Full wwPDB X-ray Structure Validation Report ⓘ

Nov 6, 2024 – 03:42 pm GMT

PDB ID	:	5LF6
Title	:	Human 20S proteasome complex with Z-LLY-ketoaldehyde at 2.1 Angstrom
Authors	:	Schrader, J.; Henneberg, F.; Mata, R.; Tittmann, K.; Schneider, T.R.; Stark, H.; Bourenkov, G.; Chari, A.
Deposited on	:	2016-06-30
Resolution	:	2.07 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

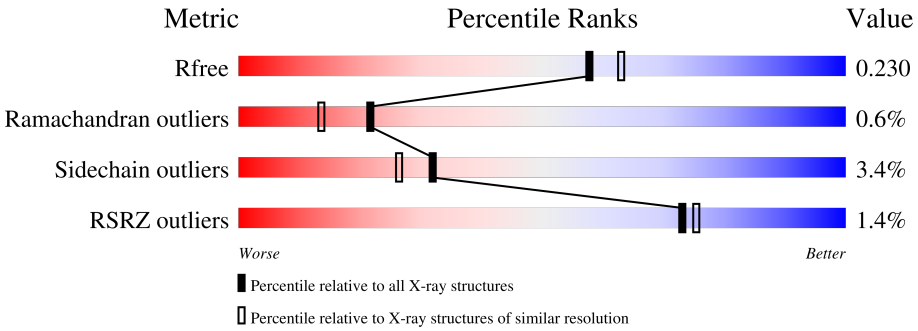
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA,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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.07 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	3436 (2.08-2.04)
Ramachandran outliers	177936	3649 (2.08-2.04)
Sidechain outliers	177891	3649 (2.08-2.04)
RSRZ outliers	164620	3436 (2.08-2.04)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	234	2% 91% 6% ·
1	O	234	2% 92% 6% · ·
2	B	261	% 91% · 5%
2	P	261	3% 87% 8% 5%
3	C	248	2% 89% 6% ·
3	Q	248	3% 89% 7% · ·

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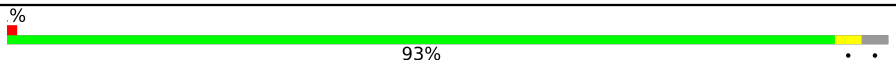
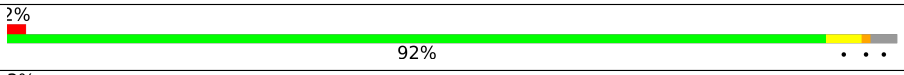
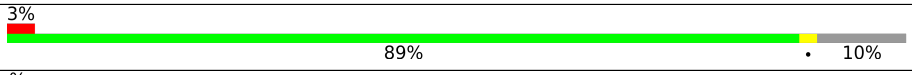
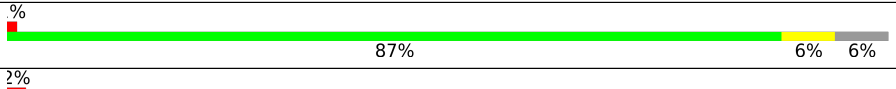
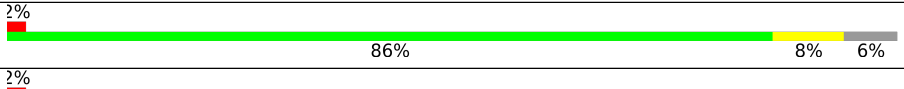
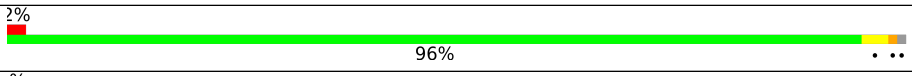
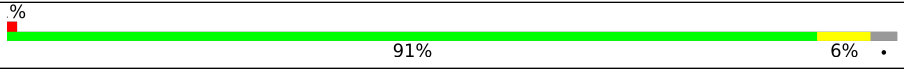
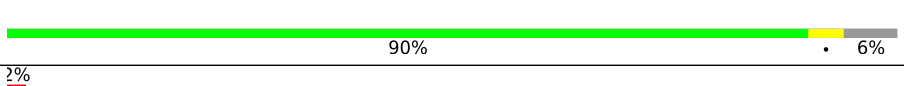
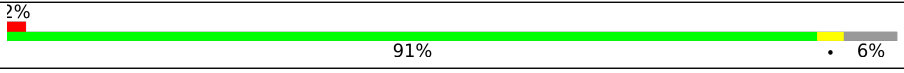
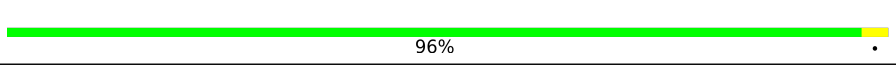
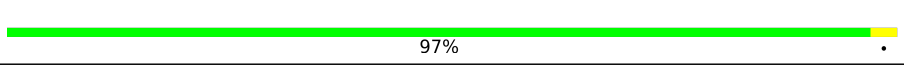
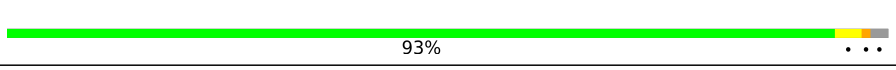
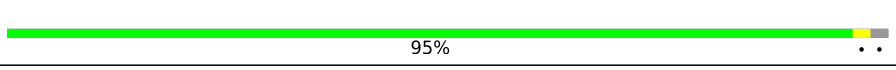
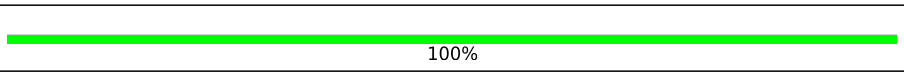
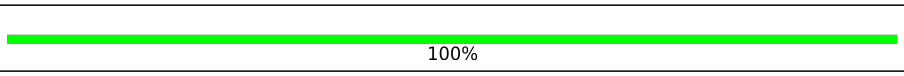
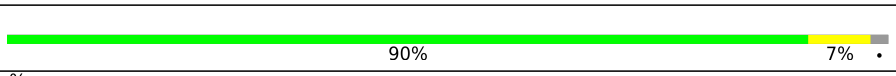
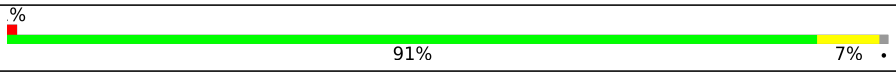
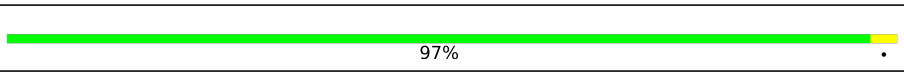
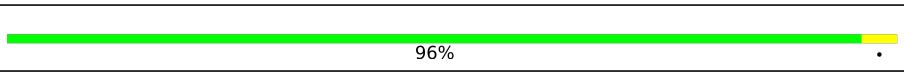
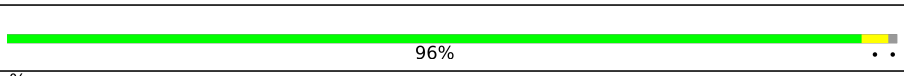
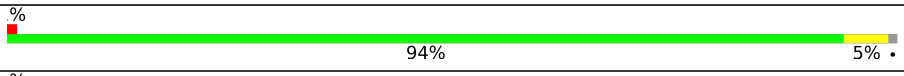
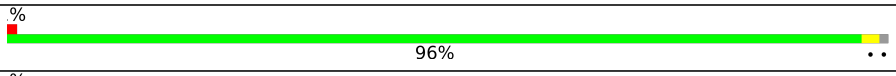
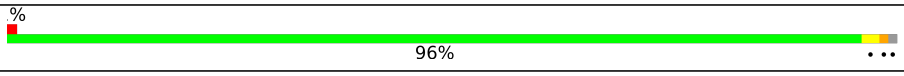
Mol	Chain	Length	Quality of chain
4	D	241	
4	R	241	
5	E	263	
5	S	263	
6	F	255	
6	T	255	
7	G	246	
7	U	246	
8	H	234	
8	V	234	
9	I	205	
9	W	205	
10	J	201	
10	X	201	
11	c	4	
11	d	4	
12	K	204	
12	Y	204	
13	L	213	
13	Z	213	
14	M	219	
14	a	219	
15	N	205	
15	b	205	

2 Entry composition (i)

There are 21 unique types of molecules in this entry. The entry contains 51953 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	230	Total	C	N	O	S	0	3	0
			1788	1145	301	336	6			
1	O	230	Total	C	N	O	S	0	0	0
			1741	1111	293	331	6			

- Molecule 2 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	248	Total	C	N	O	S	0	2	0
			1926	1220	332	363	11			
2	P	248	Total	C	N	O	S	0	2	0
			1909	1206	325	367	11			

- Molecule 3 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	237	Total	C	N	O	S	0	2	0
			1798	1121	320	352	5			
3	Q	239	Total	C	N	O	S	0	0	0
			1820	1136	320	359	5			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	233	Total	C	N	O	S	0	1	0
			1762	1105	290	356	11			
4	R	233	Total	C	N	O	S	0	1	0
			1753	1103	293	346	11			

- Molecule 5 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	234	Total	C	N	O	S	0	1	0
			1813	1138	324	340	11			
5	S	238	Total	C	N	O	S	0	3	0
			1866	1169	339	347	11			

- Molecule 6 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	239	Total	C	N	O	S	0	4	0
			1888	1198	325	353	12			
6	T	240	Total	C	N	O	S	0	1	0
			1856	1178	315	351	12			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	G	244	Total	C	N	O	S	0	2	0
			1894	1202	319	360	13			
7	U	238	Total	C	N	O	S	0	1	0
			1797	1135	302	346	14			

- Molecule 8 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	H	220	Total	C	N	O	S	0	2	0
			1664	1047	284	320	13			
8	V	220	Total	C	N	O	S	0	2	0
			1622	1023	269	318	12			

- 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	3	0
			1613	1028	270	295	20			
9	W	204	Total	C	N	O	S	0	2	0
			1599	1018	267	295	19			

- Molecule 10 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	J	196	Total	C	N	O	S	0	3	0
			1581	1015	270	286	10			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	X	196	Total	C	N	O	S	0	2	0
			1567	1006	266	285	10			

- Molecule 11 is a protein called Z-LLY-ketoaldehyde peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
11	c	4	Total	C	N	O	0	0	0
			40	30	3	7			
11	d	4	Total	C	N	O	0	0	0
			40	30	3	7			

- Molecule 12 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	K	200	Total	C	N	O	S	0	1	0
			1550	978	269	293	10			
12	Y	201	Total	C	N	O	S	0	3	0
			1580	996	280	294	10			

- Molecule 13 is a protein called Proteasome subunit beta type-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
13	L	213	Total	C	N	O	S	0	2	0
			1636	1038	277	310	11			
13	Z	213	Total	C	N	O	S	0	1	0
			1642	1041	280	310	11			

- Molecule 14 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
14	M	216	Total	C	N	O	S	0	1	0
			1692	1067	291	322	12			
14	a	216	Total	C	N	O	S	0	2	0
			1688	1064	291	321	12			

