	0.43
3:Q:33:GLY:HA2	3:Q:41:VAL:O	2.18	0.43
8:V:218:VAL:CG2	9:W:194:VAL:HG12	2.49	0.43
4:D:82:GLU:OE2	11:K:69:ARG:NH1	2.52	0.43
5:E:65:CYS:SG	5:E:87:LEU:HD23	2.59	0.43
2:P:95:GLN:HE21	9:W:68:TYR:HA	1.84	0.43
5:S:91:CYS:O	20:S:301:HOH:O	2.21	0.43
12:Z:49:ASN:HD22	12:Z:49:ASN:HA	1.70	0.43
5:E:193:VAL:O	5:E:196:ILE:HG22	2.18	0.42
8:H:147:THR:HG23	8:H:150:GLU:OE1	2.18	0.42
14:N:83:LYS:HG3	14:N:119:VAL:HG23	1.98	0.42
6:T:107:ALA:O	6:T:111:ARG:HG2	2.19	0.42
7:U:230:GLU:HG2	20:U:403:HOH:O	2.18	0.42
1:A:128:ARG:NH2	7:G:120:THR:HG22	2.30	0.42
10:J:3:ILE:HD12	10:J:176:PHE:CD2	2.55	0.42
12:Z:43:VAL:HG12	12:Z:205:LEU:HD22	2.02	0.42
1:A:140:ASP:OD1	1:A:143:ASN:HB2	2.19	0.42
11:K:197:PHE:HZ	11:K:210:VAL:HG21	1.84	0.42
2:P:18:LEU:O	2:P:19:TYR:C	2.61	0.42
2:B:159:TRP:CD2	2:B:162:ILE:HD13	2.54	0.42
2:B:118:LYS:NZ	2:B:150:SER:OG	2.50	0.42
11:K:2:THR:N	11:K:17:ASP:OD2	2.52	0.42
7:G:111:ARG:NH1	16:G:302:CL:CL	2.80	0.42
8:H:80:LEU:HD12	8:H:113:ILE:HD11	2.00	0.42
11:K:201:LYS:HE3	11:K:207:PHE:O	2.17	0.42
7:U:78:ILE:N	7:U:79:PRO:CD	2.81	0.42
8:V:36:ARG:NH1	8:V:36:ARG:HG2	2.35	0.42
1:A:30:GLN:HE21	1:A:30:GLN:HA	1.84	0.42
2:B:65:LEU:HD23	2:B:213:ALA:HB2	2.01	0.42
4:D:149:HIS:ND1	4:D:162:LYS:HE2	2.35	0.42
13:M:11:VAL:HG23	13:M:54:SER:HB3	2.02	0.42
14:N:48:SER:HB3	14:N:51:ASP:HB2	2.01	0.42
5:S:226:GLY:O	5:S:229:VAL:HG22	2.20	0.42
8:V:102:GLY:HA2	8:V:178:MET:SD	2.60	0.42
8:H:34:LEU:HD22	8:H:174:ASP:HB3	2.02	0.42
8:V:50:ALA:HB2	9:W:128:CYS:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:Y:33:LYS:HA	11:Y:45:MET:HE2	2.02	0.42
13:a:15:LYS:HB3	13:a:20:VAL:HG12	2.02	0.42
1:A:37:ILE:HD12	1:A:192:ALA:HB2	2.00	0.42
1:A:66:LEU:C	1:A:66:LEU:HD23	2.45	0.42
9:I:57:THR:OG1	10:J:122:LEU:O	2.36	0.42
9:I:73:TYR:CZ	9:I:77:GLU:HG3	2.55	0.42
13:M:130:VAL:HA	13:M:135:VAL:O	2.19	0.42
9:W:7:ASN:HB3	9:W:28:LEU:HD22	2.01	0.42
7:G:115:LEU:HD12	7:G:115:LEU:HA	1.85	0.42
9:W:73:TYR:CZ	9:W:77:GLU:HG3	2.55	0.42
3:C:147:GLN:O	3:C:154:TYR:HA	2.19	0.41
5:E:90:GLN:HG3	5:E:110:LEU:HD13	2.02	0.41
10:J:76:SER:O	10:J:80:VAL:HG23	2.20	0.41
6:T:8:ASN:OD1	6:T:8:ASN:O	2.37	0.41
8:V:206:PRO:O	8:V:209:THR:OG1	2.30	0.41
14:b:55:ILE:HG22	14:b:82:PHE:CE1	2.55	0.41
9:I:7:ASN:HA	9:I:29:GLY:O	2.20	0.41
13:M:11:VAL:O	13:M:143:ALA:HA	2.20	0.41
1:O:24:ALA:O	1:O:28:VAL:HG23	2.21	0.41
4:R:218:ASP:O	4:R:221:LYS:HE2	2.20	0.41
5:S:77:ALA:N	5:S:78:PRO:CD	2.83	0.41
11:Y:99:THR:HG22	11:Y:115:VAL:O	2.20	0.41
8:H:63:ILE:HG23	8:H:74:PRO:HB3	2.03	0.41
9:I:58:ASP:OD1	10:J:93:ARG:NH2	2.54	0.41
5:S:179:ILE:HG23	5:S:180:LYS:HG3	2.03	0.41
7:U:119:TYR:CE1	7:U:125:MET:HE2	2.55	0.41
11:K:104:TYR:CE1	11:K:182:GLU:HG3	2.56	0.41
12:L:125:PHE:CD1	12:L:125:PHE:N	2.87	0.41
2:P:217:LYS:O	2:P:218:GLY:C	2.62	0.41
7:U:196:PHE:CD1	7:U:196:PHE:C	2.98	0.41
2:B:149:THR:O	2:B:156:TYR:HA	2.20	0.41
7:G:35:ALA:HA	7:G:43:VAL:O	2.20	0.41
8:H:97:TYR:HB3	8:H:127:LEU:HD21	2.01	0.41
9:I:73:TYR:CE1	9:I:77:GLU:HG3	2.56	0.41
11:K:116:ASP:OD1	11:K:116:ASP:C	2.64	0.41
1:O:110:LEU:O	1:O:114:VAL:HG23	2.21	0.41
11:Y:201:LYS:HG3	11:Y:207:PHE:HB2	2.02	0.41
8:H:167:LEU:HD22	12:Z:196:ILE:O	2.20	0.41
10:J:39:SER:HB2	10:J:40:PRO:HD2	2.01	0.41
10:J:101:ASN:OD1	10:J:120:ASP:HA	2.19	0.41
13:M:206:LEU:C	13:M:206:LEU:HD23	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:X:4:ILE:O	10:X:132:ALA:HA	2.20	0.41
2:B:184:LYS:HD3	2:B:185:VAL:N	2.35	0.41
10:J:7:ILE:CD1	10:J:160:LEU:HD23	2.50	0.41
1:O:49:LYS:O	1:O:51:SER:N	2.53	0.41
1:O:89:SER:OG	1:O:114:VAL:HG22	2.21	0.41
2:P:23:TYR:O	2:P:26:GLU:HB3	2.20	0.41
3:Q:46:ARG:HH12	3:Q:209:GLU:HB3	1.86	0.41
11:Y:2:THR:HG22	11:Y:161:ILE:HD12	2.02	0.41
12:Z:17:GLY:HA3	12:Z:20:PHE:CE2	2.55	0.41
1:A:12:PHE:H	2:B:20:GLN:HE22	1.68	0.41
5:E:197:SER:HA	5:E:200:LEU:HG	2.02	0.41
7:G:196:PHE:CD1	7:G:196:PHE:C	2.97	0.41
9:I:123:PHE:CD2	9:I:123:PHE:N	2.88	0.41
5:S:170:TYR:CD2	5:S:170:TYR:C	2.99	0.41
11:Y:5:ALA:HA	11:Y:13:ILE:O	2.20	0.41
2:B:113:ARG:HH11	2:B:113:ARG:CG	2.33	0.41
8:H:167:LEU:HG	12:Z:33:TYR:O	2.21	0.41
9:I:55:LEU:HG	9:I:57:THR:HG22	2.02	0.41
14:N:168:SER:O	19:N:203:A1IFL:C56	2.69	0.41
2:P:124:HIS:HB3	3:Q:124:VAL:HG12	2.03	0.41
3:Q:38:ASN:OD1	3:Q:38:ASN:N	2.54	0.41
6:T:23:ALA:O	6:T:26:ALA:HB3	2.21	0.41
7:U:73:VAL:CG1	7:U:133:THR:HB	2.50	0.41
8:V:75:ARG:O	8:V:78:SER:HB2	2.20	0.41
9:W:62:LEU:HD23	9:W:62:LEU:HA	1.91	0.41
11:Y:116:ASP:OD1	11:Y:116:ASP:C	2.64	0.41
13:a:165:ILE:N	13:a:166:PRO:HD2	2.35	0.41
6:F:46:VAL:HB	6:F:73:VAL:HG21	2.03	0.41
3:Q:160:GLN:HG3	3:Q:161:THR:N	2.36	0.41
7:U:87:ARG:HD2	7:U:87:ARG:HA	1.86	0.41
13:a:185:TYR:HA	13:a:191:SER:OG	2.21	0.41
3:C:11:PRO:HA	4:D:18:TYR:CD1	2.56	0.40
4:D:96:ASP:CG	4:D:96:ASP:O	2.64	0.40
8:H:163:ILE:HG23	8:H:170:GLY:HA2	2.03	0.40
10:J:101:ASN:HB3	10:J:133:HIS:CE1	2.56	0.40
12:L:28:ARG:HG2	12:L:30:ILE:HG23	2.03	0.40
12:L:149:PHE:CE1	12:L:153:GLN:HG3	2.56	0.40
4:R:78:ARG:HA	4:R:78:ARG:HD3	1.89	0.40
8:V:139:GLU:OE2	8:V:139:GLU:HA	2.21	0.40
9:W:125:LEU:H	9:W:125:LEU:HD23	1.86	0.40
10:X:19:LYS:HD3	10:X:180:ILE:HG13	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:71:LYS:O	2:B:138:GLY:HA2	2.21	0.40
4:D:59:ILE:HG22	4:D:220:PHE:HZ	1.87	0.40
9:I:9:GLY:HA3	9:I:41:LYS:HE2	2.02	0.40
10:J:148:TYR:O	11:Y:208:ASN:ND2	2.53	0.40
1:O:54:PRO:HG2	7:U:174:GLU:HG2	2.03	0.40
12:Z:36:ASN:HB3	13:a:137:TYR:CE1	2.56	0.40
7:G:78:ILE:N	7:G:79:PRO:CD	2.85	0.40
9:I:1:SER:O	9:I:3:PRO:HD3	2.21	0.40
9:I:104:VAL:HG23	9:I:106:PRO:HD3	2.02	0.40
10:J:1:MET:HG2	10:J:2:ASP:N	2.36	0.40
13:M:142:LEU:HA	20:M:301:HOH:O	2.21	0.40
19:Y:303:A1IFL:C57	19:Y:303:A1IFL:O2	2.69	0.40
14:b:37:LEU:HD11	14:b:43:CYS:HB3	2.03	0.40
3:C:51:LYS:C	3:C:51:LYS:CD	2.95	0.40
6:F:5:ASP:HB2	6:F:22:TYR:CE2	2.57	0.40
10:J:172:MET:HA	10:J:173:PRO:HD3	1.95	0.40
14:N:83:LYS:HB2	14:N:119:VAL:HG22	2.02	0.40
6:T:105:ILE:HB	6:T:106:PRO:HD3	2.03	0.40
14:b:6:VAL:HG23	14:b:155:ILE:HD11	2.02	0.40
3:C:108:THR:HG21	3:C:146:TYR:HB3	2.04	0.40
8:H:29:LYS:NZ	9:I:150:GLU:OE1	2.52	0.40
12:L:18:GLU:O	12:L:119:LYS:HA	2.22	0.40
14:N:82:PHE:HB3	14:N:113:ILE:HD13	2.02	0.40
6:T:172:LEU:HD13	6:T:172:LEU:HA	1.91	0.40
7:U:83:ASN:C	7:U:83:ASN:ND2	2.76	0.40
11:Y:100:MET:SD	11:Y:127:PHE:HB2	2.62	0.40
14:b:2:THR:HG21	14:b:162:ALA:HB1	1.98	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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	248/250 (99%)	240 (97%)	6 (2%)	2 (1%)	16	30
1	O	248/250 (99%)	238 (96%)	7 (3%)	3 (1%)	10	20
2	B	242/258 (94%)	229 (95%)	11 (4%)	2 (1%)	16	30
2	P	242/258 (94%)	226 (93%)	12 (5%)	4 (2%)	7	14
3	C	239/254 (94%)	225 (94%)	12 (5%)	2 (1%)	16	30
3	Q	239/254 (94%)	220 (92%)	16 (7%)	3 (1%)	9	18
4	D	240/260 (92%)	229 (95%)	8 (3%)	3 (1%)	9	18
4	R	240/260 (92%)	226 (94%)	12 (5%)	2 (1%)	16	30
5	E	231/234 (99%)	219 (95%)	9 (4%)	3 (1%)	9	18
5	S	231/234 (99%)	220 (95%)	8 (4%)	3 (1%)	9	18
6	F	242/288 (84%)	234 (97%)	8 (3%)	0	100	100
6	T	242/288 (84%)	234 (97%)	6 (2%)	2 (1%)	16	30
7	G	241/252 (96%)	231 (96%)	9 (4%)	1 (0%)	30	50
7	U	241/252 (96%)	233 (97%)	7 (3%)	1 (0%)	30	50
8	H	220/232 (95%)	214 (97%)	6 (3%)	0	100	100
8	V	220/232 (95%)	210 (96%)	9 (4%)	1 (0%)	24	43
9	I	202/205 (98%)	192 (95%)	10 (5%)	0	100	100
9	W	202/205 (98%)	193 (96%)	9 (4%)	0	100	100
10	J	194/198 (98%)	184 (95%)	8 (4%)	2 (1%)	12	24
10	X	196/198 (99%)	185 (94%)	11 (6%)	0	100	100
11	K	209/211 (99%)	199 (95%)	10 (5%)	0	100	100
11	Y	209/211 (99%)	201 (96%)	8 (4%)	0	100	100
12	L	220/222 (99%)	206 (94%)	13 (6%)	1 (0%)	24	43
12	Z	220/222 (99%)	208 (94%)	11 (5%)	1 (0%)	24	43
13	M	222/246 (90%)	213 (96%)	9 (4%)	0	100	100
13	a	222/246 (90%)	213 (96%)	9 (4%)	0	100	100
14	N	193/196 (98%)	182 (94%)	10 (5%)	1 (0%)	24	43
14	b	193/196 (98%)	184 (95%)	9 (5%)	0	100	100
All	All	6288/6612 (95%)	5988 (95%)	263 (4%)	37 (1%)	21	38

