



# Full wwPDB X-ray Structure Validation Report ⓘ

May 14, 2020 – 03:53 pm BST

PDB ID : 6S79  
Title : Crystal structure of CARM1 in complex with inhibitor AA183  
Authors : Gunnell, E.A.; Al-Noori, A.; Dowden, J.; Dreveny, I.  
Deposited on : 2019-07-04  
Resolution : 2.10 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.11

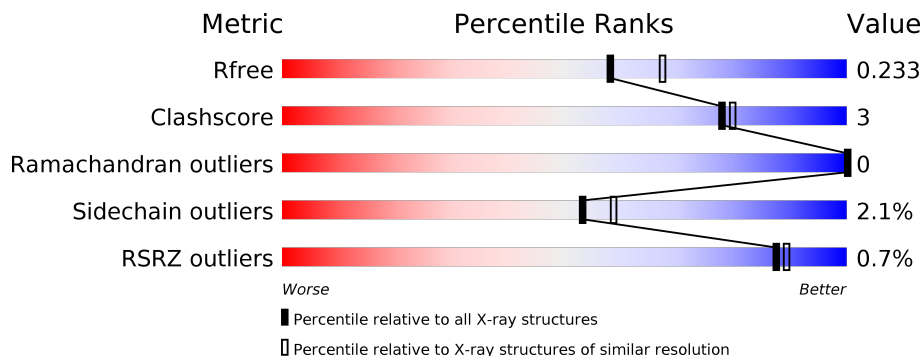
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.10 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	5197 (2.10-2.10)
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)
RSRZ outliers	127900	5083 (2.10-2.10)

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 respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	351	 % 82% 13% ...
1	B	351	 80% 15% ..
1	C	351	 79% 16% ..
1	D	351	 % 83% 13% ..

## 2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 11521 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 Histone-arginine methyltransferase CARM1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	342	2744	1772	453	505	14	0	0	0
1	B	342	2764	1785	455	510	14	0	2	0
1	C	342	2767	1785	458	510	14	0	3	0
1	D	342	2751	1777	455	505	14	0	1	0

There are 24 discrepancies between the modelled and reference sequences:

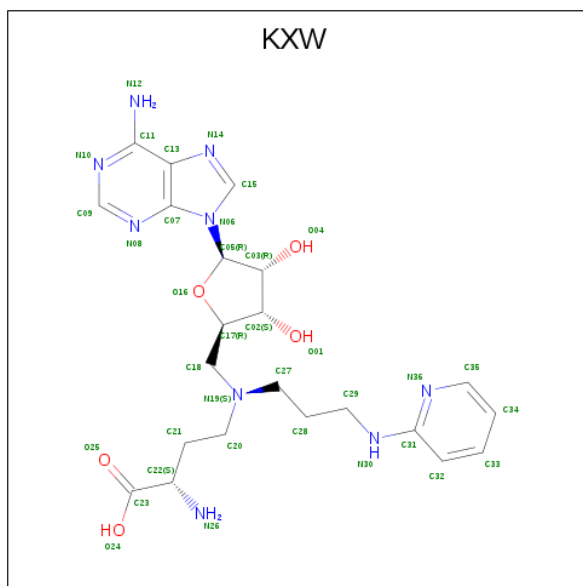
Chain	Residue	Modelled	Actual	Comment	Reference
A	480	HIS	-	expression tag	UNP Q86X55
A	481	HIS	-	expression tag	UNP Q86X55
A	482	HIS	-	expression tag	UNP Q86X55
A	483	HIS	-	expression tag	UNP Q86X55
A	484	HIS	-	expression tag	UNP Q86X55
A	485	HIS	-	expression tag	UNP Q86X55
B	480	HIS	-	expression tag	UNP Q86X55
B	481	HIS	-	expression tag	UNP Q86X55
B	482	HIS	-	expression tag	UNP Q86X55
B	483	HIS	-	expression tag	UNP Q86X55
B	484	HIS	-	expression tag	UNP Q86X55
B	485	HIS	-	expression tag	UNP Q86X55
C	480	HIS	-	expression tag	UNP Q86X55
C	481	HIS	-	expression tag	UNP Q86X55
C	482	HIS	-	expression tag	UNP Q86X55
C	483	HIS	-	expression tag	UNP Q86X55
C	484	HIS	-	expression tag	UNP Q86X55
C	485	HIS	-	expression tag	UNP Q86X55
D	480	HIS	-	expression tag	UNP Q86X55
D	481	HIS	-	expression tag	UNP Q86X55
D	482	HIS	-	expression tag	UNP Q86X55

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Chain	Residue	Modelled	Actual	Comment	Reference
D	483	HIS	-	expression tag	UNP Q86X55
D	484	HIS	-	expression tag	UNP Q86X55
D	485	HIS	-	expression tag	UNP Q86X55

- Molecule 2 is (2 {S})-4-[[[(2 {R},3 {S},4 {R},5 {R})-5-(6-aminopurin-9-yl)-3,4-bis(oxidanyl)oxolan-2-yl]methyl-[3-(pyridin-2-ylamino)propyl]amino]-2-azanyl-butanoic acid (three-letter code: KXW) (formula: C<sub>22</sub>H<sub>31</sub>N<sub>9</sub>O<sub>5</sub>) (labeled as "Ligand of Interest" by author).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	Total	C	N	O	0	0
			36	22	9	5		
2	B	1	Total	C	N	O	0	0
			36	22	9	5		
2	C	1	Total	C	N	O	0	1
			72	44	18	10		
2	D	1	Total	C	N	O	0	1
			72	44	18	10		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total C O 6 3 3	0	0
3	C	1	Total C O 6 3 3	0	0

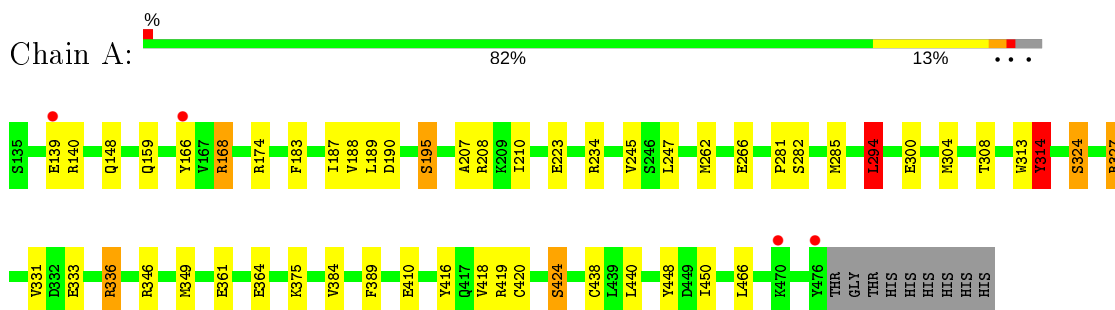
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	37	Total O 37 37	0	0
4	B	79	Total O 79 79	0	0
4	C	117	Total O 117 117	0	0
4	D	34	Total O 34 34	0	0

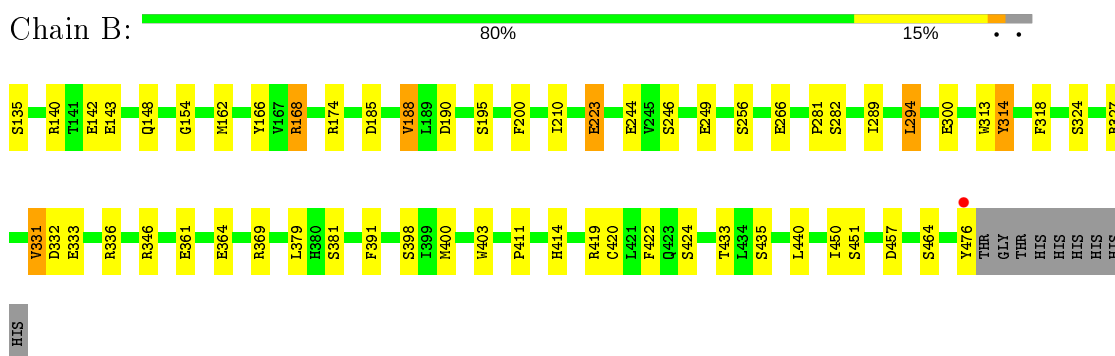
### 3 Residue-property plots [i](#)