- Molecule 15 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
15	N	202	Total	C	N	O	S	0	1	0
			1516	950	258	295	13			
15	b	203	Total	C	N	O	S	0	1	0
			1524	956	259	296	13			

- Molecule 16 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
16	A	4	Total Cl 4 4	0	0
16	B	2	Total Cl 2 2	0	0
16	C	2	Total Cl 2 2	0	0
16	D	2	Total Cl 2 2	0	0
16	E	3	Total Cl 3 3	0	0
16	F	1	Total Cl 1 1	0	0
16	G	2	Total Cl 2 2	0	0
16	H	2	Total Cl 2 2	0	0
16	I	1	Total Cl 1 1	0	0
16	K	3	Total Cl 3 3	0	0
16	M	3	Total Cl 3 3	0	0
16	N	4	Total Cl 4 4	0	0
16	O	4	Total Cl 4 4	0	0
16	P	1	Total Cl 1 1	0	0
16	Q	2	Total Cl 2 2	0	0
16	R	2	Total Cl 2 2	0	0
16	S	3	Total Cl 3 3	0	0
16	U	1	Total Cl 1 1	0	0
16	V	2	Total Cl 2 2	0	0
16	W	1	Total Cl 1 1	0	0
16	Y	4	Total Cl 4 4	0	0

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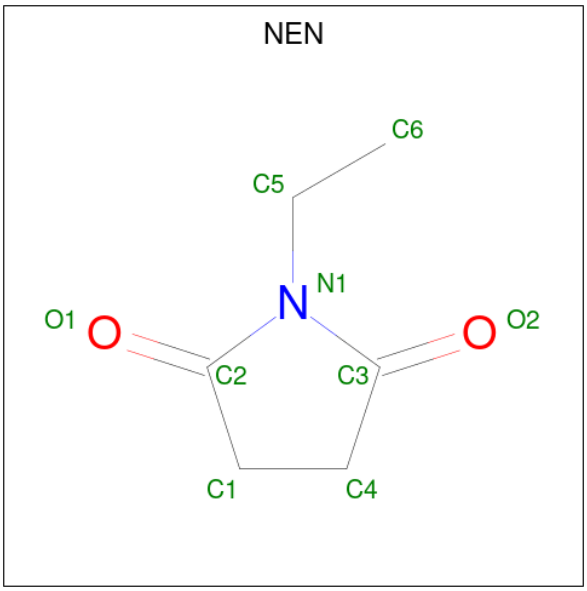
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
16	a	3	Total Cl 3 3	0	0
16	b	3	Total Cl 3 3	0	0

- Molecule 17 is 1-ETHYL-PYRROLIDINE-2,5-DIONE (three-letter code: NEN) (formula: $C_6H_9NO_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
17	E	1	Total C N O 9 6 1 2	0	0
17	G	1	Total C N O 9 6 1 2	0	0
17	G	1	Total C N O 9 6 1 2	0	0
17	J	1	Total C N O 9 6 1 2	0	0
17	S	1	Total C N O 9 6 1 2	0	0
17	U	1	Total C N O 9 6 1 2	0	0
17	U	1	Total C N O 9 6 1 2	0	0
17	X	1	Total C N O 9 6 1 2	0	0

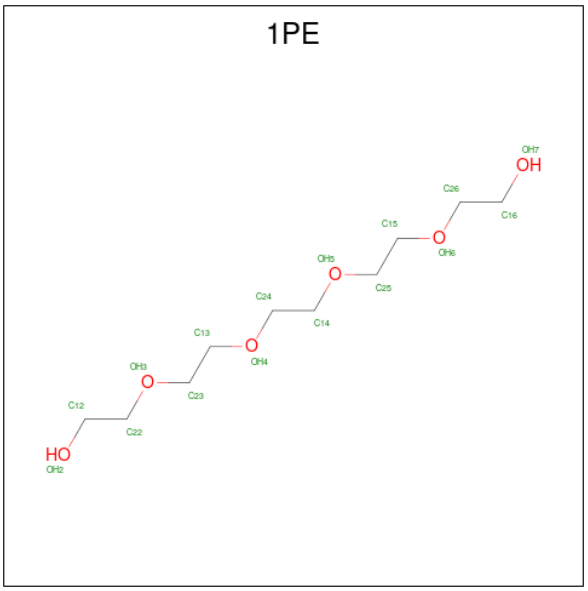
- Molecule 18 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
18	G	1	Total K 1 1	0	0
18	L	1	Total K 1 1	0	0
18	N	1	Total K 1 1	0	0
18	U	1	Total K 1 1	0	0
18	Z	1	Total K 1 1	0	0
18	b	1	Total K 1 1	0	0

- Molecule 19 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
19	H	2	Total Mg 2 2	0	0
19	I	1	Total Mg 1 1	0	0
19	J	1	Total Mg 1 1	0	0
19	K	1	Total Mg 1 1	0	0
19	V	2	Total Mg 2 2	0	0
19	W	1	Total Mg 1 1	0	0
19	X	1	Total Mg 1 1	0	0
19	Y	1	Total Mg 1 1	0	0

- Molecule 20 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
20	I	1	Total C O 16 10 6	0	0
20	I	1	Total C O 16 10 6	0	0
20	L	1	Total C O 16 10 6	0	0
20	M	1	Total C O 16 10 6	0	0
20	N	1	Total C O 16 10 6	0	0
20	W	1	Total C O 16 10 6	0	0
20	Z	1	Total C O 16 10 6	0	0
20	a	1	Total C O 16 10 6	0	0
20	b	1	Total C O 16 10 6	0	0

- Molecule 21 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
21	A	108	Total O 108 108	0	0
21	B	119	Total O 119 119	0	0
21	C	75	Total O 75 75	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
21	D	86	Total O 86 86	0	0
21	E	137	Total O 137 137	0	0
21	F	179	Total O 179 179	0	0
21	G	190	Total O 190 190	0	0
21	H	150	Total O 150 150	0	0
21	I	157	Total O 157 157	0	0
21	J	133	Total O 133 133	0	0
21	c	3	Total O 3 3	0	0
21	K	92	Total O 92 92	0	0
21	L	121	Total O 121 121	0	0
21	M	145	Total O 145 145	0	0
21	N	156	Total O 156 156	0	0
21	O	89	Total O 89 89	0	0
21	P	109	Total O 109 109	0	0
21	Q	71	Total O 71 71	0	0
21	R	119	Total O 119 119	0	0
21	S	124	Total O 124 124	0	0
21	T	91	Total O 91 91	0	0
21	U	103	Total O 103 103	0	0
21	V	109	Total O 109 109	0	0
21	W	108	Total O 108 108	0	0

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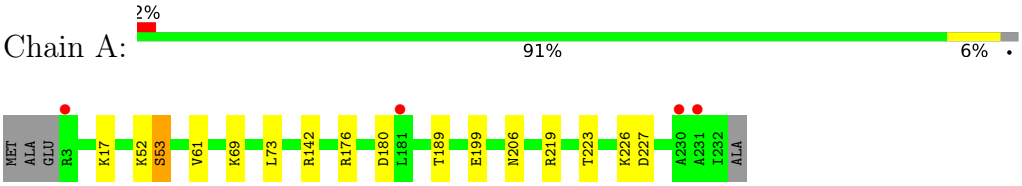
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
21	X	124	Total O 124 124	0	0
21	d	2	Total O 2 2	0	0
21	Y	141	Total O 141 141	0	0
21	Z	167	Total O 167 167	0	0
21	a	172	Total O 172 172	0	0
21	b	121	Total O 121 121	0	0

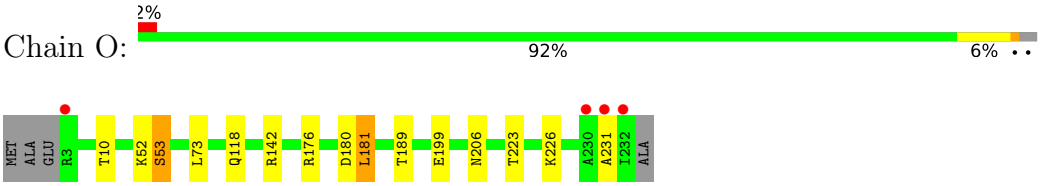
3 Residue-property plots (i)

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.

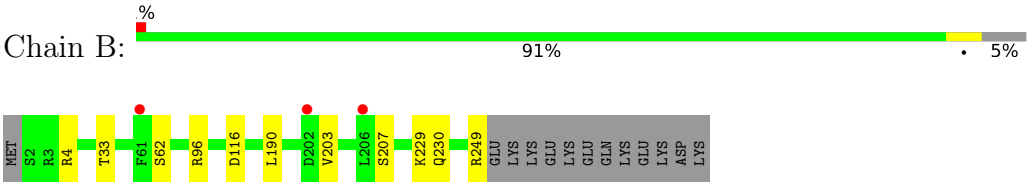
• Molecule 1: Proteasome subunit alpha type-2



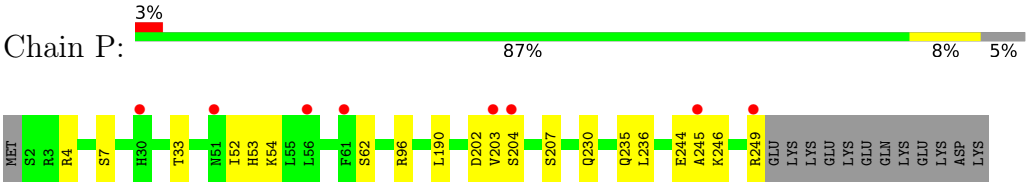
• Molecule 1: Proteasome subunit alpha type-2



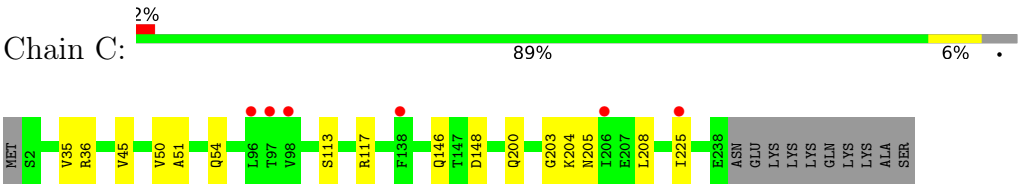
• Molecule 2: Proteasome subunit alpha type-4



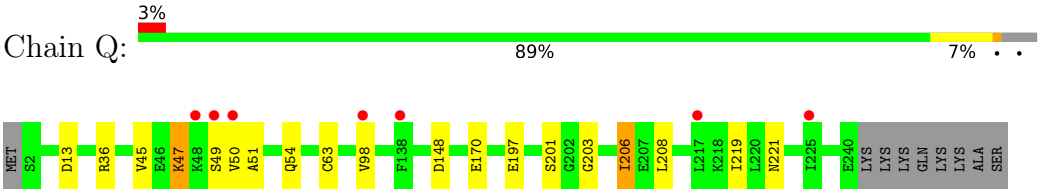
• Molecule 2: Proteasome subunit alpha type-4



