



# Full wwPDB X-ray Structure Validation Report ⓘ

Dec 20, 2023 – 01:14 pm GMT

PDB ID : 8OI1  
Title : Yeast 20S proteasome in complex with a photoswitchable cepafungin derivative (transCep4)  
Authors : Morstein, J.; Amatuni, A.; Schuster, A.; Kuttlenlochner, W.; Ko, T.; Groll, M.; Adibekian, A.; Renata, H.; Trauner, D.H.  
Deposited on : 2023-03-21  
Resolution : 2.95 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 : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

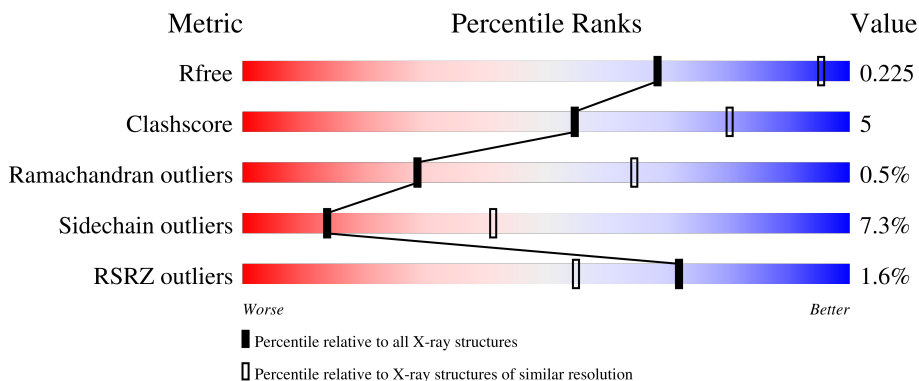
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*


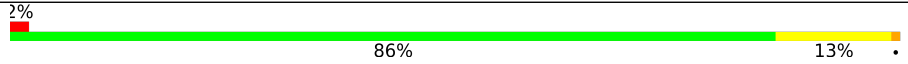
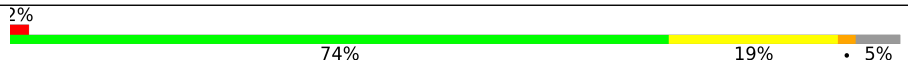

The reported resolution of this entry is 2.95 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	3104 (3.00-2.92)
Clashscore	141614	3462 (3.00-2.92)
Ramachandran outliers	138981	3340 (3.00-2.92)
Sidechain outliers	138945	3343 (3.00-2.92)
RSRZ outliers	127900	2986 (3.00-2.92)

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	
1	O	250	
2	B	258	
2	P	258	

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Mol	Chain	Length	Quality of chain
3	C	254	3% 79% 13% 6%
3	Q	254	4% 80% 11% 6%
4	D	260	71% 17% 10%
4	R	260	2% 71% 18% 10%
5	E	234	% 82% 15% ..
5	S	234	3% 79% 17% ..
6	F	288	2% 72% 12% 16%
6	T	288	2% 69% 14% 16%
7	G	252	80% 14% ..
7	U	252	78% 15% ..
8	H	232	3% 81% 15% ..
8	V	232	3% 78% 19% .
9	I	205	85% 14% .
9	W	205	83% 15% .
10	J	198	% 84% 12% ..
10	X	198	% 86% 10% ..
11	K	212	% 80% 20%
11	Y	212	2% 80% 19%
12	L	222	77% 21% .
12	Z	222	75% 23% .
13	M	246	80% 13% 5%
13	a	246	% 89% 5% 5%
14	N	196	% 88% 11% .
14	b	196	2% 96% .

## 2 Entry composition

There are 19 unique types of molecules in this entry. The entry contains 49790 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
			Total	C	N	O	S			
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
			Total	C	N	O	S			
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
			Total	C	N	O	S			
3	C	240	Total	C	N	O	S	0	0	0
			1881	1176	329	372	4			
3	Q	240	Total	C	N	O	S	0	0	0
			1881	1176	329	372	4			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	235	Total	C	N	O	S	0	0	0
			1813	1136	304	366	7			
4	R	235	Total	C	N	O	S	0	0	0
			1813	1136	304	366	7			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	231	1773	1114	307	348	4	0	0	0
5	S	231	1773	1114	307	348	4	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	243	1892	1203	329	356	4	0	0	0
6	T	243	1892	1203	329	356	4	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	241	1907	1214	320	365	8	0	0	0
7	U	241	1907	1214	320	365	8	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	H	226	1719	1082	298	332	7	0	0	0
8	V	226	1719	1082	298	332	7	0	0	0

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

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

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	J	195	1561	992	264	299	6	0	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	X	195	1561	992	264	299	6	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	K	212	1644	1045	280	312	7	0	0	0
11	Y	212	1644	1045	280	312	7	0	0	0

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

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

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	M	233	1824	1154	312	351	7	0	0	0
13	a	233	1824	1154	312	351	7	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
14	N	196	1512	955	250	300	7	0	0	0
14	b	196	1512	955	250	300	7	0	0	0

- Molecule 15 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

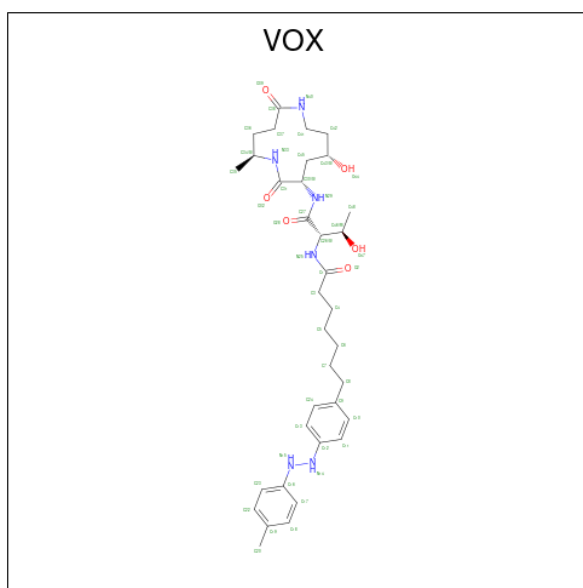
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	G	1	Total	Mg	0	0
			1	1		
15	I	2	Total	Mg	0	0
			2	2		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	J	1	Total	Mg	0	0
			1	1		
15	K	2	Total	Mg	0	0
			2	2		
15	N	2	Total	Mg	0	0
			2	2		
15	V	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 {N}-[(2 {S},3 {R})-1-[(5 {S},8 {S},10 {S})-5-methyl-10-oxidanyl-2,7-bis(oxidanylidene)-1,6-diazacyclododec-8-yl]amino]-3-oxidanyl-1-oxidanylidene-butan-2-yl]-7-[4-[2-(4-methylphenyl)hydrazinyl]phenyl]heptanamide (three-letter code: VOX) (formula: C<sub>35</sub>H<sub>52</sub>N<sub>6</sub>O<sub>6</sub>) (labeled as "Ligand of Interest" by depositor).

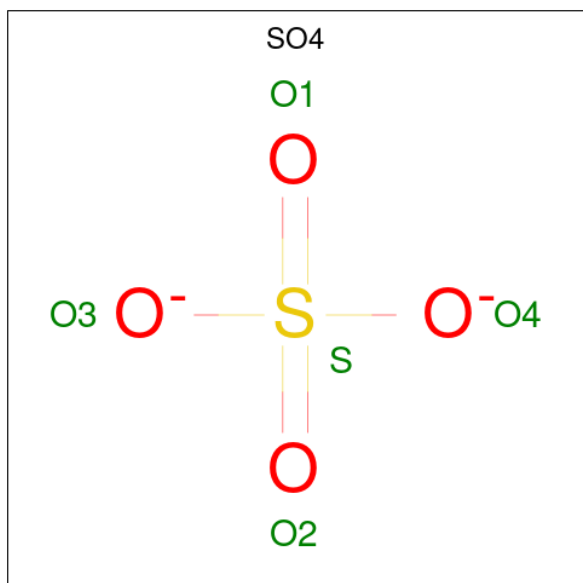


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
16	H	1	Total	C	N	O	0	0
			47	35	6	6		
16	K	1	Total	C	N	O	0	0
			47	35	6	6		
16	V	1	Total	C	N	O	0	0
			47	35	6	6		
16	Y	1	Total	C	N	O	0	0
			47	35	6	6		

- Molecule 17 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
17	N	1	Total Cl 1 1	0	0
17	b	1	Total Cl 1 1	0	0

- Molecule 18 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



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

- Molecule 19 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
19	A	7	Total O 7 7	0	0
19	B	10	Total O 10 10	0	0
19	C	8	Total O 8 8	0	0
19	D	6	Total O 6 6	0	0
19	E	5	Total O 5 5	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
19	F	5	Total O 5 5	0	0
19	G	4	Total O 4 4	0	0
19	H	13	Total O 13 13	0	0
19	I	5	Total O 5 5	0	0
19	J	13	Total O 13 13	0	0
19	K	5	Total O 5 5	0	0
19	L	12	Total O 12 12	0	0
19	M	11	Total O 11 11	0	0
19	N	4	Total O 4 4	0	0
19	O	5	Total O 5 5	0	0
19	P	5	Total O 5 5	0	0
19	Q	8	Total O 8 8	0	0
19	R	1	Total O 1 1	0	0
19	S	3	Total O 3 3	0	0
19	T	10	Total O 10 10	0	0
19	U	8	Total O 8 8	0	0
19	V	14	Total O 14 14	0	0
19	W	5	Total O 5 5	0	0
19	X	11	Total O 11 11	0	0
19	Y	9	Total O 9 9	0	0
19	Z	10	Total O 10 10	0	0

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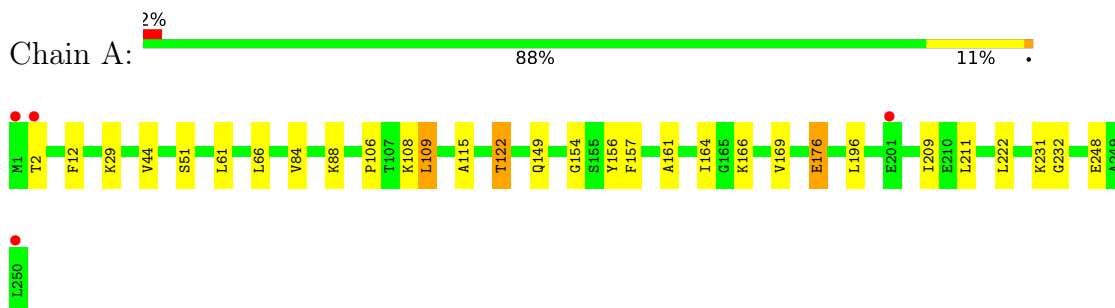
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>	<b>ZeroOcc</b>	<b>AltConf</b>
19	a	11	Total O 11 11	0	0
19	b	5	Total O 5 5	0	0

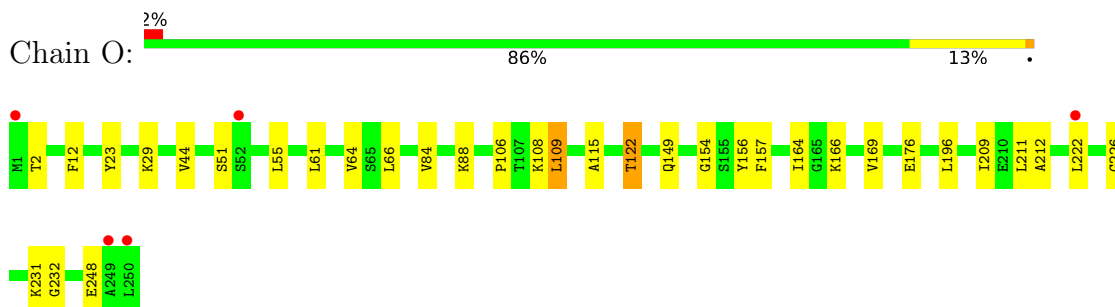
### 3 Residue-property plots [i](#)

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.

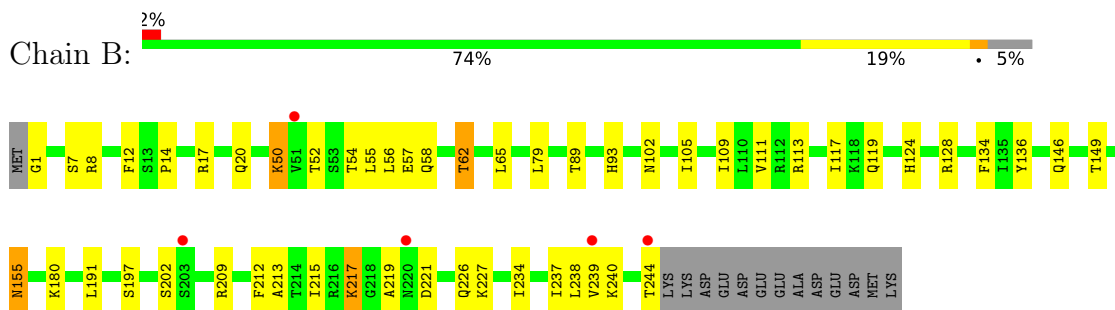
- Molecule 1: Proteasome subunit alpha type-2



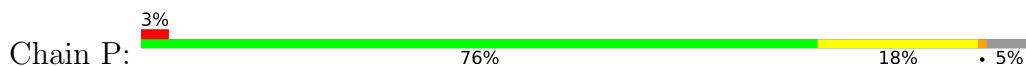
- Molecule 1: Proteasome subunit alpha type-2

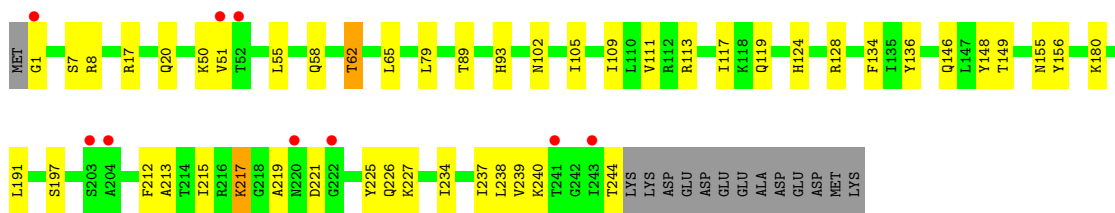


- Molecule 2: Proteasome subunit alpha type-3

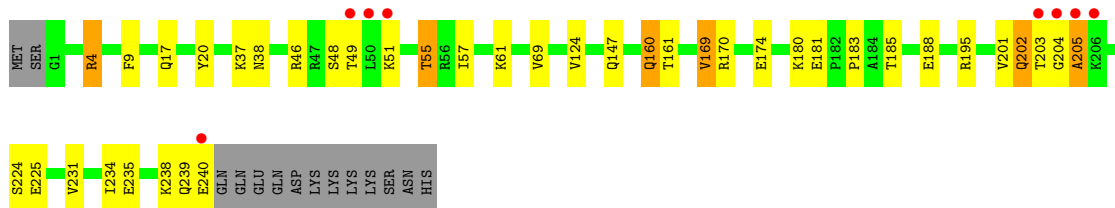
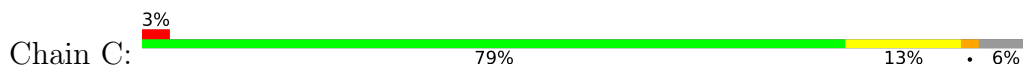