All (37) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	D	120	SER
1	O	50	LYS
1	A	2	THR
2	B	51	VAL
2	B	221	ASP
3	C	203	THR
4	D	121	GLY
5	E	201	ARG
5	E	202	ASP
1	O	3	ASP
2	P	51	VAL
2	P	218	GLY
2	P	221	ASP
3	Q	52	LEU
3	Q	203	THR
4	R	120	SER
5	S	201	ARG
4	D	126	MET
5	E	227	GLU
7	G	242	GLN
1	O	2	THR
4	R	121	GLY
5	S	217	LYS
5	S	227	GLU
1	A	3	ASP
14	N	107	LYS
6	T	139	LYS
12	Z	173	LYS
12	L	115	ASP
2	P	203	SER
3	Q	183	PRO
7	U	242	GLN
6	T	203	ASN
8	V	171	SER
3	C	183	PRO
10	J	24	GLY
10	J	9	VAL

### 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	209/209 (100%)	201 (96%)	8 (4%)	29	52
1	O	209/209 (100%)	204 (98%)	5 (2%)	43	65
2	B	203/216 (94%)	192 (95%)	11 (5%)	20	38
2	P	203/216 (94%)	191 (94%)	12 (6%)	18	33
3	C	213/226 (94%)	201 (94%)	12 (6%)	19	36
3	Q	213/226 (94%)	204 (96%)	9 (4%)	26	49
4	D	198/215 (92%)	188 (95%)	10 (5%)	21	40
4	R	198/215 (92%)	189 (96%)	9 (4%)	24	46
5	E	192/193 (100%)	179 (93%)	13 (7%)	14	27
5	S	192/193 (100%)	185 (96%)	7 (4%)	31	55
6	F	201/239 (84%)	188 (94%)	13 (6%)	15	29
6	T	201/239 (84%)	189 (94%)	12 (6%)	17	32
7	G	207/210 (99%)	199 (96%)	8 (4%)	28	51
7	U	207/210 (99%)	198 (96%)	9 (4%)	26	47
8	H	181/190 (95%)	168 (93%)	13 (7%)	13	25
8	V	181/190 (95%)	167 (92%)	14 (8%)	12	22
9	I	172/173 (99%)	167 (97%)	5 (3%)	37	61
9	W	172/173 (99%)	165 (96%)	7 (4%)	27	49
10	J	174/175 (99%)	164 (94%)	10 (6%)	18	35
10	X	175/175 (100%)	168 (96%)	7 (4%)	28	50
11	K	168/168 (100%)	158 (94%)	10 (6%)	17	32
11	Y	168/168 (100%)	157 (94%)	11 (6%)	15	29
12	L	185/185 (100%)	176 (95%)	9 (5%)	22	43
12	Z	185/185 (100%)	178 (96%)	7 (4%)	29	52
13	M	192/208 (92%)	187 (97%)	5 (3%)	40	63
13	a	192/208 (92%)	183 (95%)	9 (5%)	23	45
14	N	160/161 (99%)	150 (94%)	10 (6%)	16	30
14	b	160/161 (99%)	154 (96%)	6 (4%)	29	52
All	All	5311/5536 (96%)	5050 (95%)	261 (5%)	22	43