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

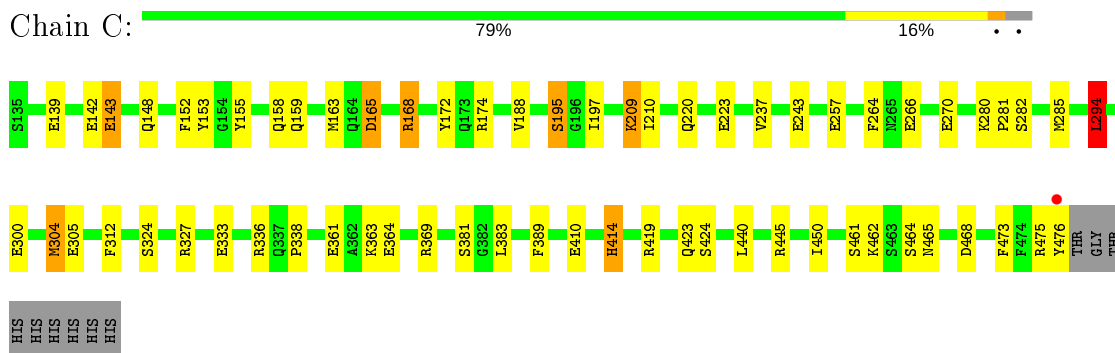
- Molecule 1: Histone-arginine methyltransferase CARM1



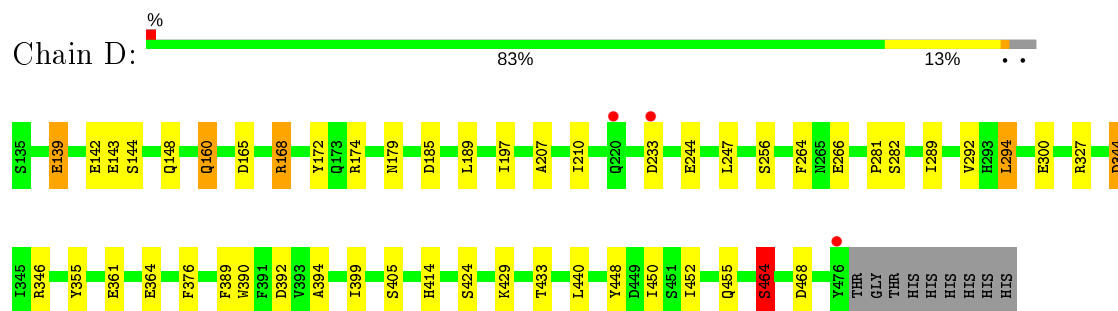
- Molecule 1: Histone-arginine methyltransferase CARM1



- Molecule 1: Histone-arginine methyltransferase CARM1



- Molecule 1: Histone-arginine methyltransferase CARM1



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	75.48Å 99.20Å 208.44Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	71.85 – 2.10 208.44 – 2.10	Depositor EDS
% Data completeness (in resolution range)	99.9 (71.85-2.10) 100.0 (208.44-2.10)	Depositor EDS
$R_{merge}$	0.19	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.58 (at 2.10Å)	Xtrriage
Refinement program	PHENIX	Depositor
R, $R_{free}$	0.199 , 0.231 0.202 , 0.233	Depositor DCC
$R_{free}$ test set	4547 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	32.3	Xtrriage
Anisotropy	0.211	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.35 , 42.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	11521	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	45.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 35.43 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.8420e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

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



## 5 Model quality i

### 5.1 Standard geometry i

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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	1.45	22/2814 (0.8%)	1.03	11/3813 (0.3%)
1	B	1.69	42/2834 (1.5%)	1.15	17/3839 (0.4%)
1	C	1.72	42/2841 (1.5%)	1.24	23/3850 (0.6%)
1	D	1.43	22/2825 (0.8%)	1.06	9/3828 (0.2%)
All	All	1.58	128/11314 (1.1%)	1.12	60/15330 (0.4%)

