



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 08:03 PM GMT

PDB ID : 4QLT  
Title : yCP in complex with tripeptidic epoxyketone inhibitor 2 (PR924)  
Authors : de Bruin, G.; Huber, E.; Xin, B.; van Rooden, E.; Al-Ayed, K.; Kim, K.; Kisselev, A.; Driessen, C.; van der Marel, G.; Groll, M.; Overkleeft, H.  
Deposited on : 2014-06-13  
Resolution : 2.80 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  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

---

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

MolProbity : 4.02b-467  
Mogul : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20026688  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

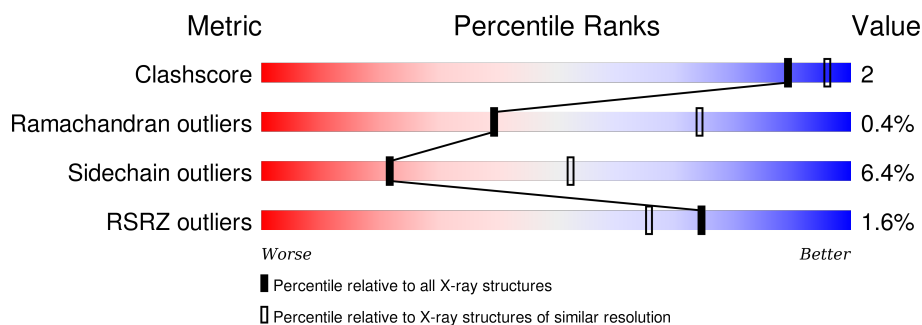
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 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.



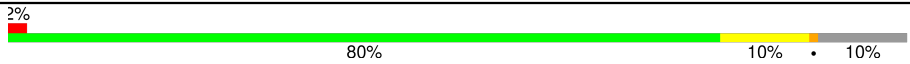


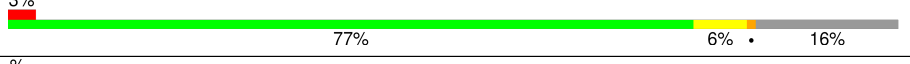
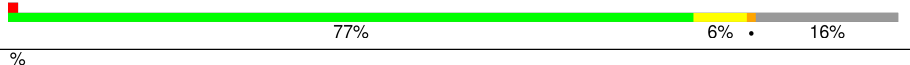
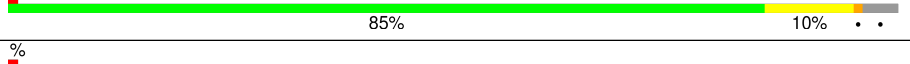

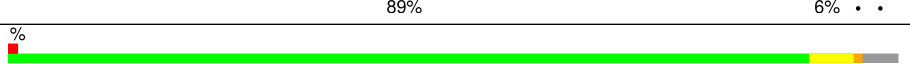
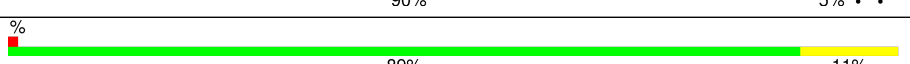
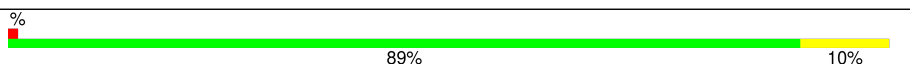
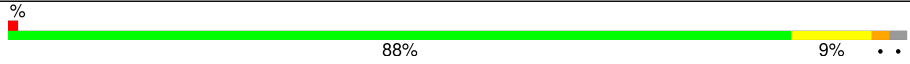
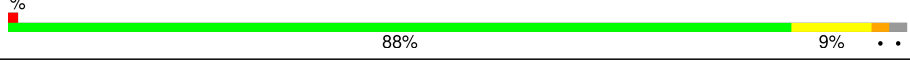



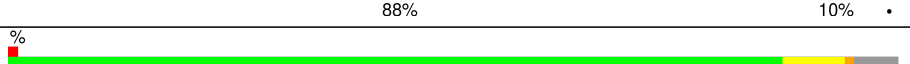
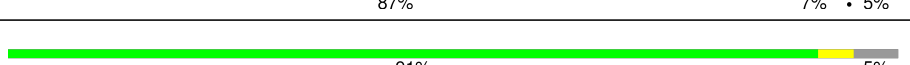
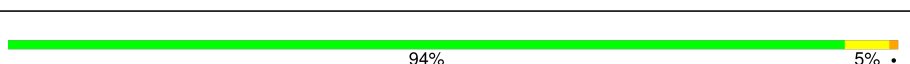
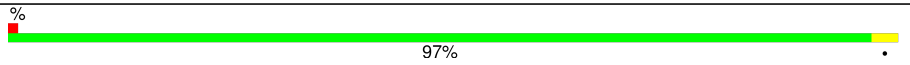

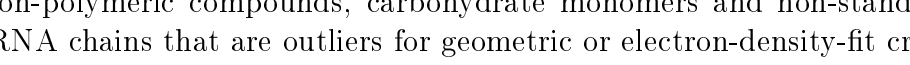
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	102246	2827 (2.80-2.80)
Ramachandran outliers	100387	2782 (2.80-2.80)
Sidechain outliers	100360	2784 (2.80-2.80)
RSRZ outliers	91569	2404 (2.80-2.80)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	
3	C	254	
3	Q	254	
4	D	260	

*Continued on next page...*

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	R	260	
5	E	234	
5	S	234	
6	F	288	
6	T	288	
7	G	252	
7	U	252	
8	H	232	
8	V	232	
9	I	205	
9	W	205	
10	J	198	
10	X	198	
11	K	212	
11	Y	212	
12	L	222	
12	Z	222	
13	M	246	
13	a	246	
14	N	196	
14	b	196	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
16	MES	K	302	-	-	-	X
16	MES	Y	302	-	-	-	X

## 2 Entry composition

There are 18 unique types of molecules in this entry. The entry contains 49987 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Proteasome subunit alpha type-2.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

*Continued on next page...*

*Continued from previous page...*

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

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

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

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

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

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

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

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

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

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

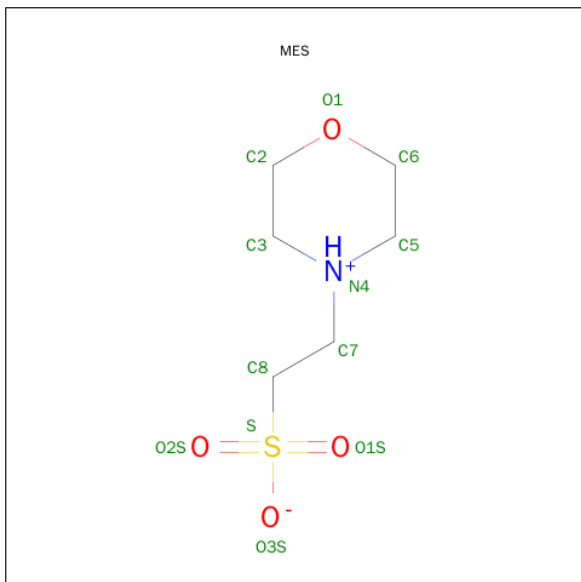
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	G	1	Total	Mg	0	0
			1	1		
15	K	1	Total	Mg	0	0
			1	1		

*Continued on next page...*

Continued from previous page...

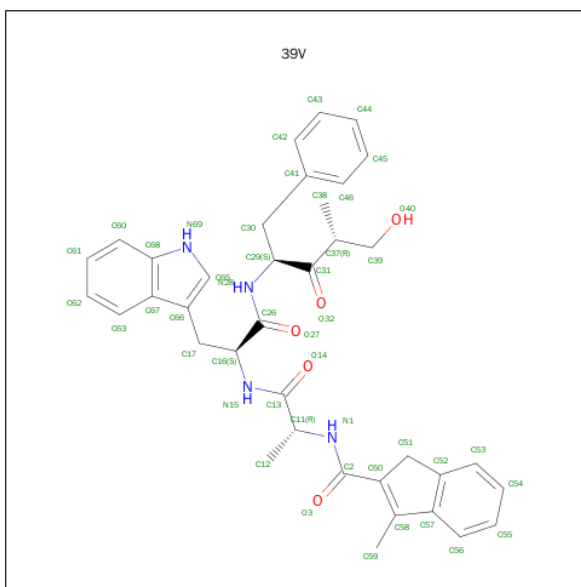
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
15	I	1	Total	Mg	0	0
			1	1		
15	V	1	Total	Mg	0	0
			1	1		
15	Z	1	Total	Mg	0	0
			1	1		
15	N	2	Total	Mg	0	0
			2	2		
15	Y	1	Total	Mg	0	0
			1	1		

- Molecule 16 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula:  $C_6H_{13}NO_4S$ ).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
16	K	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
16	Y	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

- Molecule 17 is N-[(3-METHYL-1H-INDEN-2-YL)CARBONYL]-D-ALANYL-N-[(2S,4R)-5-HYDROXY-4-METHYL-3-OXO-1-PHENYLPENTAN-2-YL]-L-TRYPTOPHANAMIDE (three-letter code: 39V) (formula:  $C_{37}H_{40}N_4O_5$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
17	K	1	Total 46	C 37	N 4	O 5	0	0
17	Y	1	Total 46	C 37	N 4	O 5	0	0

- Molecule 18 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
18	A	24	Total O 24 24	0	0
18	B	23	Total O 23 23	0	0
18	C	14	Total O 14 14	0	0
18	D	12	Total O 12 12	0	0
18	E	11	Total O 11 11	0	0
18	F	23	Total O 23 23	0	0
18	G	27	Total O 27 27	0	0
18	H	21	Total O 21 21	0	0
18	I	26	Total O 26 26	0	0
18	J	23	Total O 23 23	0	0