All (261) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	30	GLN
1	A	51	SER
1	A	61	LEU
1	A	112	SER
1	A	122	THR
1	A	157	PHE
1	A	178	ARG
1	A	187	ASP
2	B	55	LEU
2	B	60	THR
2	B	68	LEU
2	B	69	ASN
2	B	72	ILE
2	B	113	ARG
2	B	122	THR
2	B	149	THR
2	B	191	LEU
2	B	200	THR
2	B	215	ILE
3	C	4	ARG
3	C	19	GLU
3	C	51	LYS
3	C	61	LYS
3	C	142	GLU
3	C	147	GLN
3	C	160	GLN
3	C	169	VAL
3	C	171	GLU
3	C	185	THR
3	C	213	VAL
3	C	224	SER
4	D	20	LEU
4	D	44	LYS
4	D	68	CYS
4	D	124	ARG
4	D	176	LEU
4	D	190	LEU
4	D	193	LEU
4	D	214	ILE
4	D	235	LEU
4	D	242	GLU
5	E	4	ASN
5	E	8	ASP

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Mol	Chain	Res	Type
5	E	9	THR
5	E	29	LYS
5	E	54	GLU
5	E	56	SER
5	E	92	ASN
5	E	118	ASN
5	E	155	LEU
5	E	188	LEU
5	E	198	GLN
5	E	227	GLU
5	E	231	LYS
6	F	31	THR
6	F	39	ASN
6	F	68	ARG
6	F	91	GLU
6	F	117	GLN
6	F	123	ASN
6	F	167	SER
6	F	172	LEU
6	F	181	GLU
6	F	186	ARG
6	F	201	GLU
6	F	203	ASN
6	F	221	ASN
7	G	83	ASN
7	G	115	LEU
7	G	120	THR
7	G	201	MET
7	G	208	GLU
7	G	235	ARG
7	G	236	LEU
7	G	243	ASP
8	H	3	ILE
8	H	13	VAL
8	H	31	CYS
8	H	34	LEU
8	H	38	SER
8	H	40	LYS
8	H	43	CYS
8	H	113	ILE
8	H	153	LYS
8	H	180	ILE

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Mol	Chain	Res	Type
8	H	196	ARG
8	H	209	THR
8	H	214	LYS
9	I	12	VAL
9	I	37	ASN
9	I	123	PHE
9	I	171	LEU
9	I	182	TRP
10	J	7	ILE
10	J	23	ARG
10	J	25	ILE
10	J	35	THR
10	J	36	ARG
10	J	71	GLU
10	J	110	LYS
10	J	143	LEU
10	J	172	MET
10	J	174	MET
11	K	4	LEU
11	K	9	GLN
11	K	31	VAL
11	K	32	LYS
11	K	41	LEU
11	K	65	LEU
11	K	69	ARG
11	K	87	VAL
11	K	100	MET
11	K	107	LYS
12	L	1	GLN
12	L	23	LEU
12	L	49	ASN
12	L	106	TYR
12	L	109	THR
12	L	126	ASP
12	L	128	VAL
12	L	130	SER
12	L	150	LEU
13	M	10	SER
13	M	48	ASN
13	M	70	LEU
13	M	104	ARG
13	M	161	ARG

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Mol	Chain	Res	Type
14	N	12	VAL
14	N	14	MET
14	N	37	LEU
14	N	39	GLU
14	N	115	LEU
14	N	119	VAL
14	N	132	THR
14	N	143	ARG
14	N	176	VAL
14	N	178	LEU
1	O	30	GLN
1	O	51	SER
1	O	61	LEU
1	O	122	THR
1	O	157	PHE
2	P	55	LEU
2	P	60	THR
2	P	67	LYS
2	P	68	LEU
2	P	69	ASN
2	P	122	THR
2	P	149	THR
2	P	155	ASN
2	P	191	LEU
2	P	197	SER
2	P	200	THR
2	P	212	PHE
3	Q	4	ARG
3	Q	19	GLU
3	Q	47	ARG
3	Q	50	LEU
3	Q	124	VAL
3	Q	160	GLN
3	Q	169	VAL
3	Q	171	GLU
3	Q	185	THR
4	R	44	LYS
4	R	68	CYS
4	R	123	GLU
4	R	124	ARG
4	R	176	LEU
4	R	190	LEU

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Mol	Chain	Res	Type
4	R	193	LEU
4	R	214	ILE
4	R	235	LEU
5	S	9	THR
5	S	29	LYS
5	S	54	GLU
5	S	144	LEU
5	S	188	LEU
5	S	227	GLU
5	S	231	LYS
6	T	31	THR
6	T	39	ASN
6	T	68	ARG
6	T	117	GLN
6	T	123	ASN
6	T	172	LEU
6	T	181	GLU
6	T	186	ARG
6	T	201	GLU
6	T	203	ASN
6	T	207	ASP
6	T	221	ASN
7	U	83	ASN
7	U	96	ARG
7	U	115	LEU
7	U	120	THR
7	U	171	THR
7	U	201	MET
7	U	221	LYS
7	U	235	ARG
7	U	236	LEU
8	V	3	ILE
8	V	7	LYS
8	V	13	VAL
8	V	31	CYS
8	V	34	LEU
8	V	38	SER
8	V	71	SER
8	V	84	LYS
8	V	113	ILE
8	V	127	LEU
8	V	182	LYS

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Mol	Chain	Res	Type
8	V	196	ARG
8	V	218	VAL
8	V	222	ASP
9	W	12	VAL
9	W	37	ASN
9	W	123	PHE
9	W	171	LEU
9	W	182	TRP
9	W	185	VAL
9	W	192	ASP
10	X	25	ILE
10	X	35	THR
10	X	36	ARG
10	X	71	GLU
10	X	127	GLU
10	X	136	SER
10	X	143	LEU
11	Y	4	LEU
11	Y	9	GLN
11	Y	31	VAL
11	Y	32	LYS
11	Y	41	LEU
11	Y	69	ARG
11	Y	73	ARG
11	Y	87	VAL
11	Y	97	MET
11	Y	100	MET
11	Y	107	LYS
12	Z	1	GLN
12	Z	23	LEU
12	Z	49	ASN
12	Z	106	TYR
12	Z	109	THR
12	Z	130	SER
12	Z	150	LEU
13	a	7	THR
13	a	10	SER
13	a	48	ASN
13	a	70	LEU
13	a	104	ARG
13	a	138	SER
13	a	159	VAL

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Mol	Chain	Res	Type
13	a	161	ARG
13	a	170	VAL
14	b	14	MET
14	b	105	LYS
14	b	106	ASN
14	b	119	VAL
14	b	176	VAL
14	b	178	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (200) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	30	GLN
1	A	94	HIS
1	A	241	GLN
2	B	20	GLN
2	B	69	ASN
2	B	93	HIS
2	B	95	GLN
2	B	119	GLN
2	B	123	GLN
2	B	146	GLN
2	B	155	ASN
2	B	172	GLN
2	B	176	GLN
2	B	220	ASN
3	C	17	GLN
3	C	92	GLN
3	C	116	GLN
3	C	120	GLN
3	C	147	GLN
3	C	160	GLN
4	D	15	GLN
4	D	91	HIS
4	D	106	GLN
4	D	146	GLN
4	D	160	ASN
4	D	198	GLN
4	D	210	GLN
4	D	217	GLN
4	D	225	ASN
5	E	4	ASN