- Molecule 2: Proteasome subunit alpha type-3

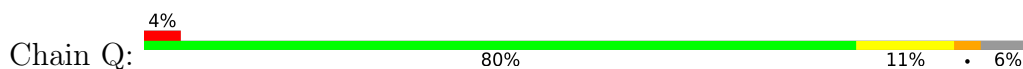




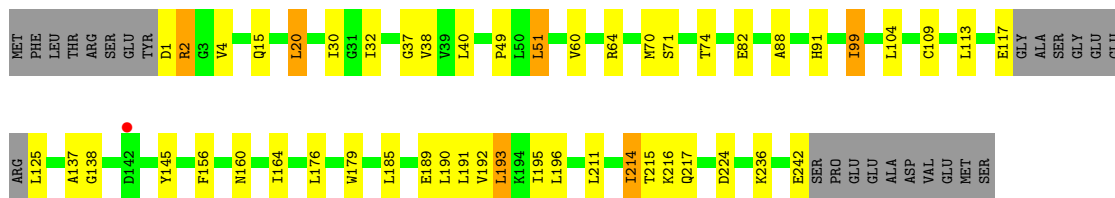
• Molecule 3: Proteasome subunit alpha type-4



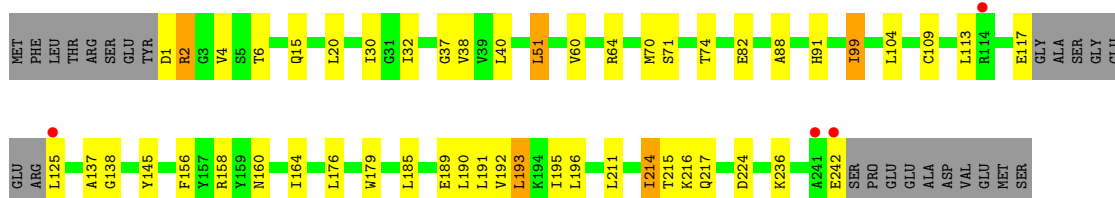
• Molecule 3: Proteasome subunit alpha type-4



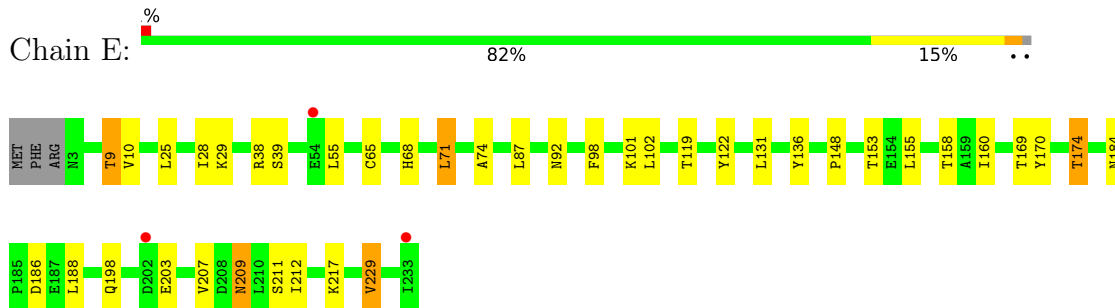
• Molecule 4: Proteasome subunit alpha type-5



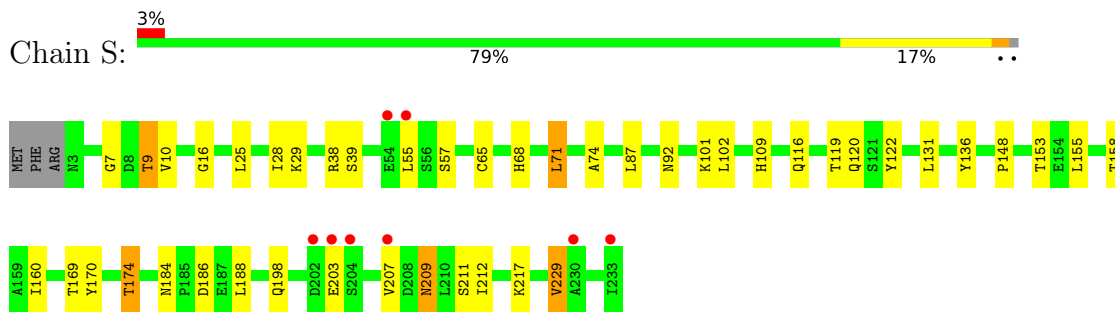
• Molecule 4: Proteasome subunit alpha type-5



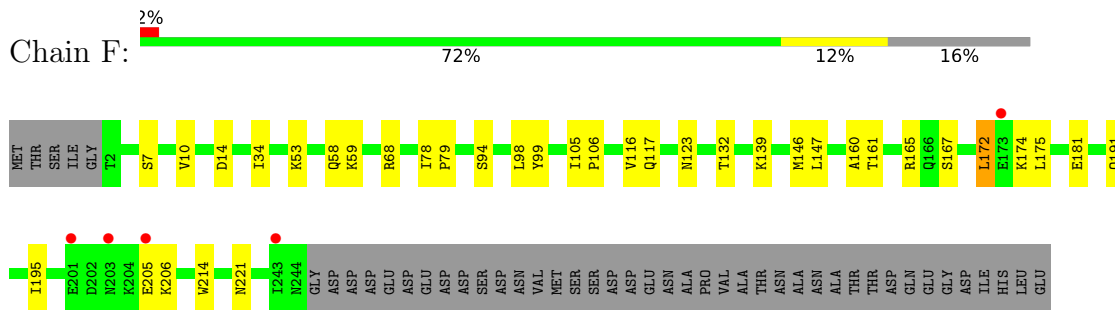
• Molecule 5: Proteasome subunit alpha type-6



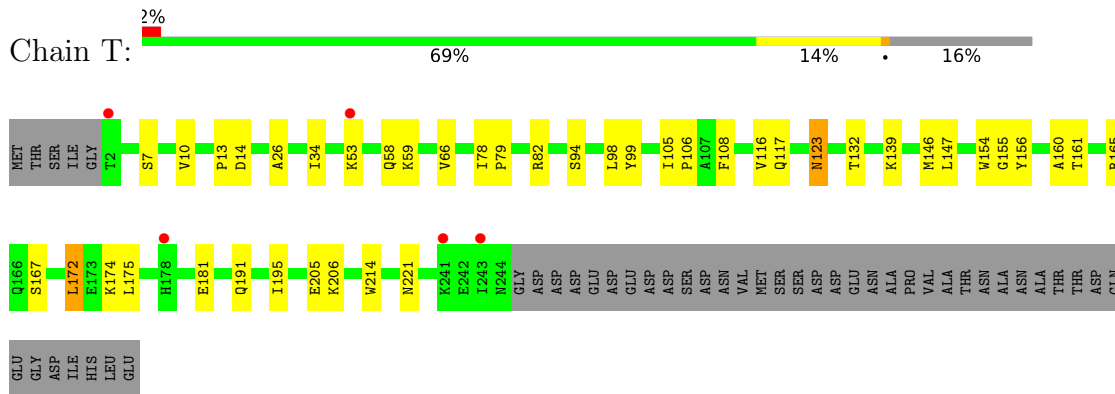
• Molecule 5: Proteasome subunit alpha type-6



• Molecule 6: Probable proteasome subunit alpha type-7

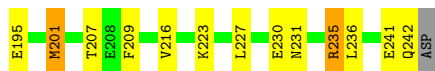
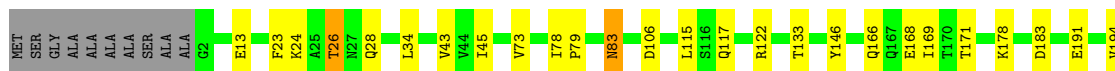


• Molecule 6: Probable proteasome subunit alpha type-7

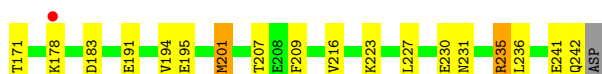
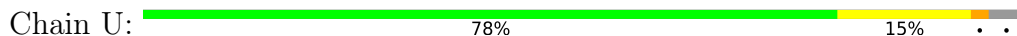


• Molecule 7: Proteasome subunit alpha type-1

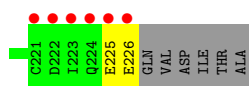
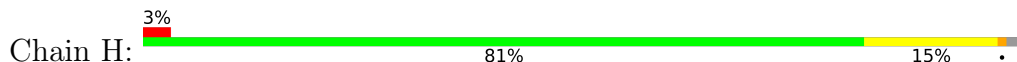




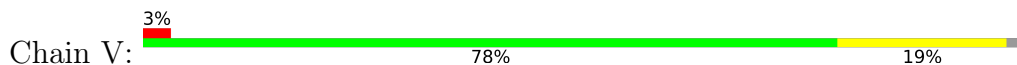
• Molecule 7: Proteasome subunit alpha type-1



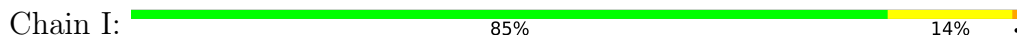
• Molecule 8: Proteasome subunit beta type-2



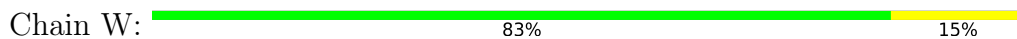
• Molecule 8: Proteasome subunit beta type-2

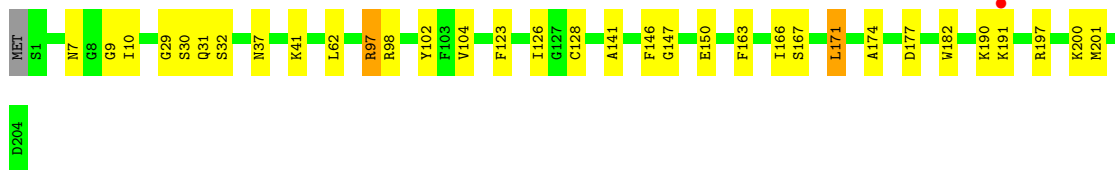


• Molecule 9: Proteasome subunit beta type-3

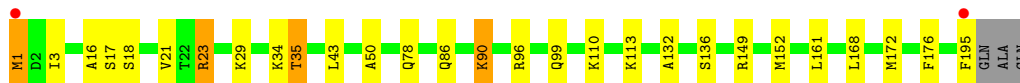
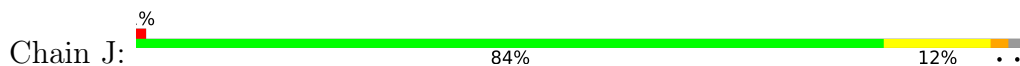


• Molecule 9: Proteasome subunit beta type-3

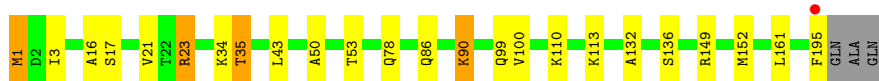
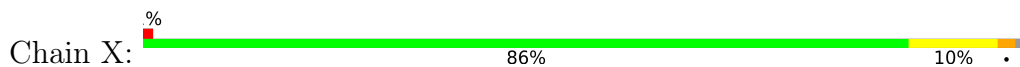




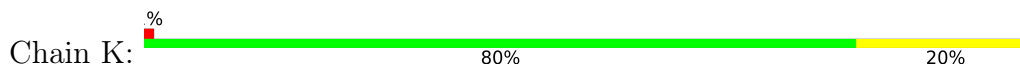
● Molecule 10: Proteasome subunit beta type-4



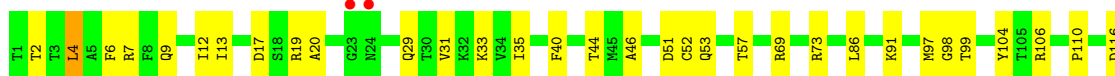
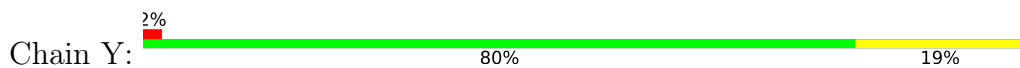
● Molecule 10: Proteasome subunit beta type-4



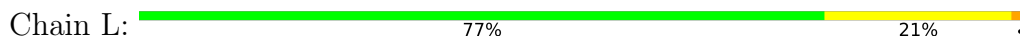
● Molecule 11: Proteasome subunit beta type-5



● Molecule 11: Proteasome subunit beta type-5

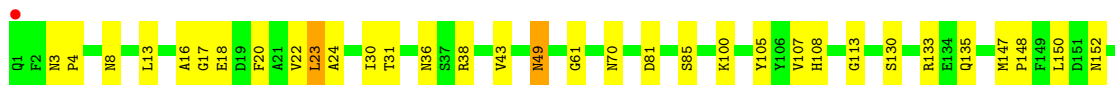


● Molecule 12: Proteasome subunit beta type-6

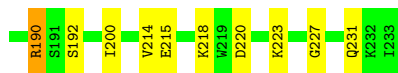
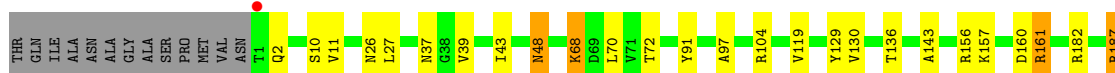
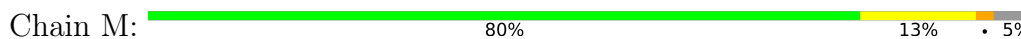




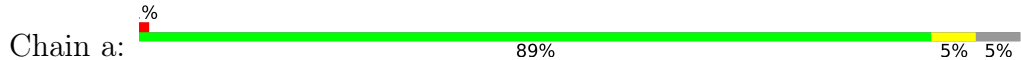
• Molecule 12: Proteasome subunit beta type-6



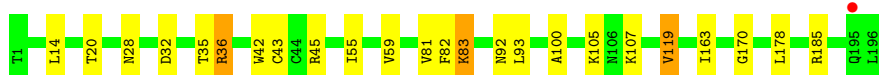
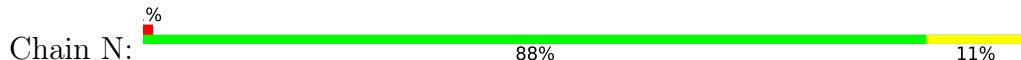
• Molecule 13: Proteasome subunit beta type-7



• Molecule 13: Proteasome subunit beta type-7



• Molecule 14: Proteasome subunit beta type-1



• Molecule 14: 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, $\alpha$ , $\beta$ , $\gamma$	135.47Å 300.56Å 143.85Å 90.00° 113.10° 90.00°	Depositor
Resolution (Å)	30.00 – 2.95 29.93 – 2.95	Depositor EDS
% Data completeness (in resolution range)	96.7 (30.00-2.95) 96.7 (29.93-2.95)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.34 (at 2.95Å)	Xtrriage
Refinement program	REFMAC 5.8.0258	Depositor
R, $R_{free}$	0.174 , 0.224 0.181 , 0.225	Depositor DCC
$R_{free}$ test set	10696 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	76.4	Xtrriage
Anisotropy	0.407	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 34.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	49790	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	93.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.58% 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 [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, MG, VOX, CL