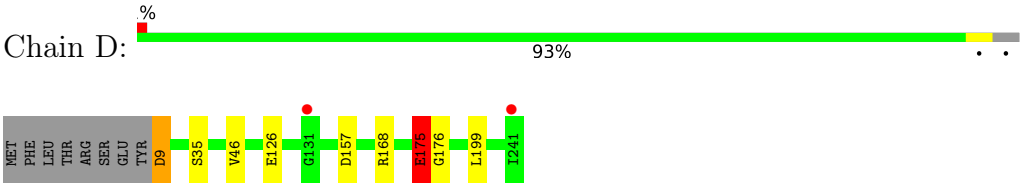
• Molecule 3: Proteasome subunit alpha type-7



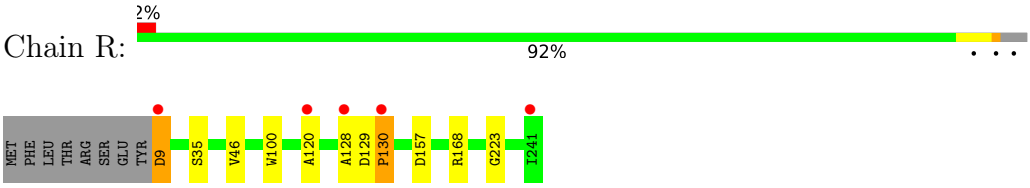
• Molecule 3: Proteasome subunit alpha type-7



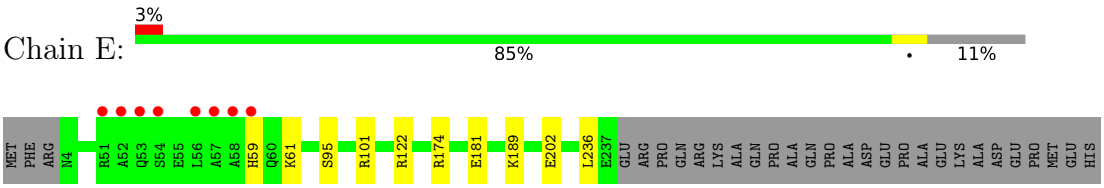
• Molecule 4: Proteasome subunit alpha type-5



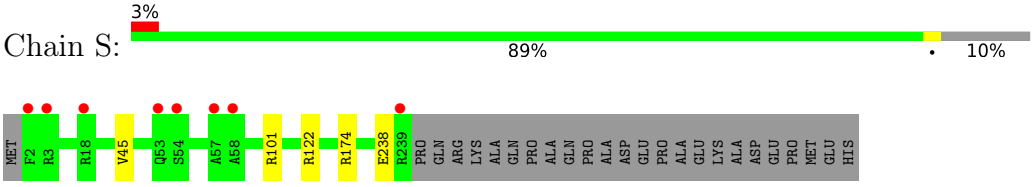
• Molecule 4: Proteasome subunit alpha type-5



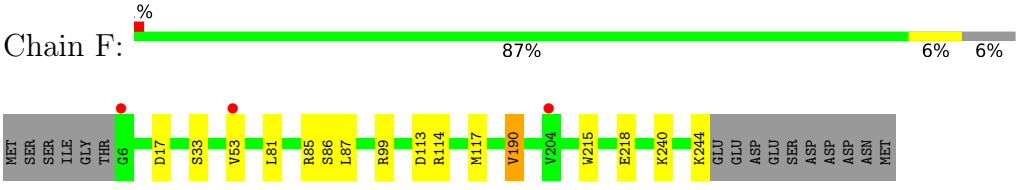
• Molecule 5: Proteasome subunit alpha type-1



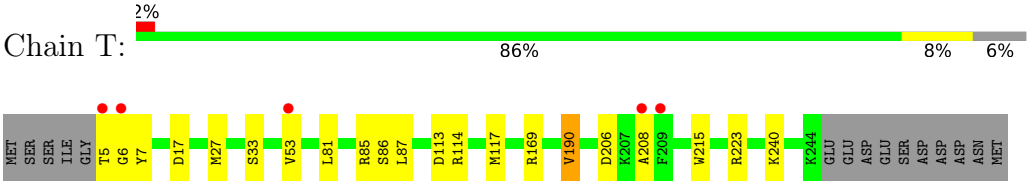
• Molecule 5: Proteasome subunit alpha type-1



• Molecule 6: Proteasome subunit alpha type-3

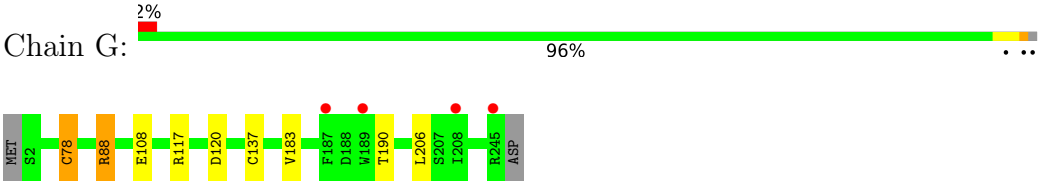


• Molecule 6: Proteasome subunit alpha type-3



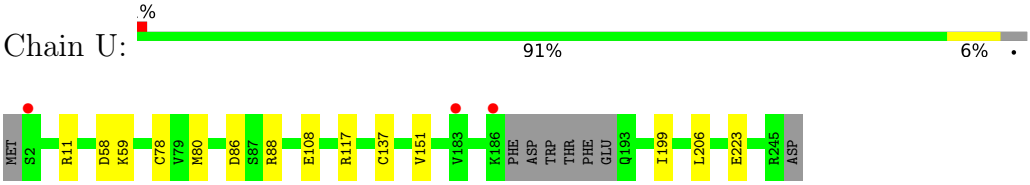
• Molecule 7: Proteasome subunit alpha type-6

Chain G:



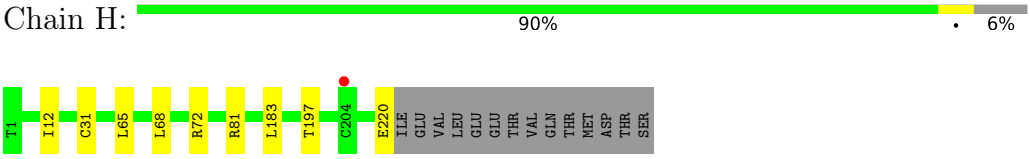
• Molecule 7: Proteasome subunit alpha type-6

Chain U:



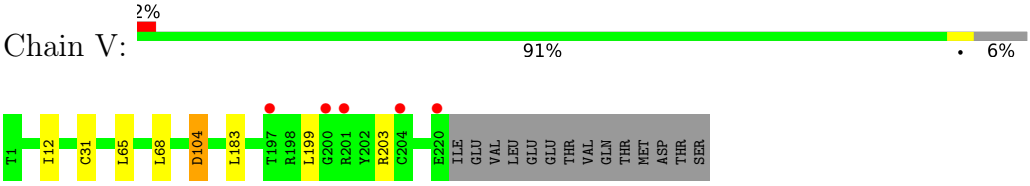
• Molecule 8: Proteasome subunit beta type-7

Chain H:



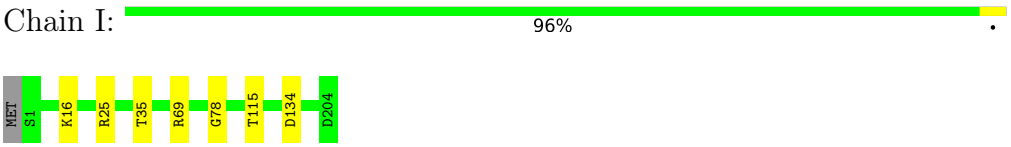
• Molecule 8: Proteasome subunit beta type-7

Chain V:



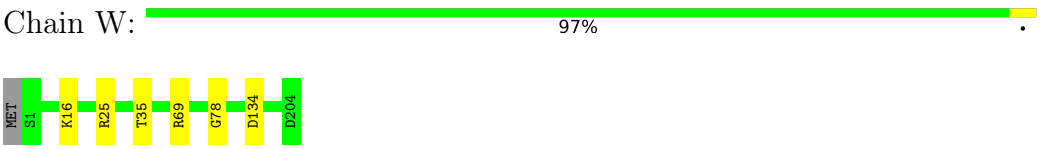
• Molecule 9: Proteasome subunit beta type-3

Chain I:



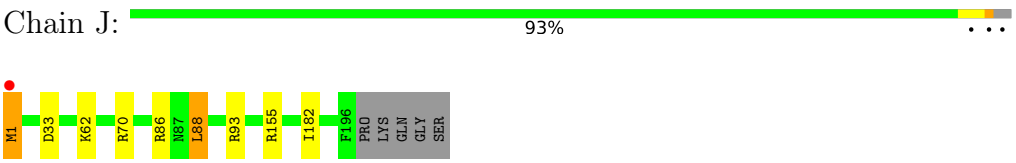
• Molecule 9: Proteasome subunit beta type-3

Chain W:



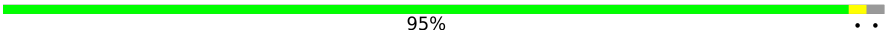
• Molecule 10: Proteasome subunit beta type-2

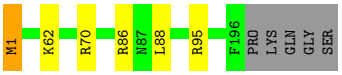
Chain J:



• Molecule 10: Proteasome subunit beta type-2

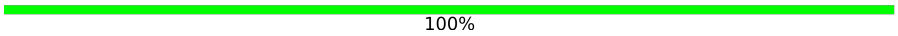
Chain X:





• Molecule 11: Z-LLY-ketoaldehyde peptide

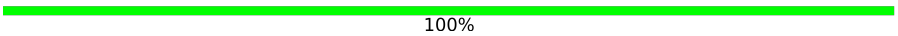
Chain c:



There are no outlier residues recorded for this chain.

• Molecule 11: Z-LLY-ketoaldehyde peptide

Chain d:



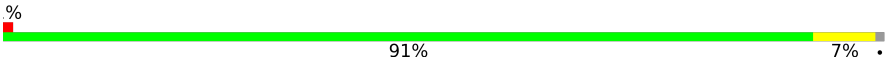
There are no outlier residues recorded for this chain.