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
1	D	0	2

All (128) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	464	SER	CB-OG	-12.83	1.25	1.42
1	B	142	GLU	CD-OE1	12.58	1.39	1.25
1	B	266	GLU	CD-OE1	12.23	1.39	1.25
1	D	139	GLU	CD-OE2	10.65	1.37	1.25
1	C	195	SER	CB-OG	9.49	1.54	1.42
1	D	361	GLU	CD-OE2	9.48	1.36	1.25
1	D	139	GLU	CG-CD	9.42	1.66	1.51
1	B	451	SER	CB-OG	-9.28	1.30	1.42
1	C	174	ARG	CZ-NH1	9.23	1.45	1.33
1	A	424	SER	CB-OG	9.08	1.54	1.42
1	B	300	GLU	CG-CD	9.00	1.65	1.51
1	A	195	SER	CB-OG	8.99	1.53	1.42
1	B	223	GLU	CG-CD	8.95	1.65	1.51
1	B	398	SER	CB-OG	-8.81	1.30	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	142	GLU	CD-OE2	8.79	1.35	1.25
1	B	361	GLU	CD-OE1	8.74	1.35	1.25
1	C	139	GLU	CG-CD	8.65	1.65	1.51
1	C	142	GLU	CD-OE1	8.31	1.34	1.25
1	C	300	GLU	CD-OE2	8.28	1.34	1.25
1	B	361	GLU	CD-OE2	8.16	1.34	1.25
1	A	410	GLU	CD-OE1	7.94	1.34	1.25
1	A	139	GLU	CD-OE1	7.91	1.34	1.25
1	A	420	CYS	CB-SG	7.91	1.95	1.82
1	A	223	GLU	CG-CD	7.86	1.63	1.51
1	D	464	SER	CB-OG	-7.84	1.32	1.42
1	C	153	TYR	CE1-CZ	7.83	1.48	1.38
1	B	411	PRO	C-O	7.72	1.38	1.23
1	B	142	GLU	CD-OE2	7.62	1.34	1.25
1	C	142	GLU	CD-OE2	7.46	1.33	1.25
1	A	166	TYR	CG-CD1	7.36	1.48	1.39
1	B	256	SER	CB-OG	7.32	1.51	1.42
1	C	476	TYR	N-CA	7.25	1.60	1.46
1	A	266	GLU	CD-OE2	7.18	1.33	1.25
1	B	148	GLN	CG-CD	7.18	1.67	1.51
1	C	139	GLU	CD-OE2	7.15	1.33	1.25
1	B	266	GLU	CG-CD	7.14	1.62	1.51
1	C	381	SER	CB-OG	7.10	1.51	1.42
1	B	195	SER	CB-OG	7.05	1.51	1.42
1	A	364	GLU	CD-OE2	6.96	1.33	1.25
1	B	364	GLU	CD-OE2	6.95	1.33	1.25
1	B	244	GLU	C-O	-6.94	1.10	1.23
1	B	166	TYR	CG-CD1	6.92	1.48	1.39
1	B	400	MET	CG-SD	6.87	1.99	1.81
1	C	223	GLU	CD-OE2	6.81	1.33	1.25
1	A	416	TYR	CE1-CZ	-6.81	1.29	1.38
1	B	249	GLU	CD-OE2	6.79	1.33	1.25
1	B	154	GLY	C-O	-6.79	1.12	1.23
1	D	300	GLU	CD-OE2	6.74	1.33	1.25
1	D	174	ARG	CZ-NH1	6.74	1.41	1.33
1	C	304	MET	CG-SD	6.68	1.98	1.81
1	C	476	TYR	CG-CD2	6.60	1.47	1.39
1	B	223	GLU	CD-OE1	6.58	1.32	1.25
1	B	403	TRP	CD2-CE2	-6.55	1.33	1.41
1	B	185	ASP	C-O	-6.49	1.11	1.23
1	C	264	PHE	CG-CD1	-6.40	1.29	1.38
1	C	155	TYR	CE2-CZ	-6.38	1.30	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	266	GLU	CD-OE2	6.32	1.32	1.25
1	D	389	PHE	CE2-CZ	6.31	1.49	1.37
1	C	464	SER	CA-CB	-6.31	1.43	1.52
1	D	160	GLN	CG-CD	6.30	1.65	1.51
1	C	223	GLU	CD-OE1	6.28	1.32	1.25
1	C	464	SER	CB-OG	-6.23	1.34	1.42
1	B	188	VAL	CB-CG2	-6.23	1.39	1.52
1	D	390	TRP	CZ3-CH2	6.18	1.50	1.40
1	B	435	SER	CB-OG	-6.18	1.34	1.42
1	B	379	LEU	C-O	-6.07	1.11	1.23
1	B	333	GLU	CD-OE1	6.02	1.32	1.25
1	C	333	GLU	CD-OE2	6.01	1.32	1.25
1	A	148	GLN	CG-CD	5.93	1.64	1.51
1	C	461	SER	CB-OG	-5.93	1.34	1.42
1	A	245	VAL	C-O	-5.90	1.12	1.23
1	B	244	GLU	CD-OE1	5.89	1.32	1.25
1	D	364	GLU	CD-OE2	5.87	1.32	1.25
1	A	448	TYR	CG-CD1	5.84	1.46	1.39
1	B	336	ARG	CG-CD	5.83	1.66	1.51
1	D	172	TYR	CE2-CZ	5.79	1.46	1.38
1	C	172	TYR	CG-CD1	5.74	1.46	1.39
1	B	135	SER	CB-OG	5.70	1.49	1.42
1	C	158	GLN	CD-NE2	5.69	1.47	1.32
1	B	166	TYR	CG-CD2	5.68	1.46	1.39
1	A	314	TYR	CB-CG	-5.67	1.43	1.51
1	B	476[A]	TYR	CG-CD2	5.63	1.46	1.39
1	B	476[B]	TYR	CG-CD2	5.63	1.46	1.39
1	C	153	TYR	CD1-CE1	-5.62	1.30	1.39
1	D	405	SER	CB-OG	5.62	1.49	1.42
1	B	422	PHE	CG-CD1	-5.59	1.30	1.38
1	C	410	GLU	CD-OE1	5.54	1.31	1.25
1	C	270	GLU	CD-OE1	5.54	1.31	1.25
1	B	361	GLU	CG-CD	5.53	1.60	1.51
1	B	142	GLU	CG-CD	5.50	1.60	1.51
1	C	305	GLU	CD-OE2	5.47	1.31	1.25
1	C	257	GLU	CD-OE2	5.47	1.31	1.25
1	C	158	GLN	CD-OE1	5.46	1.35	1.24
1	B	314	TYR	CE1-CZ	5.46	1.45	1.38
1	A	139	GLU	CD-OE2	5.42	1.31	1.25
1	C	383	LEU	N-CA	-5.38	1.35	1.46
1	A	361	GLU	CD-OE1	5.36	1.31	1.25
1	C	364	GLU	CD-OE2	5.35	1.31	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	438	CYS	CB-SG	5.34	1.91	1.82
1	B	381	SER	CB-OG	-5.34	1.35	1.42
1	A	166	TYR	CG-CD2	5.33	1.46	1.39
1	D	244	GLU	C-O	-5.31	1.13	1.23
1	D	468	ASP	CG-OD1	5.31	1.37	1.25
1	C	312	PHE	CG-CD1	-5.30	1.30	1.38
1	C	324	SER	CB-OG	-5.28	1.35	1.42
1	B	420	CYS	CB-SG	5.28	1.91	1.82
1	C	237	VAL	C-O	-5.23	1.13	1.23
1	C	462	LYS	CD-CE	5.23	1.64	1.51
1	D	266	GLU	CG-CD	5.20	1.59	1.51
1	A	266	GLU	CG-CD	5.17	1.59	1.51
1	C	361	GLU	CD-OE1	5.15	1.31	1.25
1	D	256	SER	CA-CB	5.14	1.60	1.52
1	D	244	GLU	CD-OE2	5.13	1.31	1.25
1	C	148	GLN	CG-CD	5.13	1.62	1.51
1	A	324	SER	CB-OG	-5.11	1.35	1.42
1	C	338	PRO	N-CD	-5.11	1.40	1.47
1	A	416	TYR	CE2-CZ	-5.11	1.31	1.38
1	D	424	SER	CA-CB	5.11	1.60	1.52
1	C	152	PHE	CG-CD2	5.11	1.46	1.38
1	D	355	TYR	CG-CD2	5.10	1.45	1.39
1	D	143	GLU	CD-OE2	5.08	1.31	1.25
1	C	364	GLU	CD-OE1	5.08	1.31	1.25
1	A	190	ASP	CB-CG	5.07	1.62	1.51
1	B	391	PHE	CG-CD1	5.06	1.46	1.38
1	C	155	TYR	CG-CD2	-5.02	1.32	1.39
1	D	448	TYR	CE2-CZ	5.01	1.45	1.38
1	B	190	ASP	CB-CG	5.01	1.62	1.51
1	C	243	GLU	CD-OE1	5.01	1.31	1.25