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
18	K	24	Total O 24 24	0	0
18	L	23	Total O 23 23	0	0
18	M	27	Total O 27 27	0	0
18	N	16	Total O 16 16	0	0
18	O	20	Total O 20 20	0	0
18	P	11	Total O 11 11	0	0
18	Q	12	Total O 12 12	0	0
18	R	17	Total O 17 17	0	0
18	S	7	Total O 7 7	0	0
18	T	19	Total O 19 19	0	0
18	U	30	Total O 30 30	0	0
18	V	22	Total O 22 22	0	0
18	W	25	Total O 25 25	0	0
18	X	26	Total O 26 26	0	0
18	Y	20	Total O 20 20	0	0
18	Z	21	Total O 21 21	0	0
18	a	21	Total O 21 21	0	0
18	b	22	Total O 22 22	0	0

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

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

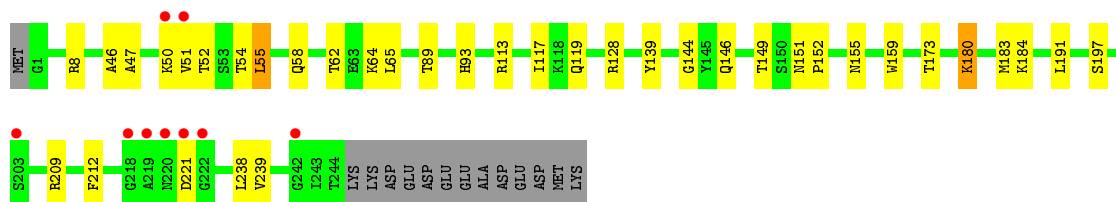
- Molecule 1: Proteasome subunit alpha type-2



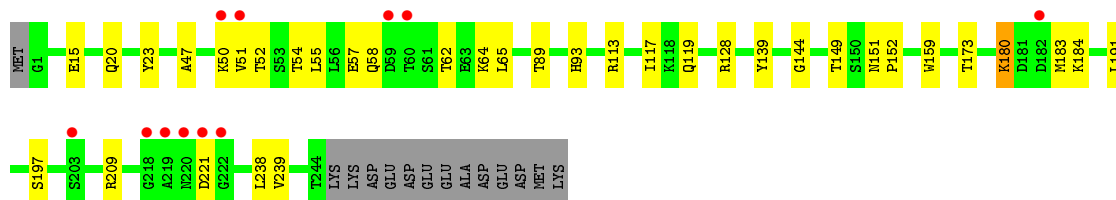
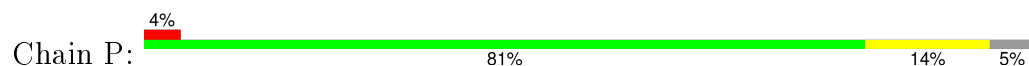
- Molecule 1: Proteasome subunit alpha type-2



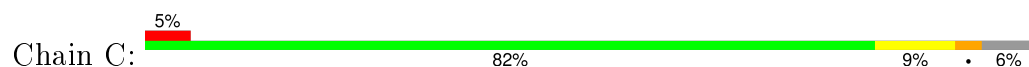
- Molecule 2: Proteasome subunit alpha type-3

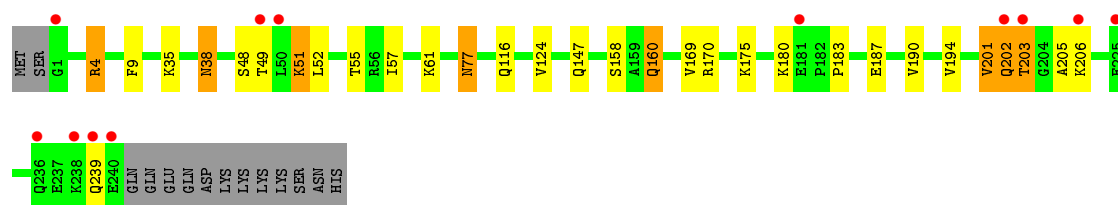


- Molecule 2: Proteasome subunit alpha type-3

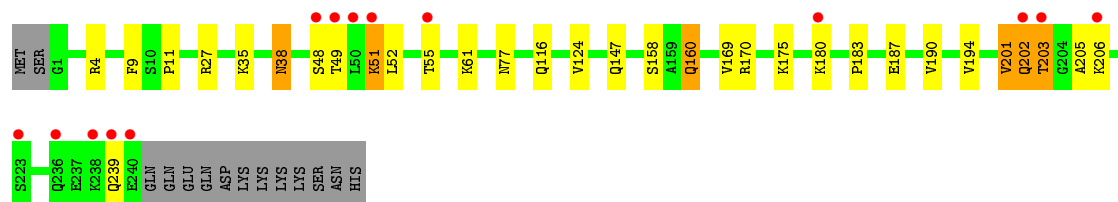
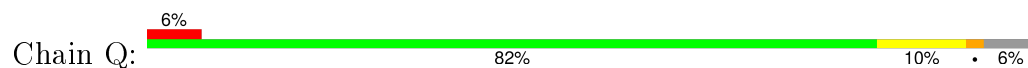


- Molecule 3: Proteasome subunit alpha type-4

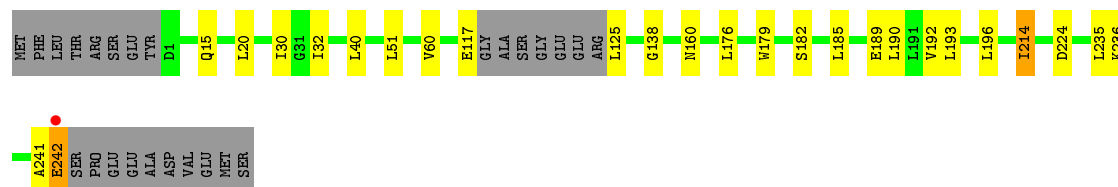
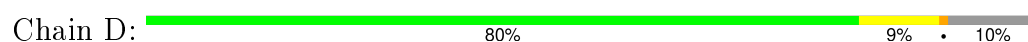




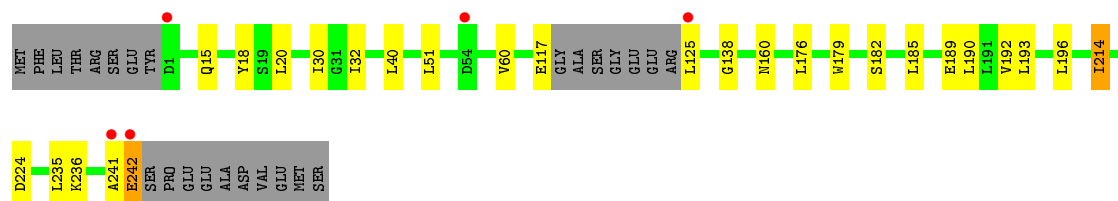
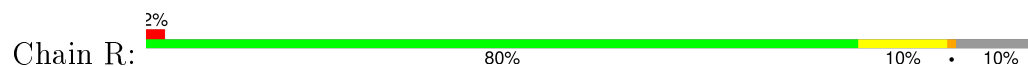
- Molecule 3: Proteasome subunit alpha type-4



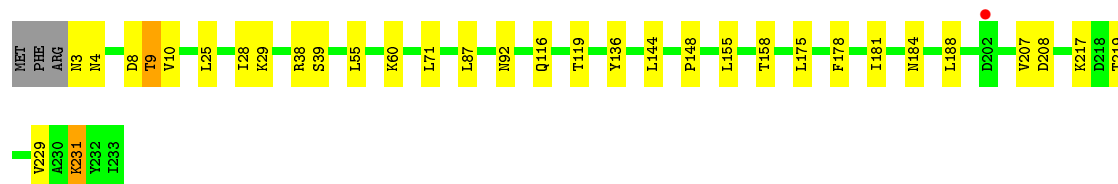
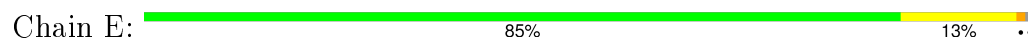
- Molecule 4: Proteasome subunit alpha type-5



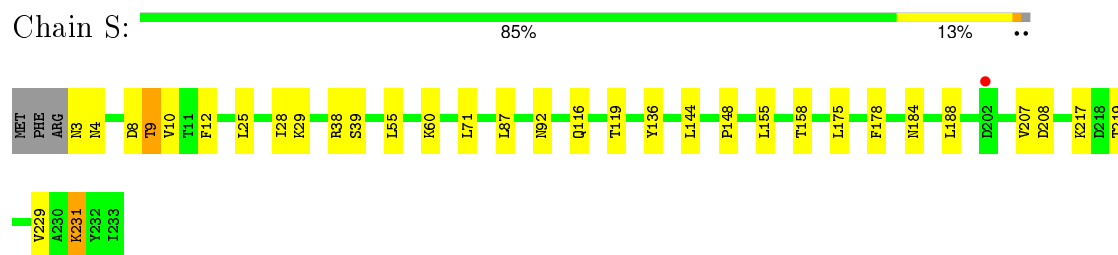
- Molecule 4: Proteasome subunit alpha type-5



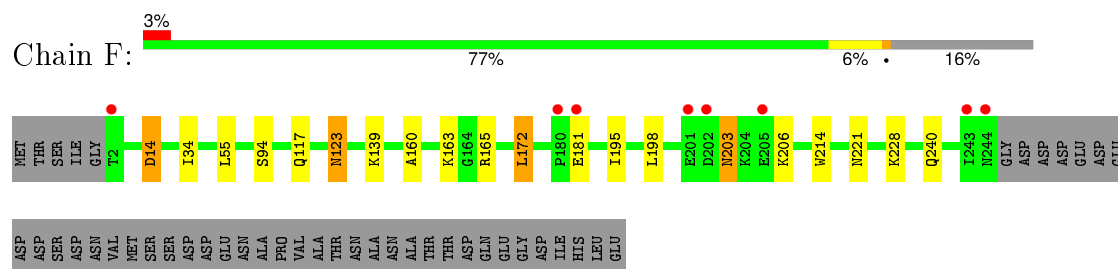
- Molecule 5: Proteasome subunit alpha type-6