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	0.66	0/1952	0.72	0/2642
1	O	0.66	0/1952	0.72	0/2642
2	B	0.65	0/1934	0.72	0/2618
2	P	0.66	0/1934	0.73	0/2618
3	C	0.65	0/1910	0.75	0/2586
3	Q	0.65	0/1910	0.75	0/2586
4	D	0.66	0/1837	0.74	0/2475
4	R	0.66	0/1837	0.74	0/2475
5	E	0.66	0/1800	0.73	0/2433
5	S	0.66	0/1800	0.73	0/2433
6	F	0.65	0/1932	0.73	0/2609
6	T	0.65	0/1932	0.74	0/2609
7	G	0.64	0/1945	0.73	0/2634
7	U	0.64	0/1945	0.73	0/2634
8	H	0.65	0/1750	0.74	0/2373
8	V	0.65	0/1750	0.74	0/2373
9	I	0.65	0/1611	0.72	0/2174
9	W	0.65	0/1611	0.73	0/2174
10	J	0.65	0/1589	0.73	1/2142 (0.0%)
10	X	0.64	0/1589	0.71	0/2142
11	K	0.65	0/1681	0.74	0/2274
11	Y	0.65	0/1681	0.74	0/2274
12	L	0.63	0/1795	0.72	0/2420
12	Z	0.63	0/1795	0.72	0/2420
13	M	0.66	0/1855	0.75	0/2514
13	a	0.65	0/1855	0.75	0/2514
14	N	0.64	0/1541	0.71	0/2087
14	b	0.65	0/1541	0.71	0/2087
All	All	0.65	0/50264	0.73	1/67962 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	J	96	ARG	NE-CZ-NH2	5.78	123.19	120.30

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts [i](#)