All (60) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	294	LEU	CA-CB-CG	11.14	140.93	115.30
1	C	174	ARG	NE-CZ-NH1	10.62	125.61	120.30
1	B	300	GLU	OE1-CD-OE2	-10.12	111.15	123.30
1	D	233	ASP	CB-CG-OD2	9.83	127.15	118.30
1	C	174	ARG	NE-CZ-NH2	-9.45	115.57	120.30
1	D	344	ASP	CB-CG-OD2	-8.39	110.74	118.30
1	D	168	ARG	NE-CZ-NH2	8.21	124.41	120.30
1	B	174	ARG	NE-CZ-NH1	-8.08	116.26	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	266	GLU	OE1-CD-OE2	-8.02	113.68	123.30
1	A	333	GLU	OE1-CD-OE2	7.87	132.75	123.30
1	A	266	GLU	OE1-CD-OE2	-7.82	113.92	123.30
1	B	369	ARG	NE-CZ-NH1	7.44	124.02	120.30
1	A	336	ARG	NE-CZ-NH2	7.40	124.00	120.30
1	C	327	ARG	NE-CZ-NH1	-7.34	116.63	120.30
1	C	419	ARG	NE-CZ-NH1	7.31	123.95	120.30
1	C	142	GLU	OE1-CD-OE2	7.23	131.98	123.30
1	B	143	GLU	OE1-CD-OE2	-7.00	114.90	123.30
1	C	336	ARG	NE-CZ-NH2	-6.97	116.81	120.30
1	B	140	ARG	NE-CZ-NH1	6.93	123.76	120.30
1	C	475	ARG	NE-CZ-NH1	6.90	123.75	120.30
1	C	209	LYS	CD-CE-NZ	-6.86	95.92	111.70
1	A	419	ARG	NE-CZ-NH2	-6.82	116.89	120.30
1	C	363	LYS	CB-CG-CD	6.54	128.60	111.60
1	B	419	ARG	NE-CZ-NH2	-6.47	117.06	120.30
1	B	346	ARG	NE-CZ-NH1	6.47	123.53	120.30
1	A	346	ARG	NE-CZ-NH2	-6.43	117.09	120.30
1	B	336	ARG	NE-CZ-NH2	6.34	123.47	120.30
1	A	168	ARG	NE-CZ-NH2	6.33	123.47	120.30
1	B	333	GLU	OE1-CD-OE2	6.33	130.90	123.30
1	A	294	LEU	CA-CB-CG	6.15	129.44	115.30
1	D	185	ASP	CB-CG-OD2	-6.13	112.78	118.30
1	A	327	ARG	NE-CZ-NH1	-6.04	117.28	120.30
1	D	327	ARG	NE-CZ-NH1	-6.01	117.29	120.30
1	C	294	LEU	CB-CA-C	-6.01	98.79	110.20
1	C	139	GLU	OE1-CD-OE2	-5.99	116.12	123.30
1	B	294	LEU	CA-CB-CG	5.80	128.65	115.30
1	B	185	ASP	CB-CG-OD2	5.70	123.43	118.30
1	C	143	GLU	OE1-CD-OE2	-5.69	116.47	123.30
1	B	162	MET	CG-SD-CE	-5.69	91.10	100.20
1	C	473	PHE	CB-CG-CD2	5.65	124.75	120.80
1	C	369	ARG	NE-CZ-NH2	-5.62	117.49	120.30
1	C	165	ASP	CB-CG-OD2	-5.61	113.25	118.30
1	C	419	ARG	NE-CZ-NH2	-5.58	117.51	120.30
1	D	361	GLU	OE1-CD-OE2	5.56	129.97	123.30
1	B	200	PHE	CB-CG-CD2	5.54	124.67	120.80
1	D	294	LEU	CA-CB-CG	5.52	127.99	115.30
1	B	332	ASP	CB-CG-OD2	5.49	123.24	118.30
1	C	168	ARG	NE-CZ-NH2	5.48	123.04	120.30
1	A	140	ARG	NE-CZ-NH1	5.46	123.03	120.30
1	A	410	GLU	OE1-CD-OE2	5.46	129.85	123.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	304	MET	CG-SD-CE	-5.27	91.77	100.20
1	C	285	MET	CG-SD-CE	5.20	108.51	100.20
1	B	168	ARG	NE-CZ-NH2	5.18	122.89	120.30
1	A	285	MET	CG-SD-CE	5.16	108.45	100.20
1	B	331	VAL	CG1-CB-CG2	-5.14	102.68	110.90
1	C	383	LEU	CB-CG-CD1	-5.12	102.30	111.00
1	C	280	LYS	CD-CE-NZ	-5.11	99.95	111.70
1	D	392	ASP	CB-CG-OD1	5.10	122.89	118.30
1	B	336	ARG	CG-CD-NE	-5.06	101.17	111.80
1	D	361	GLU	CG-CD-OE1	-5.06	108.17	118.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	160	GLN	Sidechain
1	D	464	SER	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	2744	0	2692	22	0
1	B	2764	0	2704	9	0
1	C	2767	0	2707	18	0
1	D	2751	0	2699	16	0
2	A	36	0	0	1	0
2	B	36	0	0	0	0
2	C	72	0	0	3	0
2	D	72	0	0	2	0
3	B	6	0	8	0	0
3	C	6	0	8	0	0
4	A	37	0	0	0	0
4	B	79	0	0	1	0
4	C	117	0	0	1	0
4	D	34	0	0	1	0
All	All	11521	0	10818	63	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 3.

All (63) 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)
1:C:304:MET:SD	1:C:304:MET:CE	2.03	1.45
1:D:414[A]:HIS:NE2	4:D:601:HOH:O	1.97	0.94
1:C:468[B]:ASP:OD1	4:C:601:HOH:O	1.88	0.91
1:A:262:MET:HG3	1:A:418:VAL:HG21	1.54	0.89
1:C:165:ASP:OD2	1:C:414[A]:HIS:ND1	2.12	0.83
1:A:314:TYR:OH	1:B:314:TYR:OH	1.80	0.77
1:A:159:GLN:NE2	2:A:501:KXW:O24	2.18	0.77
1:D:165:ASP:OD2	1:D:414[A]:HIS:ND1	2.20	0.74
1:A:188:VAL:HG22	1:A:210:ILE:HG23	1.77	0.66
1:B:188:VAL:HG22	1:B:210:ILE:HG23	1.78	0.64
1:D:197:ILE:HG22	2:D:501[B]:KXW:O25	1.97	0.64
1:D:197:ILE:HG22	2:D:501[A]:KXW:O25	1.97	0.63
1:C:159:GLN:NE2	2:C:501[A]:KXW:O24	2.32	0.62
1:C:159:GLN:NE2	2:C:501[B]:KXW:O24	2.32	0.62
1:C:440:LEU:HD22	1:C:450:ILE:HG12	1.84	0.60
1:D:179:ASN:HA	1:D:399:ILE:HD13	1.85	0.59
1:D:440:LEU:HD22	1:D:450:ILE:HG12	1.84	0.58
1:A:327:ARG:CZ	1:A:331:VAL:HG21	2.35	0.56
1:D:414[A]:HIS:HD1	1:D:414[A]:HIS:H	1.53	0.55
1:C:294:LEU:HD13	1:C:389:PHE:CE2	2.42	0.55
1:B:414:HIS:HE1	4:B:674:HOH:O	1.89	0.55
1:C:281:PRO:O	1:C:282:SER:HB2	2.07	0.55
1:A:389:PHE:HB2	1:A:418:VAL:HG22	1.89	0.55
1:A:187:ILE:HD11	1:A:208:ARG:NH2	2.22	0.54
1:C:188:VAL:HG22	1:C:210:ILE:HG23	1.90	0.54
1:C:445:ARG:NH2	1:C:468[B]:ASP:OD2	2.39	0.54
1:A:234:ARG:NH1	1:A:234:ARG:HG3	2.23	0.53
1:B:440:LEU:HD22	1:B:450:ILE:HG12	1.90	0.53
1:A:304:MET:O	1:A:308:THR:HG23	2.09	0.52
1:D:189:LEU:HD13	1:D:247:LEU:HD21	1.90	0.52
1:D:289:ILE:HG13	1:D:394:ALA:HB3	1.92	0.52
1:C:304:MET:CG	1:C:304:MET:CE	2.88	0.52
1:C:159:GLN:HG2	1:C:195:SER:HB3	1.93	0.51
1:A:313:TRP:O	1:A:324:SER:HA	2.10	0.51
1:B:327:ARG:CZ	1:B:331:VAL:HG21	2.42	0.50
1:A:262:MET:HG3	1:A:418:VAL:CG2	2.36	0.49
1:B:318:PHE:CZ	1:C:163:MET:HB3	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:423:GLN:HG3	1:C:465[A]:ASN:OD1	2.13	0.48
1:C:304:MET:HB3	1:C:304:MET:CE	2.44	0.47
1:A:440:LEU:HD12	1:A:450:ILE:HG12	1.97	0.47
1:C:445:ARG:HH22	1:C:468[B]:ASP:CG	2.18	0.47
1:A:281:PRO:O	1:A:282:SER:HB2	2.15	0.46
1:B:313:TRP:O	1:B:324:SER:HA	2.15	0.46
1:A:294:LEU:HD22	1:A:389:PHE:CD2	2.50	0.46
1:D:207:ALA:HB3	1:D:210:ILE:HD11	1.97	0.46
1:A:159:GLN:HG2	1:A:195:SER:HB3	1.97	0.45
1:A:349:MET:SD	1:A:384:VAL:HG22	2.57	0.45
1:D:344:ASP:OD1	1:D:346:ARG:HD3	2.17	0.44
1:D:281:PRO:O	1:D:282:SER:HB2	2.18	0.44
1:C:304:MET:CB	1:C:304:MET:CE	2.95	0.44
1:B:281:PRO:O	1:B:282:SER:HB2	2.18	0.43
1:D:452:ILE:O	1:D:464:SER:HA	2.18	0.43
1:C:197:ILE:HG22	2:C:501[B]:KXW:O25	2.19	0.43
1:B:433:THR:HG22	1:B:457:ASP:OD2	2.20	0.42
1:A:189:LEU:HD13	1:A:247:LEU:HD21	2.01	0.42
1:D:376:PHE:O	1:D:433:THR:HA	2.20	0.42
1:A:234:ARG:HH11	1:A:234:ARG:HG3	1.83	0.42
1:A:375:LYS:HE3	1:A:375:LYS:HB3	1.85	0.41
1:A:336:ARG:HG2	1:A:466:LEU:O	2.20	0.41
1:D:264:PHE:CE2	1:D:292:VAL:HG21	2.55	0.41
1:A:262:MET:CG	1:A:418:VAL:HG21	2.36	0.41
1:D:429:LYS:HE2	1:D:429:LYS:HB2	1.58	0.41
1:A:183:PHE:O	1:A:207:ALA:HA	2.21	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	340/351 (97%)	329 (97%)	11 (3%)	0	100	100
1	B	341/351 (97%)	334 (98%)	7 (2%)	0	100	100
1	C	343/351 (98%)	333 (97%)	10 (3%)	0	100	100
1	D	341/351 (97%)	332 (97%)	9 (3%)	0	100	100
All	All	1365/1404 (97%)	1328 (97%)	37 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 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	298/306 (97%)	292 (98%)	6 (2%)	55	60
1	B	300/306 (98%)	294 (98%)	6 (2%)	55	60
1	C	301/306 (98%)	293 (97%)	8 (3%)	44	48
1	D	299/306 (98%)	293 (98%)	6 (2%)	55	60
All	All	1198/1224 (98%)	1172 (98%)	26 (2%)	53	57