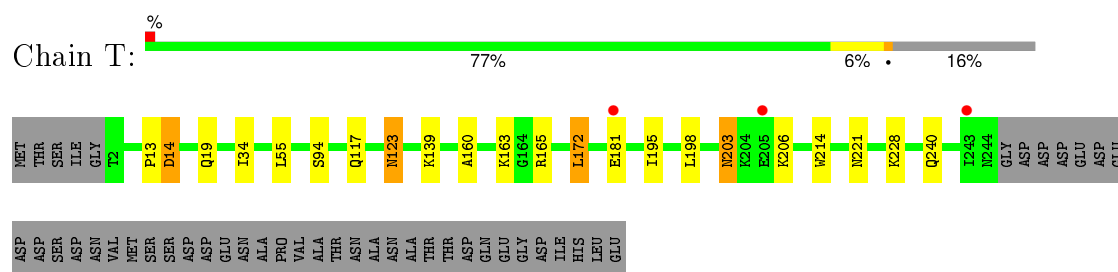
- Molecule 5: Proteasome subunit alpha type-6



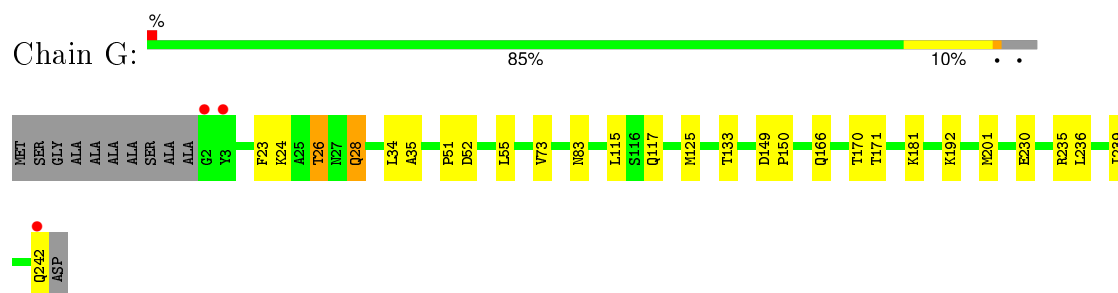
- Molecule 6: Probable proteasome subunit alpha type-7



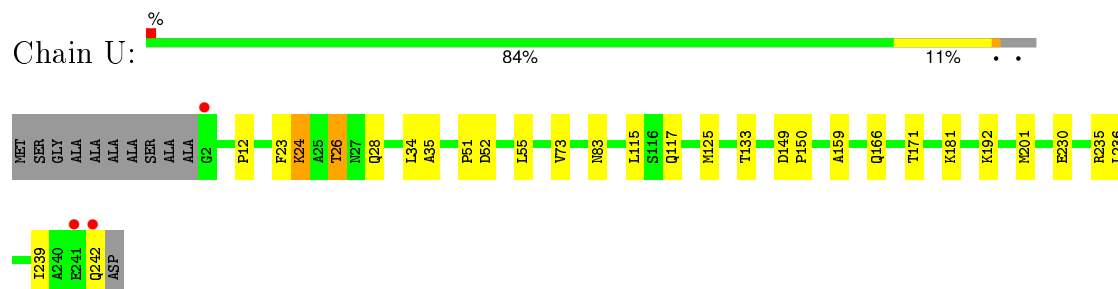
- Molecule 6: Probable proteasome subunit alpha type-7



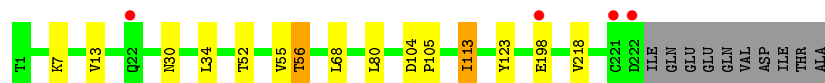
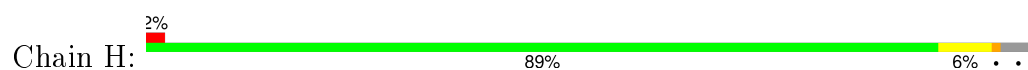
- Molecule 7: Proteasome subunit alpha type-1



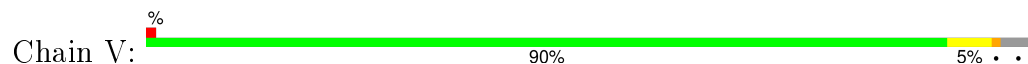
- Molecule 7: Proteasome subunit alpha type-1



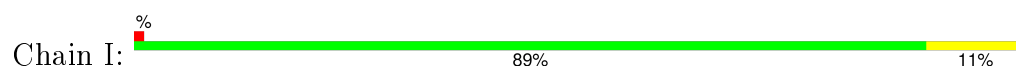
- Molecule 8: Proteasome subunit beta type-2



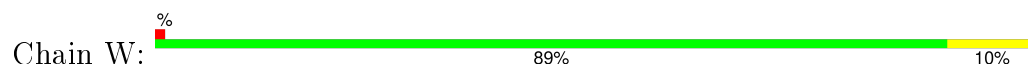
- Molecule 8: Proteasome subunit beta type-2



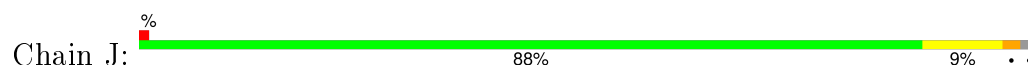
- Molecule 9: Proteasome subunit beta type-3



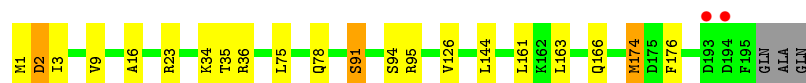
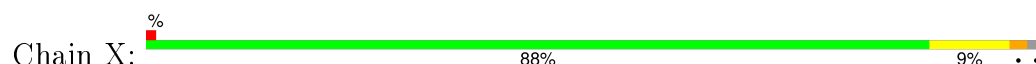
- Molecule 9: Proteasome subunit beta type-3



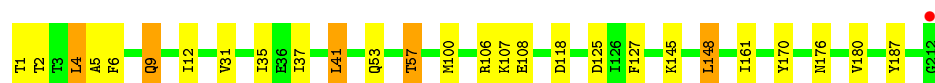
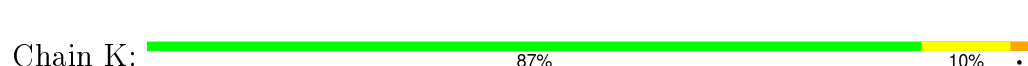
- Molecule 10: Proteasome subunit beta type-4




- Molecule 10: Proteasome subunit beta type-4

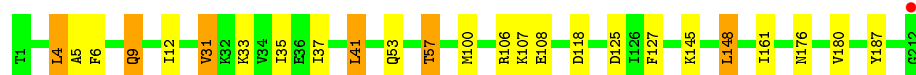


- Molecule 11: Proteasome subunit beta type-5




- Molecule 11: Proteasome subunit beta type-5

Chain Y:  88% 9%




- Molecule 12: Proteasome subunit beta type-6

Chain L:  88% 10%




- Molecule 12: Proteasome subunit beta type-6

Chain Z:  88% 10%




- Molecule 13: Proteasome subunit beta type-7

Chain M:  87% 7% 5%



- Molecule 13: Proteasome subunit beta type-7

Chain a:  91% 5%



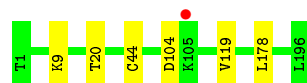
- Molecule 14: Proteasome subunit beta type-1

Chain N:  94% 5%



- Molecule 14: Proteasome subunit beta type-1

Chain b:  97%



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	135.65Å 298.66Å 145.46Å 90.00° 112.83° 90.00°	Depositor
Resolution (Å)	15.00 – 2.80 15.00 – 2.80	Depositor EDS
% Data completeness (in resolution range)	94.8 (15.00-2.80) 94.9 (15.00-2.80)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.83 (at 2.81Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, $R_{free}$	0.176 , 0.202 (Not available) , (Not available)	Depositor DCC
$R_{free}$ test set	NotAvailable	DCC
Wilson B-factor (Å <sup>2</sup> )	58.5	Xtriage
Anisotropy	0.100	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 48.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 245960 reflections	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	49987	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.30% 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, 0.375 respectively for untwinned datasets, and 0.333, 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: MG, 39V, MES

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	0.28	0/1952	0.52	0/2642
1	O	0.28	0/1952	0.52	0/2642
2	B	0.28	0/1934	0.55	0/2618
2	P	0.28	0/1934	0.55	0/2618
3	C	0.29	0/1910	0.58	0/2586
3	Q	0.28	0/1910	0.58	0/2586
4	D	0.28	0/1837	0.54	0/2475
4	R	0.28	0/1837	0.54	0/2475
5	E	0.28	0/1800	0.53	0/2433
5	S	0.28	0/1800	0.53	0/2433
6	F	0.28	0/1932	0.51	0/2609
6	T	0.28	0/1932	0.51	0/2609
7	G	0.28	0/1945	0.52	0/2634
7	U	0.28	0/1945	0.52	0/2634
8	H	0.26	0/1715	0.51	0/2326
8	V	0.26	0/1715	0.51	0/2326
9	I	0.28	0/1611	0.53	0/2174
9	W	0.28	0/1611	0.53	0/2174
10	J	0.27	0/1589	0.53	0/2142
10	X	0.27	0/1589	0.53	0/2142
11	K	0.28	0/1681	0.53	0/2274
11	Y	0.29	0/1681	0.54	0/2274
12	L	0.27	0/1795	0.51	0/2420
12	Z	0.27	0/1795	0.51	0/2420
13	M	0.28	0/1855	0.56	0/2514
13	a	0.28	0/1855	0.57	0/2514
14	N	0.25	0/1541	0.49	0/2087
14	b	0.25	0/1541	0.49	0/2087
All	All	0.28	0/50194	0.53	0/67868

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
12	L	0	1
12	Z	0	1
All	All	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
12	L	135	GLN	Peptide
12	Z	135	GLN	Peptide