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Mol	Chain	Res	Type
5	E	30	GLN
5	E	68	HIS
5	E	92	ASN
5	E	99	ASN
5	E	116	GLN
5	E	118	ASN
5	E	120	GLN
5	E	184	ASN
5	E	198	GLN
6	F	8	ASN
6	F	19	GLN
6	F	39	ASN
6	F	86	ASN
6	F	117	GLN
6	F	123	ASN
6	F	143	HIS
6	F	191	GLN
6	F	240	GLN
7	G	30	ASN
7	G	83	ASN
7	G	114	ASN
7	G	117	GLN
7	G	121	GLN
7	G	166	GLN
7	G	167	GLN
7	G	175	ASN
7	G	176	HIS
7	G	186	ASN
7	G	212	ASN
7	G	231	ASN
8	H	22	GLN
8	H	30	ASN
8	H	66	HIS
8	H	109	HIS
8	H	172	ASN
8	H	189	ASN
8	H	194	ASN
8	H	219	ASN
9	I	37	ASN
9	I	88	GLN
9	I	168	GLN
10	J	37	GLN

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Mol	Chain	Res	Type
10	J	55	GLN
10	J	63	ASN
10	J	118	GLN
10	J	133	HIS
10	J	191	GLN
11	K	9	GLN
11	K	85	ASN
11	K	133	GLN
11	K	176	ASN
11	K	209	ASN
12	L	1	GLN
12	L	3	ASN
12	L	36	ASN
12	L	49	ASN
12	L	70	ASN
12	L	79	HIS
12	L	80	ASN
12	L	95	HIS
12	L	155	ASN
12	L	158	ASN
12	L	159	GLN
12	L	165	ASN
12	L	197	GLN
13	M	18	ASN
13	M	48	ASN
13	M	102	GLN
13	M	108	ASN
13	M	171	GLN
13	M	179	ASN
13	M	194	ASN
13	M	213	GLN
14	N	69	GLN
14	N	141	ASN
14	N	161	GLN
1	O	30	GLN
2	P	20	GLN
2	P	69	ASN
2	P	93	HIS
2	P	95	GLN
2	P	119	GLN
2	P	123	GLN
2	P	124	HIS

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Mol	Chain	Res	Type
2	P	155	ASN
2	P	172	GLN
2	P	176	GLN
2	P	220	ASN
2	P	232	GLN
3	Q	17	GLN
3	Q	77	ASN
3	Q	147	GLN
3	Q	160	GLN
3	Q	165	ASN
3	Q	241	GLN
4	R	15	GLN
4	R	91	HIS
4	R	100	ASN
4	R	146	GLN
4	R	160	ASN
4	R	198	GLN
5	S	68	HIS
5	S	99	ASN
5	S	116	GLN
5	S	118	ASN
5	S	120	GLN
5	S	151	ASN
5	S	198	GLN
6	T	8	ASN
6	T	19	GLN
6	T	39	ASN
6	T	86	ASN
6	T	117	GLN
6	T	123	ASN
6	T	191	GLN
6	T	203	ASN
7	U	30	ASN
7	U	83	ASN
7	U	114	ASN
7	U	117	GLN
7	U	121	GLN
7	U	166	GLN
7	U	175	ASN
7	U	176	HIS
7	U	186	ASN
7	U	231	ASN

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Mol	Chain	Res	Type
8	V	30	ASN
8	V	66	HIS
8	V	91	GLN
8	V	144	GLN
8	V	165	ASN
8	V	172	ASN
8	V	189	ASN
9	W	31	GLN
9	W	37	ASN
9	W	63	ASN
9	W	88	GLN
9	W	203	GLN
10	X	37	GLN
10	X	55	GLN
10	X	63	ASN
10	X	118	GLN
10	X	191	GLN
11	Y	9	GLN
11	Y	85	ASN
11	Y	143	ASN
12	Z	3	ASN
12	Z	29	ASN
12	Z	36	ASN
12	Z	49	ASN
12	Z	55	ASN
12	Z	70	ASN
12	Z	76	HIS
12	Z	80	ASN
12	Z	87	ASN
12	Z	135	GLN
12	Z	152	ASN
12	Z	153	GLN
12	Z	158	ASN
13	a	2	GLN
13	a	18	ASN
13	a	48	ASN
13	a	62	HIS
13	a	102	GLN
13	a	108	ASN
13	a	171	GLN
13	a	179	ASN
13	a	194	ASN

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Mol	Chain	Res	Type
13	a	213	GLN
14	b	141	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 22 ligands modelled in this entry, 11 are monoatomic - leaving 11 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	$\# Z  > 2$
19	A1IFL	b	202	14	49,54,54	1.49	5 (10%)	58,75,75	1.27	5 (8%)
18	SO4	b	201	-	4,4,4	0.53	0	6,6,6	0.08	0
18	SO4	K	302	-	4,4,4	0.33	0	6,6,6	0.08	0
18	SO4	N	202	-	4,4,4	0.36	0	6,6,6	0.09	0
17	MES	J	202	-	12,12,12	0.69	0	15,16,16	0.46	0
17	MES	X	201	-	12,12,12	0.77	0	15,16,16	0.42	0
19	A1IFL	N	203	14	49,54,54	1.21	2 (4%)	58,75,75	1.10	3 (5%)
18	SO4	Y	302	-	4,4,4	0.31	0	6,6,6	0.10	0
17	MES	V	302	-	12,12,12	0.79	0	15,16,16	0.30	0
19	A1IFL	K	303	11	49,54,54	1.56	7 (14%)	58,75,75	1.12	4 (6%)
19	A1IFL	Y	303	11	49,54,54	1.50	4 (8%)	58,75,75	1.16	4 (6%)

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
19	A1IFL	b	202	14	-	9/37/85/85	0/3/4/4
17	MES	J	202	-	-	4/6/14/14	0/1/1/1
17	MES	X	201	-	-	4/6/14/14	0/1/1/1
19	A1IFL	N	203	14	-	10/37/85/85	0/3/4/4
17	MES	V	302	-	-	3/6/14/14	0/1/1/1
19	A1IFL	K	303	11	-	12/37/85/85	0/3/4/4
19	A1IFL	Y	303	11	-	13/37/85/85	0/3/4/4

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	K	303	A1IFL	CB-CG	-6.88	1.35	1.51
19	b	202	A1IFL	CB-CG	-6.42	1.36	1.51
19	Y	303	A1IFL	CB-CG	-6.38	1.36	1.51
19	N	203	A1IFL	CB-CG	-5.32	1.38	1.51
19	b	202	A1IFL	O58-C11	-3.60	1.39	1.44
19	K	303	A1IFL	OG1-CB1	-3.45	1.39	1.43
19	Y	303	A1IFL	OG1-CB1	-3.35	1.39	1.43
19	N	203	A1IFL	O58-C11	-3.29	1.39	1.44
19	Y	303	A1IFL	O55-C21	3.04	1.44	1.39
19	Y	303	A1IFL	O58-C11	-2.87	1.40	1.44
19	K	303	A1IFL	CB-CA2	-2.78	1.47	1.54
19	K	303	A1IFL	OG1-C21	-2.75	1.38	1.43
19	K	303	A1IFL	C54-C49	-2.30	1.45	1.52
19	K	303	A1IFL	C51-C50	-2.15	1.47	1.53
19	K	303	A1IFL	C57-C11	-2.13	1.49	1.52
19	b	202	A1IFL	CB-CA2	-2.11	1.49	1.54
19	b	202	A1IFL	C21-C31	-2.09	1.50	1.54
19	b	202	A1IFL	C48-C31	-2.02	1.51	1.52

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
19	Y	303	A1IFL	CM-OH-CZ	-4.51	107.82	117.50
19	b	202	A1IFL	CB1-CA3-N2	-3.92	102.94	111.75
19	b	202	A1IFL	C-CA-NB	-3.22	105.92	113.41
19	K	303	A1IFL	CM-OH-CZ	-2.91	111.25	117.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
19	b	202	A1IFL	O55-C21-C11	2.88	112.99	106.08
19	K	303	A1IFL	CA-NB-CD2	-2.87	106.68	111.14
19	N	203	A1IFL	O55-C21-C11	2.83	112.88	106.08
19	b	202	A1IFL	CM-OH-CZ	-2.53	112.07	117.50
19	Y	303	A1IFL	C21-C31-N4	2.41	113.76	110.53
19	K	303	A1IFL	C53-C54-C49	-2.30	107.25	112.08
19	N	203	A1IFL	CA-NB-CD2	-2.29	107.58	111.14
19	N	203	A1IFL	CM-OH-CZ	-2.12	112.95	117.50
19	K	303	A1IFL	CB1-CA3-N2	-2.05	107.15	111.75
19	b	202	A1IFL	C48-C49-C50	-2.03	106.99	111.71
19	Y	303	A1IFL	C3-CA1-N	-2.03	106.90	110.91
19	Y	303	A1IFL	O55-C21-C11	2.02	110.92	106.08

There are no chirality outliers.