All (26) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	168	ARG
1	A	174	ARG
1	A	294	LEU
1	A	300	GLU
1	A	314	TYR
1	A	424	SER
1	B	168	ARG
1	B	223	GLU
1	B	246	SER
1	B	289	ILE
1	B	294	LEU
1	B	424	SER
1	C	143	GLU

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Mol	Chain	Res	Type
1	C	168	ARG
1	C	209	LYS
1	C	220	GLN
1	C	294	LEU
1	C	414[A]	HIS
1	C	414[B]	HIS
1	C	424	SER
1	D	139	GLU
1	D	144	SER
1	D	148	GLN
1	D	168	ARG
1	D	294	LEU
1	D	455	GLN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	148	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](#)

8 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	KXW	C	501[B]	-	32,39,39	3.54	11 (34%)	33,54,54	1.49	3 (9%)
2	KXW	A	501	-	32,39,39	3.48	8 (25%)	33,54,54	1.61	7 (21%)
2	KXW	D	501[B]	-	32,39,39	3.50	9 (28%)	33,54,54	1.46	6 (18%)
3	GOL	B	502	-	5,5,5	0.54	0	5,5,5	1.62	1 (20%)
2	KXW	D	501[A]	-	32,39,39	3.49	9 (28%)	33,54,54	1.51	6 (18%)
3	GOL	C	502	-	5,5,5	0.51	0	5,5,5	0.45	0
2	KXW	B	501	-	32,39,39	3.53	11 (34%)	33,54,54	1.62	6 (18%)
2	KXW	C	501[A]	-	32,39,39	3.51	11 (34%)	33,54,54	1.50	4 (12%)

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
2	KXW	C	501[B]	-	-	9/16/40/40	0/4/4/4
2	KXW	A	501	-	-	6/16/40/40	0/4/4/4
2	KXW	D	501[B]	-	-	6/16/40/40	0/4/4/4
3	GOL	B	502	-	-	2/4/4/4	-
2	KXW	D	501[A]	-	-	5/16/40/40	0/4/4/4
3	GOL	C	502	-	-	3/4/4/4	-
2	KXW	B	501	-	-	5/16/40/40	0/4/4/4
2	KXW	C	501[A]	-	-	9/16/40/40	0/4/4/4

All (59) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501	KXW	O16-C05	-10.67	1.26	1.41
2	A	501	KXW	O16-C05	-10.46	1.26	1.41
2	C	501[A]	KXW	O16-C05	-10.33	1.26	1.41
2	A	501	KXW	C03-C02	-10.29	1.25	1.53
2	B	501	KXW	C03-C02	-10.21	1.25	1.53
2	C	501[B]	KXW	O16-C05	-10.10	1.27	1.41
2	D	501[B]	KXW	C03-C02	-10.08	1.25	1.53
2	D	501[A]	KXW	C03-C02	-10.06	1.25	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	501[A]	KXW	C03-C02	-10.05	1.25	1.53
2	C	501[B]	KXW	C03-C02	-10.00	1.26	1.53
2	D	501[B]	KXW	O16-C05	-9.81	1.27	1.41
2	D	501[A]	KXW	O16-C05	-9.78	1.27	1.41
2	C	501[B]	KXW	C31-N30	8.07	1.48	1.36
2	C	501[A]	KXW	C31-N30	7.83	1.47	1.36
2	D	501[B]	KXW	C31-N30	7.81	1.47	1.36
2	D	501[A]	KXW	C31-N30	7.71	1.47	1.36
2	A	501	KXW	C31-N30	7.54	1.47	1.36
2	B	501	KXW	C31-N30	7.51	1.47	1.36
2	D	501[A]	KXW	C03-C05	7.27	1.64	1.53
2	D	501[B]	KXW	C03-C05	7.27	1.64	1.53
2	C	501[B]	KXW	C03-C05	7.26	1.64	1.53
2	C	501[A]	KXW	C03-C05	6.98	1.64	1.53
2	B	501	KXW	C03-C05	6.95	1.64	1.53
2	A	501	KXW	C03-C05	6.91	1.64	1.53
2	D	501[A]	KXW	O01-C02	4.04	1.52	1.43
2	D	501[B]	KXW	O01-C02	4.03	1.52	1.43
2	C	501[B]	KXW	O01-C02	3.80	1.51	1.43
2	B	501	KXW	C18-C17	-3.67	1.40	1.51
2	C	501[A]	KXW	O01-C02	3.61	1.51	1.43
2	D	501[B]	KXW	C18-C17	-3.33	1.41	1.51
2	D	501[A]	KXW	C18-C17	-3.33	1.41	1.51
2	A	501	KXW	C18-C17	-3.30	1.41	1.51
2	A	501	KXW	O01-C02	3.25	1.50	1.43
2	C	501[A]	KXW	C18-C17	-3.24	1.41	1.51
2	C	501[B]	KXW	C18-C17	-3.21	1.41	1.51
2	B	501	KXW	O01-C02	3.07	1.50	1.43
2	D	501[A]	KXW	O16-C17	2.99	1.51	1.45
2	D	501[B]	KXW	O16-C17	2.98	1.51	1.45
2	D	501[A]	KXW	C11-N12	2.91	1.44	1.34
2	D	501[B]	KXW	C11-N12	2.87	1.44	1.34
2	C	501[B]	KXW	C11-N12	2.84	1.44	1.34
2	C	501[B]	KXW	O16-C17	2.78	1.51	1.45
2	C	501[A]	KXW	C11-N12	2.73	1.44	1.34
2	A	501	KXW	C11-N12	2.61	1.43	1.34
2	A	501	KXW	O16-C17	2.58	1.50	1.45
2	C	501[A]	KXW	O16-C17	2.55	1.50	1.45
2	B	501	KXW	C11-N12	2.55	1.43	1.34
2	B	501	KXW	O16-C17	2.51	1.50	1.45
2	D	501[B]	KXW	C21-C20	2.49	1.57	1.52
2	D	501[A]	KXW	C21-C20	2.48	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	501[B]	KXW	C21-C20	2.37	1.57	1.52
2	B	501	KXW	C13-C07	-2.30	1.34	1.40
2	C	501[A]	KXW	C21-C20	2.24	1.57	1.52
2	B	501	KXW	C22-N26	-2.21	1.42	1.47
2	C	501[B]	KXW	C18-N19	2.19	1.51	1.47
2	C	501[A]	KXW	C18-N19	2.11	1.51	1.47
2	C	501[B]	KXW	C20-N19	2.08	1.52	1.47
2	B	501	KXW	C09-N10	-2.04	1.30	1.33
2	C	501[A]	KXW	C20-N19	2.01	1.52	1.47