## 5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1915	0	1929	7	0
1	O	1915	0	1929	10	0
2	B	1904	0	1904	14	0
2	P	1904	0	1904	13	0
3	C	1881	0	1895	14	0
3	Q	1881	0	1895	12	0
4	D	1813	0	1797	7	0
4	R	1813	0	1797	8	0
5	E	1773	0	1775	8	0
5	S	1773	0	1775	8	0
6	F	1892	0	1883	5	0
6	T	1892	0	1883	7	0
7	G	1907	0	1901	9	0
7	U	1907	0	1901	10	0
8	H	1684	0	1688	5	0
8	V	1684	0	1688	4	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	I	1581	0	1574	9	0
9	W	1581	0	1574	8	0
10	J	1561	0	1569	8	0
10	X	1561	0	1569	8	0
11	K	1644	0	1593	14	0
11	Y	1644	0	1593	14	0
12	L	1757	0	1711	12	0
12	Z	1757	0	1711	12	0
13	M	1824	0	1832	8	0
13	a	1824	0	1832	0	0
14	N	1512	0	1481	4	0
14	b	1512	0	1481	0	0
15	G	1	0	0	0	0
15	I	1	0	0	0	0
15	K	1	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	K	12	0	13	0	0
16	Y	12	0	13	0	0
17	K	46	0	39	5	0
17	Y	46	0	39	9	0
18	A	24	0	0	0	0
18	B	23	0	0	0	0
18	C	14	0	0	0	0
18	D	12	0	0	0	0
18	E	11	0	0	0	0
18	F	23	0	0	1	0
18	G	27	0	0	0	0
18	H	21	0	0	0	0
18	I	26	0	0	0	0
18	J	23	0	0	0	0
18	K	24	0	0	0	0
18	L	23	0	0	0	0
18	M	27	0	0	0	0
18	N	16	0	0	0	0
18	O	20	0	0	0	0
18	P	11	0	0	0	0
18	Q	12	0	0	0	0
18	R	17	0	0	0	0
18	S	7	0	0	0	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	T	19	0	0	0	0
18	U	30	0	0	0	0
18	V	22	0	0	0	0
18	W	25	0	0	0	0
18	X	26	0	0	0	0
18	Y	20	0	0	2	0
18	Z	21	0	0	0	0
18	a	21	0	0	0	0
18	b	22	0	0	0	0
All	All	49987	0	49168	223	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 2.

All (223) 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)
17:Y:303:39V:H24	18:Y:416:HOH:O	1.54	1.08
17:Y:303:39V:C65	18:Y:416:HOH:O	2.01	1.05
11:K:53:GLN:O	11:K:57:THR:HG23	1.82	0.79
11:Y:53:GLN:O	11:Y:57:THR:HG23	1.83	0.79
2:P:93:HIS:HB3	2:P:113:ARG:HH21	1.49	0.77
1:A:176:GLU:HG3	2:B:55:LEU:HD22	1.68	0.76
2:B:93:HIS:HB3	2:B:113:ARG:HH21	1.50	0.75
10:X:1:MET:HA	10:X:34:LYS:HE3	1.69	0.75
10:J:1:MET:HA	10:J:34:LYS:HE3	1.69	0.74
11:K:100:MET:HE3	11:K:127:PHE:HB2	1.73	0.69
11:Y:100:MET:HE3	11:Y:127:PHE:HB2	1.73	0.69
11:Y:100:MET:CE	11:Y:127:PHE:HB2	2.25	0.67
3:Q:202:GLN:HG3	3:Q:203:THR:H	1.60	0.67
3:C:202:GLN:HG3	3:C:203:THR:H	1.60	0.66
2:P:15:GLU:O	3:Q:27:ARG:NH1	2.29	0.65
11:K:100:MET:CE	11:K:127:PHE:HB2	2.26	0.65
3:C:51:LYS:O	3:C:52:LEU:HB2	1.98	0.63
3:Q:51:LYS:O	3:Q:52:LEU:HB2	1.98	0.63
12:Z:13:LEU:HD13	12:Z:150:LEU:HD21	1.81	0.62
17:K:303:39V:O40	17:K:303:39V:N28	2.32	0.62
17:K:303:39V:O40	17:K:303:39V:H2	1.98	0.62
17:Y:303:39V:O3	17:Y:303:39V:H4	1.99	0.61
12:L:13:LEU:HD13	12:L:150:LEU:HD21	1.82	0.61
17:K:303:39V:H4	17:K:303:39V:O3	1.99	0.61

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:9:THR:HG21	5:E:119:THR:HA	1.84	0.60
14:N:20:THR:HG22	14:N:31:THR:OG1	2.01	0.60
7:G:23:PHE:O	7:G:26:THR:HB	2.02	0.59
7:U:23:PHE:O	7:U:26:THR:HB	2.02	0.59
5:S:9:THR:HG21	5:S:119:THR:HA	1.84	0.58
3:C:160:GLN:HE21	3:C:160:GLN:HA	1.68	0.58
3:Q:160:GLN:HE21	3:Q:160:GLN:HA	1.68	0.58
11:K:170:TYR:O	17:K:303:39V:H37	2.04	0.57
9:I:101:PRO:HB3	9:I:126:ILE:CD1	2.35	0.57
4:D:32:ILE:HD12	4:D:192:VAL:HG23	1.87	0.57
9:W:101:PRO:HB3	9:W:126:ILE:CD1	2.35	0.56
4:R:32:ILE:HD12	4:R:192:VAL:HG23	1.87	0.56
10:X:16:ALA:HB2	10:X:161:LEU:HD21	1.88	0.56
4:D:138:GLY:HA2	4:D:214:ILE:HG12	1.88	0.55
4:R:138:GLY:HA2	4:R:214:ILE:HG12	1.88	0.55
10:J:16:ALA:HB2	10:J:161:LEU:HD21	1.88	0.55
4:R:30:ILE:HD12	4:R:196:LEU:HG	1.90	0.55
10:X:1:MET:HA	10:X:34:LYS:CE	2.37	0.54
2:B:146:GLN:HG2	3:C:57:ILE:HG21	1.89	0.54
4:D:30:ILE:HD12	4:D:196:LEU:HG	1.90	0.54
10:J:1:MET:HA	10:J:34:LYS:CE	2.37	0.53
5:S:155:LEU:HD13	5:S:158:THR:HB	1.91	0.53
11:Y:100:MET:HE3	11:Y:127:PHE:CB	2.37	0.53
2:B:180:LYS:O	2:B:183:MET:HB2	2.09	0.53
5:E:155:LEU:HD13	5:E:158:THR:HB	1.90	0.52
2:B:8:ARG:HD2	3:C:4:ARG:NH2	2.24	0.52
11:K:100:MET:HE3	11:K:127:PHE:CB	2.38	0.52
3:Q:201:VAL:O	3:Q:202:GLN:HB2	2.10	0.52
3:C:201:VAL:O	3:C:202:GLN:HB2	2.10	0.52
3:C:201:VAL:HG13	3:C:202:GLN:N	2.25	0.52
2:B:149:THR:HG1	2:B:159:TRP:HE1	1.56	0.52
10:J:174:MET:HA	10:X:174:MET:HA	1.92	0.51
3:Q:201:VAL:HG13	3:Q:202:GLN:N	2.25	0.51
12:L:8:ASN:HA	12:L:30:ILE:O	2.11	0.51
17:K:303:39V:H16	17:K:303:39V:O3	2.10	0.51
2:P:180:LYS:O	2:P:183:MET:HB2	2.09	0.51
2:P:149:THR:HG1	2:P:159:TRP:HE1	1.57	0.51
4:R:185:LEU:O	4:R:189:GLU:HG3	2.11	0.51
9:W:101:PRO:HB3	9:W:126:ILE:HD12	1.91	0.51
6:T:14:ASP:N	6:T:14:ASP:OD2	2.41	0.51
11:Y:107:LYS:HE2	11:Y:108:GLU:HG3	1.93	0.50

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:55:LEU:HD12	7:G:170:THR:HG23	1.92	0.50
4:D:185:LEU:O	4:D:189:GLU:HG3	2.11	0.50
12:Z:13:LEU:CD1	12:Z:150:LEU:HD21	2.41	0.50
13:M:43:ILE:HG12	13:M:43:ILE:O	2.11	0.50
11:K:107:LYS:HE2	11:K:108:GLU:HG3	1.93	0.50
9:I:101:PRO:HB3	9:I:126:ILE:HD12	1.92	0.50
11:Y:33:LYS:NZ	17:Y:303:39V:H38	2.27	0.49
12:Z:8:ASN:HA	12:Z:30:ILE:O	2.11	0.49
6:F:14:ASP:OD2	6:F:14:ASP:N	2.42	0.49
2:P:89:THR:HG21	2:P:117:ILE:CD1	2.43	0.49
3:Q:9:PHE:H	4:R:15:GLN:HE22	1.61	0.49
5:S:136:TYR:CE1	5:S:217:LYS:HA	2.48	0.49
2:B:89:THR:HG21	2:B:117:ILE:CD1	2.43	0.49
5:S:155:LEU:HD23	6:T:55:LEU:HD23	1.95	0.48
12:L:13:LEU:CD1	12:L:150:LEU:HD21	2.42	0.48
5:E:136:TYR:CE1	5:E:217:LYS:HA	2.48	0.48
11:Y:31:VAL:HG11	17:Y:303:39V:C43	2.44	0.48
11:Y:145:LYS:HB2	11:Y:148:LEU:HD13	1.96	0.48
2:B:155:ASN:ND2	3:C:77:ASN:HB2	2.29	0.48
13:M:161:ARG:HH11	13:M:161:ARG:HG3	1.79	0.48
5:E:175:LEU:HA	5:E:178:PHE:CE2	2.49	0.48
17:Y:303:39V:O40	17:Y:303:39V:O32	2.17	0.48
2:B:47:ALA:HB1	2:B:64:LYS:HD2	1.96	0.47
11:K:1:THR:HG22	11:K:2:THR:N	2.29	0.47
5:S:175:LEU:HA	5:S:178:PHE:CE2	2.49	0.47
9:I:14:MET:HB2	9:I:162:LEU:HD11	1.97	0.47
4:R:160:ASN:HB3	4:R:179:TRP:CE2	2.50	0.47
7:G:239:ILE:O	7:G:242:GLN:HB3	2.14	0.47
11:K:145:LYS:HB2	11:K:148:LEU:HD13	1.96	0.47
4:D:160:ASN:HB3	4:D:179:TRP:CE2	2.50	0.47
9:W:36:SER:HB2	10:X:126:VAL:HG11	1.97	0.47
12:L:31:THR:HG23	12:L:36:ASN:HD21	1.79	0.47
7:U:239:ILE:O	7:U:242:GLN:HB3	2.15	0.47
12:Z:31:THR:HG23	12:Z:36:ASN:HD21	1.79	0.47
8:H:80:LEU:HD12	8:H:113:ILE:HD11	1.97	0.47
6:T:123:ASN:HD22	6:T:123:ASN:C	2.18	0.47
7:G:73:VAL:CG1	7:G:133:THR:HB	2.45	0.47
13:M:27:LEU:HB2	13:M:192:SER:HB3	1.96	0.47
9:W:14:MET:HB2	9:W:162:LEU:HD11	1.97	0.46
6:F:172:LEU:CD1	6:F:195:ILE:HD13	2.45	0.46
7:U:73:VAL:CG1	7:U:133:THR:HB	2.44	0.46