All (55) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
17	J	202	MES	C8-C7-N4-C3
17	J	202	MES	C7-C8-S-O1S
17	V	302	MES	C7-C8-S-O2S
17	V	302	MES	C7-C8-S-O3S
17	X	201	MES	C8-C7-N4-C3
17	X	201	MES	C7-C8-S-O1S
19	K	303	A1IFL	CA1-C3-C4-O3
19	K	303	A1IFL	C21-C31-C48-C49
19	K	303	A1IFL	C31-C48-C49-C54
19	N	203	A1IFL	C-CA-NB-CD1
19	N	203	A1IFL	C21-C31-C48-C49
19	Y	303	A1IFL	CA1-C3-C4-O3
19	Y	303	A1IFL	C31-C48-C49-C54
19	b	202	A1IFL	C21-C31-C48-C49
19	K	303	A1IFL	C5-CZ-OH-CM
19	K	303	A1IFL	C6-CZ-OH-CM
19	b	202	A1IFL	C8-CA2-CB-CG
19	Y	303	A1IFL	C6-CZ-OH-CM
19	Y	303	A1IFL	C5-CZ-OH-CM
19	N	203	A1IFL	N1-CA2-CB-CG
19	b	202	A1IFL	N1-CA2-CB-CG
19	N	203	A1IFL	C8-CA2-CB-CG
19	Y	303	A1IFL	N4-C31-C48-C49
19	Y	303	A1IFL	N1-CA2-CB-CG
19	b	202	A1IFL	N4-C31-C48-C49

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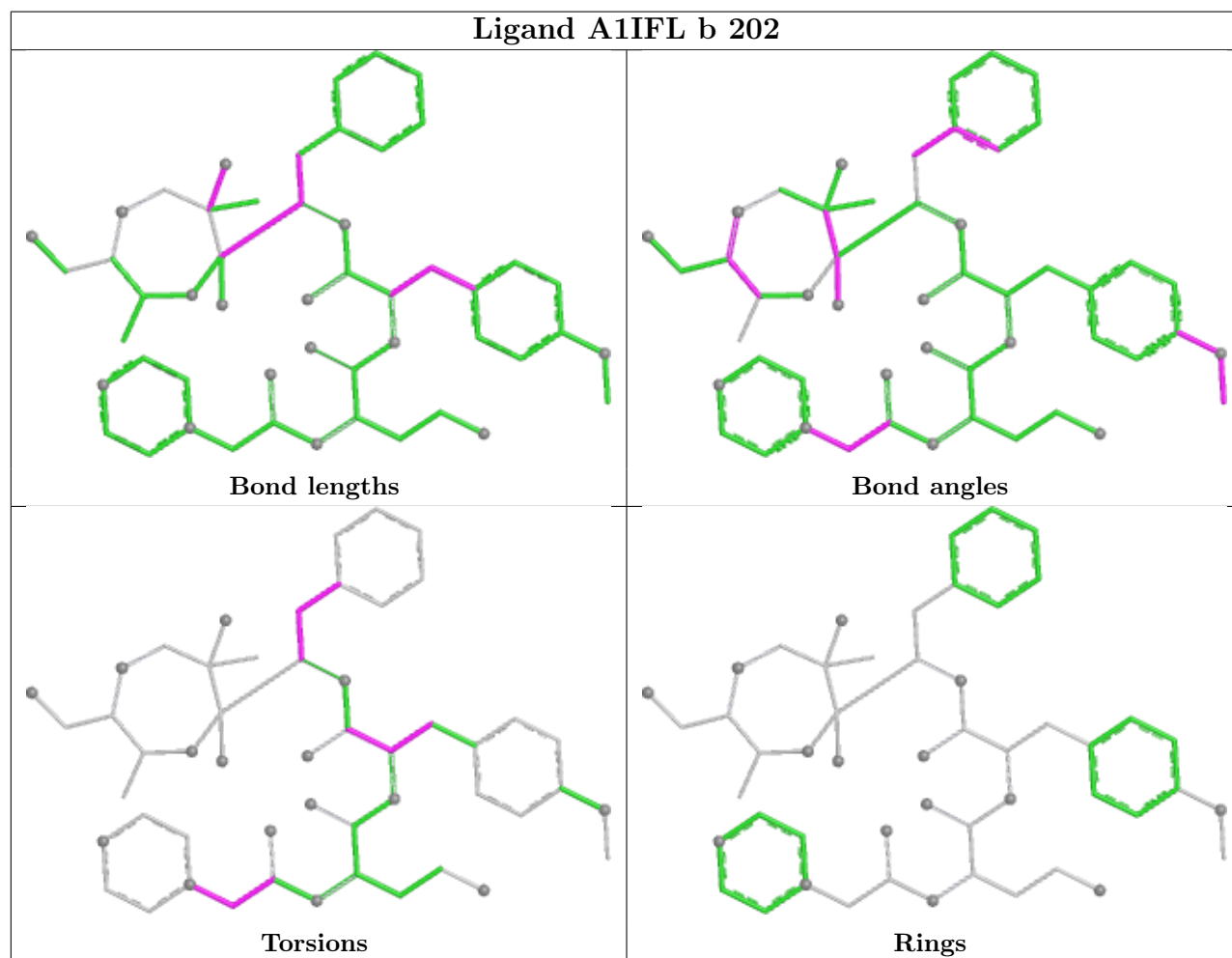
Mol	Chain	Res	Type	Atoms
19	K	303	A1IFL	N4-C31-C48-C49
19	Y	303	A1IFL	C8-CA2-CB-CG
19	K	303	A1IFL	N1-CA2-CB-CG
17	J	202	MES	C7-C8-S-O3S
19	Y	303	A1IFL	C4-C3-CA1-N
19	N	203	A1IFL	N4-C31-C48-C49
19	Y	303	A1IFL	C21-C31-C48-C49
19	Y	303	A1IFL	C31-C48-C49-C50
17	X	201	MES	C7-C8-S-O3S
17	J	202	MES	C7-C8-S-O2S
17	V	302	MES	C7-C8-S-O1S
17	X	201	MES	C7-C8-S-O2S
19	b	202	A1IFL	O2-C8-CA2-N1
19	N	203	A1IFL	C1-CA1-N-C
19	K	303	A1IFL	O1-C1-CA1-N
19	N	203	A1IFL	C-CA-NB-CD2
19	K	303	A1IFL	N1-C1-CA1-N
19	b	202	A1IFL	N4-C8-CA2-N1
19	Y	303	A1IFL	O2-C8-CA2-N1
19	K	303	A1IFL	C31-C48-C49-C50
19	b	202	A1IFL	C31-C48-C49-C54
19	N	203	A1IFL	N-C-CA-NB
19	N	203	A1IFL	O-C-CA-NB
19	Y	303	A1IFL	C4-C3-CA1-C1
19	Y	303	A1IFL	N4-C8-CA2-N1
19	b	202	A1IFL	N-C-CA-NB
19	b	202	A1IFL	C-CA-NB-CD1
19	N	203	A1IFL	O2-C8-CA2-N1
19	K	303	A1IFL	O2-C8-CA2-N1
19	K	303	A1IFL	C8-CA2-CB-CG

There are no ring outliers.