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	20	0
1	O	1915	0	1929	17	0
2	B	1904	0	1904	35	0
2	P	1904	0	1904	21	0
3	C	1881	0	1895	19	0
3	Q	1881	0	1895	15	0
4	D	1813	0	1797	25	0
4	R	1813	0	1797	26	0
5	E	1773	0	1775	19	0
5	S	1773	0	1775	24	0
6	F	1892	0	1883	16	0
6	T	1892	0	1883	23	0
7	G	1907	0	1901	13	0
7	U	1907	0	1901	21	0
8	H	1719	0	1718	23	0
8	V	1719	0	1718	30	0
9	I	1581	0	1574	15	0
9	W	1581	0	1574	19	0
10	J	1561	0	1569	13	0
10	X	1561	0	1569	10	0
11	K	1644	0	1594	25	0
11	Y	1644	0	1594	25	0
12	L	1757	0	1711	29	0
12	Z	1757	0	1711	32	0
13	M	1824	0	1832	19	0
13	a	1824	0	1832	0	0
14	N	1512	0	1481	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	b	1512	0	1481	0	0
15	G	1	0	0	0	0
15	I	2	0	0	0	0
15	J	1	0	0	0	0
15	K	2	0	0	0	0
15	N	2	0	0	0	0
15	V	1	0	0	0	0
15	Y	1	0	0	0	0
15	Z	1	0	0	0	0
16	H	47	0	0	1	0
16	K	47	0	0	0	0
16	V	47	0	0	1	0
16	Y	47	0	0	1	0
17	N	1	0	0	0	0
17	b	1	0	0	0	0
18	N	5	0	0	0	0
18	b	5	0	0	0	0
19	A	7	0	0	0	0
19	B	10	0	0	0	0
19	C	8	0	0	0	0
19	D	6	0	0	0	0
19	E	5	0	0	0	0
19	F	5	0	0	0	0
19	G	4	0	0	0	0
19	H	13	0	0	0	0
19	I	5	0	0	0	0
19	J	13	0	0	0	0
19	K	5	0	0	0	0
19	L	12	0	0	0	0
19	M	11	0	0	0	0
19	N	4	0	0	0	0
19	O	5	0	0	0	0
19	P	5	0	0	0	0
19	Q	8	0	0	0	0
19	R	1	0	0	0	0
19	S	3	0	0	0	0
19	T	10	0	0	0	0
19	U	8	0	0	0	0
19	V	14	0	0	0	0
19	W	5	0	0	0	0
19	X	11	0	0	0	0
19	Y	9	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
19	Z	10	0	0	0	0
19	a	11	0	0	0	0
19	b	5	0	0	0	0
All	All	49790	0	49126	478	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 (478) 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:Q:160:GLN:HA	3:Q:160:GLN:HE21	1.36	0.89
3:C:160:GLN:HE21	3:C:160:GLN:HA	1.36	0.89
8:V:35:HIS:HB3	8:V:56:THR:HG21	1.53	0.89
8:H:35:HIS:HB3	8:H:56:THR:HG21	1.55	0.86
1:A:176:GLU:HG3	2:B:55:LEU:HD13	1.58	0.83
12:Z:31:THR:HG23	12:Z:36:ASN:HD21	1.46	0.81
8:H:98:LEU:HB2	8:H:113:ILE:CG2	2.11	0.80
1:A:176:GLU:HG3	2:B:55:LEU:CD1	2.11	0.80
8:V:98:LEU:HB2	8:V:113:ILE:CG2	2.11	0.79
12:L:31:THR:HG23	12:L:36:ASN:HD21	1.49	0.75
2:B:50:LYS:HZ1	2:B:50:LYS:HA	1.52	0.74
3:C:204:GLY:O	3:C:205:ALA:O	2.06	0.74
2:B:50:LYS:HA	2:B:50:LYS:NZ	2.04	0.73
2:B:8:ARG:HD2	3:C:4:ARG:NH2	2.04	0.72
7:G:23:PHE:O	7:G:26:THR:HB	1.90	0.72
4:R:99:ILE:HD11	4:R:104:LEU:HB2	1.72	0.72
3:Q:204:GLY:O	3:Q:205:ALA:O	2.07	0.71
2:B:52:THR:HG23	2:B:56:LEU:HD13	1.71	0.71
4:D:99:ILE:HD11	4:D:104:LEU:HB2	1.72	0.70
7:U:23:PHE:O	7:U:26:THR:HB	1.91	0.70
14:N:14:LEU:HD11	14:N:100:ALA:HB3	1.72	0.69
8:V:98:LEU:HB2	8:V:113:ILE:HG22	1.75	0.69
6:F:68:ARG:NH1	13:M:72:THR:OG1	2.25	0.69
8:H:98:LEU:HB2	8:H:113:ILE:HG22	1.75	0.68
8:V:84:LYS:HE2	8:V:119:THR:HG23	1.75	0.68
8:H:113:ILE:HD12	8:H:119:THR:HG22	1.75	0.67
8:H:84:LYS:HE2	8:H:119:THR:HG23	1.75	0.67
8:V:113:ILE:HD12	8:V:119:THR:HG22	1.76	0.67
1:A:176:GLU:HA	2:B:55:LEU:HD11	1.76	0.66
5:E:92:ASN:HD21	12:L:70:ASN:HD21	1.43	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:S:92:ASN:HD21	12:Z:70:ASN:HD21	1.44	0.64
6:F:146:MET:CE	6:F:161:THR:HB	2.28	0.64
12:L:38:ARG:NH1	12:L:221:ARG:HB3	2.13	0.63
6:T:146:MET:CE	6:T:161:THR:HB	2.28	0.63
4:D:88:ALA:HA	4:D:99:ILE:HG21	1.80	0.62
2:B:93:HIS:HB3	2:B:113:ARG:HH21	1.65	0.62
2:P:93:HIS:HB3	2:P:113:ARG:HH21	1.64	0.62
4:R:88:ALA:HA	4:R:99:ILE:HG21	1.80	0.61
11:K:19:ARG:O	11:K:33:LYS:NZ	2.34	0.61
12:Z:8:ASN:HA	12:Z:30:ILE:O	2.01	0.61
10:J:16:ALA:HB2	10:J:161:LEU:HD21	1.82	0.61
11:K:20:ALA:HB2	11:K:31:VAL:HG21	1.83	0.61
1:O:12:PHE:H	2:P:20:GLN:HE22	1.49	0.61
10:X:16:ALA:HB2	10:X:161:LEU:HD21	1.81	0.60
11:Y:20:ALA:HB2	11:Y:31:VAL:HG21	1.83	0.59
3:C:9:PHE:H	4:D:15:GLN:HE22	1.51	0.59
5:E:212:ILE:HD12	5:E:229:VAL:HG12	1.84	0.59
12:L:113:GLY:HA2	12:L:207:VAL:HG11	1.85	0.59
8:H:53:GLU:OE2	8:H:57:GLN:NE2	2.36	0.59
11:K:53:GLN:O	11:K:57:THR:HG23	2.02	0.59
12:L:8:ASN:HA	12:L:30:ILE:O	2.03	0.59
14:N:35:THR:OG1	14:N:43:CYS:SG	2.61	0.59
8:V:53:GLU:OE2	8:V:57:GLN:NE2	2.35	0.58
12:L:13:LEU:HD11	12:L:150:LEU:HD21	1.85	0.58
6:F:146:MET:HE3	6:F:161:THR:HB	1.85	0.58
5:S:212:ILE:HD12	5:S:229:VAL:HG12	1.84	0.58
9:W:10:ILE:HG21	9:W:141:ALA:HB3	1.85	0.58
12:Z:13:LEU:HD11	12:Z:150:LEU:HD21	1.86	0.58
1:O:122:THR:HG22	2:P:128:ARG:HH21	1.68	0.58
11:K:51:ASP:HB3	11:K:97:MET:HE2	1.86	0.58
10:J:149:ARG:O	10:J:152:MET:HG3	2.04	0.58
13:M:156:ARG:HH11	8:V:165:ASN:HD22	1.51	0.58
11:Y:53:GLN:O	11:Y:57:THR:HG23	2.03	0.58
11:K:6:PHE:HA	11:K:125:ASP:O	2.03	0.57
7:U:227:LEU:HB3	7:U:231:ASN:HB2	1.86	0.57
12:Z:38:ARG:NH1	12:Z:221:ARG:HB3	2.19	0.57
7:G:227:LEU:HB3	7:G:231:ASN:HB2	1.86	0.57
9:I:10:ILE:HG21	9:I:141:ALA:HB3	1.86	0.57
10:X:149:ARG:O	10:X:152:MET:HG3	2.03	0.57
11:Y:6:PHE:HA	11:Y:125:ASP:O	2.04	0.57
3:Q:9:PHE:H	4:R:15:GLN:HE22	1.52	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:Z:113:GLY:HA2	12:Z:207:VAL:HG11	1.86	0.56
6:F:34:ILE:HG22	6:F:160:ALA:HB2	1.88	0.56
12:Z:181:ILE:HD13	12:Z:215:GLU:OE2	2.05	0.56
1:O:55:LEU:HB3	7:U:159:ALA:O	2.05	0.56
12:Z:49:ASN:HD21	12:Z:211:GLY:HA2	1.70	0.56
6:T:34:ILE:HG22	6:T:160:ALA:HB2	1.88	0.56
13:M:218:LYS:HE2	8:V:142:TRP:O	2.06	0.56
14:N:35:THR:HG21	14:N:45:ARG:HE	1.71	0.55
4:D:160:ASN:HB3	4:D:179:TRP:CE2	2.42	0.55
11:Y:51:ASP:HB3	11:Y:97:MET:HE2	1.88	0.55
11:K:44:THR:O	11:K:99:THR:OG1	2.24	0.55
1:A:12:PHE:H	2:B:20:GLN:HE22	1.54	0.55
8:H:19:ARG:O	8:H:33:LYS:NZ	2.35	0.55
11:K:7:ARG:NH1	11:K:110:PRO:O	2.37	0.55
4:R:160:ASN:HB3	4:R:179:TRP:CE2	2.42	0.55
11:Y:7:ARG:NH1	11:Y:110:PRO:O	2.36	0.54
8:H:18:THR:HG21	8:H:172:ASN:HB2	1.89	0.54
9:I:9:GLY:HA3	9:I:41:LYS:HE2	1.90	0.54
2:P:8:ARG:HD2	3:Q:4:ARG:NH2	2.23	0.54
8:V:112:SER:HB3	8:V:125:LEU:HD13	1.89	0.54
11:Y:4:LEU:C	11:Y:4:LEU:HD22	2.28	0.54
4:D:51:LEU:HD12	4:D:51:LEU:C	2.27	0.54
12:L:13:LEU:CD1	12:L:150:LEU:HD21	2.38	0.54
14:N:83:LYS:HG3	14:N:119:VAL:HG22	1.89	0.54
2:P:93:HIS:HB3	2:P:113:ARG:NH2	2.23	0.54
5:E:155:LEU:HD13	5:E:158:THR:HB	1.89	0.54
5:S:92:ASN:ND2	12:Z:70:ASN:HD21	2.05	0.54
11:Y:44:THR:O	11:Y:99:THR:OG1	2.23	0.54
1:O:149:GLN:O	1:O:156:TYR:HA	2.08	0.53
3:Q:201:VAL:O	3:Q:202:GLN:HB3	2.08	0.53
11:Y:19:ARG:O	11:Y:33:LYS:NZ	2.35	0.53
13:M:97:ALA:HA	13:M:130:VAL:HG21	1.91	0.53
11:Y:40:PHE:CD1	11:Y:73:ARG:CZ	2.91	0.53
4:R:51:LEU:C	4:R:51:LEU:HD12	2.28	0.53
10:X:1:MET:HB2	10:X:34:LYS:HE3	1.90	0.53
4:R:82:GLU:OE2	11:Y:69:ARG:NH1	2.41	0.53
1:A:149:GLN:O	1:A:156:TYR:HA	2.07	0.53
5:E:92:ASN:ND2	12:L:70:ASN:HD21	2.06	0.53
12:Z:13:LEU:CD1	12:Z:150:LEU:HD21	2.38	0.53
2:B:146:GLN:HG2	3:C:57:ILE:HG21	1.91	0.53
3:Q:195:ARG:HG2	3:Q:234:ILE:HG21	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:V:18:THR:HG21	8:V:172:ASN:HB2	1.90	0.53
10:J:1:MET:HB2	10:J:34:LYS:HE3	1.90	0.53
10:J:35:THR:HG23	10:J:43:LEU:HD11	1.91	0.52
11:K:40:PHE:CD1	11:K:73:ARG:CZ	2.93	0.52
14:N:163:ILE:HG23	14:N:170:GLY:HA2	1.89	0.52
2:B:93:HIS:HB3	2:B:113:ARG:NH2	2.23	0.52
3:C:195:ARG:HG2	3:C:234:ILE:HG21	1.90	0.52
8:H:112:SER:HB3	8:H:125:LEU:HD13	1.90	0.52
6:T:146:MET:HE1	6:T:161:THR:HB	1.91	0.52
2:B:12:PHE:H	3:C:17:GLN:HE22	1.57	0.52
5:E:68:HIS:HE1	5:E:102:LEU:O	1.92	0.52
5:S:71:LEU:HD22	5:S:71:LEU:C	2.29	0.52
4:R:1:ASP:O	4:R:2:ARG:HB2	2.10	0.52
11:Y:46:ALA:HB3	11:Y:98:GLY:O	2.09	0.52
6:F:98:LEU:HD23	6:F:99:TYR:CZ	2.45	0.52
10:J:50:ALA:O	11:K:91:LYS:NZ	2.42	0.52
9:W:9:GLY:HA3	9:W:41:LYS:HE2	1.90	0.52
1:A:176:GLU:CG	2:B:54:THR:OG1	2.58	0.52
3:C:201:VAL:O	3:C:202:GLN:HB3	2.08	0.52
5:S:155:LEU:HD13	5:S:158:THR:HB	1.90	0.52
11:K:4:LEU:HD22	11:K:4:LEU:C	2.30	0.52
2:P:134:PHE:O	2:P:149:THR:HA	2.10	0.52
10:X:35:THR:HG23	10:X:43:LEU:HD11	1.92	0.52
5:E:71:LEU:C	5:E:71:LEU:HD22	2.31	0.52
12:L:3:ASN:HD22	12:L:4:PRO:HD2	1.75	0.52
3:Q:160:GLN:HE21	3:Q:160:GLN:CA	2.13	0.52
12:Z:3:ASN:HD22	12:Z:4:PRO:HD2	1.75	0.52
5:S:68:HIS:HE1	5:S:102:LEU:O	1.93	0.51
6:T:146:MET:HE3	6:T:161:THR:HB	1.92	0.51
2:B:134:PHE:O	2:B:149:THR:HA	2.10	0.51
12:L:100:LYS:HD3	12:L:105:TYR:CE2	2.45	0.51
2:P:1:GLY:HA3	5:S:122:TYR:CD1	2.46	0.51
8:V:19:ARG:O	8:V:33:LYS:NZ	2.34	0.51
8:V:84:LYS:HA	8:V:113:ILE:HD11	1.93	0.51
8:H:192:THR:O	8:H:192:THR:HG22	2.11	0.51
5:S:170:TYR:HB2	5:S:198:GLN:HG3	1.93	0.51
6:T:98:LEU:HD23	6:T:99:TYR:CZ	2.45	0.51
8:H:84:LYS:HA	8:H:113:ILE:HD11	1.92	0.51
12:L:17:GLY:HA3	12:L:20:PHE:CE1	2.46	0.51
11:K:46:ALA:HB3	11:K:98:GLY:O	2.11	0.51
2:B:50:LYS:NZ	2:B:50:LYS:CA	2.73	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:P:89:THR:HG21	2:P:117:ILE:CD1	2.41	0.50
10:X:50:ALA:O	11:Y:91:LYS:NZ	2.43	0.50
12:Z:16:ALA:O	12:Z:135:GLN:NE2	2.45	0.50
1:O:222:LEU:HD13	1:O:232:GLY:HA2	1.93	0.50
2:P:1:GLY:HA3	5:S:122:TYR:CE1	2.46	0.50
2:P:124:HIS:HB3	3:Q:124:VAL:HG12	1.93	0.50
4:R:91:HIS:CG	4:R:99:ILE:HB	2.46	0.50
4:R:193:LEU:HD22	4:R:211:LEU:HD11	1.93	0.50
4:R:193:LEU:CD2	4:R:211:LEU:HD11	2.42	0.50
4:D:1:ASP:O	4:D:2:ARG:HB2	2.11	0.50
12:Z:100:LYS:HD3	12:Z:105:TYR:CE2	2.46	0.50
4:R:37:GLY:HA2	4:R:145:TYR:CE1	2.46	0.50
12:L:100:LYS:HD3	12:L:105:TYR:CZ	2.47	0.50
8:V:192:THR:HG22	8:V:192:THR:O	2.12	0.50
1:A:222:LEU:HD13	1:A:232:GLY:HA2	1.93	0.49
4:D:37:GLY:HA2	4:D:145:TYR:CE1	2.47	0.49
12:Z:185:ARG:NH1	12:Z:217:TYR:CE1	2.80	0.49
2:B:89:THR:HG21	2:B:117:ILE:CD1	2.42	0.49
5:E:170:TYR:HB2	5:E:198:GLN:HG3	1.93	0.49
6:T:13:PRO:O	7:U:24:LYS:HD2	2.12	0.49
4:D:91:HIS:CG	4:D:99:ILE:HB	2.48	0.49
5:S:92:ASN:HD21	12:Z:70:ASN:ND2	2.10	0.49
4:D:193:LEU:CD2	4:D:211:LEU:HD11	2.42	0.49
11:Y:33:LYS:HE2	16:Y:301:VOX:C35	2.42	0.49
12:Z:100:LYS:HD3	12:Z:105:TYR:CZ	2.48	0.49
9:W:98:ARG:O	9:W:126:ILE:HD11	2.13	0.49
12:Z:17:GLY:HA3	12:Z:20:PHE:CE1	2.47	0.49
2:B:14:PRO:HA	3:C:20:TYR:CD1	2.48	0.49
9:I:98:ARG:O	9:I:126:ILE:HD11	2.12	0.49
4:D:193:LEU:HD22	4:D:211:LEU:HD11	1.94	0.49
6:T:155:GLY:HA3	7:U:59:THR:HG21	1.95	0.49
6:T:191:GLN:O	6:T:195:ILE:HG13	2.12	0.49
6:F:172:LEU:HD13	6:F:195:ILE:HD13	1.95	0.48
12:L:16:ALA:O	12:L:135:GLN:NE2	2.46	0.48
6:F:191:GLN:O	6:F:195:ILE:HG13	2.13	0.48
6:T:172:LEU:HD13	6:T:195:ILE:HD13	1.94	0.48
10:X:21:VAL:HG11	11:Y:122:LEU:HD11	1.95	0.48
7:G:73:VAL:HG12	7:G:133:THR:HB	1.94	0.48
5:E:65:CYS:SG	5:E:71:LEU:HD12	2.53	0.48
7:G:78:ILE:N	7:G:79:PRO:CD	2.77	0.48
2:P:215:ILE:HG12	2:P:226:GLN:HG3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:X:23:ARG:NH1	11:Y:116:ASP:OD1	2.46	0.48
12:Z:173:LYS:HA	12:Z:173:LYS:HE3	1.95	0.48
2:B:215:ILE:HG12	2:B:226:GLN:HG3	1.95	0.48
12:L:173:LYS:HE3	12:L:173:LYS:HA	1.95	0.48
12:L:160:TYR:CD2	12:L:166:GLY:HA2	2.49	0.48
6:F:146:MET:HE1	6:F:161:THR:HB	1.96	0.48
10:J:21:VAL:HG11	11:K:122:LEU:HD11	1.95	0.48
11:Y:35:ILE:CD1	11:Y:53:GLN:HA	2.43	0.48
3:C:161:THR:HG21	3:C:169:VAL:HG22	1.95	0.48
8:V:210:THR:HG21	9:W:167:SER:HB3	1.95	0.47
12:Z:160:TYR:CD2	12:Z:166:GLY:HA2	2.49	0.47
1:A:122:THR:HG22	2:B:128:ARG:HH21	1.79	0.47
10:J:23:ARG:NH1	11:K:116:ASP:OD1	2.46	0.47
7:U:78:ILE:N	7:U:79:PRO:CD	2.76	0.47
7:U:83:ASN:C	7:U:83:ASN:HD22	2.18	0.47
11:K:35:ILE:CD1	11:K:53:GLN:HA	2.44	0.47
13:M:27:LEU:HB2	13:M:192:SER:HB3	1.95	0.47
13:M:161:ARG:HG3	13:M:161:ARG:HH11	1.79	0.47
8:V:87:LEU:HD12	8:V:113:ILE:HG12	1.96	0.47
8:V:36:ARG:HG3	8:V:42:TRP:CE2	2.50	0.47
2:B:124:HIS:HB3	3:C:124:VAL:HG12	1.96	0.47
5:E:74:ALA:HB3	5:E:160:ILE:HD12	1.96	0.47
2:B:105:ILE:HD11	2:B:109:ILE:HG22	1.96	0.47
7:G:191:GLU:O	7:G:235:ARG:HD3	2.15	0.47
3:Q:161:THR:HG21	3:Q:169:VAL:HG22	1.96	0.47
5:S:74:ALA:HB3	5:S:160:ILE:HD12	1.96	0.47
5:S:136:TYR:CE1	5:S:217:LYS:HA	2.49	0.47