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	501[A]	KXW	N08-C09-N10	-4.48	121.68	128.68
2	D	501[B]	KXW	N08-C09-N10	-4.46	121.71	128.68
2	B	501	KXW	N08-C09-N10	-4.44	121.74	128.68
2	A	501	KXW	N08-C09-N10	-4.32	121.92	128.68
2	C	501[B]	KXW	N08-C09-N10	-4.31	121.94	128.68
2	C	501[A]	KXW	N08-C09-N10	-4.29	121.98	128.68
2	A	501	KXW	C27-N19-C20	-3.51	103.10	111.44
2	B	501	KXW	C02-C03-C05	3.31	105.97	100.98
2	C	501[B]	KXW	C35-N36-C31	3.10	121.62	117.22
2	B	501	KXW	O16-C05-C03	-3.04	102.49	106.93
2	D	501[A]	KXW	C29-N30-C31	-2.96	118.70	123.38
2	A	501	KXW	C35-N36-C31	2.87	121.29	117.22
2	A	501	KXW	C02-C03-C05	2.86	105.28	100.98
2	B	501	KXW	C35-N36-C31	2.83	121.23	117.22
2	B	501	KXW	C07-C13-N14	-2.81	106.47	109.40
2	D	501[A]	KXW	C35-N36-C31	2.81	121.20	117.22
2	D	501[B]	KXW	C35-N36-C31	2.75	121.12	117.22
2	C	501[B]	KXW	C02-C03-C05	2.74	105.10	100.98
2	C	501[A]	KXW	C02-C03-C05	2.72	105.08	100.98
2	D	501[B]	KXW	C02-C03-C05	2.53	104.79	100.98
2	D	501[A]	KXW	C02-C03-C05	2.53	104.78	100.98
2	C	501[A]	KXW	C35-N36-C31	2.50	120.77	117.22
2	A	501	KXW	C07-C13-N14	-2.45	106.85	109.40
2	D	501[A]	KXW	O16-C05-C03	-2.41	103.40	106.93
2	D	501[B]	KXW	O16-C05-C03	-2.37	103.46	106.93
3	B	502	GOL	O2-C2-C3	-2.33	98.86	109.12
2	D	501[A]	KXW	C27-N19-C20	-2.16	106.31	111.44
2	D	501[B]	KXW	C27-N19-C20	-2.15	106.33	111.44
2	B	501	KXW	O16-C17-C18	2.12	112.41	108.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	501[A]	KXW	C07-C13-N14	-2.10	107.21	109.40
2	A	501	KXW	C34-C35-N36	-2.08	120.03	123.43
2	A	501	KXW	O16-C05-C03	-2.03	103.96	106.93
2	D	501[B]	KXW	C29-N30-C31	-2.02	120.19	123.38

There are no chirality outliers.

All (45) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	501[B]	KXW	C02-C17-C18-N19
2	C	501[B]	KXW	O16-C17-C18-N19
2	C	501[B]	KXW	N19-C20-C21-C22
2	C	501[B]	KXW	C20-C21-C22-C23
2	C	501[B]	KXW	C20-C21-C22-N26
2	A	501	KXW	C02-C17-C18-N19
2	A	501	KXW	O16-C17-C18-N19
2	A	501	KXW	N19-C20-C21-C22
2	A	501	KXW	C20-C21-C22-C23
2	D	501[B]	KXW	C02-C17-C18-N19
2	D	501[B]	KXW	O16-C17-C18-N19
2	D	501[B]	KXW	C20-C21-C22-C23
3	B	502	GOL	O1-C1-C2-C3
2	D	501[A]	KXW	C02-C17-C18-N19
2	D	501[A]	KXW	O16-C17-C18-N19
2	B	501	KXW	C02-C17-C18-N19
2	B	501	KXW	O16-C17-C18-N19
2	B	501	KXW	N19-C20-C21-C22
2	C	501[A]	KXW	C02-C17-C18-N19
2	C	501[A]	KXW	O16-C17-C18-N19
2	C	501[A]	KXW	N19-C20-C21-C22
2	C	501[A]	KXW	C20-C21-C22-C23
2	C	501[A]	KXW	C20-C21-C22-N26
2	C	501[B]	KXW	C27-C28-C29-N30
2	C	501[B]	KXW	C17-C18-N19-C20
2	C	501[A]	KXW	C17-C18-N19-C20
2	C	501[A]	KXW	C27-C28-C29-N30
2	B	501	KXW	C28-C27-N19-C18
2	D	501[B]	KXW	C27-C28-C29-N30
2	D	501[A]	KXW	C27-C28-C29-N30
3	B	502	GOL	O1-C1-C2-O2
2	B	501	KXW	N19-C27-C28-C29
3	C	502	GOL	O1-C1-C2-O2

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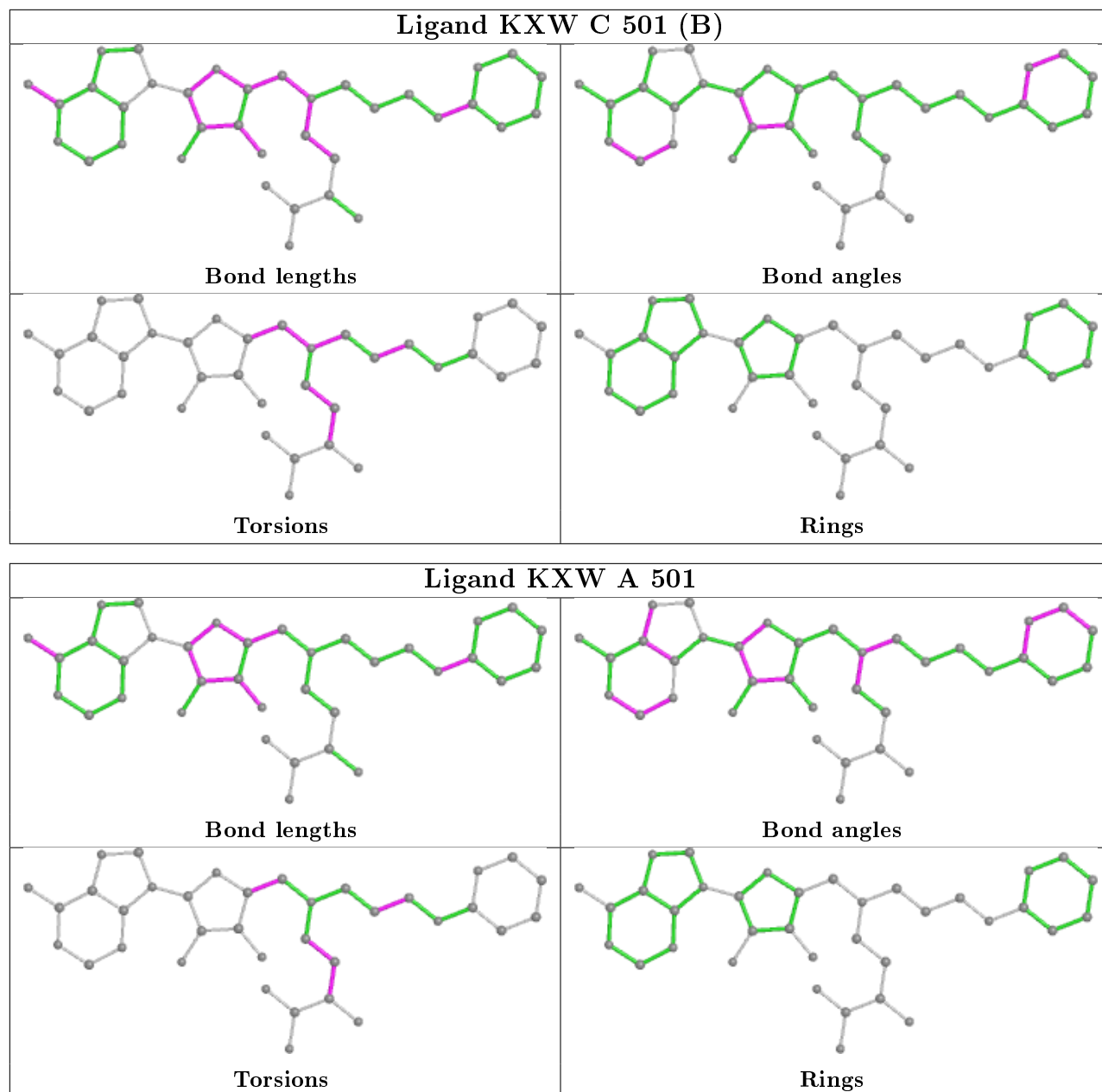
Mol	Chain	Res	Type	Atoms
3	C	502	GOL	O2-C2-C3-O3
2	A	501	KXW	C27-C28-C29-N30
2	D	501[B]	KXW	N19-C27-C28-C29
2	C	501[A]	KXW	C28-C27-N19-C18
2	D	501[A]	KXW	N19-C27-C28-C29
2	C	501[A]	KXW	C28-C27-N19-C20
2	C	501[B]	KXW	C28-C27-N19-C20
2	C	501[B]	KXW	C28-C27-N19-C18
2	A	501	KXW	C20-C21-C22-N26
3	C	502	GOL	O1-C1-C2-C3
2	D	501[A]	KXW	C20-C21-C22-C23
2	D	501[B]	KXW	C17-C18-N19-C27