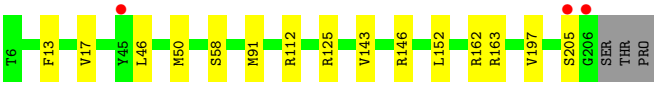
• Molecule 12: Proteasome subunit beta type-5

Chain K:

• Molecule 12: Proteasome subunit beta type-5

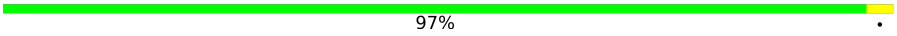
Chain Y:





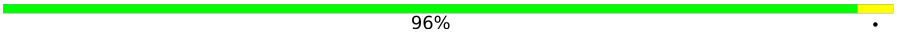
• Molecule 13: Proteasome subunit beta type-1

Chain L:



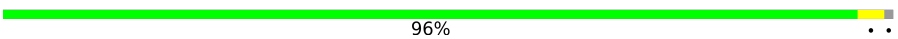
• Molecule 13: Proteasome subunit beta type-1

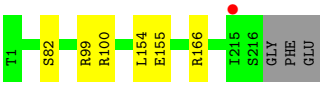
Chain Z:



• Molecule 14: Proteasome subunit beta type-4

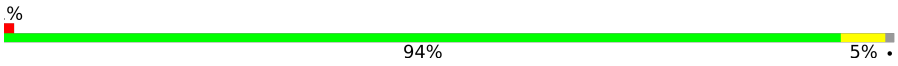
Chain M:

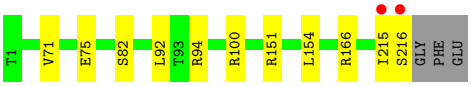




• Molecule 14: Proteasome subunit beta type-4

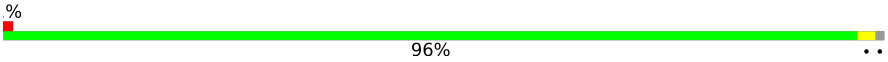
Chain a:





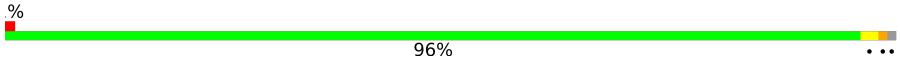
• Molecule 15: Proteasome subunit beta type-6

Chain N:



• Molecule 15: Proteasome subunit beta type-6

Chain b:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	113.87Å 203.48Å 315.63Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	171.02 – 2.07 171.02 – 2.07	Depositor EDS
% Data completeness (in resolution range)	96.4 (171.02-2.07) 96.4 (171.02-2.07)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.99 (at 2.07Å)	Xtriage
Refinement program	REFMAC 5.8.0103	Depositor
R, R_{free}	0.186 , 0.227 0.193 , 0.230	Depositor DCC
R_{free} test set	21152 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å^2)	43.8	Xtriage
Anisotropy	0.245	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 48.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	51953	wwPDB-VP
Average B, all atoms (Å^2)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.84% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: PHQ, 6VF, NEN, K, MG, CL, 1PE, YCM

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	0.71	0/1833	0.81	2/2489 (0.1%)
1	O	0.61	0/1778	0.79	2/2419 (0.1%)
2	B	0.78	0/1962	0.86	4/2649 (0.2%)
2	P	0.65	0/1945	0.84	2/2631 (0.1%)
3	C	0.73	1/1818 (0.1%)	0.91	2/2469 (0.1%)
3	Q	0.70	1/1834 (0.1%)	0.89	2/2490 (0.1%)
4	D	0.69	0/1789	0.85	5/2424 (0.2%)
4	R	0.81	1/1780 (0.1%)	0.93	5/2408 (0.2%)
5	E	0.74	0/1849	0.86	2/2505 (0.1%)
5	S	0.75	0/1908	0.86	2/2583 (0.1%)
6	F	0.87	1/1935 (0.1%)	0.95	8/2605 (0.3%)
6	T	0.78	0/1894	0.96	11/2556 (0.4%)
7	G	0.84	3/1923 (0.2%)	0.86	5/2601 (0.2%)
7	U	0.70	1/1818 (0.1%)	0.85	6/2463 (0.2%)
8	H	0.84	0/1697	0.93	4/2299 (0.2%)
8	V	0.69	0/1655	0.87	3/2251 (0.1%)
9	I	0.82	0/1648	1.05	9/2219 (0.4%)
9	W	0.65	0/1630	0.96	7/2197 (0.3%)
10	J	0.84	0/1620	0.99	7/2191 (0.3%)
10	X	0.73	0/1606	0.96	4/2174 (0.2%)
11	c	0.69	0/15	1.15	0/19
11	d	0.85	0/15	1.08	0/19
12	K	0.77	0/1584	0.96	10/2141 (0.5%)
12	Y	0.88	0/1620	1.08	11/2185 (0.5%)
13	L	0.71	0/1672	0.86	3/2257 (0.1%)
13	Z	0.87	2/1675 (0.1%)	0.91	4/2257 (0.2%)
14	M	0.81	0/1728	0.93	3/2339 (0.1%)
14	a	0.87	1/1724 (0.1%)	0.95	3/2336 (0.1%)
15	N	0.90	0/1545	0.89	3/2091 (0.1%)
15	b	0.88	1/1554 (0.1%)	0.90	4/2104 (0.2%)
All	All	0.77	12/49054 (0.0%)	0.91	133/66371 (0.2%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	P	0	4
3	Q	0	2
4	D	0	2
4	R	0	2
6	T	0	1
9	I	0	1
9	W	0	1
10	J	0	2
10	X	0	1
14	a	0	1
All	All	0	17

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	108	GLU	CD-OE1	9.58	1.36	1.25
15	b	92	GLU	CD-OE2	7.86	1.34	1.25
3	Q	13	ASP	CB-CG	6.72	1.65	1.51
14	a	75	GLU	CD-OE1	5.71	1.31	1.25
7	G	108	GLU	CD-OE2	5.66	1.31	1.25
13	Z	3	SER	CB-OG	5.61	1.49	1.42
7	G	78	CYS	CB-SG	-5.40	1.73	1.81
3	C	113	SER	CB-OG	-5.32	1.35	1.42
13	Z	142	SER	CB-OG	-5.25	1.35	1.42
7	U	108	GLU	CD-OE1	5.15	1.31	1.25
4	R	100	TRP	CE3-CZ3	5.09	1.47	1.38
6	F	218	GLU	CD-OE2	5.05	1.31	1.25

All (133) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	I	69	ARG	NE-CZ-NH1	14.57	127.58	120.30
9	W	69	ARG	NE-CZ-NH1	13.28	126.94	120.30
9	I	69	ARG	NE-CZ-NH2	-11.86	114.37	120.30
10	J	86	ARG	NE-CZ-NH2	-11.17	114.72	120.30
9	W	69	ARG	NE-CZ-NH2	-11.02	114.79	120.30
4	R	120[A]	ALA	C-N-CA	10.88	148.91	121.70
4	R	120[B]	ALA	C-N-CA	10.88	148.91	121.70

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
12	Y	50	MET	CG-SD-CE	-10.87	82.81	100.20
10	X	86	ARG	NE-CZ-NH2	-10.55	115.03	120.30
10	J	86	ARG	NE-CZ-NH1	10.50	125.55	120.30
10	X	86	ARG	NE-CZ-NH1	10.08	125.34	120.30
9	I	16[A]	LYS	C-N-CA	8.84	143.80	121.70
9	I	16[B]	LYS	C-N-CA	8.84	143.80	121.70
9	W	16[A]	LYS	C-N-CA	8.59	143.18	121.70
9	W	16[B]	LYS	C-N-CA	8.59	143.18	121.70
12	Y	162	ARG	NE-CZ-NH1	8.59	124.60	120.30
9	I	25[A]	ARG	NE-CZ-NH1	8.38	124.49	120.30
9	I	25[B]	ARG	NE-CZ-NH1	8.38	124.49	120.30
8	H	72	ARG	NE-CZ-NH2	-7.90	116.35	120.30
12	Y	162	ARG	NE-CZ-NH2	-7.42	116.59	120.30
1	O	181	LEU	CA-CB-CG	7.40	132.32	115.30
7	U	88	ARG	NE-CZ-NH1	7.31	123.95	120.30
13	Z	99	ARG	NE-CZ-NH2	-7.19	116.70	120.30
12	Y	163	ARG	NE-CZ-NH2	-7.16	116.72	120.30
6	T	113	ASP	CB-CG-OD2	-7.16	111.86	118.30
2	P	96	ARG	NE-CZ-NH1	7.13	123.86	120.30
13	Z	172	MET	CG-SD-CE	-7.11	88.83	100.20
12	Y	125	ARG	NE-CZ-NH1	7.10	123.85	120.30
7	G	117	ARG	NE-CZ-NH1	7.05	123.83	120.30
12	K	124	ARG	NE-CZ-NH1	7.03	123.81	120.30
3	C	117	ARG	NE-CZ-NH1	7.03	123.81	120.30
2	B	96	ARG	NE-CZ-NH1	7.03	123.81	120.30
13	L	99	ARG	NE-CZ-NH1	7.02	123.81	120.30
4	D	9	ASP	CB-CG-OD1	7.00	124.60	118.30
7	U	11	ARG	NE-CZ-NH1	6.99	123.79	120.30
7	U	86	ASP	CB-CG-OD2	6.92	124.53	118.30
13	Z	99	ARG	NE-CZ-NH1	6.79	123.69	120.30
12	K	162	ARG	NE-CZ-NH2	-6.78	116.91	120.30
9	W	25[A]	ARG	NE-CZ-NH1	6.71	123.66	120.30
9	W	25[B]	ARG	NE-CZ-NH1	6.71	123.66	120.30
6	F	190	VAL	CB-CA-C	-6.67	98.73	111.40
13	L	99	ARG	NE-CZ-NH2	-6.60	117.00	120.30
6	F	85	ARG	NE-CZ-NH1	6.59	123.59	120.30
6	F	85	ARG	NE-CZ-NH2	-6.59	117.01	120.30
6	F	117	MET	CG-SD-CE	6.55	110.67	100.20
13	L	172	MET	CG-SD-CE	-6.52	89.77	100.20
12	Y	146[A]	ARG	NE-CZ-NH1	6.47	123.53	120.30
12	Y	146[B]	ARG	NE-CZ-NH1	6.47	123.53	120.30
4	R	9	ASP	CB-CG-OD1	6.46	124.12	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	T	27	MET	CG-SD-CE	6.37	110.39	100.20
15	b	29	ARG	NE-CZ-NH1	6.35	123.48	120.30
8	V	104[A]	ASP	CB-CG-OD1	-6.30	112.63	118.30
8	V	104[B]	ASP	CB-CG-OD1	-6.30	112.63	118.30
12	K	161	ARG	NE-CZ-NH1	6.27	123.44	120.30
3	C	36	ARG	NE-CZ-NH1	6.21	123.40	120.30
6	T	117	MET	CG-SD-CE	6.20	110.12	100.20
3	Q	36	ARG	NE-CZ-NH1	6.19	123.40	120.30
8	H	81	ARG	NE-CZ-NH2	-6.18	117.21	120.30
6	T	6	GLY	N-CA-C	6.11	128.38	113.10
6	T	114	ARG	NE-CZ-NH2	-6.07	117.26	120.30
7	U	117	ARG	NE-CZ-NH1	6.07	123.33	120.30
1	A	219	ARG	NE-CZ-NH1	5.96	123.28	120.30
3	Q	13	ASP	CB-CA-C	5.93	122.25	110.40
7	G	117	ARG	NE-CZ-NH2	-5.87	117.36	120.30
9	I	134	ASP	CB-CG-OD1	5.87	123.58	118.30
2	B	4	ARG	NE-CZ-NH1	5.86	123.23	120.30
14	a	166	ARG	NE-CZ-NH2	-5.81	117.39	120.30
8	H	72	ARG	NE-CZ-NH1	5.81	123.21	120.30
12	K	162	ARG	NE-CZ-NH1	5.81	123.20	120.30
12	K	170	ARG	NE-CZ-NH1	5.79	123.20	120.30
6	T	85	ARG	NE-CZ-NH2	-5.78	117.41	120.30
4	D	168	ARG	NE-CZ-NH1	5.78	123.19	120.30
6	T	190	VAL	CB-CA-C	-5.76	100.45	111.40
12	K	145	ARG	NE-CZ-NH1	5.76	123.18	120.30
6	F	113	ASP	CB-CG-OD2	-5.70	113.17	118.30
4	R	168	ARG	NE-CZ-NH1	5.70	123.15	120.30
6	T	169	ARG	NE-CZ-NH1	5.68	123.14	120.30
15	b	116	MET	CG-SD-CE	-5.66	91.14	100.20
5	E	174	ARG	NE-CZ-NH1	5.63	123.12	120.30
12	Y	163	ARG	NE-CZ-NH1	5.62	123.11	120.30
15	N	22	THR	CB-CA-C	-5.62	96.44	111.60
9	W	134	ASP	CB-CG-OD1	5.58	123.32	118.30
6	F	114	ARG	NE-CZ-NH2	-5.58	117.51	120.30
10	X	70	ARG	NE-CZ-NH1	5.57	123.08	120.30
10	J	88	LEU	CB-CG-CD2	5.56	120.46	111.00
10	J	93	ARG	NE-CZ-NH1	5.54	123.07	120.30
6	F	113	ASP	CB-CG-OD1	5.53	123.28	118.30
5	S	174	ARG	NE-CZ-NH1	5.52	123.06	120.30
5	E	122	ARG	NE-CZ-NH1	5.52	123.06	120.30
13	Z	71	ARG	NE-CZ-NH2	5.51	123.06	120.30
12	Y	125	ARG	NE-CZ-NH2	-5.51	117.55	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	P	4	ARG	NE-CZ-NH1	5.48	123.04	120.30
10	J	93	ARG	NE-CZ-NH2	-5.47	117.57	120.30
15	b	29	ARG	CB-CA-C	-5.43	99.53	110.40
10	J	70	ARG	NE-CZ-NH2	-5.43	117.58	120.30
10	X	70	ARG	NE-CZ-NH2	-5.41	117.60	120.30
2	B	96	ARG	NE-CZ-NH2	-5.38	117.61	120.30
6	F	99	ARG	NE-CZ-NH1	5.37	122.99	120.30
12	K	111	ARG	NE-CZ-NH1	5.36	122.98	120.30
4	D	157	ASP	CB-CG-OD1	5.34	123.10	118.30
8	H	12	ILE	CG1-CB-CG2	-5.33	99.68	111.40
14	M	166	ARG	NE-CZ-NH2	-5.32	117.64	120.30
1	A	73	LEU	CA-CB-CG	5.28	127.44	115.30
12	K	161	ARG	NE-CZ-NH2	-5.28	117.66	120.30
5	S	122	ARG	NE-CZ-NH1	5.27	122.94	120.30
15	N	92	GLU	OE1-CD-OE2	-5.24	117.01	123.30
15	b	22	THR	CB-CA-C	-5.22	97.49	111.60
4	D	175[A]	GLU	N-CA-C	-5.22	96.90	111.00
4	D	175[B]	GLU	N-CA-C	-5.22	96.90	111.00
4	R	157	ASP	CB-CG-OD1	5.21	122.99	118.30
7	U	80[A]	MET	CG-SD-CE	5.21	108.53	100.20
7	U	80[B]	MET	CG-SD-CE	5.21	108.53	100.20
12	Y	112	ARG	NE-CZ-NH1	5.21	122.90	120.30
15	N	155	PHE	CB-CG-CD2	5.20	124.44	120.80
10	J	33	ASP	CB-CG-OD1	5.20	122.98	118.30
12	Y	91	MET	CG-SD-CE	5.18	108.50	100.20
6	T	6	GLY	C-N-CA	5.18	134.65	121.70
14	M	99	ARG	NE-CZ-NH1	5.15	122.87	120.30
12	K	46	LEU	CA-CB-CG	5.13	127.10	115.30
7	G	88	ARG	NE-CZ-NH1	5.12	122.86	120.30
6	T	114	ARG	NE-CZ-NH1	5.12	122.86	120.30
14	a	151	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	O	73	LEU	CB-CA-C	-5.11	100.49	110.20
6	T	113	ASP	CB-CG-OD1	5.10	122.89	118.30
14	a	94	ARG	NE-CZ-NH1	5.09	122.85	120.30
12	K	68	ARG	NE-CZ-NH1	5.07	122.84	120.30
7	G	78	CYS	CA-CB-SG	5.07	123.12	114.00
8	V	12	ILE	CG1-CB-CG2	-5.05	100.29	111.40
2	B	116	ASP	CB-CG-OD1	5.04	122.83	118.30
14	M	166	ARG	NE-CZ-NH1	5.04	122.82	120.30
7	G	120	ASP	CB-CG-OD1	5.03	122.83	118.30
9	I	25[A]	ARG	NE-CZ-NH2	-5.02	117.79	120.30
9	I	25[B]	ARG	NE-CZ-NH2	-5.02	117.79	120.30