7:U:73:VAL:HG12	7:U:133:THR:HB	1.95	0.47
7:U:191:GLU:O	7:U:235:ARG:HD3	2.15	0.47
11:Y:19:ARG:HH21	11:Y:29:GLN:HE22	1.63	0.47
1:A:176:GLU:HG3	2:B:55:LEU:HD11	1.93	0.47
8:V:84:LYS:HG3	8:V:85:GLN:N	2.30	0.47
12:Z:23:LEU:HD13	12:Z:43:VAL:HG13	1.97	0.47
5:E:136:TYR:CE1	5:E:217:LYS:HA	2.49	0.47
8:H:84:LYS:HG3	8:H:85:GLN:N	2.30	0.47
3:Q:185:THR:OG1	3:Q:188:GLU:HB2	2.14	0.47
8:H:36:ARG:HG3	8:H:42:TRP:CE2	2.50	0.47
8:H:50:ALA:HB2	9:I:128:CYS:HB2	1.95	0.47
8:H:104:ASP:HB2	8:H:105:PRO:HD2	1.97	0.47
12:L:221:ARG:NH2	13:M:160:ASP:O	2.47	0.47
4:R:32:ILE:HD12	4:R:192:VAL:HG23	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:R:158:ARG:HB3	5:S:57:SER:HB3	1.97	0.47
5:E:209:ASN:C	5:E:209:ASN:ND2	2.67	0.46
4:R:109:CYS:SG	4:R:156:PHE:HB3	2.55	0.46
14:N:59:VAL:HG22	14:N:81:VAL:HG12	1.96	0.46
2:P:105:ILE:HD11	2:P:109:ILE:HG22	1.96	0.46
13:M:182:ARG:HG3	13:M:214:VAL:HG13	1.98	0.46
2:P:111:VAL:HG22	2:P:136:TYR:CG	2.51	0.46
2:P:225:TYR:CD2	8:V:225:GLU:HA	2.50	0.46
8:H:5:GLY:O	8:H:124:TYR:HA	2.16	0.46
2:B:111:VAL:HG22	2:B:136:TYR:CG	2.51	0.46
4:D:38:VAL:HG11	4:D:137:ALA:HB1	1.98	0.46
6:F:105:ILE:N	6:F:106:PRO:CD	2.78	0.46
6:T:105:ILE:N	6:T:106:PRO:CD	2.78	0.46
12:L:22:VAL:HG12	12:L:206:ILE:HG13	1.97	0.46
3:Q:204:GLY:HA3	3:Q:231:VAL:HG11	1.98	0.46
11:Y:35:ILE:HD13	11:Y:53:GLN:HA	1.98	0.46
12:Z:22:VAL:HG12	12:Z:206:ILE:HG13	1.98	0.46
9:I:171:LEU:HD11	9:I:201:MET:HB3	1.98	0.46
13:M:48:ASN:H	13:M:48:ASN:HD22	1.62	0.46
2:P:225:TYR:CE2	8:V:225:GLU:HG3	2.52	0.45
4:R:191:LEU:O	4:R:195:ILE:HG13	2.17	0.45
8:V:104:ASP:HB2	8:V:105:PRO:HD2	1.98	0.45
9:W:171:LEU:HD11	9:W:201:MET:HB3	1.98	0.45
4:D:32:ILE:HD12	4:D:192:VAL:HG23	1.97	0.45
4:D:191:LEU:O	4:D:195:ILE:HG13	2.16	0.45
5:S:65:CYS:SG	5:S:71:LEU:HD12	2.56	0.45
7:G:83:ASN:C	7:G:83:ASN:HD22	2.20	0.45
8:H:87:LEU:HD12	8:H:113:ILE:HG12	1.96	0.45
9:W:97:ARG:HD2	9:W:102:TYR:CZ	2.52	0.45
2:B:213:ALA:HA	2:B:227:LYS:O	2.17	0.45
4:R:30:ILE:HD12	4:R:196:LEU:HG	1.99	0.45
5:S:209:ASN:C	5:S:209:ASN:ND2	2.69	0.45
5:E:92:ASN:HD21	12:L:70:ASN:ND2	2.12	0.45
5:E:170:TYR:O	5:E:174:THR:OG1	2.35	0.45
1:O:106:PRO:HG2	1:O:109:LEU:HB2	1.99	0.45
1:A:161:ALA:O	2:B:55:LEU:HB3	2.16	0.45
3:C:185:THR:OG1	3:C:188:GLU:HB2	2.15	0.45
12:L:145:LEU:O	9:W:147:GLY:HA3	2.16	0.45
5:E:9:THR:HG21	5:E:119:THR:HA	1.99	0.45
5:E:71:LEU:HD23	5:E:131:LEU:HD22	1.99	0.45
6:F:116:VAL:HG21	6:F:147:LEU:HD21	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:S:170:TYR:O	5:S:174:THR:OG1	2.35	0.45
4:D:109:CYS:SG	4:D:156:PHE:HB3	2.57	0.45
9:I:7:ASN:HA	9:I:29:GLY:O	2.16	0.45
3:Q:160:GLN:HA	3:Q:160:GLN:NE2	2.18	0.45
4:R:38:VAL:HG11	4:R:137:ALA:HB1	1.98	0.45
7:G:73:VAL:CG1	7:G:133:THR:HB	2.47	0.44
8:V:5:GLY:O	8:V:124:TYR:HA	2.17	0.44
12:L:175:LEU:HB2	12:L:180:VAL:HG23	2.00	0.44
13:M:227:GLY:HA3	13:M:231:GLN:HB3	1.98	0.44
5:S:71:LEU:HD23	5:S:131:LEU:HD22	1.99	0.44
14:N:32:ASP:OD2	14:N:185:ARG:NH2	2.50	0.44
9:W:7:ASN:HA	9:W:29:GLY:O	2.17	0.44
12:Z:175:LEU:HB2	12:Z:180:VAL:HG23	1.99	0.44
7:U:34:LEU:HD12	7:U:169:ILE:CG2	2.48	0.44
9:W:163:PHE:CE1	9:W:197:ARG:HD2	2.53	0.44
9:I:163:PHE:CE1	9:I:197:ARG:HD2	2.52	0.44
1:O:23:TYR:CD1	7:U:12:PRO:HA	2.52	0.44
4:R:160:ASN:HB3	4:R:179:TRP:CZ2	2.53	0.44
12:Z:147:MET:N	12:Z:148:PRO:HD2	2.32	0.44
9:I:141:ALA:HB2	9:I:177:ASP:HB2	2.00	0.44
11:K:35:ILE:HD13	11:K:53:GLN:HA	1.98	0.44
4:D:30:ILE:HD12	4:D:196:LEU:HG	2.00	0.44
4:D:160:ASN:HB3	4:D:179:TRP:CZ2	2.53	0.44
7:G:45:ILE:HG22	7:G:216:VAL:HG22	1.99	0.44
8:H:218:VAL:CG2	9:I:196:LYS:HB2	2.48	0.44
12:L:23:LEU:HD13	12:L:43:VAL:HG13	1.98	0.44
6:T:116:VAL:HG21	6:T:147:LEU:HD21	1.98	0.44
6:T:154:TRP:CZ3	7:U:60:VAL:HA	2.53	0.44
11:Y:2:THR:HG21	11:Y:164:ALA:CB	2.48	0.44
2:B:14:PRO:HA	3:C:20:TYR:CE1	2.52	0.44
2:B:234:ILE:O	2:B:238:LEU:HB2	2.18	0.44
7:U:45:ILE:HG22	7:U:216:VAL:HG22	2.00	0.44
9:W:141:ALA:HB2	9:W:177:ASP:HB2	2.00	0.44
1:A:176:GLU:OE1	2:B:54:THR:OG1	2.30	0.44
2:B:56:LEU:HD23	2:B:57:GLU:N	2.32	0.43
8:H:34:LEU:HD12	8:H:34:LEU:HA	1.86	0.43
9:I:97:ARG:HD2	9:I:102:TYR:CZ	2.53	0.43
2:B:217:LYS:HE3	2:B:217:LYS:HA	2.00	0.43
3:C:160:GLN:HE21	3:C:160:GLN:CA	2.13	0.43
3:C:204:GLY:HA3	3:C:231:VAL:HG11	1.98	0.43
7:G:34:LEU:HD12	7:G:169:ILE:CG2	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:R:214:ILE:O	4:R:214:ILE:HG13	2.17	0.43
6:T:7:SER:HB3	6:T:10:VAL:HG21	2.00	0.43
7:U:43:VAL:HG11	7:U:194:VAL:HA	2.01	0.43
5:S:9:THR:HG21	5:S:119:THR:HA	1.99	0.43
6:T:7:SER:HB3	6:T:10:VAL:CG2	2.49	0.43
7:U:115:LEU:HD12	7:U:115:LEU:HA	1.89	0.43
10:J:29:LYS:HE3	11:K:123:LYS:O	2.19	0.43
4:D:70:MET:HG3	4:D:74:THR:HG22	2.01	0.43
6:F:175:LEU:HD11	6:F:191:GLN:HE21	1.84	0.43
11:K:19:ARG:HH21	11:K:29:GLN:HE22	1.66	0.43
2:P:217:LYS:HE3	2:P:217:LYS:HA	2.00	0.43
12:L:147:MET:N	12:L:148:PRO:HD2	2.33	0.43
14:N:36:ARG:HG3	14:N:42:TRP:CE2	2.54	0.43
2:P:234:ILE:O	2:P:238:LEU:HB2	2.18	0.43
8:V:225:GLU:HG2	8:V:226:GLU:N	2.34	0.43
9:W:146:PHE:O	9:W:150:GLU:HB2	2.19	0.43
10:X:53:THR:HA	10:X:100:VAL:CG2	2.49	0.43
2:B:238:LEU:HD12	2:B:238:LEU:HA	1.91	0.43
4:D:138:GLY:HA2	4:D:214:ILE:HG12	2.00	0.43
9:I:146:PHE:O	9:I:150:GLU:HB2	2.19	0.43
11:K:12:ILE:HB	11:K:180:VAL:HB	2.01	0.43
1:O:226:GLY:HA3	8:V:186:TYR:O	2.18	0.43
1:A:66:LEU:C	1:A:66:LEU:HD23	2.39	0.43
6:F:7:SER:HB3	6:F:10:VAL:HG21	2.00	0.43
9:I:141:ALA:HB2	9:I:177:ASP:CB	2.48	0.43
11:K:13:ILE:HD12	11:K:154:LEU:HA	2.01	0.43
4:R:70:MET:HG3	4:R:74:THR:HG22	2.01	0.43
1:A:106:PRO:HG2	1:A:109:LEU:HB2	2.00	0.43
5:E:38:ARG:HD2	5:E:39:SER:O	2.19	0.43
12:L:61:GLY:CA	12:L:107:VAL:HG11	2.49	0.43
13:M:11:VAL:O	13:M:143:ALA:HA	2.19	0.43
13:M:119:VAL:HG23	13:M:200:ILE:HG22	2.01	0.43
14:N:20:THR:HG22	14:N:28:ASN:HB3	2.00	0.43
4:R:6:THR:HG21	5:S:7:GLY:O	2.19	0.43
5:S:109:HIS:HB3	6:T:82:ARG:NH2	2.34	0.43
6:T:78:ILE:HB	6:T:79:PRO:HD3	2.00	0.43
7:U:73:VAL:CG1	7:U:133:THR:HB	2.48	0.43
4:D:20:LEU:HD12	4:D:20:LEU:HA	1.92	0.43
7:G:43:VAL:HG11	7:G:194:VAL:HA	2.00	0.43
12:Z:61:GLY:CA	12:Z:107:VAL:HG11	2.49	0.43
12:Z:152:ASN:O	12:Z:156:PHE:HA	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:214:ILE:O	4:D:214:ILE:HG13	2.19	0.42
13:M:187:ARG:NH1	8:V:139:GLU:OE1	2.50	0.42
11:K:2:THR:HG21	11:K:164:ALA:CB	2.49	0.42
12:L:152:ASN:O	12:L:156:PHE:HA	2.19	0.42
13:M:129:TYR:O	13:M:136:THR:HA	2.19	0.42
1:O:61:LEU:HD23	1:O:61:LEU:C	2.39	0.42
5:S:38:ARG:HD2	5:S:39:SER:O	2.19	0.42
7:U:195:GLU:HG3	7:U:235:ARG:HG3	2.01	0.42
12:Z:61:GLY:HA2	12:Z:107:VAL:HG11	2.01	0.42
1:A:61:LEU:C	1:A:61:LEU:HD23	2.40	0.42
1:A:122:THR:CG2	2:B:128:ARG:HH21	2.32	0.42
7:G:195:GLU:HG3	7:G:235:ARG:HG3	2.01	0.42
8:H:225:GLU:HG2	8:H:226:GLU:N	2.34	0.42
9:I:10:ILE:HD11	9:I:174:ALA:HB2	2.01	0.42
10:J:132:ALA:HB1	10:J:136:SER:HB2	2.01	0.42
2:P:213:ALA:HA	2:P:227:LYS:O	2.18	0.42
6:T:34:ILE:HG22	6:T:160:ALA:CB	2.49	0.42
6:F:7:SER:HB3	6:F:10:VAL:CG2	2.49	0.42
1:O:115:ALA:HB1	1:O:154:GLY:O	2.19	0.42
1:O:122:THR:CG2	2:P:128:ARG:HH21	2.31	0.42
6:T:59:LYS:HE2	6:T:59:LYS:HA	2.00	0.42
13:M:68:LYS:HE3	13:M:68:LYS:HA	2.02	0.42
4:R:185:LEU:O	4:R:189:GLU:HG3	2.20	0.42
11:Y:13:ILE:HD12	11:Y:154:LEU:HA	2.01	0.42
3:C:160:GLN:HA	3:C:160:GLN:NE2	2.18	0.42
1:O:66:LEU:HD23	1:O:66:LEU:C	2.39	0.42
5:S:116:GLN:OE1	5:S:120:GLN:NE2	2.52	0.42
7:U:83:ASN:C	7:U:83:ASN:ND2	2.73	0.42
8:V:18:THR:HG23	8:V:172:ASN:O	2.20	0.42
1:A:115:ALA:HB1	1:A:154:GLY:O	2.19	0.42
3:C:174:GLU:HG2	4:D:49:PRO:HG2	2.02	0.42
6:F:34:ILE:HG22	6:F:160:ALA:CB	2.49	0.42
3:Q:160:GLN:HE22	3:Q:170:ARG:HE	1.68	0.42
5:S:28:ILE:HD11	5:S:148:PRO:CD	2.50	0.42
9:W:10:ILE:HD11	9:W:174:ALA:HB2	2.01	0.42
9:I:62:LEU:HD21	9:I:102:TYR:CD2	2.54	0.42
7:U:201:MET:HG2	7:U:209:PHE:CE2	2.55	0.42
11:Y:12:ILE:HB	11:Y:180:VAL:HB	2.01	0.42
1:A:109:LEU:HD22	1:A:109:LEU:HA	1.93	0.42
6:F:78:ILE:HB	6:F:79:PRO:HD3	2.01	0.42
11:K:86:LEU:C	11:K:86:LEU:HD13	2.40	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:196:LEU:HD23	1:O:209:ILE:HD12	2.02	0.42
11:Y:53:GLN:OE1	12:Z:130:SER:HA	2.19	0.42
2:B:155:ASN:HD22	2:B:155:ASN:HA	1.66	0.41
4:D:185:LEU:O	4:D:189:GLU:HG3	2.20	0.41
11:K:53:GLN:OE1	12:L:130:SER:HA	2.20	0.41
13:M:26:ASN:HA	13:M:39:VAL:O	2.20	0.41
4:R:138:GLY:HA2	4:R:214:ILE:HG12	2.01	0.41
8:V:9:ASN:HD22	8:V:10:ASN:N	2.17	0.41
1:A:84:VAL:O	1:A:88:LYS:HG3	2.21	0.41
6:F:59:LYS:HE2	6:F:59:LYS:HA	2.01	0.41
8:H:113:ILE:HD12	8:H:119:THR:CG2	2.47	0.41
12:L:24:ALA:HB1	12:L:202:LEU:HD11	2.02	0.41
3:C:160:GLN:HE22	3:C:170:ARG:HE	1.68	0.41
6:T:66:VAL:HG11	6:T:108:PHE:CE1	2.55	0.41
6:T:146:MET:HB3	6:T:156:TYR:CE1	2.55	0.41
12:Z:38:ARG:HD2	12:Z:221:ARG:NH2	2.35	0.41
1:A:196:LEU:HD23	1:A:209:ILE:HD12	2.02	0.41
13:M:27:LEU:HD23	13:M:190:ARG:O	2.20	0.41
14:N:59:VAL:HG11	14:N:82:PHE:CE2	2.56	0.41
10:X:132:ALA:HB1	10:X:136:SER:HB2	2.02	0.41
12:Z:147:MET:N	12:Z:148:PRO:CD	2.83	0.41
4:D:82:GLU:OE2	11:K:69:ARG:NH1	2.54	0.41
10:J:50:ALA:HB1	11:K:120:THR:OG1	2.20	0.41
11:K:97:MET:HB3	11:K:117:SER:HB3	2.03	0.41
12:L:61:GLY:HA2	12:L:107:VAL:HG11	2.01	0.41
2:P:146:GLN:HB3	2:P:148:TYR:CE2	2.56	0.41
9:W:62:LEU:CD1	9:W:104:VAL:HG21	2.50	0.41
9:W:141:ALA:HB2	9:W:177:ASP:CB	2.49	0.41
10:X:86:GLN:O	10:X:90:LYS:HB2	2.21	0.41
11:Y:52:CYS:SG	11:Y:97:MET:HG3	2.60	0.41
12:Z:24:ALA:HB1	12:Z:202:LEU:HD11	2.03	0.41
3:C:46:ARG:HH22	3:C:55:THR:HG21	1.86	0.41
7:G:201:MET:HG2	7:G:209:PHE:CE2	2.55	0.41
14:N:14:LEU:HD11	14:N:100:ALA:CB	2.45	0.41
8:V:1:THR:H1	16:V:301:VOX:C37	2.33	0.41
8:H:9:ASN:HD22	8:H:10:ASN:N	2.18	0.41
1:O:64:VAL:HG11	1:O:212:ALA:HB3	2.02	0.41
6:T:175:LEU:HD11	6:T:191:GLN:HE21	1.85	0.41
9:W:62:LEU:HD21	9:W:102:TYR:CD2	2.55	0.41
11:Y:86:LEU:HD13	11:Y:86:LEU:C	2.41	0.41
13:M:220:ASP:O	13:M:223:LYS:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:64:VAL:HG11	1:O:212:ALA:CB	2.51	0.41
4:R:32:ILE:CD1	4:R:192:VAL:HG23	2.51	0.41
7:U:106:ASP:HB3	7:U:146:TYR:CZ	2.56	0.41
2:B:202:SER:OG	2:B:209:ARG:NH2	2.54	0.41
5:E:98:PHE:O	13:M:91:TYR:HA	2.21	0.41
8:H:45:GLY:HA2	8:H:98:LEU:HD23	2.03	0.41
10:J:168:LEU:O	10:J:172:MET:HB2	2.20	0.41
14:N:55:ILE:HD11	14:N:93:LEU:HD13	2.02	0.41
1:O:44:VAL:HG23	1:O:211:LEU:HD21	2.01	0.41
1:O:84:VAL:O	1:O:88:LYS:HG3	2.21	0.41
2:P:149:THR:O	2:P:156:TYR:HA	2.21	0.41
4:R:71:SER:HB3	4:R:164:ILE:HD12	2.03	0.41
6:T:123:ASN:C	6:T:123:ASN:HD22	2.24	0.41
9:W:126:ILE:HD12	9:W:126:ILE:HA	1.97	0.41
12:L:194:ARG:CZ	8:V:29:LYS:HE2	2.50	0.41
12:L:207:VAL:HG22	12:L:212:VAL:HG22	2.03	0.41
7:G:106:ASP:HB3	7:G:146:TYR:CZ	2.56	0.40
16:H:301:VOX:O2	16:H:301:VOX:C27	2.69	0.40
9:I:62:LEU:CD1	9:I:104:VAL:HG21	2.52	0.40
10:J:18:SER:HB2	10:J:176:PHE:HB2	2.03	0.40
9:W:171:LEU:HD12	9:W:171:LEU:HA	1.93	0.40
12:Z:207:VAL:HG22	12:Z:212:VAL:HG22	2.03	0.40
4:D:113:LEU:HD23	4:D:113:LEU:HA	1.91	0.40
3:Q:234:ILE:O	3:Q:238:LYS:HD2	2.22	0.40
5:S:16:GLY:O	6:T:26:ALA:HB2	2.21	0.40
9:W:31:GLN:HB3	9:W:32:SER:H	1.73	0.40
1:A:44:VAL:HG23	1:A:211:LEU:HD21	2.01	0.40
5:E:28:ILE:HD11	5:E:148:PRO:CD	2.50	0.40
10:J:86:GLN:O	10:J:90:LYS:HB2	2.21	0.40
2:B:1:GLY:HA3	5:E:122:TYR:CD1	2.55	0.40
4:D:71:SER:HB3	4:D:164:ILE:HD12	2.04	0.40
3:Q:46:ARG:HH22	3:Q:55:THR:HG21	1.86	0.40
8:V:45:GLY:HA2	8:V:98:LEU:HD23	2.03	0.40
8:V:50:ALA:HB2	9:W:128:CYS:HB2	2.03	0.40
4:R:113:LEU:HD23	4:R:113:LEU:HA	1.91	0.40
7:U:147:LYS:O	7:U:154:TYR:HA	2.22	0.40
11:Y:97:MET:HB3	11:Y:117:SER:HB3	2.04	0.40
12:Z:164:THR:O	12:Z:167:LYS:HD2	2.22	0.40