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:218:VAL:CG2	9:I:196:LYS:HB2	2.46	0.46
1:O:122:THR:HG22	2:P:128:ARG:HH21	1.79	0.46
2:P:47:ALA:HB1	2:P:64:LYS:HD2	1.96	0.46
3:C:35:LYS:HG2	3:C:158:SER:O	2.15	0.46
6:F:34:ILE:HG22	6:F:160:ALA:HB2	1.97	0.46
6:F:123:ASN:C	6:F:123:ASN:HD22	2.19	0.46
8:V:80:LEU:HD12	8:V:113:ILE:HD11	1.97	0.46
6:T:172:LEU:CD1	6:T:195:ILE:HD13	2.45	0.46
2:P:151:ASN:HB2	2:P:152:PRO:CD	2.46	0.46
3:C:9:PHE:H	4:D:15:GLN:HE22	1.64	0.46
1:O:122:THR:CG2	2:P:128:ARG:HH21	2.29	0.46
6:T:34:ILE:HG22	6:T:160:ALA:HB2	1.97	0.46
2:B:139:TYR:CE2	2:B:144:GLY:HA2	2.51	0.45
1:O:247:LEU:O	1:O:250:LEU:HB2	2.16	0.45
12:Z:62:ASP:O	12:Z:66:LYS:HB2	2.16	0.45
17:Y:303:39V:O27	17:Y:303:39V:H33	2.16	0.45
10:X:3:ILE:HD12	10:X:176:PHE:CG	2.51	0.45
6:T:13:PRO:O	7:U:24:LYS:HD2	2.17	0.45
3:Q:35:LYS:HG2	3:Q:158:SER:O	2.17	0.45
1:O:149:GLN:O	1:O:156:TYR:HA	2.17	0.45
12:Z:49:ASN:HD21	12:Z:211:GLY:HA2	1.82	0.45
10:X:91:SER:HA	10:X:94:SER:OG	2.17	0.45
1:O:23:TYR:CD1	7:U:12:PRO:HA	2.51	0.45
2:B:151:ASN:HB2	2:B:152:PRO:CD	2.46	0.45
12:L:49:ASN:HD21	12:L:211:GLY:HA2	1.82	0.45
10:X:3:ILE:HD12	10:X:176:PHE:CD2	2.52	0.45
14:N:32:ASP:OD2	14:N:185:ARG:NH2	2.50	0.45
10:J:3:ILE:HD12	10:J:176:PHE:CG	2.51	0.45
10:J:3:ILE:HD12	10:J:176:PHE:CD2	2.52	0.45
2:P:139:TYR:CE2	2:P:144:GLY:HA2	2.52	0.44
12:L:62:ASP:O	12:L:66:LYS:HB2	2.16	0.44
4:R:241:ALA:O	4:R:242:GLU:HB2	2.17	0.44
8:H:52:THR:O	8:H:56:THR:HB	2.17	0.44
1:A:247:LEU:O	1:A:250:LEU:HB2	2.17	0.44
4:D:241:ALA:O	4:D:242:GLU:HB2	2.17	0.44
1:A:149:GLN:O	1:A:156:TYR:HA	2.17	0.44
9:W:7:ASN:HA	9:W:29:GLY:O	2.18	0.44
17:Y:303:39V:H16	17:Y:303:39V:O3	2.16	0.44
5:S:38:ARG:HD2	5:S:39:SER:O	2.18	0.44
11:Y:37:ILE:HB	11:Y:41:LEU:HB3	2.00	0.44
13:M:17:ASP:OD1	13:M:18:ASN:N	2.50	0.44

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:91:SER:HA	10:J:94:SER:OG	2.17	0.44
8:V:52:THR:O	8:V:56:THR:HB	2.17	0.44
11:K:176:ASN:ND2	11:K:187:TYR:OH	2.51	0.44
11:Y:12:ILE:HB	11:Y:180:VAL:HB	2.00	0.44
11:Y:176:ASN:ND2	11:Y:187:TYR:OH	2.51	0.44
3:Q:160:GLN:HE22	3:Q:170:ARG:HE	1.66	0.43
5:E:38:ARG:HD2	5:E:39:SER:O	2.18	0.43
1:A:122:THR:CG2	2:B:128:ARG:HH21	2.32	0.43
5:E:155:LEU:HD23	6:F:55:LEU:HD23	2.00	0.43
7:G:52:ASP:HB3	7:G:55:LEU:HG	2.00	0.43
3:C:160:GLN:HE22	3:C:170:ARG:HE	1.65	0.43
9:I:36:SER:HB2	10:J:126:VAL:HG11	2.00	0.43
11:K:4:LEU:HD13	11:K:161:ILE:HD11	2.01	0.43
7:U:34:LEU:HD23	7:U:35:ALA:N	2.34	0.43
3:C:38:ASN:HD22	3:C:38:ASN:N	2.16	0.43
11:K:37:ILE:HB	11:K:41:LEU:HB3	2.00	0.43
8:V:104:ASP:HB2	8:V:105:PRO:HD2	2.01	0.43
7:U:73:VAL:HG12	7:U:133:THR:HB	2.00	0.43
8:V:7:LYS:HG3	8:V:123:TYR:HA	2.01	0.43
13:M:127:LEU:HG	13:M:142:LEU:HD12	2.01	0.43
11:Y:6:PHE:HA	11:Y:125:ASP:O	2.19	0.43
8:H:7:LYS:HG3	8:H:123:TYR:HA	2.01	0.43
18:F:317:HOH:O	7:G:28:GLN:HG3	2.19	0.42
7:U:52:ASP:HB3	7:U:55:LEU:HG	2.01	0.42
3:C:202:GLN:CG	3:C:203:THR:H	2.31	0.42
7:G:34:LEU:HD23	7:G:35:ALA:N	2.33	0.42
12:L:149:PHE:CE1	12:L:153:GLN:HG3	2.54	0.42
8:H:104:ASP:HB2	8:H:105:PRO:HD2	2.01	0.42
13:M:165:ILE:HB	13:M:166:PRO:HD3	2.01	0.42
17:Y:303:39V:H26	17:Y:303:39V:H39	1.90	0.42
12:L:23:LEU:HD13	12:L:43:VAL:HG13	2.00	0.42
14:N:176:VAL:HG12	14:N:178:LEU:HD13	2.01	0.42
12:Z:13:LEU:HD12	12:Z:14:GLY:N	2.34	0.42
7:G:73:VAL:HG12	7:G:133:THR:HB	2.00	0.42
5:E:28:ILE:HD11	5:E:148:PRO:CD	2.49	0.42
3:Q:190:VAL:O	3:Q:194:VAL:HG23	2.20	0.42
12:L:13:LEU:HD12	12:L:14:GLY:N	2.34	0.42
9:W:20:VAL:HG23	9:W:189:ILE:HB	2.02	0.42
1:O:12:PHE:H	2:P:20:GLN:HE22	1.67	0.42
1:O:14:PRO:HA	2:P:23:TYR:CD1	2.55	0.42
9:I:9:GLY:HA3	9:I:41:LYS:HE2	2.02	0.42

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:Z:149:PHE:CE1	12:Z:153:GLN:HG3	2.54	0.42
12:Z:23:LEU:HD13	12:Z:43:VAL:HG13	2.00	0.42
11:Y:4:LEU:HD13	11:Y:161:ILE:HD11	2.00	0.42
1:O:158:PRO:HB2	2:P:57:GLU:HB3	2.02	0.42
3:C:190:VAL:O	3:C:194:VAL:HG23	2.20	0.42
11:K:5:ALA:N	11:K:100:MET:HE1	2.35	0.42
11:K:12:ILE:HB	11:K:180:VAL:HB	2.00	0.42
11:K:6:PHE:HA	11:K:125:ASP:O	2.20	0.42
3:Q:38:ASN:N	3:Q:38:ASN:HD22	2.16	0.41
5:S:12:PHE:H	6:T:19:GLN:HE22	1.67	0.41
13:M:48:ASN:H	13:M:48:ASN:HD22	1.68	0.41
1:O:55:LEU:HB3	7:U:159:ALA:O	2.21	0.41
5:S:28:ILE:HD11	5:S:148:PRO:CD	2.49	0.41
12:L:210:ASP:OD1	12:L:210:ASP:N	2.54	0.41
9:W:10:ILE:HG21	9:W:141:ALA:HB3	2.03	0.41
9:W:9:GLY:HA3	9:W:41:LYS:HE2	2.02	0.41
5:E:178:PHE:HA	5:E:181:ILE:HG13	2.03	0.41
12:Z:210:ASP:OD1	12:Z:210:ASP:N	2.54	0.41
1:A:122:THR:HG22	2:B:128:ARG:HH21	1.85	0.41
11:Y:5:ALA:N	11:Y:100:MET:HE1	2.35	0.41
9:I:7:ASN:HA	9:I:29:GLY:O	2.20	0.41
2:B:46:ALA:HB2	2:B:212:PHE:CE1	2.56	0.41
9:I:20:VAL:HG23	9:I:189:ILE:HB	2.01	0.41
12:Z:195:HIS:HD2	12:Z:197:GLN:H	1.68	0.41
12:L:125:PHE:CD2	12:L:131:TYR:HB3	2.56	0.41
12:Z:125:PHE:CD2	12:Z:131:TYR:HB3	2.56	0.41
3:Q:11:PRO:HA	4:R:18:TYR:CD1	2.56	0.41
7:G:149:ASP:HB2	7:G:150:PRO:CD	2.51	0.40
9:I:10:ILE:HG21	9:I:141:ALA:HB3	2.03	0.40
7:U:149:ASP:HB2	7:U:150:PRO:CD	2.52	0.40
13:M:43:ILE:HG21	13:M:64:GLU:HG2	2.03	0.40
12:L:195:HIS:HD2	12:L:197:GLN:H	1.68	0.40
1:O:115:ALA:HB1	1:O:154:GLY:O	2.21	0.40
14:N:20:THR:HG23	14:N:28:ASN:HB3	2.03	0.40
1:A:49:LYS:HG3	1:A:210:GLU:HB2	2.04	0.40

There are no symmetry-related clashes.



## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	248/250 (99%)	241 (97%)	6 (2%)	1 (0%)	39	74
1	O	248/250 (99%)	240 (97%)	7 (3%)	1 (0%)	39	74
2	B	242/258 (94%)	233 (96%)	7 (3%)	2 (1%)	24	58
2	P	242/258 (94%)	233 (96%)	7 (3%)	2 (1%)	24	58
3	C	238/254 (94%)	227 (95%)	6 (2%)	5 (2%)	9	29
3	Q	238/254 (94%)	227 (95%)	6 (2%)	5 (2%)	9	29
4	D	231/260 (89%)	226 (98%)	5 (2%)	0	100	100
4	R	231/260 (89%)	226 (98%)	5 (2%)	0	100	100
5	E	229/234 (98%)	221 (96%)	7 (3%)	1 (0%)	39	74
5	S	229/234 (98%)	221 (96%)	7 (3%)	1 (0%)	39	74
6	F	241/288 (84%)	234 (97%)	6 (2%)	1 (0%)	39	74
6	T	241/288 (84%)	234 (97%)	6 (2%)	1 (0%)	39	74
7	G	239/252 (95%)	236 (99%)	2 (1%)	1 (0%)	39	74
7	U	239/252 (95%)	236 (99%)	2 (1%)	1 (0%)	39	74
8	H	220/232 (95%)	211 (96%)	9 (4%)	0	100	100
8	V	220/232 (95%)	211 (96%)	9 (4%)	0	100	100
9	I	202/205 (98%)	196 (97%)	6 (3%)	0	100	100
9	W	202/205 (98%)	196 (97%)	6 (3%)	0	100	100
10	J	193/198 (98%)	189 (98%)	2 (1%)	2 (1%)	19	52
10	X	193/198 (98%)	189 (98%)	2 (1%)	2 (1%)	19	52
11	K	210/212 (99%)	203 (97%)	6 (3%)	1 (0%)	34	69
11	Y	210/212 (99%)	204 (97%)	5 (2%)	1 (0%)	34	69
12	L	220/222 (99%)	214 (97%)	6 (3%)	0	100	100
12	Z	220/222 (99%)	214 (97%)	6 (3%)	0	100	100
13	M	231/246 (94%)	225 (97%)	6 (3%)	0	100	100

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	a	231/246 (94%)	224 (97%)	7 (3%)	0	100	100
14	N	194/196 (99%)	188 (97%)	6 (3%)	0	100	100
14	b	194/196 (99%)	188 (97%)	6 (3%)	0	100	100
All	All	6276/6614 (95%)	6087 (97%)	161 (3%)	28 (0%)	39	74

All (28) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	51	VAL
3	C	202	GLN
10	J	2	ASP
2	P	51	VAL
3	Q	202	GLN
10	X	2	ASP
11	K	9	GLN
11	Y	9	GLN
2	B	221	ASP
3	C	183	PRO
3	C	205	ALA
5	E	231	LYS
2	P	221	ASP
3	Q	183	PRO
3	Q	205	ALA
5	S	231	LYS
6	F	203	ASN
6	T	203	ASN
1	A	2	THR
3	C	206	LYS
1	O	2	THR
3	Q	206	LYS
7	G	51	PRO
10	J	9	VAL
7	U	51	PRO
10	X	9	VAL
3	C	201	VAL
3	Q	201	VAL

### 5.3.2 Protein sidechains ⓘ

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

resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	209/209 (100%)	203 (97%)	6 (3%)	50	83
1	O	209/209 (100%)	203 (97%)	6 (3%)	50	83
2	B	203/216 (94%)	187 (92%)	16 (8%)	15	40
2	P	203/216 (94%)	187 (92%)	16 (8%)	15	40
3	C	212/226 (94%)	194 (92%)	18 (8%)	13	36
3	Q	212/226 (94%)	194 (92%)	18 (8%)	13	36
4	D	194/215 (90%)	179 (92%)	15 (8%)	16	41
4	R	194/215 (90%)	179 (92%)	15 (8%)	16	41
5	E	190/193 (98%)	169 (89%)	21 (11%)	8	23
5	S	190/193 (98%)	169 (89%)	21 (11%)	8	23
6	F	201/239 (84%)	185 (92%)	16 (8%)	15	40
6	T	201/239 (84%)	185 (92%)	16 (8%)	15	40
7	G	206/210 (98%)	191 (93%)	15 (7%)	17	44
7	U	206/210 (98%)	191 (93%)	15 (7%)	17	44
8	H	181/190 (95%)	173 (96%)	8 (4%)	35	69
8	V	181/190 (95%)	173 (96%)	8 (4%)	35	69
9	I	172/173 (99%)	164 (95%)	8 (5%)	32	67
9	W	172/173 (99%)	164 (95%)	8 (5%)	32	67
10	J	173/175 (99%)	161 (93%)	12 (7%)	19	48
10	X	173/175 (99%)	161 (93%)	12 (7%)	19	48
11	K	169/169 (100%)	160 (95%)	9 (5%)	28	61
11	Y	169/169 (100%)	160 (95%)	9 (5%)	28	61
12	L	185/185 (100%)	175 (95%)	10 (5%)	27	60
12	Z	185/185 (100%)	175 (95%)	10 (5%)	27	60
13	M	199/208 (96%)	189 (95%)	10 (5%)	30	64
13	a	199/208 (96%)	189 (95%)	10 (5%)	30	64
14	N	162/162 (100%)	156 (96%)	6 (4%)	41	76
14	b	162/162 (100%)	156 (96%)	6 (4%)	41	76
All	All	5312/5540 (96%)	4972 (94%)	340 (6%)	22	52

All (340) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	LYS
1	A	61	LEU
1	A	122	THR
1	A	157	PHE
1	A	231	LYS
1	A	250	LEU
2	B	50	LYS
2	B	52	THR
2	B	54	THR
2	B	55	LEU
2	B	58	GLN
2	B	62	THR
2	B	65	LEU
2	B	119	GLN
2	B	173	THR
2	B	180	LYS
2	B	184	LYS
2	B	191	LEU
2	B	197	SER
2	B	209	ARG
2	B	238	LEU
2	B	239	VAL
3	C	4	ARG
3	C	38	ASN
3	C	48	SER
3	C	49	THR
3	C	51	LYS
3	C	55	THR
3	C	61	LYS
3	C	77	ASN
3	C	116	GLN
3	C	124	VAL
3	C	147	GLN
3	C	160	GLN
3	C	169	VAL
3	C	175	LYS
3	C	180	LYS
3	C	187	GLU
3	C	203	THR
3	C	239	GLN
4	D	20	LEU
4	D	40	LEU

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
4	D	51	LEU
4	D	60	VAL
4	D	117	GLU
4	D	125	LEU
4	D	176	LEU
4	D	182	SER
4	D	190	LEU
4	D	193	LEU
4	D	214	ILE
4	D	224	ASP
4	D	235	LEU
4	D	236	LYS
4	D	242	GLU
5	E	3	ASN
5	E	4	ASN
5	E	8	ASP
5	E	9	THR
5	E	10	VAL
5	E	25	LEU
5	E	29	LYS
5	E	55	LEU
5	E	60	LYS
5	E	71	LEU
5	E	87	LEU
5	E	92	ASN
5	E	116	GLN
5	E	144	LEU
5	E	184	ASN
5	E	188	LEU
5	E	207	VAL
5	E	208	ASP
5	E	219	THR
5	E	229	VAL
5	E	231	LYS
6	F	14	ASP
6	F	94	SER
6	F	117	GLN
6	F	123	ASN
6	F	139	LYS
6	F	163	LYS
6	F	165	ARG
6	F	172	LEU

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
6	F	181	GLU
6	F	198	LEU
6	F	203	ASN
6	F	206	LYS
6	F	214	TRP
6	F	221	ASN
6	F	228	LYS
6	F	240	GLN
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	125	MET
7	G	166	GLN
7	G	171	THR
7	G	181	LYS
7	G	192	LYS
7	G	201	MET
7	G	230	GLU
7	G	235	ARG
7	G	236	LEU
8	H	13	VAL
8	H	30	ASN
8	H	34	LEU
8	H	55	VAL
8	H	56	THR
8	H	68	LEU
8	H	113	ILE
8	H	198	GLU
9	I	31	GLN
9	I	37	ASN
9	I	92	SER
9	I	133	LYS
9	I	151	SER
9	I	171	LEU
9	I	182	TRP
9	I	193	GLU
10	J	2	ASP
10	J	23	ARG
10	J	35	THR