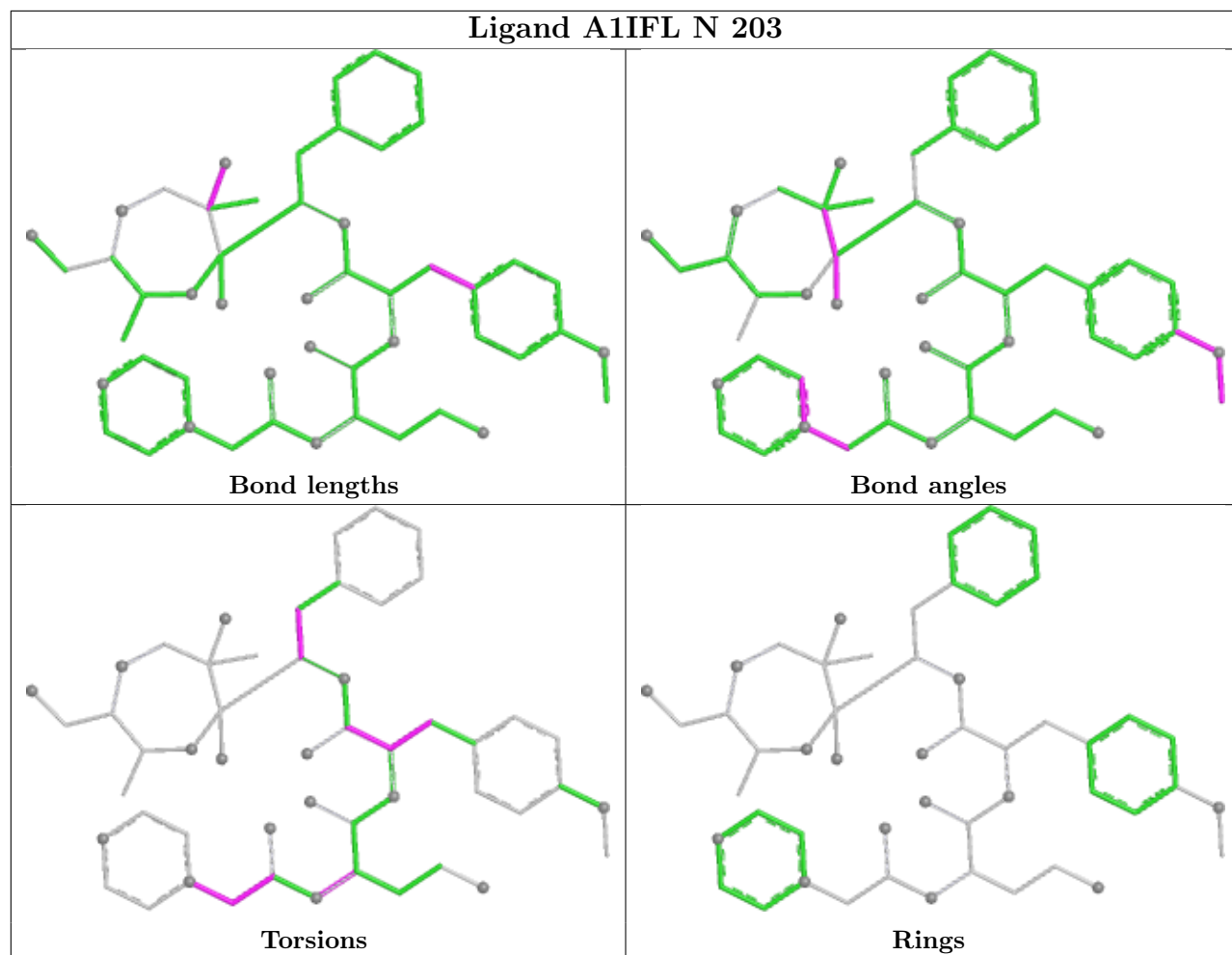
6 monomers are involved in 17 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
19	b	202	A1IFL	2	0
17	J	202	MES	4	0
19	N	203	A1IFL	3	0
17	V	302	MES	1	0
19	K	303	A1IFL	6	0
19	Y	303	A1IFL	3	0

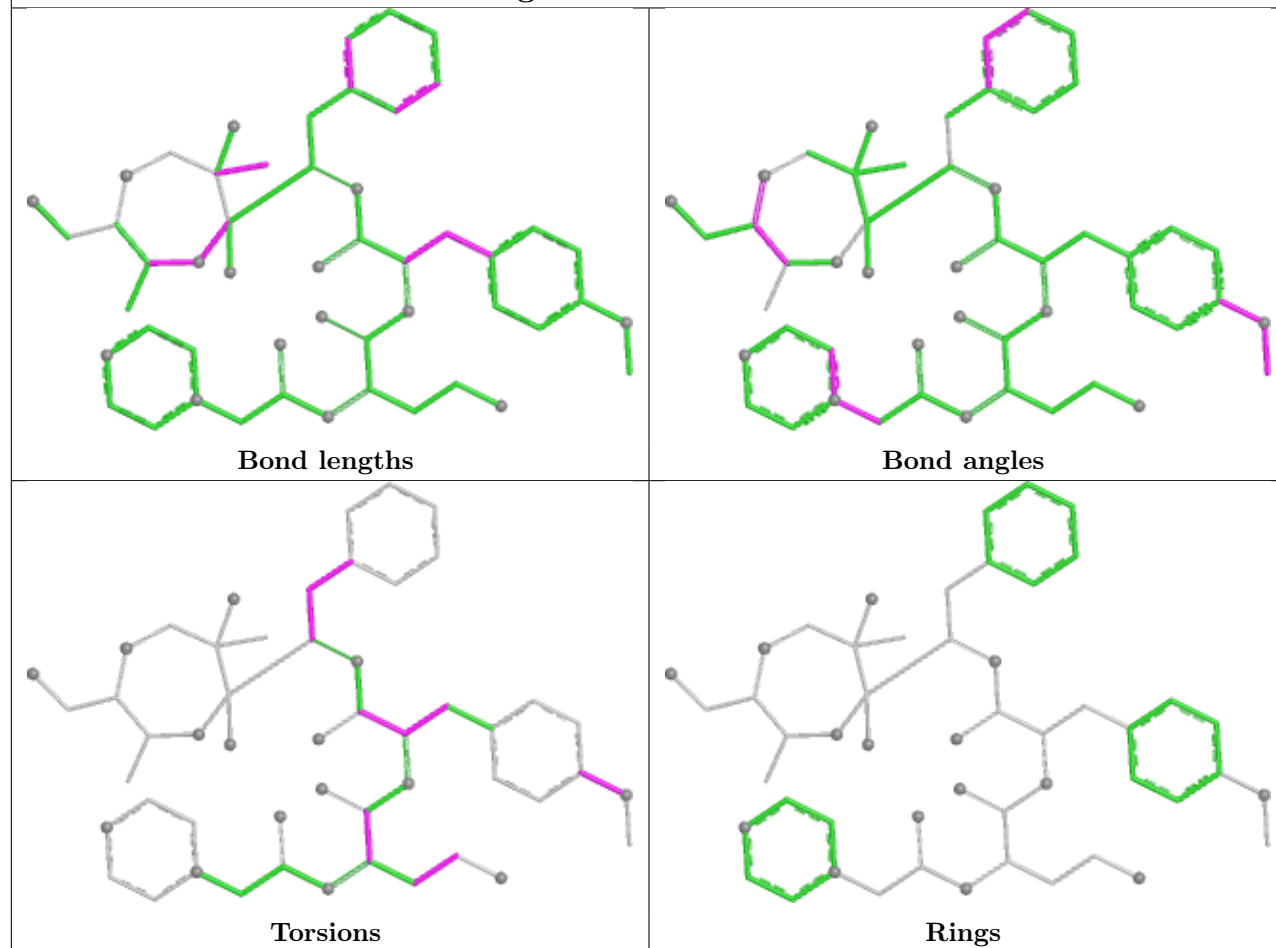
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