There are no symmetry-related clashes.



## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	248/250 (99%)	240 (97%)	6 (2%)	2 (1%)	19	53
1	O	248/250 (99%)	240 (97%)	6 (2%)	2 (1%)	19	53
2	B	242/258 (94%)	228 (94%)	11 (4%)	3 (1%)	13	43
2	P	242/258 (94%)	226 (93%)	12 (5%)	4 (2%)	9	34
3	C	238/254 (94%)	226 (95%)	8 (3%)	4 (2%)	9	34
3	Q	238/254 (94%)	226 (95%)	8 (3%)	4 (2%)	9	34
4	D	231/260 (89%)	221 (96%)	9 (4%)	1 (0%)	34	69
4	R	231/260 (89%)	221 (96%)	9 (4%)	1 (0%)	34	69
5	E	229/234 (98%)	217 (95%)	12 (5%)	0	100	100
5	S	229/234 (98%)	217 (95%)	12 (5%)	0	100	100
6	F	241/288 (84%)	229 (95%)	11 (5%)	1 (0%)	34	69
6	T	241/288 (84%)	229 (95%)	11 (5%)	1 (0%)	34	69
7	G	239/252 (95%)	232 (97%)	7 (3%)	0	100	100
7	U	239/252 (95%)	232 (97%)	7 (3%)	0	100	100
8	H	224/232 (97%)	219 (98%)	5 (2%)	0	100	100
8	V	224/232 (97%)	220 (98%)	4 (2%)	0	100	100
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	193/198 (98%)	182 (94%)	11 (6%)	0	100	100
10	X	193/198 (98%)	182 (94%)	11 (6%)	0	100	100
11	K	210/212 (99%)	204 (97%)	4 (2%)	2 (1%)	15	48
11	Y	210/212 (99%)	204 (97%)	4 (2%)	2 (1%)	15	48
12	L	220/222 (99%)	213 (97%)	6 (3%)	1 (0%)	29	64
12	Z	220/222 (99%)	213 (97%)	6 (3%)	1 (0%)	29	64
13	M	231/246 (94%)	217 (94%)	14 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	a	231/246 (94%)	217 (94%)	14 (6%)	0	100	100
14	N	194/196 (99%)	189 (97%)	5 (3%)	0	100	100
14	b	194/196 (99%)	190 (98%)	4 (2%)	0	100	100
All	All	6284/6614 (95%)	6019 (96%)	236 (4%)	29 (0%)	29	64

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2	THR
3	C	205	ALA
4	D	2	ARG
11	K	209	ASN
1	O	2	THR
2	P	51	VAL
3	Q	205	ALA
4	R	2	ARG
11	Y	209	ASN
1	A	166	LYS
3	C	202	GLN
1	O	166	LYS
3	Q	202	GLN
2	B	62	THR
2	B	219	ALA
2	B	221	ASP
11	K	106	ARG
2	P	62	THR
2	P	219	ALA
2	P	221	ASP
3	Q	225	GLU
11	Y	106	ARG
3	C	225	GLU
6	F	205	GLU
6	T	205	GLU
12	Z	165	ASN
3	C	183	PRO
12	L	165	ASN
3	Q	183	PRO

### 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	209/209 (100%)	198 (95%)	11 (5%)	22	55
1	O	209/209 (100%)	198 (95%)	11 (5%)	22	55
2	B	203/216 (94%)	184 (91%)	19 (9%)	8	29
2	P	203/216 (94%)	183 (90%)	20 (10%)	8	27
3	C	212/226 (94%)	192 (91%)	20 (9%)	8	29
3	Q	212/226 (94%)	192 (91%)	20 (9%)	8	29
4	D	194/215 (90%)	175 (90%)	19 (10%)	8	27
4	R	194/215 (90%)	175 (90%)	19 (10%)	8	27
5	E	190/193 (98%)	171 (90%)	19 (10%)	7	26
5	S	190/193 (98%)	171 (90%)	19 (10%)	7	26
6	F	201/239 (84%)	185 (92%)	16 (8%)	12	37
6	T	201/239 (84%)	185 (92%)	16 (8%)	12	37
7	G	206/210 (98%)	185 (90%)	21 (10%)	7	25
7	U	206/210 (98%)	185 (90%)	21 (10%)	7	25
8	H	185/190 (97%)	177 (96%)	8 (4%)	29	62
8	V	185/190 (97%)	176 (95%)	9 (5%)	25	58
9	I	172/173 (99%)	162 (94%)	10 (6%)	20	51
9	W	172/173 (99%)	162 (94%)	10 (6%)	20	51
10	J	173/175 (99%)	162 (94%)	11 (6%)	17	47
10	X	173/175 (99%)	162 (94%)	11 (6%)	17	47
11	K	169/169 (100%)	162 (96%)	7 (4%)	30	64
11	Y	169/169 (100%)	162 (96%)	7 (4%)	30	64
12	L	185/185 (100%)	171 (92%)	14 (8%)	13	39
12	Z	185/185 (100%)	172 (93%)	13 (7%)	15	43
13	M	199/208 (96%)	186 (94%)	13 (6%)	17	46
13	a	199/208 (96%)	186 (94%)	13 (6%)	17	46

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
14	N	162/162 (100%)	155 (96%)	7 (4%)	29	62
14	b	162/162 (100%)	155 (96%)	7 (4%)	29	62
All	All	5320/5540 (96%)	4929 (93%)	391 (7%)	14	41

All (391) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	29	LYS
1	A	51	SER
1	A	108	LYS
1	A	109	LEU
1	A	122	THR
1	A	157	PHE
1	A	164	ILE
1	A	169	VAL
1	A	176	GLU
1	A	231	LYS
1	A	248	GLU
2	B	7	SER
2	B	17	ARG
2	B	50	LYS
2	B	58	GLN
2	B	62	THR
2	B	65	LEU
2	B	79	LEU
2	B	102	ASN
2	B	119	GLN
2	B	155	ASN
2	B	180	LYS
2	B	191	LEU
2	B	197	SER
2	B	212	PHE
2	B	217	LYS
2	B	237	ILE
2	B	239	VAL
2	B	240	LYS
2	B	244	THR
3	C	4	ARG
3	C	37	LYS
3	C	38	ASN
3	C	48	SER

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	C	49	THR
3	C	51	LYS
3	C	55	THR
3	C	61	LYS
3	C	69	VAL
3	C	147	GLN
3	C	160	GLN
3	C	169	VAL
3	C	180	LYS
3	C	181	GLU
3	C	203	THR
3	C	224	SER
3	C	235	GLU
3	C	238	LYS
3	C	239	GLN
3	C	240	GLU
4	D	4	VAL
4	D	20	LEU
4	D	40	LEU
4	D	51	LEU
4	D	60	VAL
4	D	64	ARG
4	D	99	ILE
4	D	117	GLU
4	D	125	LEU
4	D	176	LEU
4	D	190	LEU
4	D	193	LEU
4	D	214	ILE
4	D	215	THR
4	D	216	LYS
4	D	217	GLN
4	D	224	ASP
4	D	236	LYS
4	D	242	GLU
5	E	9	THR
5	E	10	VAL
5	E	25	LEU
5	E	29	LYS
5	E	55	LEU
5	E	71	LEU
5	E	87	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
5	E	101	LYS
5	E	153	THR
5	E	169	THR
5	E	174	THR
5	E	184	ASN
5	E	186	ASP
5	E	188	LEU
5	E	203	GLU
5	E	207	VAL
5	E	209	ASN
5	E	211	SER
5	E	229	VAL
6	F	14	ASP
6	F	53	LYS
6	F	58	GLN
6	F	94	SER
6	F	117	GLN
6	F	123	ASN
6	F	132	THR
6	F	139	LYS
6	F	165	ARG
6	F	167	SER
6	F	172	LEU
6	F	174	LYS
6	F	181	GLU
6	F	206	LYS
6	F	214	TRP
6	F	221	ASN
7	G	13	GLU
7	G	24	LYS
7	G	26	THR
7	G	28	GLN
7	G	83	ASN
7	G	115	LEU
7	G	117	GLN
7	G	122	ARG
7	G	166	GLN
7	G	168	GLU
7	G	171	THR
7	G	178	LYS
7	G	183	ASP
7	G	201	MET

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
7	G	207	THR
7	G	223	LYS
7	G	230	GLU
7	G	235	ARG
7	G	236	LEU
7	G	241	GLU
7	G	242	GLN
8	H	9	ASN
8	H	30	ASN
8	H	34	LEU
8	H	43	CYS
8	H	68	LEU
8	H	127	LEU
8	H	153	LYS
8	H	199	LYS
9	I	30	SER
9	I	37	ASN
9	I	97	ARG
9	I	123	PHE
9	I	166	ILE
9	I	171	LEU
9	I	182	TRP
9	I	190	LYS
9	I	191	LYS
9	I	200	LYS
10	J	1	MET
10	J	3	ILE
10	J	17	SER
10	J	23	ARG
10	J	35	THR
10	J	78	GLN
10	J	90	LYS
10	J	99	GLN
10	J	110	LYS
10	J	113	LYS
10	J	195	PHE
11	K	4	LEU
11	K	9	GLN
11	K	17	ASP
11	K	104	TYR
11	K	148	LEU
11	K	181	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
11	K	186	ILE
12	L	18	GLU
12	L	23	LEU
12	L	43	VAL
12	L	49	ASN
12	L	81	ASP
12	L	85	SER
12	L	108	HIS
12	L	133	ARG
12	L	165	ASN
12	L	169	LYS
12	L	172	LEU
12	L	173	LYS
12	L	189	THR
12	L	209	LYS
13	M	2	GLN
13	M	10	SER
13	M	37	ASN
13	M	43	ILE
13	M	48	ASN
13	M	68	LYS
13	M	70	LEU
13	M	104	ARG
13	M	157	LYS
13	M	161	ARG
13	M	187	ARG
13	M	190	ARG
13	M	215	GLU
14	N	36	ARG
14	N	83	LYS
14	N	92	ASN
14	N	105	LYS
14	N	107	LYS
14	N	119	VAL
14	N	178	LEU
1	O	29	LYS
1	O	51	SER
1	O	108	LYS
1	O	109	LEU
1	O	122	THR
1	O	157	PHE
1	O	164	ILE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	O	169	VAL
1	O	176	GLU
1	O	231	LYS
1	O	248	GLU
2	P	7	SER
2	P	17	ARG
2	P	50	LYS
2	P	55	LEU
2	P	58	GLN
2	P	62	THR
2	P	65	LEU
2	P	79	LEU
2	P	102	ASN
2	P	119	GLN
2	P	155	ASN
2	P	180	LYS
2	P	191	LEU
2	P	197	SER
2	P	212	PHE
2	P	217	LYS
2	P	237	ILE
2	P	239	VAL
2	P	240	LYS
2	P	244	THR
3	Q	4	ARG
3	Q	37	LYS
3	Q	38	ASN
3	Q	48	SER
3	Q	49	THR
3	Q	51	LYS
3	Q	55	THR
3	Q	61	LYS
3	Q	69	VAL
3	Q	147	GLN
3	Q	160	GLN
3	Q	169	VAL
3	Q	180	LYS
3	Q	181	GLU
3	Q	203	THR
3	Q	224	SER
3	Q	235	GLU
3	Q	238	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	Q	239	GLN
3	Q	240	GLU
4	R	4	VAL
4	R	20	LEU
4	R	40	LEU
4	R	51	LEU
4	R	60	VAL
4	R	64	ARG
4	R	99	ILE
4	R	117	GLU
4	R	125	LEU
4	R	176	LEU
4	R	190	LEU
4	R	193	LEU
4	R	214	ILE
4	R	215	THR
4	R	216	LYS
4	R	217	GLN
4	R	224	ASP
4	R	236	LYS
4	R	242	GLU
5	S	9	THR
5	S	10	VAL
5	S	25	LEU
5	S	29	LYS
5	S	55	LEU
5	S	71	LEU
5	S	87	LEU
5	S	101	LYS
5	S	153	THR
5	S	169	THR
5	S	174	THR
5	S	184	ASN
5	S	186	ASP
5	S	188	LEU
5	S	203	GLU
5	S	207	VAL
5	S	209	ASN
5	S	211	SER
5	S	229	VAL
6	T	14	ASP
6	T	53	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
6	T	58	GLN
6	T	94	SER
6	T	117	GLN
6	T	123	ASN
6	T	132	THR
6	T	139	LYS
6	T	165	ARG
6	T	167	SER
6	T	172	LEU
6	T	174	LYS
6	T	181	GLU
6	T	206	LYS
6	T	214	TRP
6	T	221	ASN
7	U	13	GLU
7	U	24	LYS
7	U	26	THR
7	U	28	GLN
7	U	83	ASN
7	U	115	LEU
7	U	117	GLN
7	U	122	ARG
7	U	166	GLN
7	U	168	GLU
7	U	171	THR
7	U	178	LYS
7	U	183	ASP
7	U	201	MET
7	U	207	THR
7	U	223	LYS
7	U	230	GLU
7	U	235	ARG
7	U	236	LEU
7	U	241	GLU
7	U	242	GLN
8	V	9	ASN
8	V	30	ASN
8	V	34	LEU
8	V	43	CYS
8	V	68	LEU
8	V	127	LEU
8	V	153	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
8	V	199	LYS
8	V	209	THR
9	W	30	SER
9	W	37	ASN
9	W	97	ARG
9	W	123	PHE
9	W	166	ILE
9	W	171	LEU
9	W	182	TRP
9	W	190	LYS
9	W	191	LYS
9	W	200	LYS
10	X	1	MET
10	X	3	ILE
10	X	17	SER
10	X	23	ARG
10	X	35	THR
10	X	78	GLN
10	X	90	LYS
10	X	99	GLN
10	X	110	LYS
10	X	113	LYS
10	X	195	PHE
11	Y	4	LEU
11	Y	9	GLN
11	Y	17	ASP
11	Y	104	TYR
11	Y	148	LEU
11	Y	181	THR
11	Y	186	ILE
12	Z	18	GLU
12	Z	23	LEU
12	Z	49	ASN
12	Z	81	ASP
12	Z	85	SER
12	Z	108	HIS
12	Z	133	ARG
12	Z	165	ASN
12	Z	169	LYS
12	Z	172	LEU
12	Z	173	LYS
12	Z	189	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
12	Z	209	LYS
13	a	2	GLN
13	a	10	SER
13	a	37	ASN
13	a	43	ILE
13	a	48	ASN
13	a	68	LYS
13	a	70	LEU
13	a	104	ARG
13	a	157	LYS
13	a	161	ARG
13	a	187	ARG
13	a	190	ARG
13	a	215	GLU
14	b	36	ARG
14	b	83	LYS
14	b	92	ASN
14	b	105	LYS
14	b	107	LYS
14	b	119	VAL
14	b	178	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (133) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	94	HIS
1	A	241	GLN
2	B	20	GLN
2	B	95	GLN
2	B	102	ASN
2	B	119	GLN
2	B	123	GLN
2	B	155	ASN
3	C	147	GLN
3	C	160	GLN
3	C	239	GLN
4	D	15	GLN
4	D	91	HIS
4	D	100	ASN
4	D	146	GLN
4	D	210	GLN
4	D	225	ASN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
5	E	68	HIS
5	E	99	ASN
5	E	116	GLN
5	E	118	ASN
5	E	120	GLN
5	E	151	ASN
5	E	184	ASN
5	E	209	ASN
6	F	86	ASN
6	F	117	GLN
6	F	191	GLN
6	F	240	GLN
7	G	6	HIS
7	G	30	ASN
7	G	83	ASN
7	G	114	ASN
7	G	117	GLN
7	G	121	GLN
7	G	175	ASN
7	G	184	HIS
7	G	186	ASN
7	G	242	GLN
8	H	9	ASN
8	H	66	HIS
8	H	165	ASN
8	H	172	ASN
9	I	37	ASN
9	I	71	ASN
9	I	88	GLN
10	J	55	GLN
10	J	191	GLN
11	K	85	ASN
11	K	133	GLN
11	K	176	ASN
12	L	3	ASN
12	L	29	ASN
12	L	36	ASN
12	L	49	ASN
12	L	70	ASN
12	L	76	HIS
12	L	80	ASN
12	L	165	ASN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
13	M	18	ASN
13	M	48	ASN
13	M	102	GLN
13	M	179	ASN
13	M	194	ASN
13	M	213	GLN
14	N	69	GLN
14	N	161	GLN
1	O	94	HIS
1	O	241	GLN
2	P	20	GLN
2	P	95	GLN
2	P	119	GLN
2	P	123	GLN
2	P	155	ASN
3	Q	92	GLN
3	Q	147	GLN
3	Q	160	GLN
3	Q	239	GLN
4	R	15	GLN
4	R	91	HIS
4	R	100	ASN
4	R	146	GLN
4	R	210	GLN
4	R	225	ASN
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	209	ASN
6	T	86	ASN
6	T	117	GLN
6	T	191	GLN
6	T	240	GLN
7	U	30	ASN
7	U	83	ASN
7	U	114	ASN
7	U	117	GLN
7	U	121	GLN
7	U	184	HIS