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
10	J	36	ARG
10	J	75	LEU
10	J	78	GLN
10	J	91	SER
10	J	95	ARG
10	J	144	LEU
10	J	163	LEU
10	J	166	GLN
10	J	174	MET
11	K	4	LEU
11	K	9	GLN
11	K	31	VAL
11	K	35	ILE
11	K	41	LEU
11	K	57	THR
11	K	106	ARG
11	K	118	ASP
11	K	148	LEU
12	L	1	GLN
12	L	3	ASN
12	L	11	THR
12	L	23	LEU
12	L	49	ASN
12	L	136	CYS
12	L	150	LEU
12	L	167	LYS
12	L	173	LYS
12	L	210	ASP
13	M	43	ILE
13	M	48	ASN
13	M	70	LEU
13	M	104	ARG
13	M	161	ARG
13	M	187	ARG
13	M	204	THR
13	M	212	LEU
13	M	215	GLU
13	M	233	ILE
14	N	9	LYS
14	N	20	THR
14	N	44	CYS
14	N	104	ASP

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
14	N	119	VAL
14	N	178	LEU
1	O	17	LYS
1	O	61	LEU
1	O	122	THR
1	O	157	PHE
1	O	231	LYS
1	O	250	LEU
2	P	50	LYS
2	P	52	THR
2	P	54	THR
2	P	55	LEU
2	P	58	GLN
2	P	62	THR
2	P	65	LEU
2	P	119	GLN
2	P	173	THR
2	P	180	LYS
2	P	184	LYS
2	P	191	LEU
2	P	197	SER
2	P	209	ARG
2	P	238	LEU
2	P	239	VAL
3	Q	4	ARG
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	77	ASN
3	Q	116	GLN
3	Q	124	VAL
3	Q	147	GLN
3	Q	160	GLN
3	Q	169	VAL
3	Q	175	LYS
3	Q	180	LYS
3	Q	187	GLU
3	Q	203	THR
3	Q	239	GLN

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type
4	R	20	LEU
4	R	40	LEU
4	R	51	LEU
4	R	60	VAL
4	R	117	GLU
4	R	125	LEU
4	R	176	LEU
4	R	182	SER
4	R	190	LEU
4	R	193	LEU
4	R	214	ILE
4	R	224	ASP
4	R	235	LEU
4	R	236	LYS
4	R	242	GLU
5	S	3	ASN
5	S	4	ASN
5	S	8	ASP
5	S	9	THR
5	S	10	VAL
5	S	25	LEU
5	S	29	LYS
5	S	55	LEU
5	S	60	LYS
5	S	71	LEU
5	S	87	LEU
5	S	92	ASN
5	S	116	GLN
5	S	144	LEU
5	S	184	ASN
5	S	188	LEU
5	S	207	VAL
5	S	208	ASP
5	S	219	THR
5	S	229	VAL
5	S	231	LYS
6	T	14	ASP
6	T	94	SER
6	T	117	GLN
6	T	123	ASN
6	T	139	LYS
6	T	163	LYS

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
6	T	165	ARG
6	T	172	LEU
6	T	181	GLU
6	T	198	LEU
6	T	203	ASN
6	T	206	LYS
6	T	214	TRP
6	T	221	ASN
6	T	228	LYS
6	T	240	GLN
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	125	MET
7	U	166	GLN
7	U	171	THR
7	U	181	LYS
7	U	192	LYS
7	U	201	MET
7	U	230	GLU
7	U	235	ARG
7	U	236	LEU
8	V	13	VAL
8	V	30	ASN
8	V	34	LEU
8	V	55	VAL
8	V	56	THR
8	V	68	LEU
8	V	113	ILE
8	V	198	GLU
9	W	31	GLN
9	W	37	ASN
9	W	92	SER
9	W	133	LYS
9	W	151	SER
9	W	171	LEU
9	W	182	TRP
9	W	193	GLU
10	X	2	ASP

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
10	X	23	ARG
10	X	35	THR
10	X	36	ARG
10	X	75	LEU
10	X	78	GLN
10	X	91	SER
10	X	95	ARG
10	X	144	LEU
10	X	163	LEU
10	X	166	GLN
10	X	174	MET
11	Y	4	LEU
11	Y	9	GLN
11	Y	31	VAL
11	Y	35	ILE
11	Y	41	LEU
11	Y	57	THR
11	Y	106	ARG
11	Y	118	ASP
11	Y	148	LEU
12	Z	1	GLN
12	Z	3	ASN
12	Z	11	THR
12	Z	23	LEU
12	Z	49	ASN
12	Z	136	CYS
12	Z	150	LEU
12	Z	167	LYS
12	Z	173	LYS
12	Z	210	ASP
13	a	43	ILE
13	a	48	ASN
13	a	70	LEU
13	a	104	ARG
13	a	161	ARG
13	a	187	ARG
13	a	204	THR
13	a	212	LEU
13	a	215	GLU
13	a	233	ILE
14	b	9	LYS
14	b	20	THR

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
14	b	44	CYS
14	b	104	ASP
14	b	119	VAL
14	b	178	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (127) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	94	HIS
2	B	20	GLN
2	B	58	GLN
2	B	93	HIS
2	B	95	GLN
2	B	102	ASN
2	B	119	GLN
2	B	123	GLN
2	B	155	ASN
3	C	38	ASN
3	C	77	ASN
3	C	116	GLN
3	C	120	GLN
3	C	147	GLN
3	C	160	GLN
3	C	233	GLN
4	D	15	GLN
4	D	91	HIS
4	D	100	ASN
4	D	146	GLN
4	D	225	ASN
5	E	68	HIS
5	E	92	ASN
5	E	99	ASN
5	E	116	GLN
5	E	118	ASN
5	E	120	GLN
5	E	184	ASN
6	F	19	GLN
6	F	86	ASN
6	F	117	GLN
6	F	123	ASN
6	F	191	GLN
6	F	240	GLN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
7	G	30	ASN
7	G	83	ASN
7	G	114	ASN
7	G	117	GLN
7	G	121	GLN
7	G	167	GLN
7	G	175	ASN
8	H	30	ASN
8	H	57	GLN
8	H	66	HIS
8	H	172	ASN
8	H	189	ASN
9	I	31	GLN
10	J	55	GLN
10	J	118	GLN
10	J	146	HIS
10	J	147	HIS
10	J	191	GLN
11	K	85	ASN
11	K	143	ASN
11	K	176	ASN
12	L	3	ASN
12	L	49	ASN
12	L	70	ASN
12	L	158	ASN
13	M	18	ASN
13	M	48	ASN
13	M	179	ASN
14	N	161	GLN
1	O	94	HIS
2	P	20	GLN
2	P	58	GLN
2	P	93	HIS
2	P	95	GLN
2	P	119	GLN
2	P	123	GLN
2	P	155	ASN
3	Q	38	ASN
3	Q	77	ASN
3	Q	116	GLN
3	Q	120	GLN
3	Q	147	GLN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
3	Q	160	GLN
3	Q	233	GLN
4	R	15	GLN
4	R	100	ASN
4	R	146	GLN
4	R	225	ASN
5	S	59	GLN
5	S	68	HIS
5	S	92	ASN
5	S	99	ASN
5	S	116	GLN
5	S	118	ASN
5	S	120	GLN
5	S	184	ASN
6	T	19	GLN
6	T	86	ASN
6	T	117	GLN
6	T	123	ASN
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	167	GLN
7	U	175	ASN
8	V	30	ASN
8	V	57	GLN
8	V	66	HIS
8	V	172	ASN
8	V	189	ASN
9	W	31	GLN
10	X	55	GLN
10	X	86	GLN
10	X	118	GLN
10	X	146	HIS
10	X	147	HIS
10	X	191	GLN
11	Y	85	ASN
11	Y	143	ASN
11	Y	176	ASN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
12	Z	3	ASN
12	Z	49	ASN
12	Z	70	ASN
12	Z	158	ASN
13	a	18	ASN
13	a	48	ASN
13	a	102	GLN
13	a	179	ASN
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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 8 are monoatomic - leaving 4 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	MES	K	302	-	11,12,12	0.64	0	14,16,16	1.42	2 (14%)
17	39V	K	303	-	46,50,50	3.33	15 (32%)	51,70,70	1.62	9 (17%)
16	MES	Y	302	-	11,12,12	0.63	0	14,16,16	1.46	2 (14%)
17	39V	Y	303	-	46,50,50	3.45	15 (32%)	51,70,70	1.61	8 (15%)

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	MES	K	302	-	-	0/6/14/14	0/1/1/1
17	39V	K	303	-	-	0/40/54/54	0/5/5/5
16	MES	Y	302	-	-	0/6/14/14	0/1/1/1
17	39V	Y	303	-	-	0/40/54/54	0/5/5/5

All (30) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	Y	303	39V	C51-C50	-11.23	1.36	1.52
17	K	303	39V	C51-C50	-11.18	1.36	1.52
17	Y	303	39V	C51-C52	-7.33	1.37	1.50
17	Y	303	39V	C57-C52	-7.10	1.30	1.39
17	K	303	39V	C51-C52	-7.05	1.38	1.50
17	K	303	39V	C57-C52	-6.70	1.30	1.39
17	Y	303	39V	C57-C58	-6.45	1.30	1.44
17	K	303	39V	C63-C67	-6.35	1.29	1.42
17	Y	303	39V	C60-C68	-6.28	1.30	1.41
17	K	303	39V	C60-C68	-6.26	1.30	1.41
17	K	303	39V	C57-C58	-6.03	1.31	1.44
17	Y	303	39V	C30-C41	-6.02	1.36	1.51
17	Y	303	39V	C63-C67	-5.99	1.30	1.42
17	Y	303	39V	C56-C57	-5.18	1.31	1.39
17	K	303	39V	C30-C41	-4.99	1.39	1.51
17	Y	303	39V	C53-C52	-4.82	1.31	1.39
17	K	303	39V	C56-C57	-4.59	1.32	1.39
17	K	303	39V	C67-C68	-4.55	1.30	1.42
17	Y	303	39V	C67-C68	-4.31	1.31	1.42
17	K	303	39V	C65-C66	-4.31	1.30	1.38
17	K	303	39V	C53-C52	-4.28	1.32	1.39
17	Y	303	39V	C65-C66	-3.65	1.31	1.38
17	K	303	39V	C65-N69	-2.66	1.31	1.36
17	K	303	39V	C68-N69	-2.64	1.30	1.38
17	Y	303	39V	C50-C58	-2.37	1.31	1.36
17	Y	303	39V	C68-N69	-2.29	1.31	1.38
17	K	303	39V	C50-C58	-2.28	1.31	1.36
17	Y	303	39V	C65-N69	-2.22	1.32	1.36
17	K	303	39V	O32-C31	5.60	1.31	1.21
17	Y	303	39V	O32-C31	7.00	1.33	1.21