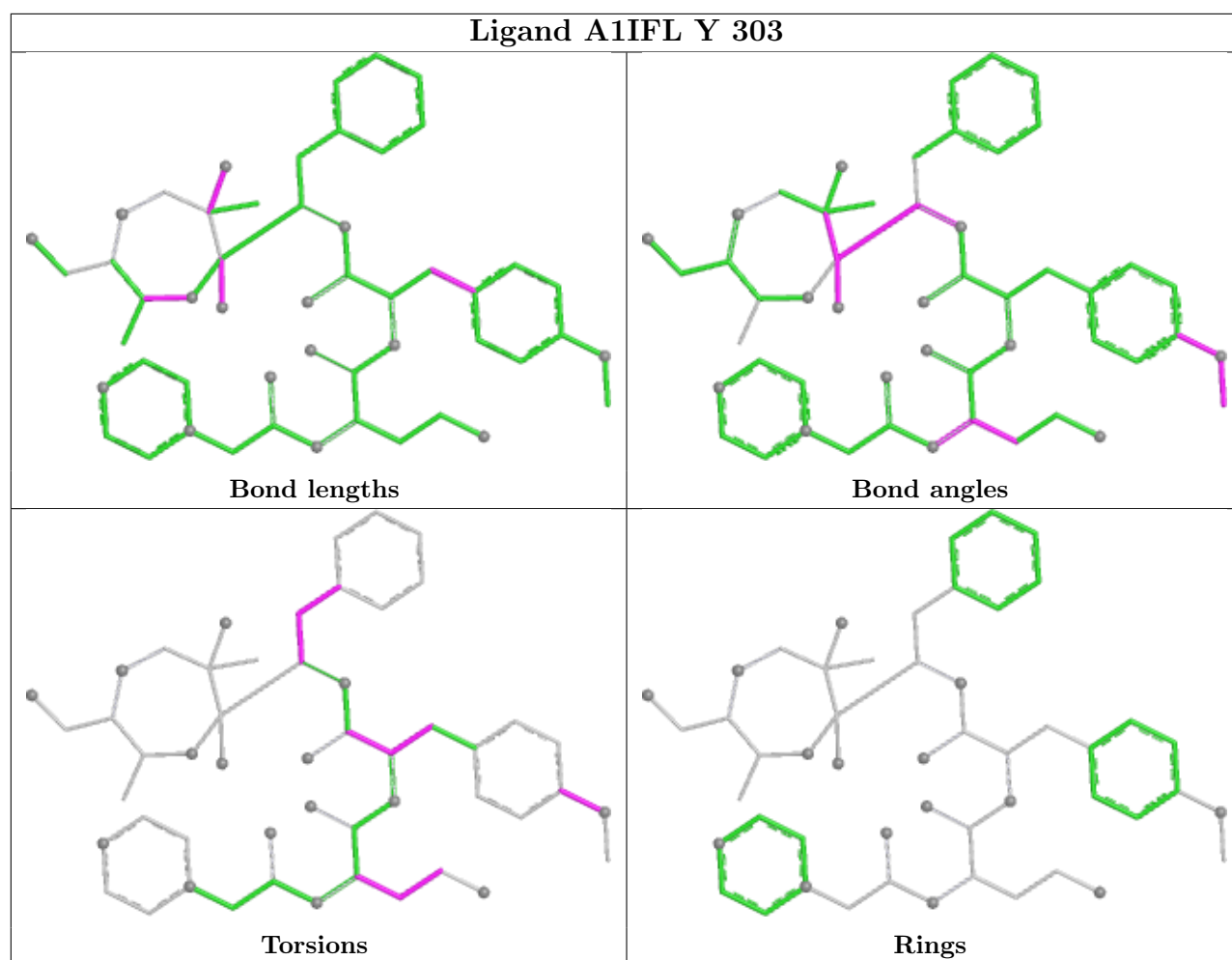


## Ligand A1IFL N 203



## Ligand A1IFL K 303





## 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	250/250 (100%)	-0.04	3 (1%) 76 76	60, 76, 107, 143	0
1	O	250/250 (100%)	0.01	2 (0%) 82 82	67, 86, 119, 154	0
2	B	244/258 (94%)	0.15	6 (2%) 58 56	64, 80, 124, 161	0
2	P	244/258 (94%)	0.18	8 (3%) 49 47	69, 86, 131, 179	0
3	C	241/254 (94%)	0.14	9 (3%) 45 42	62, 85, 141, 164	0
3	Q	241/254 (94%)	0.20	10 (4%) 41 39	74, 94, 154, 165	0
4	D	242/260 (93%)	0.15	7 (2%) 53 52	65, 86, 123, 173	0
4	R	242/260 (93%)	0.19	8 (3%) 49 47	67, 90, 126, 187	0
5	E	233/234 (99%)	0.18	3 (1%) 75 75	69, 88, 121, 164	0
5	S	233/234 (99%)	0.33	10 (4%) 40 38	71, 96, 133, 159	0
6	F	244/288 (84%)	0.05	1 (0%) 88 89	58, 80, 117, 147	0
6	T	244/288 (84%)	0.09	3 (1%) 76 76	65, 86, 127, 152	0
7	G	243/252 (96%)	-0.09	4 (1%) 70 69	58, 73, 107, 168	0
7	U	243/252 (96%)	-0.03	3 (1%) 76 76	64, 79, 109, 146	0
8	H	222/232 (95%)	0.10	2 (0%) 81 81	59, 73, 98, 126	0
8	V	222/232 (95%)	0.05	1 (0%) 87 87	62, 78, 98, 133	0
9	I	204/205 (99%)	-0.10	1 (0%) 87 87	56, 72, 94, 114	0
9	W	204/205 (99%)	-0.10	0 100 100	60, 74, 98, 123	0
10	J	196/198 (98%)	-0.09	2 (1%) 79 79	59, 72, 96, 140	0
10	X	198/198 (100%)	-0.06	3 (1%) 72 71	62, 75, 97, 165	0
11	K	211/211 (100%)	-0.10	1 (0%) 87 87	61, 73, 97, 111	0
11	Y	211/211 (100%)	-0.10	2 (0%) 81 81	60, 72, 94, 120	0
12	L	222/222 (100%)	-0.01	0 100 100	60, 76, 101, 121	0
12	Z	222/222 (100%)	0.01	3 (1%) 73 73	56, 76, 102, 161	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
13	M	224/246 (91%)	-0.09	2 (0%) 81 81	58, 73, 96, 147	0
13	a	224/246 (91%)	-0.10	1 (0%) 88 89	60, 72, 92, 136	0
14	N	195/196 (99%)	0.01	0 100 100	57, 70, 97, 138	0
14	b	195/196 (99%)	-0.04	0 100 100	58, 72, 100, 145	0
All	All	6344/6612 (95%)	0.04	95 (1%) 72 71	56, 79, 120, 187	0

All (95) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	R	119	ALA	7.1
3	Q	50	LEU	6.7
4	D	118	GLY	6.7
4	R	120	SER	6.0
4	D	119	ALA	5.9
10	J	1	MET	5.5
3	C	50	LEU	5.4
3	C	49	THR	5.2
7	U	1	ALA	5.0
10	X	1	MET	4.7
5	E	1	PHE	4.7
4	D	125	LEU	4.7
13	a	1	THR	4.4
4	D	120	SER	4.3
4	R	118	GLY	4.3
7	G	1	ALA	4.1
1	A	1	MET	4.1
13	M	1	THR	4.0
5	S	1	PHE	4.0
2	B	1	GLY	3.6
3	Q	52	LEU	3.5
3	Q	59	PRO	3.5
2	B	244	THR	3.4
2	P	60	THR	3.4
3	Q	51	LYS	3.3
2	P	1	GLY	3.3
11	Y	211	ILE	3.3
10	J	174	MET	3.2
2	P	219	ALA	3.2
2	P	222	GLY	3.2
10	X	197	ALA	3.1
3	Q	205	ALA	3.1

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Mol	Chain	Res	Type	RSRZ
5	E	122	TYR	3.0
3	Q	49	THR	3.0
7	U	2	GLY	3.0
2	P	51	VAL	3.0
10	X	174	MET	2.9
11	K	73	ARG	2.9
2	P	50	LYS	2.8
7	G	2	GLY	2.8
4	R	1	ASP	2.8
3	C	206	LYS	2.8
2	B	51	VAL	2.7
2	P	244	THR	2.7
12	Z	174	TYR	2.7
2	P	218	GLY	2.7
8	V	43	CYS	2.7
5	S	191	ALA	2.7
3	C	51	LYS	2.7
6	F	1	GLY	2.7
9	I	131	GLU	2.6
2	B	219	ALA	2.6
1	O	1	MET	2.6
7	U	243	ASP	2.6
7	G	3	TYR	2.6
13	M	2	GLN	2.5
3	C	238	LYS	2.5
12	Z	172	LEU	2.5
8	H	43	CYS	2.4
12	Z	106	TYR	2.4
3	C	48	SER	2.4
3	Q	60	SER	2.4
4	R	113	LEU	2.3
4	R	125	LEU	2.3
4	R	121	GLY	2.3
5	S	222	THR	2.3
4	D	124	ARG	2.3
6	T	2	THR	2.3
4	R	117	GLU	2.2
3	C	241	GLN	2.2
6	T	3	GLY	2.2
5	S	178	PHE	2.2
5	S	122	TYR	2.2
5	S	202	ASP	2.2

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Mol	Chain	Res	Type	RSRZ
5	S	55	LEU	2.2
3	Q	203	THR	2.2
5	S	2	ARG	2.2
3	Q	241	GLN	2.2
7	G	239	ILE	2.2
8	H	220	ILE	2.2
4	D	242	GLU	2.2
3	Q	55	THR	2.2
6	T	6	LEU	2.2
11	Y	212	GLY	2.2
2	B	2	SER	2.2
3	C	59	PRO	2.1
3	C	205	ALA	2.1
4	D	1	ASP	2.1
1	A	229	THR	2.1
1	O	2	THR	2.1
2	B	60	THR	2.1
5	E	205	LEU	2.1
5	S	196	ILE	2.1
1	A	2	THR	2.0
5	S	233	ILE	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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
17	MES	V	302	12/12	0.76	0.22	121,131,138,145	0
18	SO4	b	201	5/5	0.82	0.15	135,137,141,144	0