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Mol	Chain	Res	Type
7	U	186	ASN
7	U	242	GLN
8	V	9	ASN
8	V	165	ASN
8	V	172	ASN
9	W	37	ASN
9	W	71	ASN
9	W	88	GLN
10	X	55	GLN
10	X	65	GLN
10	X	86	GLN
10	X	191	GLN
11	Y	85	ASN
11	Y	133	GLN
11	Y	176	ASN
12	Z	3	ASN
12	Z	29	ASN
12	Z	36	ASN
12	Z	49	ASN
12	Z	70	ASN
12	Z	80	ASN
12	Z	158	ASN
12	Z	165	ASN
13	a	18	ASN
13	a	48	ASN
13	a	102	GLN
13	a	179	ASN
13	a	194	ASN
13	a	213	GLN
14	b	38	HIS
14	b	69	GLN
14	b	161	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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 19 ligands modelled in this entry, 13 are monoatomic - leaving 6 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
16	VOX	H	301	8	49,49,49	1.92	8 (16%)	62,64,64	1.37	9 (14%)
16	VOX	Y	301	11	49,49,49	1.87	7 (14%)	62,64,64	1.28	6 (9%)
18	SO4	N	204	-	4,4,4	0.36	0	6,6,6	0.05	0
16	VOX	V	301	8	49,49,49	2.01	8 (16%)	62,64,64	1.37	6 (9%)
16	VOX	K	301	11	49,49,49	1.92	8 (16%)	62,64,64	1.13	8 (12%)
18	SO4	b	202	-	4,4,4	0.35	0	6,6,6	0.05	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
16	VOX	Y	301	11	-	10/53/53/53	0/2/3/3
16	VOX	H	301	8	-	12/53/53/53	0/2/3/3
16	VOX	V	301	8	-	13/53/53/53	0/2/3/3
16	VOX	K	301	11	-	10/53/53/53	0/2/3/3

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
16	Y	301	VOX	C37-C38	-7.57	1.37	1.51
16	H	301	VOX	C37-C38	-7.28	1.37	1.51
16	V	301	VOX	C37-C38	-7.25	1.37	1.51
16	K	301	VOX	C37-C38	-7.14	1.37	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
16	K	301	VOX	C30-C31	-5.90	1.37	1.52
16	V	301	VOX	C30-C31	-5.82	1.37	1.52
16	V	301	VOX	C8-C9	-5.46	1.35	1.51
16	H	301	VOX	C30-C31	-5.31	1.39	1.52
16	Y	301	VOX	C30-C31	-5.21	1.39	1.52
16	H	301	VOX	C8-C9	-5.19	1.36	1.51
16	Y	301	VOX	C8-C9	-4.63	1.38	1.51
16	K	301	VOX	C36-C34	-4.17	1.46	1.53
16	K	301	VOX	C8-C9	-3.95	1.40	1.51
16	K	301	VOX	C20-C19	-3.79	1.37	1.51
16	Y	301	VOX	C20-C19	-3.76	1.37	1.51
16	V	301	VOX	C20-C19	-3.68	1.38	1.51
16	H	301	VOX	C20-C19	-3.57	1.38	1.51
16	V	301	VOX	C36-C34	-3.44	1.47	1.53
16	H	301	VOX	C36-C34	-3.38	1.47	1.53
16	V	301	VOX	C12-N14	-2.95	1.31	1.40
16	H	301	VOX	C12-N14	-2.93	1.31	1.40
16	V	301	VOX	C16-N15	-2.83	1.31	1.40
16	Y	301	VOX	C16-N15	-2.75	1.31	1.40
16	K	301	VOX	C16-N15	-2.59	1.32	1.40
16	H	301	VOX	C16-N15	-2.48	1.32	1.40
16	Y	301	VOX	C12-N14	-2.41	1.32	1.40
16	H	301	VOX	C46-C26	-2.33	1.46	1.53
16	K	301	VOX	C42-C43	-2.27	1.45	1.52
16	K	301	VOX	C12-N14	-2.04	1.33	1.40
16	Y	301	VOX	C31-N33	2.03	1.38	1.34
16	V	301	VOX	C38-N40	2.02	1.38	1.33

All (29) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	K	301	VOX	C35-C34-C36	-3.89	104.09	111.47
16	H	301	VOX	C48-C46-C26	-3.65	104.91	112.29
16	Y	301	VOX	O32-C31-N33	-3.54	116.38	122.93
16	V	301	VOX	C35-C34-C36	-3.44	104.96	111.47
16	V	301	VOX	O32-C31-N33	-3.21	116.98	122.93
16	H	301	VOX	C46-C26-C27	-3.08	104.49	111.28
16	H	301	VOX	C37-C36-C34	-3.07	109.30	114.02
16	V	301	VOX	C16-N15-N14	-3.05	110.14	118.74
16	K	301	VOX	C37-C36-C34	-2.94	109.50	114.02
16	Y	301	VOX	C46-C26-N25	-2.89	104.31	111.72
16	Y	301	VOX	C37-C36-C34	-2.78	109.75	114.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	Y	301	VOX	C41-N40-C38	-2.74	117.74	122.84
16	H	301	VOX	O32-C31-N33	-2.64	118.03	122.93
16	V	301	VOX	C4-C3-C1	-2.53	106.15	113.26
16	H	301	VOX	C4-C3-C1	-2.42	106.48	113.26
16	H	301	VOX	C35-C34-C36	-2.38	106.97	111.47
16	K	301	VOX	O32-C31-N33	-2.32	118.62	122.93
16	K	301	VOX	C42-C41-N40	-2.31	105.21	111.87
16	V	301	VOX	C37-C36-C34	-2.28	110.51	114.02
16	H	301	VOX	C34-N33-C31	-2.25	117.94	123.46
16	K	301	VOX	C48-C46-C26	-2.24	107.77	112.29
16	Y	301	VOX	C36-C34-N33	2.20	114.38	110.49
16	K	301	VOX	C46-C26-N25	-2.16	106.19	111.72
16	Y	301	VOX	C35-C34-C36	-2.14	107.42	111.47
16	H	301	VOX	C24-C9-C10	2.14	121.53	118.17
16	K	301	VOX	C45-C43-C42	-2.12	107.96	112.51
16	H	301	VOX	C7-C8-C9	-2.05	105.95	113.68
16	V	301	VOX	C48-C46-C26	-2.03	108.18	112.29
16	K	301	VOX	C46-C26-C27	-2.02	106.84	111.28

There are no chirality outliers.

All (45) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
16	H	301	VOX	C41-C42-C43-O44
16	H	301	VOX	N29-C30-C45-C43
16	K	301	VOX	C34-C36-C37-C38
16	K	301	VOX	C41-C42-C43-O44
16	K	301	VOX	N29-C30-C45-C43
16	V	301	VOX	C41-C42-C43-O44
16	V	301	VOX	N29-C30-C45-C43
16	Y	301	VOX	C41-C42-C43-O44
16	Y	301	VOX	N29-C30-C45-C43
16	H	301	VOX	C31-C30-C45-C43
16	V	301	VOX	C31-C30-C45-C43
16	K	301	VOX	C31-C30-C45-C43
16	Y	301	VOX	C31-C30-C45-C43
16	K	301	VOX	C6-C7-C8-C9
16	Y	301	VOX	C6-C7-C8-C9
16	Y	301	VOX	C1-C3-C4-C5
16	H	301	VOX	C34-C36-C37-C38
16	V	301	VOX	C17-C16-N15-N14
16	K	301	VOX	C3-C4-C5-C6

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Mol	Chain	Res	Type	Atoms
16	Y	301	VOX	C5-C6-C7-C8
16	V	301	VOX	C4-C5-C6-C7
16	V	301	VOX	C1-C3-C4-C5
16	K	301	VOX	C41-C42-C43-C45
16	V	301	VOX	C11-C12-N14-N15
16	V	301	VOX	C23-C16-N15-N14
16	H	301	VOX	C5-C6-C7-C8
16	H	301	VOX	C41-C42-C43-C45
16	V	301	VOX	C41-C42-C43-C45
16	Y	301	VOX	C41-C42-C43-C45
16	H	301	VOX	C6-C7-C8-C9
16	V	301	VOX	C13-C12-N14-N15
16	H	301	VOX	C4-C5-C6-C7
16	K	301	VOX	C4-C5-C6-C7
16	V	301	VOX	C34-C36-C37-C38
16	K	301	VOX	C5-C6-C7-C8
16	Y	301	VOX	C3-C4-C5-C6
16	Y	301	VOX	C34-C36-C37-C38
16	V	301	VOX	C6-C7-C8-C9
16	H	301	VOX	C27-C26-N25-C1
16	H	301	VOX	C3-C4-C5-C6
16	V	301	VOX	C3-C4-C5-C6
16	K	301	VOX	O44-C43-C45-C30
16	Y	301	VOX	O44-C43-C45-C30
16	H	301	VOX	N29-C30-C31-O32
16	H	301	VOX	N29-C30-C31-N33

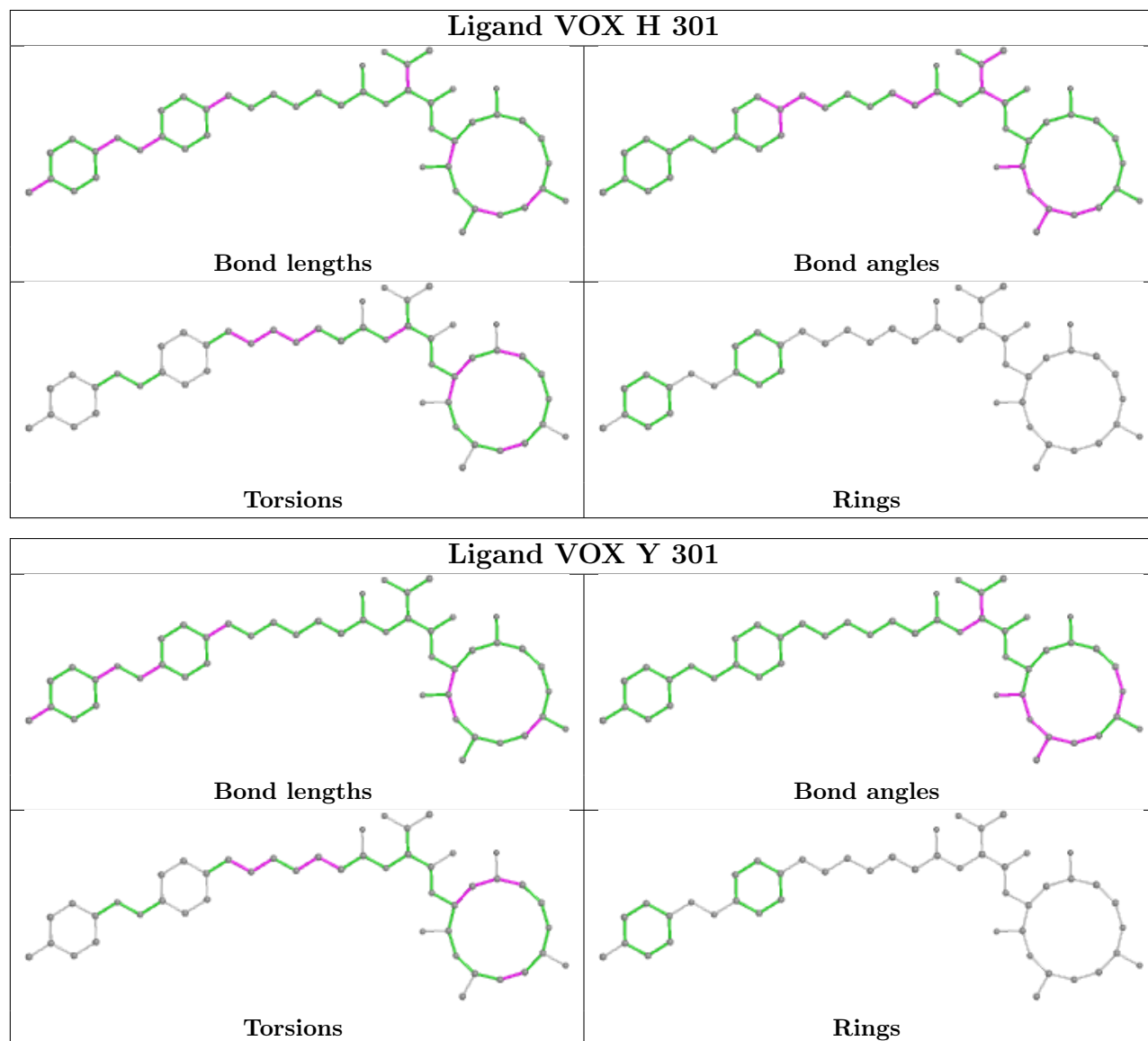
There are no ring outliers.

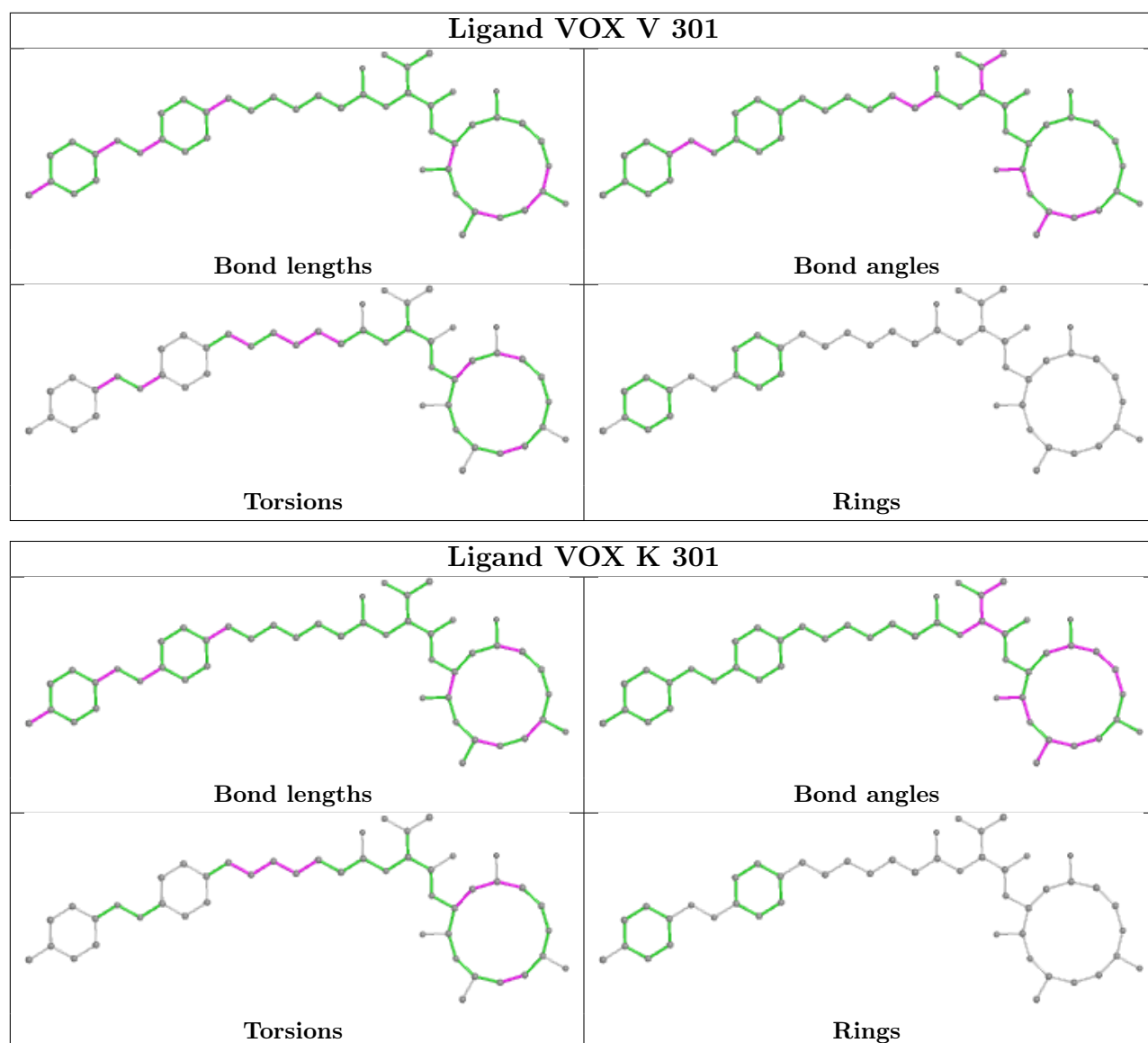
3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
16	H	301	VOX	1	0
16	Y	301	VOX	1	0
16	V	301	VOX	1	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.