There are no chirality outliers.

All (17) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	D	175[A]	GLU	Peptide
4	D	175[B]	GLU	Peptide
9	I	78	GLY	Peptide
10	J	1[A]	MET	Peptide
10	J	1[B]	MET	Peptide
2	P	202	ASP	Peptide
2	P	203	VAL	Peptide
2	P	244	GLU	Peptide
2	P	245	ALA	Peptide
3	Q	47	LYS	Peptide
3	Q	49	SER	Peptide
4	R	130	PRO	Peptide
4	R	223	GLY	Peptide
6	T	5	THR	Peptide
9	W	78	GLY	Peptide
10	X	1	MET	Peptide
14	a	215	ILE	Peptide

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	231/234 (99%)	218 (94%)	9 (4%)	4 (2%)	7 2
1	O	228/234 (97%)	214 (94%)	9 (4%)	5 (2%)	5 1
2	B	248/261 (95%)	234 (94%)	13 (5%)	1 (0%)	30 23
2	P	248/261 (95%)	234 (94%)	12 (5%)	2 (1%)	16 8

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
3	C	236/248 (95%)	217 (92%)	14 (6%)	5 (2%)	5 1
3	Q	236/248 (95%)	217 (92%)	12 (5%)	7 (3%)	3 0
4	D	232/241 (96%)	223 (96%)	6 (3%)	3 (1%)	10 3
4	R	232/241 (96%)	221 (95%)	8 (3%)	3 (1%)	10 3
5	E	233/263 (89%)	227 (97%)	4 (2%)	2 (1%)	14 7
5	S	239/263 (91%)	232 (97%)	6 (2%)	1 (0%)	30 23
6	F	241/255 (94%)	238 (99%)	3 (1%)	0	100 100
6	T	239/255 (94%)	230 (96%)	6 (2%)	3 (1%)	10 3
7	G	243/246 (99%)	237 (98%)	6 (2%)	0	100 100
7	U	234/246 (95%)	229 (98%)	3 (1%)	2 (1%)	14 7
8	H	220/234 (94%)	217 (99%)	3 (1%)	0	100 100
8	V	220/234 (94%)	216 (98%)	3 (1%)	1 (0%)	25 17
9	I	205/205 (100%)	200 (98%)	5 (2%)	0	100 100
9	W	204/205 (100%)	198 (97%)	6 (3%)	0	100 100
10	J	196/201 (98%)	192 (98%)	4 (2%)	0	100 100
10	X	196/201 (98%)	193 (98%)	3 (2%)	0	100 100
11	c	1/4 (25%)	1 (100%)	0	0	100 100
11	d	1/4 (25%)	1 (100%)	0	0	100 100
12	K	199/204 (98%)	196 (98%)	3 (2%)	0	100 100
12	Y	202/204 (99%)	198 (98%)	3 (2%)	1 (0%)	25 17
13	L	213/213 (100%)	211 (99%)	2 (1%)	0	100 100
13	Z	212/213 (100%)	210 (99%)	2 (1%)	0	100 100
14	M	215/219 (98%)	208 (97%)	7 (3%)	0	100 100
14	a	216/219 (99%)	207 (96%)	9 (4%)	0	100 100
15	N	201/205 (98%)	200 (100%)	1 (0%)	0	100 100
15	b	202/205 (98%)	201 (100%)	1 (0%)	0	100 100
All	All	6223/6466 (96%)	6020 (97%)	163 (3%)	40 (1%)	22 13

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	52	LYS
1	A	53	SER

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Mol	Chain	Res	Type
4	D	176	GLY
5	E	59	HIS
1	O	52	LYS
1	O	53	SER
3	Q	47	LYS
3	Q	206	ILE
4	R	128	ALA
4	R	129	ASP
4	R	130	PRO
5	S	238	GLU
12	Y	205	SER
1	A	176	ARG
2	B	203	VAL
3	C	50	VAL
3	C	51	ALA
3	C	200	GLN
3	C	204	LYS
5	E	236	LEU
1	O	176	ARG
1	O	231	ALA
2	P	54	LYS
3	Q	50	VAL
3	Q	201	SER
6	T	7	TYR
7	U	58	ASP
7	U	59	LYS
4	D	175[A]	GLU
4	D	175[B]	GLU
2	P	52	ILE
3	Q	51	ALA
3	Q	221	ASN
6	T	206	ASP
8	V	203	ARG
6	T	208	ALA
3	C	203	GLY
1	A	199	GLU
1	O	199	GLU
3	Q	203	GLY

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	185/191 (97%)	174 (94%)	11 (6%)	16 9
1	O	176/191 (92%)	166 (94%)	10 (6%)	17 10
2	B	200/221 (90%)	193 (96%)	7 (4%)	31 25
2	P	197/221 (89%)	184 (93%)	13 (7%)	14 7
3	C	179/210 (85%)	171 (96%)	8 (4%)	23 17
3	Q	184/210 (88%)	175 (95%)	9 (5%)	21 14
4	D	189/203 (93%)	184 (97%)	5 (3%)	41 37
4	R	187/203 (92%)	184 (98%)	3 (2%)	58 57
5	E	193/224 (86%)	186 (96%)	7 (4%)	30 24
5	S	198/224 (88%)	196 (99%)	2 (1%)	73 73
6	F	199/212 (94%)	189 (95%)	10 (5%)	20 13
6	T	192/212 (91%)	182 (95%)	10 (5%)	19 12
7	G	204/209 (98%)	199 (98%)	5 (2%)	42 38
7	U	188/209 (90%)	183 (97%)	5 (3%)	40 35
8	H	181/195 (93%)	175 (97%)	6 (3%)	33 27
8	V	172/195 (88%)	165 (96%)	7 (4%)	26 20
9	I	176/174 (101%)	174 (99%)	2 (1%)	70 70
9	W	173/174 (99%)	172 (99%)	1 (1%)	84 85
10	J	167/171 (98%)	161 (96%)	6 (4%)	30 24
10	X	166/171 (97%)	162 (98%)	4 (2%)	44 40
11	c	2/2 (100%)	2 (100%)	0	100 100
11	d	2/2 (100%)	2 (100%)	0	100 100
12	K	155/159 (98%)	146 (94%)	9 (6%)	17 9
12	Y	159/159 (100%)	152 (96%)	7 (4%)	24 18
13	L	175/178 (98%)	169 (97%)	6 (3%)	32 26
13	Z	175/178 (98%)	172 (98%)	3 (2%)	56 54