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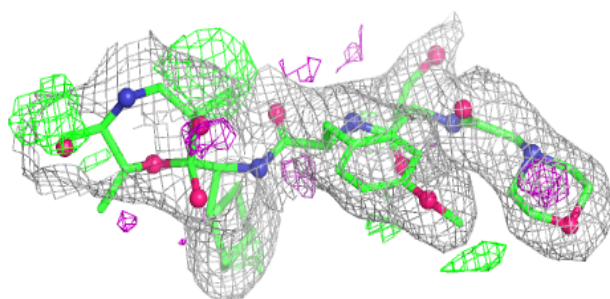
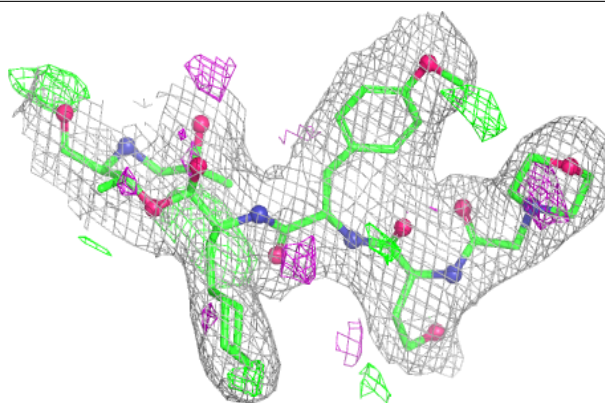
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
15	MG	I	301	1/1	0.83	0.46	97,97,97,97	0
15	MG	Z	301	1/1	0.87	0.17	82,82,82,82	0
18	SO4	N	202	5/5	0.89	0.24	105,113,119,123	0
19	A1IFL	K	303	51/51	0.90	0.12	63,67,78,79	0
17	MES	J	202	12/12	0.91	0.17	86,94,100,102	0
19	A1IFL	N	203	51/51	0.91	0.10	58,61,81,85	0
19	A1IFL	Y	303	51/51	0.91	0.11	63,68,75,76	0
19	A1IFL	b	202	51/51	0.91	0.11	65,67,86,89	0
18	SO4	Y	302	5/5	0.92	0.19	109,117,118,118	0
18	SO4	K	302	5/5	0.92	0.21	101,102,111,115	0
17	MES	X	201	12/12	0.92	0.13	81,86,90,92	0
15	MG	V	301	1/1	0.93	0.07	83,83,83,83	0
15	MG	K	301	1/1	0.94	0.06	69,69,69,69	0
15	MG	N	201	1/1	0.94	0.07	51,51,51,51	0
15	MG	J	201	1/1	0.94	0.20	48,48,48,48	0
16	CL	U	301	1/1	0.95	0.10	62,62,62,62	0
15	MG	W	301	1/1	0.95	0.10	68,68,68,68	0
15	MG	G	301	1/1	0.95	0.08	82,82,82,82	0
15	MG	Y	301	1/1	0.96	0.06	74,74,74,74	0
16	CL	G	302	1/1	0.97	0.07	61,61,61,61	0

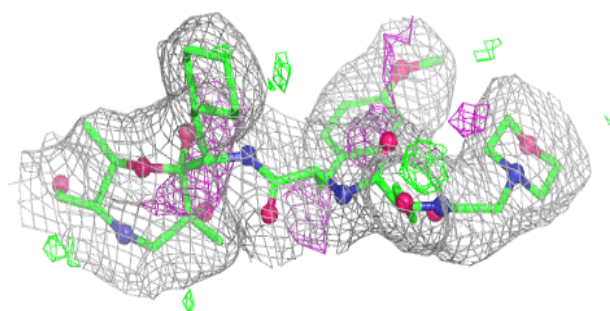
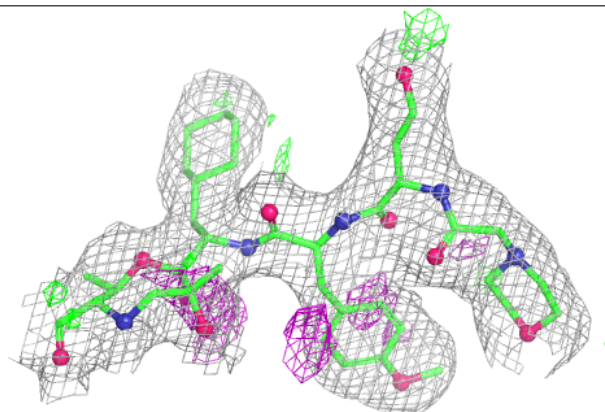
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around A1IFL K 303:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around A1IFL N 203:**

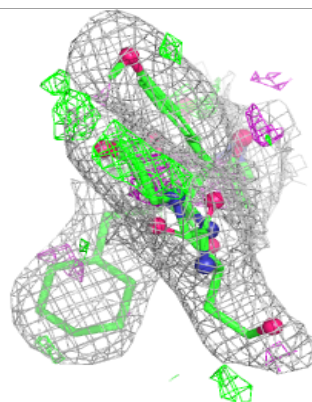
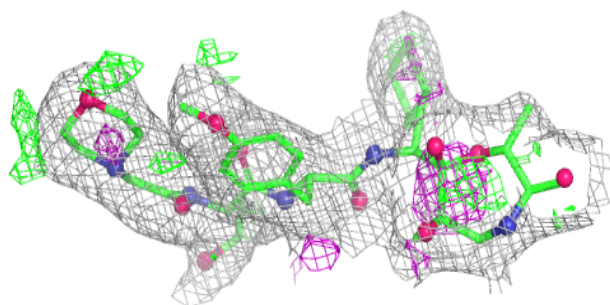
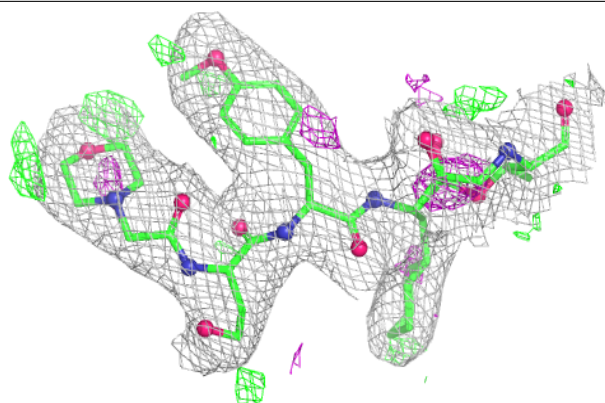
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



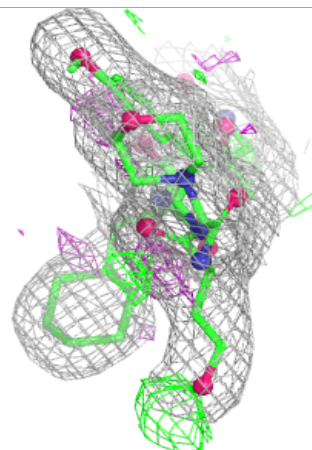
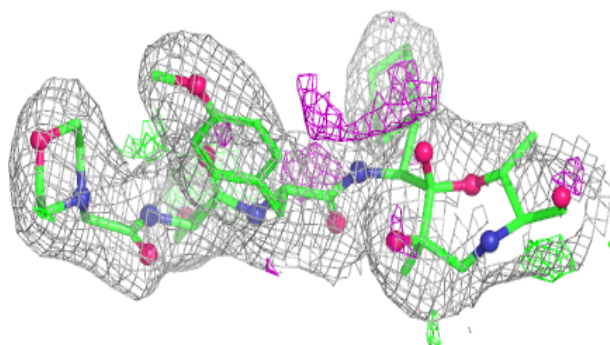
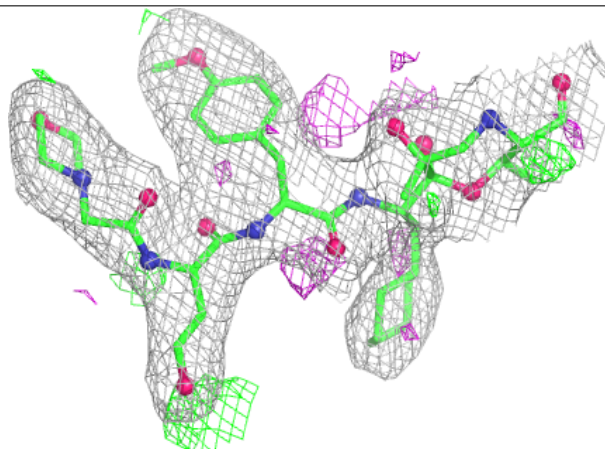


**Electron density around A1IFL Y 303:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around A1IFL b 202:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



## 6.5 Other polymers [i](#)

There are no such residues in this entry.