## 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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%)	-0.32	4 (1%) 72 55	67, 85, 118, 174	0
1	O	250/250 (100%)	-0.20	5 (2%) 65 48	72, 92, 125, 174	0
2	B	244/258 (94%)	-0.14	5 (2%) 65 48	69, 93, 142, 174	0
2	P	244/258 (94%)	-0.15	9 (3%) 41 27	72, 95, 146, 179	0
3	C	240/254 (94%)	-0.16	8 (3%) 46 30	67, 95, 146, 166	0
3	Q	240/254 (94%)	0.01	11 (4%) 32 20	74, 105, 161, 176	0
4	D	235/260 (90%)	-0.34	1 (0%) 92 84	70, 94, 122, 156	0
4	R	235/260 (90%)	-0.19	4 (1%) 70 53	71, 100, 135, 152	0
5	E	231/234 (98%)	-0.20	3 (1%) 77 61	75, 99, 128, 158	0
5	S	231/234 (98%)	-0.05	8 (3%) 44 29	78, 108, 145, 176	0
6	F	243/288 (84%)	-0.24	5 (2%) 63 46	68, 92, 133, 166	0
6	T	243/288 (84%)	-0.15	5 (2%) 63 46	73, 99, 139, 153	0
7	G	241/252 (95%)	-0.35	0 100 100	64, 87, 115, 157	0
7	U	241/252 (95%)	-0.36	1 (0%) 92 84	68, 88, 119, 141	0
8	H	226/232 (97%)	-0.35	6 (2%) 54 38	64, 81, 111, 173	0
8	V	226/232 (97%)	-0.31	6 (2%) 54 38	64, 83, 115, 181	0
9	I	204/205 (99%)	-0.44	1 (0%) 91 81	64, 83, 109, 139	0
9	W	204/205 (99%)	-0.37	1 (0%) 91 81	64, 82, 110, 139	0
10	J	195/198 (98%)	-0.26	2 (1%) 82 68	65, 84, 111, 150	0
10	X	195/198 (98%)	-0.38	1 (0%) 91 81	68, 87, 110, 146	0
11	K	212/212 (100%)	-0.20	3 (1%) 75 59	69, 87, 112, 131	0
11	Y	212/212 (100%)	-0.21	5 (2%) 59 42	69, 88, 116, 132	0
12	L	222/222 (100%)	-0.38	0 100 100	65, 83, 116, 138	0
12	Z	222/222 (100%)	-0.38	1 (0%) 91 81	65, 84, 119, 136	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
13	M	233/246 (94%)	-0.45	1 (0%) 92 84	66, 85, 108, 128	0
13	a	233/246 (94%)	-0.38	3 (1%) 77 61	64, 84, 105, 123	0
14	N	196/196 (100%)	-0.38	1 (0%) 91 81	68, 80, 110, 125	0
14	b	196/196 (100%)	-0.33	3 (1%) 73 57	66, 82, 111, 127	0
All	All	6344/6614 (95%)	-0.27	103 (1%) 72 55	64, 89, 130, 181	0

All (103) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1	MET	10.1
3	Q	49	THR	5.9
3	C	49	THR	5.7
1	O	1	MET	5.4
3	Q	50	LEU	5.4
5	S	202	ASP	5.3
8	V	226	GLU	5.0
6	T	53	LYS	4.9
5	S	233	ILE	4.7
3	Q	206	LYS	4.6
10	X	195	PHE	4.5
8	V	224	GLN	4.4
8	H	224	GLN	4.1
5	S	204	SER	3.9
3	Q	48	SER	3.8
13	a	1	THR	3.7
3	C	206	LYS	3.6
2	B	244	THR	3.6
8	H	223	ILE	3.6
8	H	226	GLU	3.6
5	S	54	GLU	3.5
6	F	205	GLU	3.5
5	E	202	ASP	3.5
11	K	212	GLY	3.4
8	V	225	GLU	3.4
2	P	204	ALA	3.4
10	J	195	PHE	3.4
3	C	50	LEU	3.3
2	P	203	SER	3.3
1	A	2	THR	3.2
2	P	220	ASN	3.2
9	W	191	LYS	3.1

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
2	B	220	ASN	3.1
13	M	1	THR	3.1
2	P	1	GLY	3.0
10	J	1	MET	3.0
1	O	222	LEU	3.0
8	V	223	ILE	3.0
2	B	51	VAL	3.0
6	F	203	ASN	3.0
2	P	243	ILE	2.9
9	I	1	SER	2.9
3	Q	202	GLN	2.8
1	O	249	ALA	2.8
14	b	195	GLN	2.8
5	S	55	LEU	2.7
3	Q	203	THR	2.7
3	Q	205	ALA	2.7
1	O	52	SER	2.7
2	P	51	VAL	2.7
12	Z	1	GLN	2.7
4	R	242	GLU	2.7
14	N	195	GLN	2.7
5	S	207	VAL	2.6
3	C	240	GLU	2.6
3	Q	240	GLU	2.6
8	H	222	ASP	2.5
8	H	225	GLU	2.5
3	C	51	LYS	2.5
1	A	201	GLU	2.5
3	Q	236	GLN	2.5
5	E	54	GLU	2.5
11	Y	24	ASN	2.5
8	V	222	ASP	2.4
5	E	233	ILE	2.4
5	S	203	GLU	2.4
6	T	2	THR	2.4
2	P	241	THR	2.4
2	B	203	SER	2.4
6	F	201	GLU	2.4
8	V	218	VAL	2.4
6	T	241	LYS	2.4
6	F	243	ILE	2.4
4	R	114	ARG	2.4

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Mol	Chain	Res	Type	RSRZ
5	S	230	ALA	2.3
4	R	241	ALA	2.3
11	Y	183	ASP	2.3
3	C	203	THR	2.3
6	T	243	ILE	2.3
1	O	250	LEU	2.3
2	B	239	VAL	2.2
2	P	52	THR	2.2
11	K	72	GLU	2.2
3	C	205	ALA	2.2
3	Q	180	LYS	2.2
3	C	204	GLY	2.2
8	H	221	CYS	2.2
2	P	222	GLY	2.1
6	F	173	GLU	2.1
11	Y	212	GLY	2.1
14	b	194	GLU	2.1
11	Y	23	GLY	2.1
1	A	250	LEU	2.1
4	D	142	ASP	2.1
11	K	183	ASP	2.1
4	R	125	LEU	2.1
3	Q	204	GLY	2.1
6	T	178	HIS	2.1
11	Y	128	CYS	2.1
13	a	215	GLU	2.1
7	U	178	LYS	2.1
14	b	196	LEU	2.0
13	a	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 monosaccharides in this entry.

## 6.4 Ligands

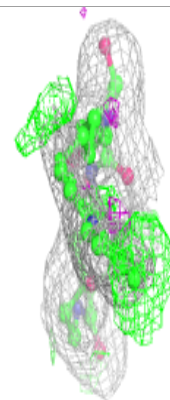
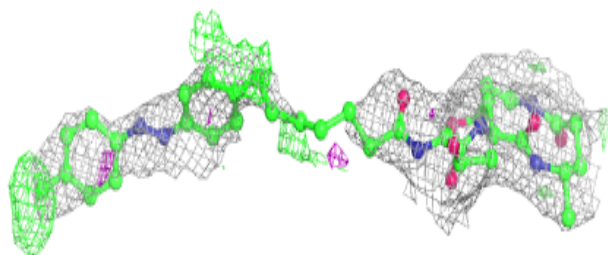
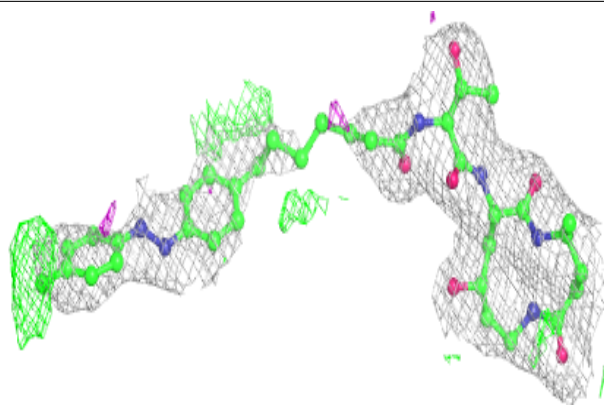
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 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
15	MG	I	302	1/1	0.80	0.66	117,117,117,117	0
15	MG	N	202	1/1	0.81	0.21	76,76,76,76	0
18	SO4	b	202	5/5	0.85	0.28	138,138,144,150	0
17	CL	b	201	1/1	0.87	0.24	90,90,90,90	0
15	MG	N	201	1/1	0.92	0.15	72,72,72,72	0
16	VOX	K	301	47/47	0.93	0.24	65,80,122,125	0
16	VOX	V	301	47/47	0.93	0.25	66,80,109,118	0
15	MG	Y	302	1/1	0.93	0.07	84,84,84,84	0
16	VOX	H	301	47/47	0.93	0.23	70,82,119,121	0
15	MG	Z	301	1/1	0.94	0.08	86,86,86,86	0
15	MG	K	303	1/1	0.94	1.08	92,92,92,92	0
16	VOX	Y	301	47/47	0.95	0.20	70,81,113,116	0
18	SO4	N	204	5/5	0.95	0.23	110,111,116,121	0
17	CL	N	203	1/1	0.95	0.12	92,92,92,92	0
15	MG	K	302	1/1	0.98	0.07	88,88,88,88	0
15	MG	I	301	1/1	0.98	0.14	92,92,92,92	0
15	MG	G	301	1/1	0.98	0.22	89,89,89,89	0
15	MG	J	201	1/1	0.98	0.38	61,61,61,61	0
15	MG	V	302	1/1	0.98	0.04	104,104,104,104	0

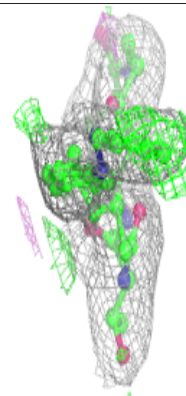
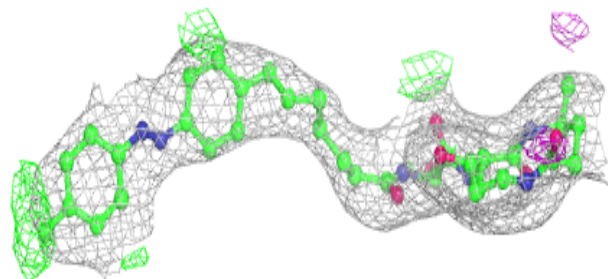
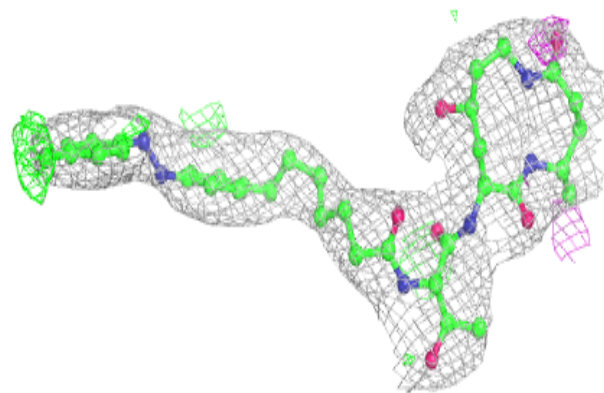
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

**Electron density around VOX K 301:**

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

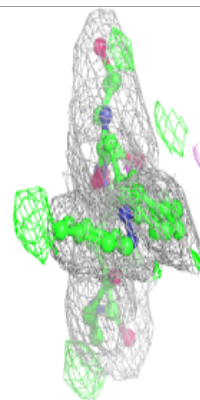
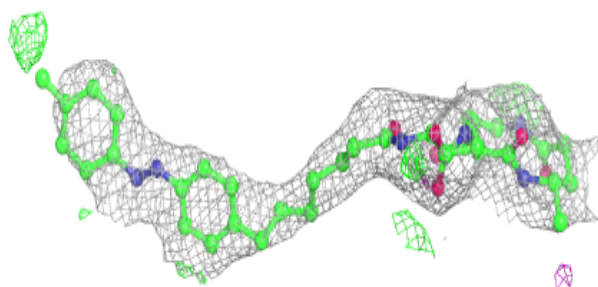
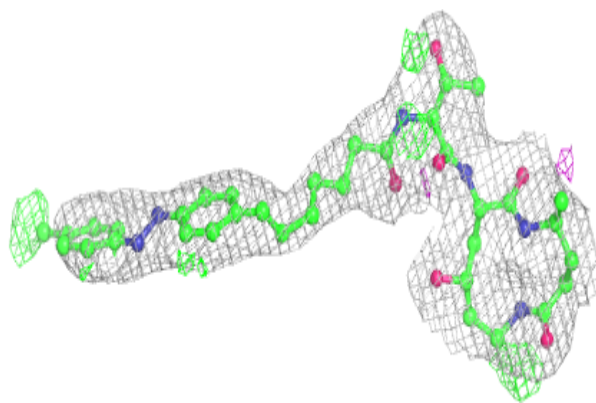
**Electron density around VOX V 301:**

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

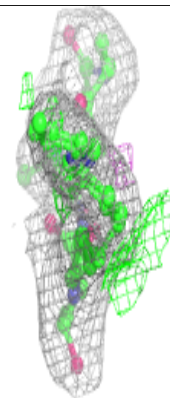
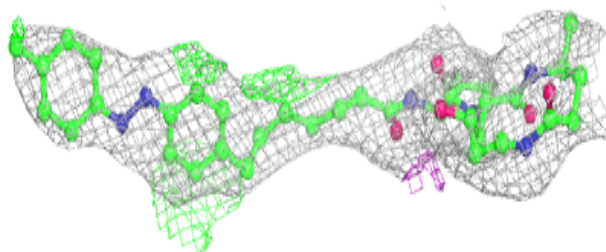
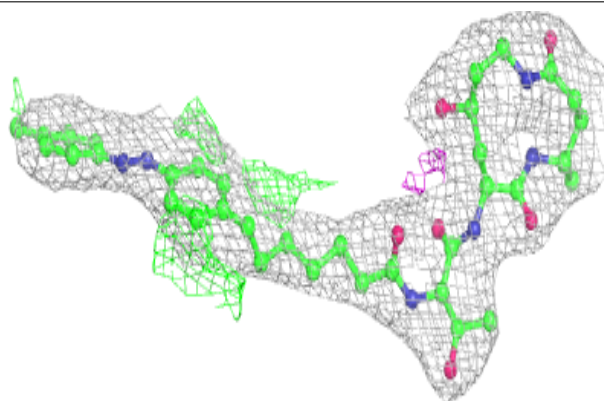


**Electron density around VOX H 301:**

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

**Electron density around VOX Y 301:**

$2mF_o-DF_c$  (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.