All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	Y	303	39V	O32-C31-C37	-6.24	107.83	120.95
17	K	303	39V	O32-C31-C37	-5.42	109.55	120.95
17	K	303	39V	C17-C66-C65	-4.00	123.03	127.97
17	K	303	39V	C30-C29-N28	-3.53	103.40	110.80
17	Y	303	39V	C30-C29-N28	-2.92	104.69	110.80
17	Y	303	39V	C17-C66-C65	-2.66	124.68	127.97
17	K	303	39V	C52-C57-C58	-2.58	107.59	109.50
17	Y	303	39V	C52-C57-C58	-2.58	107.60	109.50
17	Y	303	39V	C54-C55-C56	-2.44	116.61	120.19
17	K	303	39V	C62-C61-C60	-2.22	117.22	120.45
17	K	303	39V	C54-C55-C56	-2.16	117.02	120.19
17	Y	303	39V	C30-C41-C46	-2.04	116.64	120.90
17	K	303	39V	C41-C30-C29	2.05	119.37	113.41
16	K	302	MES	O1S-S-C8	2.64	109.15	106.91
17	Y	303	39V	C52-C51-C50	2.75	105.09	102.88
17	K	303	39V	C52-C51-C50	2.81	105.14	102.88
17	K	303	39V	C11-N1-C2	2.90	125.84	121.31
16	Y	302	MES	O1S-S-C8	2.92	109.39	106.91
16	K	302	MES	O2S-S-C8	3.05	109.50	106.91
16	Y	302	MES	O2S-S-C8	3.49	109.89	106.91
17	Y	303	39V	C11-N1-C2	4.06	127.65	121.31

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
17	K	303	39V	5	0
17	Y	303	39V	9	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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%)	-0.55	3 (1%) 81 73	40, 55, 90, 123	0
1	O	250/250 (100%)	-0.53	3 (1%) 81 73	41, 60, 97, 126	0
2	B	244/258 (94%)	-0.44	9 (3%) 45 33	39, 58, 103, 159	0
2	P	244/258 (94%)	-0.39	11 (4%) 37 26	40, 61, 114, 162	0
3	C	240/254 (94%)	-0.34	12 (5%) 32 21	42, 63, 123, 147	0
3	Q	240/254 (94%)	-0.18	14 (5%) 26 16	45, 72, 141, 154	0
4	D	235/260 (90%)	-0.47	1 (0%) 93 90	44, 65, 96, 131	0
4	R	235/260 (90%)	-0.47	5 (2%) 67 56	44, 67, 98, 143	0
5	E	231/234 (98%)	-0.41	1 (0%) 93 90	45, 70, 100, 141	0
5	S	231/234 (98%)	-0.35	1 (0%) 93 90	41, 74, 108, 139	0
6	F	243/288 (84%)	-0.50	8 (3%) 50 38	42, 62, 105, 139	0
6	T	243/288 (84%)	-0.53	3 (1%) 81 73	38, 64, 109, 133	0
7	G	241/252 (95%)	-0.57	3 (1%) 81 73	34, 56, 93, 129	0
7	U	241/252 (95%)	-0.55	3 (1%) 81 73	39, 57, 89, 121	0
8	H	222/232 (95%)	-0.57	4 (1%) 71 61	38, 54, 80, 124	0
8	V	222/232 (95%)	-0.55	2 (0%) 85 79	41, 58, 82, 123	0
9	I	204/205 (99%)	-0.82	2 (0%) 84 77	34, 49, 78, 112	0
9	W	204/205 (99%)	-0.79	2 (0%) 84 77	36, 52, 77, 107	0
10	J	195/198 (98%)	-0.72	2 (1%) 84 77	36, 50, 77, 121	0
10	X	195/198 (98%)	-0.62	2 (1%) 84 77	37, 53, 79, 147	0
11	K	212/212 (100%)	-0.73	1 (0%) 91 88	38, 52, 76, 102	0
11	Y	212/212 (100%)	-0.70	1 (0%) 91 88	29, 53, 75, 104	0
12	L	222/222 (100%)	-0.68	1 (0%) 91 88	37, 55, 83, 99	0
12	Z	222/222 (100%)	-0.69	2 (0%) 85 79	37, 54, 77, 92	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
13	M	233/246 (94%)	-0.69	2 (0%) 85 79	36, 54, 77, 109	0
13	a	233/246 (94%)	-0.68	1 (0%) 93 90	36, 52, 76, 108	0
14	N	196/196 (100%)	-0.73	0 100 100	38, 51, 76, 99	0
14	b	196/196 (100%)	-0.72	1 (0%) 91 88	36, 51, 78, 103	0
All	All	6336/6614 (95%)	-0.56	100 (1%) 74 66	29, 58, 98, 162	0

All (100) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	Q	49	THR	7.5
2	B	220	ASN	6.4
8	V	222	ASP	6.0
3	C	206	LYS	5.6
10	X	194	ASP	5.6
2	P	219	ALA	5.1
2	B	219	ALA	5.1
2	B	221	ASP	4.8
8	H	222	ASP	4.6
2	P	222	GLY	4.3
3	Q	240	GLU	4.2
2	P	221	ASP	4.0
3	Q	50	LEU	4.0
3	C	49	THR	3.8
3	Q	206	LYS	3.8
5	E	202	ASP	3.8
2	P	51	VAL	3.7
6	F	181	GLU	3.7
2	P	220	ASN	3.7
8	H	221	CYS	3.6
1	A	1	MET	3.4
2	P	59	ASP	3.4
3	C	238	LYS	3.4
5	S	202	ASP	3.3
2	B	51	VAL	3.3
3	Q	48	SER	3.3
4	D	242	GLU	3.3
1	O	249	ALA	3.2
8	V	221	CYS	3.2
7	G	2	GLY	3.2
3	Q	239	GLN	3.2
2	B	222	GLY	3.2

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
13	M	1	THR	3.1
2	B	218	GLY	3.0
11	Y	212	GLY	3.0
3	C	225	GLU	3.0
1	O	1	MET	2.9
10	J	1	MET	2.9
2	P	50	LYS	2.9
3	Q	236	GLN	2.8
3	Q	51	LYS	2.8
6	T	205	GLU	2.8
7	U	242	GLN	2.8
6	F	244	ASN	2.8
13	M	233	ILE	2.8
3	Q	203	THR	2.7
6	F	205	GLU	2.7
13	a	1	THR	2.7
3	C	239	GLN	2.6
6	T	243	ILE	2.6
4	R	125	LEU	2.6
3	Q	180	LYS	2.6
4	R	1	ASP	2.5
1	A	250	LEU	2.5
3	C	181	GLU	2.5
4	R	242	GLU	2.5
3	Q	202	GLN	2.5
7	U	241	GLU	2.5
6	T	181	GLU	2.4
6	F	202	ASP	2.4
4	R	54	ASP	2.4
10	J	194	ASP	2.3
9	W	1	SER	2.3
6	F	180	PRO	2.3
3	C	202	GLN	2.3
3	C	1	GLY	2.3
11	K	212	GLY	2.3
9	I	133	LYS	2.3
3	Q	223	SER	2.3
2	P	60	THR	2.3
6	F	201	GLU	2.2
3	C	236	GLN	2.2
2	P	182	ASP	2.2
6	F	243	ILE	2.2

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
3	C	50	LEU	2.2
3	C	203	THR	2.2
6	F	2	THR	2.2
2	P	218	GLY	2.2
14	b	105	LYS	2.2
3	C	240	GLU	2.2
1	A	249	ALA	2.2
2	B	203	SER	2.1
7	U	2	GLY	2.1
9	I	1	SER	2.1
2	B	50	LYS	2.1
9	W	133	LYS	2.1
10	X	193	ASP	2.1
2	B	242	GLY	2.1
2	P	203	SER	2.1
3	Q	238	LYS	2.1
3	Q	55	THR	2.1
12	L	165	ASN	2.1
7	G	242	GLN	2.1
12	Z	1	GLN	2.0
4	R	241	ALA	2.0
12	Z	210	ASP	2.0
8	H	22	GLN	2.0
7	G	3	TYR	2.0
1	O	201	GLU	2.0
8	H	198	GLU	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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
16	MES	K	302	12/12	0.95	0.26	5.04	62,64,68,69	0
16	MES	Y	302	12/12	0.95	0.24	4.70	66,70,73,75	0
17	39V	Y	303	46/46	0.92	0.18	1.39	39,50,70,74	0
17	39V	K	303	46/46	0.94	0.15	0.78	37,48,65,67	0
15	MG	N	201	1/1	0.97	0.10	-0.92	55,55,55,55	0
15	MG	G	301	1/1	0.97	0.06	-1.50	52,52,52,52	0
15	MG	V	301	1/1	0.94	0.07	-1.84	67,67,67,67	0
15	MG	Z	301	1/1	0.98	0.08	-1.93	58,58,58,58	0
15	MG	K	301	1/1	0.98	0.05	-2.04	64,64,64,64	0
15	MG	I	301	1/1	0.99	0.03	-2.49	60,60,60,60	0
15	MG	Y	301	1/1	0.99	0.04	-2.69	48,48,48,48	0
15	MG	N	202	1/1	0.89	0.25	-	66,66,66,66	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.