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
14	M	180/181 (99%)	176 (98%)	4 (2%)	47	43
14	a	178/181 (98%)	172 (97%)	6 (3%)	32	26
15	N	157/159 (99%)	154 (98%)	3 (2%)	52	49
15	b	158/159 (99%)	154 (98%)	4 (2%)	42	38
All	All	5047/5378 (94%)	4874 (97%)	173 (3%)	32	26

All (173) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	LYS
1	A	53	SER
1	A	61	VAL
1	A	69	LYS
1	A	142	ARG
1	A	180	ASP
1	A	189	THR
1	A	206	ASN
1	A	223	THR
1	A	226	LYS
1	A	227	ASP
2	B	33	THR
2	B	62	SER
2	B	190	LEU
2	B	207	SER
2	B	229	LYS
2	B	230	GLN
2	B	249	ARG
3	C	35	VAL
3	C	45	VAL
3	C	54	GLN
3	C	146	GLN
3	C	148	ASP
3	C	205	ASN
3	C	208	LEU
3	C	225	ILE
4	D	9	ASP
4	D	35	SER
4	D	46	VAL
4	D	126	GLU
4	D	199	LEU
5	E	61	LYS

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Mol	Chain	Res	Type
5	E	95	SER
5	E	101[A]	ARG
5	E	101[B]	ARG
5	E	181	GLU
5	E	189	LYS
5	E	202	GLU
6	F	17	ASP
6	F	33	SER
6	F	53	VAL
6	F	81	LEU
6	F	86	SER
6	F	87	LEU
6	F	190	VAL
6	F	215	TRP
6	F	240	LYS
6	F	244	LYS
7	G	78	CYS
7	G	88	ARG
7	G	183	VAL
7	G	190	THR
7	G	206	LEU
8	H	31	CYS
8	H	65	LEU
8	H	68	LEU
8	H	183	LEU
8	H	197	THR
8	H	220	GLU
9	I	35	THR
9	I	115	THR
10	J	1[A]	MET
10	J	1[B]	MET
10	J	62	LYS
10	J	88	LEU
10	J	155	ARG
10	J	182	ILE
12	K	12	PHE
12	K	16	VAL
12	K	45	LEU
12	K	142	VAL
12	K	151	LEU
12	K	162	ARG
12	K	178	VAL

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Mol	Chain	Res	Type
12	K	191	VAL
12	K	196	VAL
13	L	3[A]	SER
13	L	3[B]	SER
13	L	102	PHE
13	L	163	HIS
13	L	174	LEU
13	L	207	THR
14	M	82	SER
14	M	100	ARG
14	M	154	LEU
14	M	155	GLU
15	N	22	THR
15	N	84	LYS
15	N	196	LYS
1	O	10	THR
1	O	53	SER
1	O	118	GLN
1	O	142	ARG
1	O	180	ASP
1	O	181	LEU
1	O	189	THR
1	O	206	ASN
1	O	223	THR
1	O	226	LYS
2	P	7[A]	SER
2	P	7[B]	SER
2	P	33	THR
2	P	53	HIS
2	P	62	SER
2	P	190	LEU
2	P	204	SER
2	P	207	SER
2	P	230	GLN
2	P	235	GLN
2	P	236	LEU
2	P	246	LYS
2	P	249	ARG
3	Q	45	VAL
3	Q	54	GLN
3	Q	98	VAL
3	Q	148	ASP

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Mol	Chain	Res	Type
3	Q	170	GLU
3	Q	197	GLU
3	Q	206	ILE
3	Q	208	LEU
3	Q	219	ILE
4	R	9	ASP
4	R	35	SER
4	R	46	VAL
5	S	45	VAL
5	S	101	ARG
6	T	17	ASP
6	T	33	SER
6	T	53	VAL
6	T	81	LEU
6	T	86	SER
6	T	87	LEU
6	T	190	VAL
6	T	215	TRP
6	T	223	ARG
6	T	240	LYS
7	U	78	CYS
7	U	151	VAL
7	U	199	ILE
7	U	206	LEU
7	U	223	GLU
8	V	31	CYS
8	V	65	LEU
8	V	68	LEU
8	V	104[A]	ASP
8	V	104[B]	ASP
8	V	183	LEU
8	V	199	LEU
9	W	35	THR
10	X	1	MET
10	X	62	LYS
10	X	88	LEU
10	X	95	ARG
12	Y	13	PHE
12	Y	17	VAL
12	Y	46	LEU
12	Y	58	SER
12	Y	143	VAL

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Mol	Chain	Res	Type
12	Y	152	LEU
12	Y	197	VAL
13	Z	102	PHE
13	Z	174	LEU
13	Z	207	THR
14	a	71	VAL
14	a	82	SER
14	a	92	LEU
14	a	100	ARG
14	a	154	LEU
14	a	216	SER
15	b	22	THR
15	b	29	ARG
15	b	84	LYS
15	b	196	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	51	GLN
1	A	108	GLN
1	A	206	ASN
2	B	40	ASN
3	C	54	GLN
4	D	227	HIS
5	E	65	HIS
6	F	143	ASN
8	H	116	HIS
8	H	153	ASN
8	H	193	ASN
9	I	161	HIS
10	J	87	ASN
10	J	101	ASN
10	J	132	HIS
12	K	166	GLN
13	L	157	ASN
14	M	162	GLN
1	O	118	GLN
1	O	206	ASN
2	P	40	ASN
2	P	109	GLN
2	P	142	HIS

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Mol	Chain	Res	Type
2	P	146	GLN
3	Q	18	GLN
4	R	186	HIS
4	R	227	HIS
5	S	86	ASN
6	T	63	ASN
6	T	68	ASN
6	T	143	ASN
8	V	116	HIS
8	V	193	ASN
9	W	172	ASN
10	X	174	ASN
12	Y	167	GLN
13	Z	157	ASN
14	a	89	HIS
14	a	162	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	YCM	C	63	3	7,9,10	0.99	0	4,10,12	0.84	0
3	YCM	Q	63	3	7,9,10	1.25	1 (14%)	4,10,12	3.61	3 (75%)
7	YCM	U	137	7	7,9,10	0.94	0	4,10,12	1.65	1 (25%)
7	YCM	G	137	7	7,9,10	1.71	2 (28%)	4,10,12	2.38	1 (25%)

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
3	YCM	C	63	3	-	0/6/8/10	-
3	YCM	Q	63	3	-	3/6/8/10	-
7	YCM	U	137	7	-	1/6/8/10	-
7	YCM	G	137	7	-	3/6/8/10	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	137	YCM	CE-NZ2	2.87	1.42	1.32
3	Q	63	YCM	CD-SG	-2.52	1.75	1.81
7	G	137	YCM	CD-SG	2.14	1.87	1.81

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	Q	63	YCM	CE-CD-SG	-5.16	98.41	113.59
7	G	137	YCM	CE-CD-SG	4.23	126.04	113.59
3	Q	63	YCM	CA-CB-SG	-3.63	100.45	113.74
3	Q	63	YCM	CB-SG-CD	3.17	133.92	104.44
7	U	137	YCM	CE-CD-SG	2.91	122.14	113.59

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	G	137	YCM	CE-CD-SG-CB
7	G	137	YCM	SG-CD-CE-NZ2
3	Q	63	YCM	CE-CD-SG-CB
3	Q	63	YCM	SG-CD-CE-OZ1
3	Q	63	YCM	SG-CD-CE-NZ2
7	U	137	YCM	CE-CD-SG-CB
7	G	137	YCM	SG-CD-CE-OZ1

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 88 ligands modelled in this entry, 71 are monoatomic - leaving 17 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	$\#\|Z\| > 2$
17	NEN	G	305	7	9,9,9	1.76	2 (22%)	12,12,12	2.86	4 (33%)
20	1PE	L	301	-	15,15,15	0.59	0	14,14,14	0.72	0
17	NEN	U	303	7	9,9,9	1.30	2 (22%)	12,12,12	4.19	7 (58%)
20	1PE	N	305	-	15,15,15	0.57	0	14,14,14	0.58	0
17	NEN	X	302	10	9,9,9	1.34	1 (11%)	12,12,12	4.45	9 (75%)
20	1PE	M	304	-	15,15,15	0.53	0	14,14,14	0.38	0
20	1PE	a	304	-	15,15,15	0.52	0	14,14,14	0.41	0
17	NEN	E	304	5	9,9,9	1.19	1 (11%)	12,12,12	2.89	6 (50%)
17	NEN	G	304	7	9,9,9	1.46	2 (22%)	12,12,12	3.03	8 (66%)
20	1PE	I	304	-	15,15,15	0.51	0	14,14,14	0.52	0
20	1PE	I	303	-	15,15,15	0.57	0	14,14,14	1.10	2 (14%)
20	1PE	b	304	-	15,15,15	0.67	0	14,14,14	0.78	0
17	NEN	J	302	10	9,9,9	0.89	1 (11%)	12,12,12	4.10	7 (58%)
17	NEN	U	304	7	9,9,9	1.35	2 (22%)	12,12,12	2.76	5 (41%)
17	NEN	S	304	5	9,9,9	1.17	1 (11%)	12,12,12	2.70	6 (50%)
20	1PE	Z	301	-	15,15,15	0.54	0	14,14,14	0.40	0
20	1PE	W	303	-	15,15,15	0.52	0	14,14,14	0.43	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
17	NEN	G	305	7	-	0/2/15/15	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
20	1PE	L	301	-	-	6/13/13/13	-
17	NEN	U	303	7	-	2/2/15/15	0/1/1/1
20	1PE	N	305	-	-	6/13/13/13	-
17	NEN	X	302	10	-	2/2/15/15	0/1/1/1
20	1PE	M	304	-	-	7/13/13/13	-
20	1PE	a	304	-	-	5/13/13/13	-
17	NEN	E	304	5	-	2/2/15/15	0/1/1/1
17	NEN	G	304	7	-	2/2/15/15	0/1/1/1
20	1PE	I	304	-	-	8/13/13/13	-
20	1PE	I	303	-	-	8/13/13/13	-
20	1PE	b	304	-	-	8/13/13/13	-
17	NEN	J	302	10	-	2/2/15/15	0/1/1/1
17	NEN	U	304	7	-	0/2/15/15	0/1/1/1
17	NEN	S	304	5	-	0/2/15/15	0/1/1/1
20	1PE	Z	301	-	-	6/13/13/13	-
20	1PE	W	303	-	-	6/13/13/13	-

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	G	305	NEN	C3-N1	-4.14	1.31	1.38
17	G	304	NEN	C3-N1	-3.55	1.32	1.38
17	X	302	NEN	C3-N1	-3.45	1.33	1.38
17	G	305	NEN	C2-N1	-3.12	1.33	1.38
17	U	304	NEN	C3-N1	-3.12	1.33	1.38
17	U	303	NEN	C3-N1	-2.95	1.33	1.38
17	E	304	NEN	C3-N1	-2.84	1.34	1.38
17	S	304	NEN	C2-N1	-2.42	1.34	1.38
17	G	304	NEN	C2-N1	-2.41	1.34	1.38
17	U	304	NEN	C2-N1	-2.17	1.35	1.38
17	J	302	NEN	C3-N1	-2.10	1.35	1.38
17	U	303	NEN	C2-N1	-2.08	1.35	1.38

All (54) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
17	U	303	NEN	C3-N1-C2	-10.26	108.26	112.96
17	X	302	NEN	C3-N1-C2	-7.86	109.36	112.96
17	E	304	NEN	C3-N1-C2	-7.25	109.64	112.96

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
17	X	302	NEN	O1-C2-N1	7.19	131.88	123.92
17	J	302	NEN	C3-N1-C2	-6.85	109.83	112.96
17	J	302	NEN	C5-N1-C2	6.75	131.40	122.59
17	J	302	NEN	O1-C2-N1	6.73	131.38	123.92
17	X	302	NEN	C5-N1-C2	6.55	131.13	122.59
17	U	303	NEN	C1-C2-N1	6.33	113.87	108.00
17	G	305	NEN	C4-C1-C2	-6.06	98.67	105.23
17	G	305	NEN	C1-C2-N1	5.69	113.27	108.00
17	X	302	NEN	C4-C3-N1	5.51	113.11	108.00
17	J	302	NEN	C4-C3-N1	5.32	112.93	108.00
17	G	304	NEN	C1-C2-N1	5.18	112.81	108.00
17	S	304	NEN	C3-N1-C2	-5.17	110.59	112.96
17	U	304	NEN	C3-N1-C2	-5.12	110.61	112.96
17	S	304	NEN	C1-C2-N1	4.95	112.59	108.00
17	U	303	NEN	C4-C1-C2	-4.74	100.10	105.23
17	U	304	NEN	C1-C2-N1	4.73	112.38	108.00
17	U	304	NEN	C4-C1-C2	-4.59	100.26	105.23
17	G	304	NEN	C3-N1-C2	-4.55	110.88	112.96
17	G	304	NEN	C4-C1-C2	-4.44	100.42	105.23
17	G	305	NEN	C3-N1-C2	-4.23	111.02	112.96
17	G	304	NEN	O2-C3-N1	4.00	128.35	123.92
17	X	302	NEN	O1-C2-C1	-3.93	117.05	127.08
17	U	303	NEN	C4-C3-N1	3.83	111.55	108.00
17	E	304	NEN	C5-N1-C2	3.66	127.36	122.59
17	S	304	NEN	C4-C3-N1	3.49	111.24	108.00
17	U	303	NEN	C5-N1-C2	3.34	126.95	122.59
17	X	302	NEN	C1-C2-N1	3.28	111.04	108.00
17	J	302	NEN	C5-N1-C3	-3.20	118.42	122.59
17	J	302	NEN	O1-C2-C1	-3.18	118.96	127.08
17	U	304	NEN	C4-C3-N1	2.84	110.64	108.00
17	X	302	NEN	C5-N1-C3	-2.79	118.96	122.59
17	J	302	NEN	C1-C4-C3	-2.78	102.22	105.23
17	U	304	NEN	C5-N1-C2	2.74	126.17	122.59
17	S	304	NEN	C5-N1-C3	2.74	126.16	122.59
20	I	303	1PE	C25-OH5-C14	2.73	125.12	113.29
17	E	304	NEN	C4-C3-N1	2.69	110.49	108.00
17	G	305	NEN	C5-N1-C2	2.65	126.04	122.59
17	E	304	NEN	C4-C1-C2	-2.62	102.40	105.23
17	E	304	NEN	O1-C2-N1	2.58	126.78	123.92
17	G	304	NEN	O1-C2-C1	-2.48	120.73	127.08
17	S	304	NEN	C4-C1-C2	-2.42	102.61	105.23
17	E	304	NEN	C1-C4-C3	-2.42	102.61	105.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
17	U	303	NEN	O2-C3-N1	2.38	126.56	123.92
17	X	302	NEN	C4-C1-C2	-2.37	102.66	105.23
17	X	302	NEN	C1-C4-C3	-2.35	102.69	105.23
20	I	303	1PE	OH5-C25-C15	2.32	120.85	110.39
17	S	304	NEN	C1-C4-C3	-2.28	102.76	105.23
17	G	304	NEN	O1-C2-N1	2.26	126.42	123.92
17	G	304	NEN	C4-C3-N1	2.20	110.04	108.00
17	G	304	NEN	O2-C3-C4	-2.15	121.58	127.08
17	U	303	NEN	O2-C3-C4	-2.03	121.88	127.08

There are no chirality outliers.

All (70) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
17	E	304	NEN	C6-C5-N1-C2
17	E	304	NEN	C6-C5-N1-C3
17	J	302	NEN	C6-C5-N1-C2
17	J	302	NEN	C6-C5-N1-C3
17	X	302	NEN	C6-C5-N1-C2
17	X	302	NEN	C6-C5-N1-C3
20	I	303	1PE	C15-C25-OH5-C14
20	I	304	1PE	C24-C14-OH5-C25
20	I	304	1PE	OH7-C16-C26-OH6
20	M	304	1PE	OH4-C13-C23-OH3
20	I	304	1PE	OH4-C13-C23-OH3
20	Z	301	1PE	OH6-C15-C25-OH5
20	b	304	1PE	OH4-C13-C23-OH3
20	W	303	1PE	OH6-C15-C25-OH5
20	L	301	1PE	OH5-C14-C24-OH4
20	b	304	1PE	OH6-C15-C25-OH5
20	M	304	1PE	OH5-C14-C24-OH4
20	a	304	1PE	OH5-C14-C24-OH4
20	L	301	1PE	OH6-C15-C25-OH5
20	a	304	1PE	OH4-C13-C23-OH3
20	N	305	1PE	OH4-C13-C23-OH3
20	L	301	1PE	OH2-C12-C22-OH3
20	N	305	1PE	OH2-C12-C22-OH3
20	I	304	1PE	OH5-C14-C24-OH4
20	L	301	1PE	C16-C26-OH6-C15
20	Z	301	1PE	C16-C26-OH6-C15
20	N	305	1PE	OH7-C16-C26-OH6
20	M	304	1PE	OH6-C15-C25-OH5

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Mol	Chain	Res	Type	Atoms
20	M	304	1PE	OH2-C12-C22-OH3
20	b	304	1PE	OH5-C14-C24-OH4
20	b	304	1PE	C25-C15-OH6-C26
20	I	303	1PE	OH5-C14-C24-OH4
20	I	303	1PE	OH6-C15-C25-OH5
20	I	303	1PE	OH4-C13-C23-OH3
20	L	301	1PE	C25-C15-OH6-C26
17	G	304	NEN	C6-C5-N1-C3
20	Z	301	1PE	C12-C22-OH3-C23
20	Z	301	1PE	C15-C25-OH5-C14
20	I	304	1PE	C12-C22-OH3-C23
20	L	301	1PE	C13-C23-OH3-C22
20	W	303	1PE	C13-C23-OH3-C22
20	I	304	1PE	C16-C26-OH6-C15
20	b	304	1PE	C12-C22-OH3-C23
17	U	303	NEN	C6-C5-N1-C3
20	Z	301	1PE	OH7-C16-C26-OH6
20	I	303	1PE	C24-C14-OH5-C25
20	M	304	1PE	C23-C13-OH4-C24
20	W	303	1PE	C14-C24-OH4-C13
20	M	304	1PE	C15-C25-OH5-C14
20	W	303	1PE	C24-C14-OH5-C25
20	b	304	1PE	C24-C14-OH5-C25
20	N	305	1PE	C12-C22-OH3-C23
20	M	304	1PE	C14-C24-OH4-C13
20	I	304	1PE	C15-C25-OH5-C14
20	W	303	1PE	OH7-C16-C26-OH6
20	a	304	1PE	OH2-C12-C22-OH3
20	a	304	1PE	OH6-C15-C25-OH5
20	I	303	1PE	C23-C13-OH4-C24
20	N	305	1PE	C25-C15-OH6-C26
20	b	304	1PE	C14-C24-OH4-C13
17	G	304	NEN	C6-C5-N1-C2
17	U	303	NEN	C6-C5-N1-C2
20	I	303	1PE	OH2-C12-C22-OH3
20	b	304	1PE	C23-C13-OH4-C24
20	W	303	1PE	C23-C13-OH4-C24
20	a	304	1PE	C25-C15-OH6-C26
20	I	303	1PE	C13-C23-OH3-C22
20	N	305	1PE	C13-C23-OH3-C22
20	I	304	1PE	OH6-C15-C25-OH5
20	Z	301	1PE	OH4-C13-C23-OH3

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	230/234 (98%)	-0.14	4 (1%)	69	71	27, 52, 90, 106	3 (1%)
1	O	230/234 (98%)	0.22	4 (1%)	69	71	43, 70, 110, 140	0
2	B	248/261 (95%)	-0.06	3 (1%)	76	78	23, 56, 99, 133	2 (0%)
2	P	248/261 (95%)	0.16	8 (3%)	50	52	34, 66, 117, 153	2 (0%)
3	C	236/248 (95%)	0.25	6 (2%)	58	59	31, 67, 112, 136	2 (0%)
3	Q	238/248 (95%)	0.31	7 (2%)	54	55	36, 68, 128, 154	0
4	D	233/241 (96%)	0.11	2 (0%)	81	83	34, 66, 99, 141	1 (0%)
4	R	233/241 (96%)	-0.17	5 (2%)	63	65	22, 47, 75, 115	1 (0%)
5	E	234/263 (88%)	-0.10	8 (3%)	48	50	27, 47, 98, 121	1 (0%)
5	S	238/263 (90%)	-0.11	8 (3%)	48	50	22, 50, 89, 110	3 (1%)
6	F	239/255 (93%)	-0.40	3 (1%)	74	77	23, 39, 64, 80	4 (1%)
6	T	240/255 (94%)	0.04	5 (2%)	63	65	30, 55, 92, 134	1 (0%)
7	G	243/246 (98%)	-0.30	4 (1%)	70	72	23, 43, 80, 113	2 (0%)
7	U	237/246 (96%)	0.10	3 (1%)	74	77	32, 64, 98, 116	1 (0%)
8	H	220/234 (94%)	-0.35	1 (0%)	87	89	21, 39, 70, 117	2 (0%)
8	V	220/234 (94%)	-0.06	5 (2%)	61	62	27, 54, 85, 123	2 (0%)
9	I	204/205 (99%)	-0.50	0	100	100	23, 39, 60, 73	3 (1%)
9	W	204/205 (99%)	-0.08	0	100	100	32, 55, 80, 92	2 (0%)
10	J	196/201 (97%)	-0.40	1 (0%)	87	89	18, 43, 61, 85	3 (1%)
10	X	196/201 (97%)	-0.28	0	100	100	20, 47, 62, 86	2 (1%)
11	c	2/4 (50%)	-0.36	0	100	100	40, 40, 40, 43	0
11	d	2/4 (50%)	-0.77	0	100	100	32, 32, 32, 36	0
12	K	200/204 (98%)	-0.18	1 (0%)	87	89	28, 51, 78, 95	1 (0%)
12	Y	201/204 (98%)	-0.44	3 (1%)	71	74	23, 40, 61, 78	3 (1%)

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
13	L	213/213 (100%)	-0.14	0 100 100	27, 54, 77, 91	2 (0%)
13	Z	213/213 (100%)	-0.43	0 100 100	29, 40, 64, 78	1 (0%)
14	M	216/219 (98%)	-0.37	1 (0%) 87 89	30, 43, 68, 103	1 (0%)
14	a	216/219 (98%)	-0.43	2 (0%) 81 83	26, 41, 64, 97	2 (0%)
15	N	202/205 (98%)	-0.47	3 (1%) 71 74	23, 37, 59, 94	1 (0%)
15	b	203/205 (99%)	-0.32	2 (0%) 79 81	32, 42, 71, 99	1 (0%)
All	All	6235/6466 (96%)	-0.15	89 (1%) 73 75	18, 50, 93, 154	49 (0%)

All (89) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
6	T	5	THR	4.8
15	N	202	LEU	4.5
12	K	44	TYR	4.1
12	Y	45	TYR	4.0
8	V	204	CYS	3.9
12	Y	206	GLY	3.9
5	E	58	ALA	3.7
14	M	215	ILE	3.6
5	E	52	ALA	3.6
5	E	57	ALA	3.4
14	a	215	ILE	3.4
5	E	59	HIS	3.4
4	D	241	ILE	3.3
5	E	54	SER	3.3
2	P	51	ASN	3.2
5	S	2	PHE	3.2
4	R	241	ILE	3.2
15	b	199	VAL	3.1
5	S	57	ALA	3.0
3	C	138	PHE	3.0
2	B	202	ASP	3.0
7	U	186	LYS	3.0
14	a	216	SER	3.0
3	Q	50	VAL	2.9
5	E	56	LEU	2.9
1	O	3	ARG	2.9
3	C	98	VAL	2.9
1	A	3	ARG	2.8
5	S	3	ARG	2.8

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Mol	Chain	Res	Type	RSRZ
2	P	203	VAL	2.8
2	B	61	PHE	2.7
3	C	206	ILE	2.7
1	A	230	ALA	2.6
7	G	189	TRP	2.6
7	U	183	VAL	2.5
2	P	61	PHE	2.5
5	S	239	ARG	2.5
1	O	232	ILE	2.5
3	C	225	ILE	2.5
6	T	53	VAL	2.5
5	E	53	GLN	2.5
1	A	181	LEU	2.5
8	V	201	ARG	2.5
4	R	128	ALA	2.5
5	S	53	GLN	2.5
3	Q	98	VAL	2.5
1	O	231	ALA	2.4
5	S	58	ALA	2.4
3	Q	138	PHE	2.4
8	V	220	GLU	2.3
1	A	231	ALA	2.3
3	Q	217	LEU	2.3
4	R	130	PRO	2.3
7	G	208	ILE	2.3
3	Q	48	LYS	2.3
5	S	18[A]	ARG	2.3
2	P	245	ALA	2.3
3	C	97	THR	2.3
3	Q	49	SER	2.3
4	D	131	GLY	2.2
6	T	6	GLY	2.2
4	R	120[A]	ALA	2.2
6	T	208	ALA	2.2
15	N	200	ALA	2.2
15	N	199	VAL	2.2
2	P	249	ARG	2.2
6	T	209	PHE	2.2
3	Q	225	ILE	2.2
1	O	230	ALA	2.2
7	U	2	SER	2.2
12	Y	205	SER	2.2

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Mol	Chain	Res	Type	RSRZ
15	b	198	ALA	2.2
5	E	51	ARG	2.2
7	G	187	PHE	2.1
2	P	56	LEU	2.1
8	H	204	CYS	2.1
6	F	53	VAL	2.1
2	B	206	LEU	2.1
3	C	96	LEU	2.1
4	R	9	ASP	2.1
2	P	30	HIS	2.1
8	V	200	GLY	2.1
10	J	1[A]	MET	2.1
8	V	197	THR	2.1
6	F	204	VAL	2.1
5	S	54	SER	2.1
6	F	6	GLY	2.0
7	G	245	ARG	2.0
2	P	204	SER	2.0

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	YCM	G	137	10/11	0.88	0.13	37,44,55,55	0
7	YCM	U	137	10/11	0.90	0.12	55,65,80,83	0
3	YCM	C	63	10/11	0.93	0.10	63,66,76,78	0
3	YCM	Q	63	10/11	0.95	0.08	57,61,67,67	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,

median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
17	NEN	U	304	9/9	0.82	0.16	115,118,121,123	0
17	NEN	E	304	9/9	0.83	0.16	64,68,73,74	0
16	CL	D	301	1/1	0.83	0.20	83,83,83,83	0
17	NEN	S	304	9/9	0.84	0.17	71,76,78,81	0
16	CL	Q	301	1/1	0.84	0.11	98,98,98,98	0
20	1PE	I	304	16/16	0.84	0.15	69,85,101,102	0
16	CL	D	302	1/1	0.85	0.19	77,77,77,77	0
16	CL	S	301	1/1	0.85	0.23	76,76,76,76	0
17	NEN	U	303	9/9	0.87	0.14	86,89,92,92	0
16	CL	O	304	1/1	0.87	0.19	80,80,80,80	0
17	NEN	X	302	9/9	0.87	0.13	58,60,63,71	0
16	CL	Y	305	1/1	0.87	0.28	73,73,73,73	0
20	1PE	M	304	16/16	0.87	0.17	69,80,114,115	0
20	1PE	W	303	16/16	0.87	0.13	68,73,84,87	0
20	1PE	I	303	16/16	0.88	0.13	59,68,77,84	0
16	CL	E	303	1/1	0.88	0.16	75,75,75,75	0
17	NEN	J	302	9/9	0.88	0.12	57,62,65,66	0
16	CL	O	303	1/1	0.88	0.10	103,103,103,103	0
16	CL	S	302	1/1	0.89	0.14	76,76,76,76	0
16	CL	K	304	1/1	0.89	0.22	79,79,79,79	0
20	1PE	Z	301	16/16	0.89	0.12	59,72,80,84	0
20	1PE	b	304	16/16	0.89	0.14	50,58,92,98	0
17	NEN	G	305	9/9	0.90	0.12	65,68,70,75	0
16	CL	K	302	1/1	0.90	0.13	92,92,92,92	0
20	1PE	L	301	16/16	0.90	0.12	65,79,84,90	0
16	CL	K	303	1/1	0.90	0.17	73,73,73,73	0
16	CL	V	303	1/1	0.90	0.16	73,73,73,73	0
16	CL	C	302	1/1	0.90	0.21	79,79,79,79	0
20	1PE	a	304	16/16	0.90	0.15	62,70,101,101	0
16	CL	Q	302	1/1	0.90	0.19	77,77,77,77	0
16	CL	C	301	1/1	0.91	0.12	74,74,74,74	0
20	1PE	N	305	16/16	0.91	0.11	44,57,68,68	0
16	CL	M	303	1/1	0.91	0.10	61,61,61,61	0
16	CL	N	301	1/1	0.91	0.10	55,55,55,55	0
16	CL	O	302	1/1	0.91	0.14	71,71,71,71	0
16	CL	a	303	1/1	0.91	0.11	69,69,69,69	0
16	CL	I	302	1/1	0.92	0.10	57,57,57,57	0
16	CL	G	302	1/1	0.92	0.09	76,76,76,76	0
16	CL	R	301	1/1	0.92	0.10	63,63,63,63	0
16	CL	H	303	1/1	0.92	0.19	63,63,63,63	0
16	CL	N	303	1/1	0.93	0.22	70,70,70,70	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
16	CL	F	301	1/1	0.93	0.12	60,60,60,60	0
16	CL	E	302	1/1	0.93	0.13	61,61,61,61	0
17	NEN	G	304	9/9	0.93	0.09	59,60,63,63	0
18	K	b	305	1/1	0.93	0.14	49,49,49,49	0
16	CL	B	302	1/1	0.93	0.14	69,69,69,69	0
16	CL	N	302	1/1	0.93	0.13	66,66,66,66	0
16	CL	A	304	1/1	0.94	0.13	63,63,63,63	0
16	CL	M	301	1/1	0.94	0.29	67,67,67,67	0
16	CL	V	304	1/1	0.94	0.14	66,66,66,66	0
16	CL	Y	302	1/1	0.94	0.21	71,71,71,71	0
16	CL	Y	303	1/1	0.94	0.12	90,90,90,90	0
16	CL	H	304	1/1	0.94	0.12	57,57,57,57	0
16	CL	a	301	1/1	0.94	0.15	69,69,69,69	0
16	CL	A	301	1/1	0.94	0.11	64,64,64,64	0
16	CL	b	301	1/1	0.94	0.18	66,66,66,66	0
16	CL	b	302	1/1	0.94	0.16	68,68,68,68	0
16	CL	A	302	1/1	0.94	0.09	76,76,76,76	0
16	CL	E	301	1/1	0.94	0.14	69,69,69,69	0
16	CL	R	302	1/1	0.94	0.21	62,62,62,62	0
16	CL	N	304	1/1	0.94	0.17	50,50,50,50	0
16	CL	b	303	1/1	0.95	0.13	64,64,64,64	0
16	CL	W	302	1/1	0.95	0.07	61,61,61,61	0
16	CL	a	302	1/1	0.95	0.09	48,48,48,48	0
18	K	U	302	1/1	0.95	0.11	46,46,46,46	0
16	CL	S	303	1/1	0.95	0.14	60,60,60,60	0
16	CL	O	301	1/1	0.95	0.12	63,63,63,63	0
16	CL	B	301	1/1	0.95	0.09	46,46,46,46	0
16	CL	G	301	1/1	0.96	0.24	52,52,52,52	0
16	CL	P	301	1/1	0.96	0.09	65,65,65,65	0
19	MG	I	301	1/1	0.96	0.10	34,34,34,34	0
16	CL	Y	304	1/1	0.96	0.09	66,66,66,66	0
18	K	G	303	1/1	0.96	0.10	38,38,38,38	0
18	K	N	306	1/1	0.96	0.11	44,44,44,44	0
16	CL	A	303	1/1	0.97	0.08	58,58,58,58	0
19	MG	W	301	1/1	0.97	0.08	43,43,43,43	0
19	MG	Y	301	1/1	0.97	0.10	29,29,29,29	0
16	CL	M	302	1/1	0.97	0.10	44,44,44,44	0
19	MG	V	302	1/1	0.98	0.05	58,58,58,58	0
18	K	Z	302	1/1	0.98	0.09	44,44,44,44	0
16	CL	U	301	1/1	0.98	0.13	67,67,67,67	0
19	MG	H	302	1/1	0.98	0.11	34,34,34,34	0
18	K	L	302	1/1	0.98	0.09	58,58,58,58	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
19	MG	K	301	1/1	0.98	0.11	40,40,40,40	0
19	MG	H	301	1/1	0.99	0.04	48,48,48,48	0
19	MG	X	301	1/1	0.99	0.02	54,54,54,54	0
19	MG	V	301	1/1	0.99	0.09	43,43,43,43	0
19	MG	J	301	1/1	0.99	0.04	55,55,55,55	0

6.5 Other polymers (i)

There are no such residues in this entry.