There are no ring outliers.

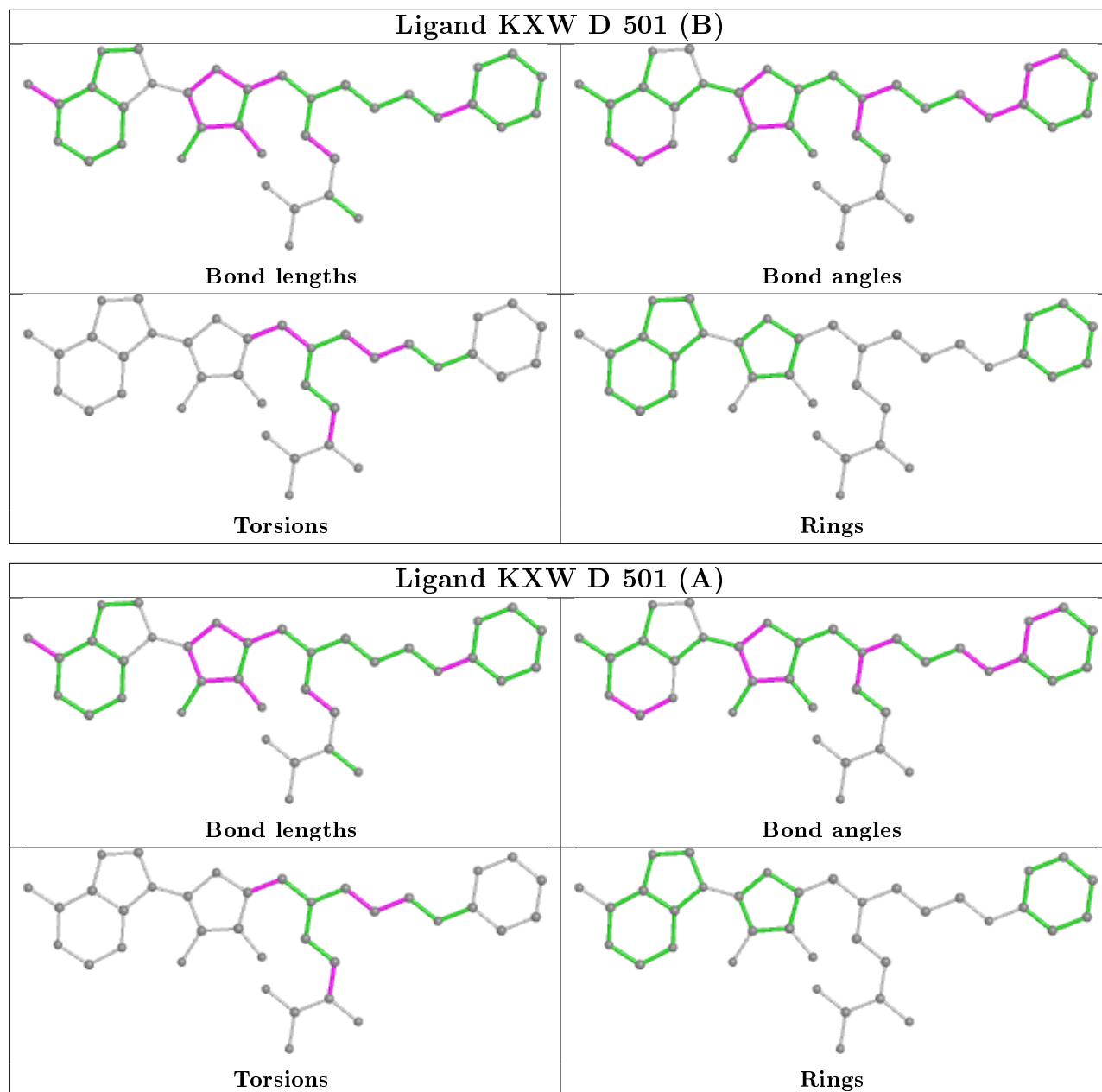
5 monomers are involved in 6 short contacts:

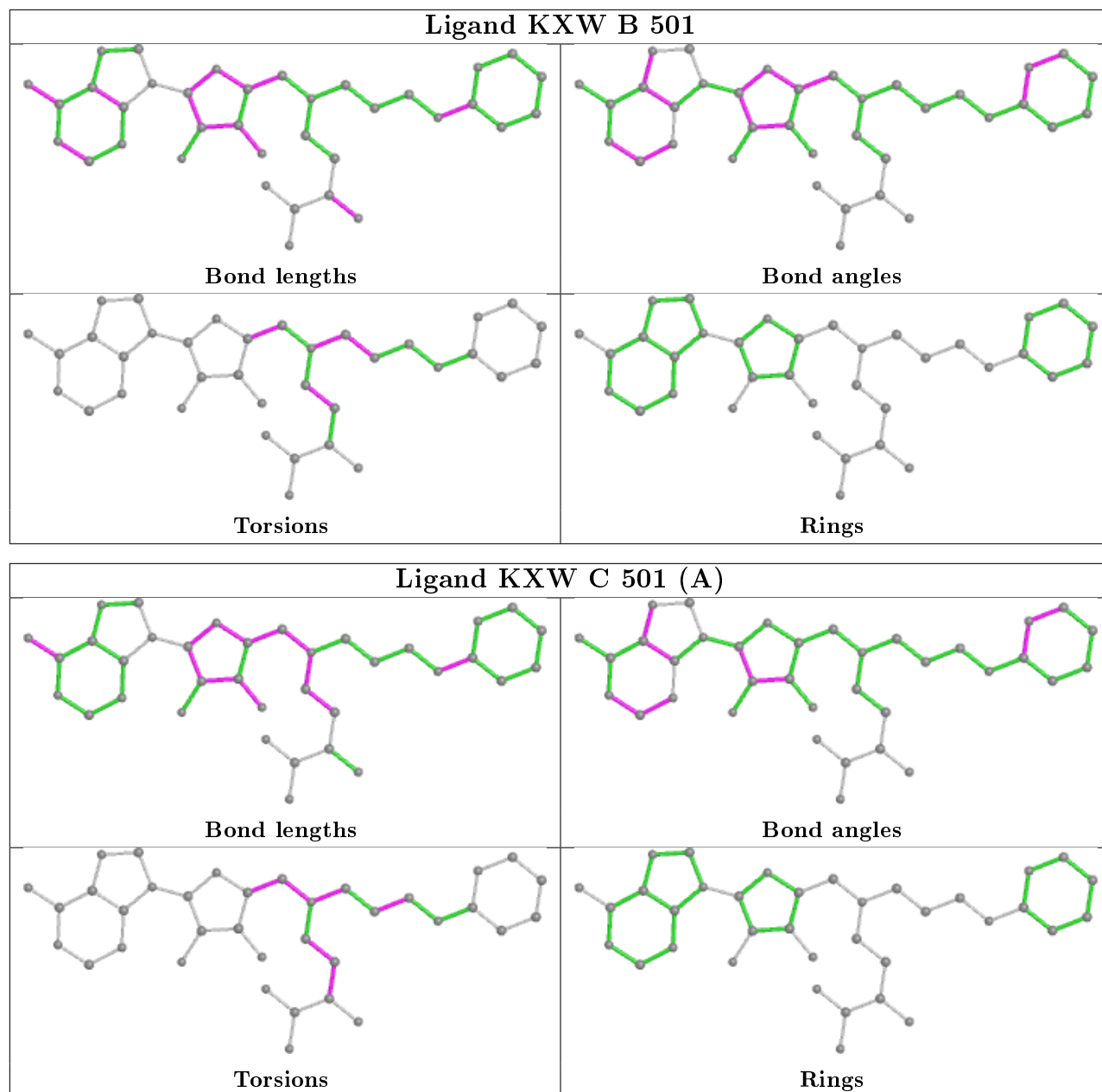
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	501[B]	KXW	2	0
2	A	501	KXW	1	0
2	D	501[B]	KXW	1	0
2	D	501[A]	KXW	1	0
2	C	501[A]	KXW	1	0

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









## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	342/351 (97%)	-0.22	4 (1%) 79 82	40, 51, 68, 99	0
1	B	342/351 (97%)	-0.37	1 (0%) 94 94	21, 37, 53, 64	0
1	C	342/351 (97%)	-0.38	1 (0%) 94 94	20, 33, 50, 68	0
1	D	342/351 (97%)	-0.17	3 (0%) 84 86	39, 53, 74, 91	0
All	All	1368/1404 (97%)	-0.29	9 (0%) 87 89	20, 45, 66, 99	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	476	TYR	3.6
1	D	233	ASP	2.8
1	A	139	GLU	2.8
1	A	166	TYR	2.7
1	B	476[A]	TYR	2.5
1	D	220	GLN	2.4
1	D	476	TYR	2.3
1	A	470	LYS	2.1
1	C	476	TYR	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

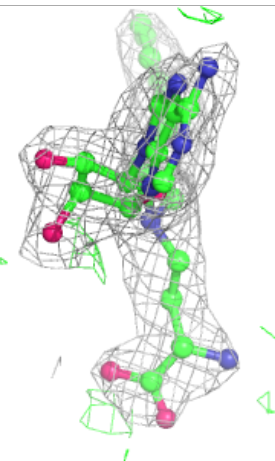
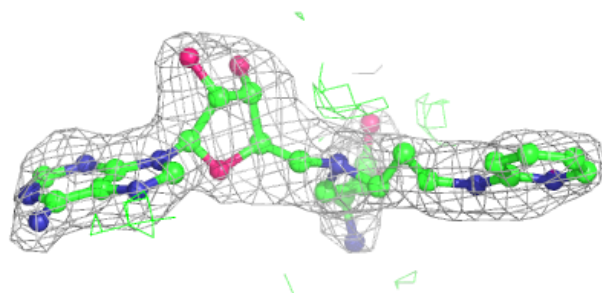
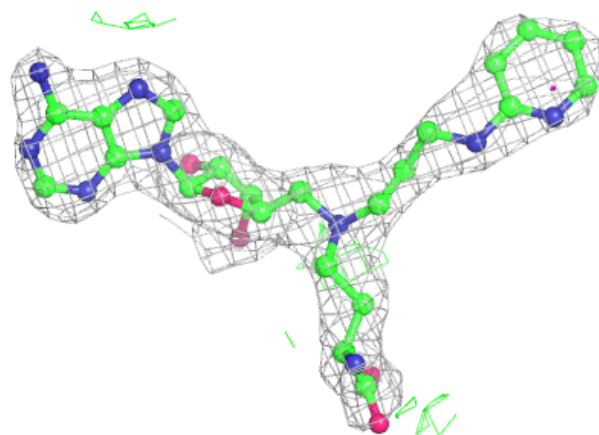
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
3	GOL	C	502	6/6	0.83	0.12	59,64,76,76	0
2	KXW	D	501[B]	36/36	0.92	0.14	44,61,99,104	36
2	KXW	D	501[A]	36/36	0.92	0.14	44,61,99,104	36
2	KXW	A	501	36/36	0.92	0.14	44,53,70,72	0
3	GOL	B	502	6/6	0.93	0.15	58,63,63,66	0
2	KXW	C	501[B]	36/36	0.95	0.11	25,39,74,87	36
2	KXW	B	501	36/36	0.95	0.11	26,33,46,54	0
2	KXW	C	501[A]	36/36	0.95	0.11	25,39,74,87	36

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

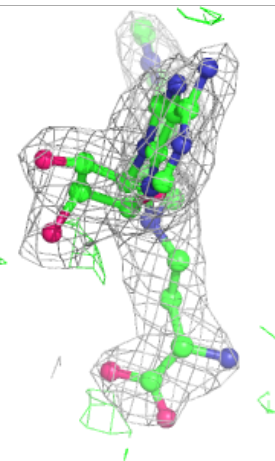
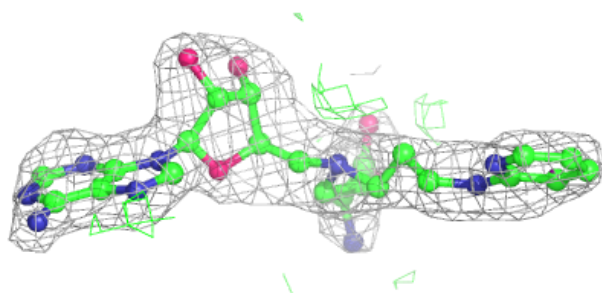
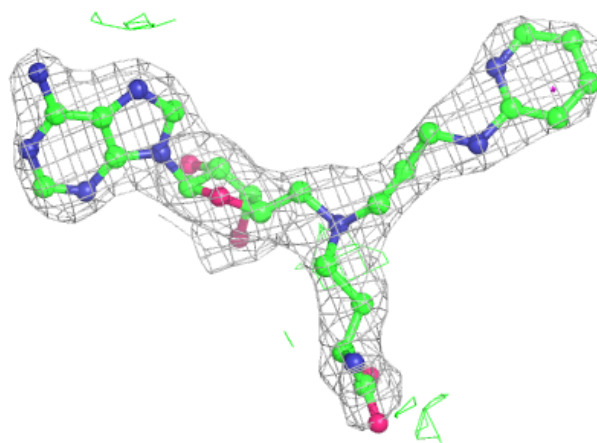
**Electron density around KXW D 501 (B):**

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



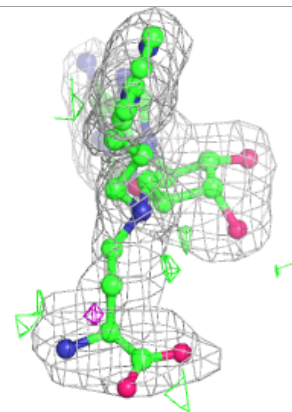
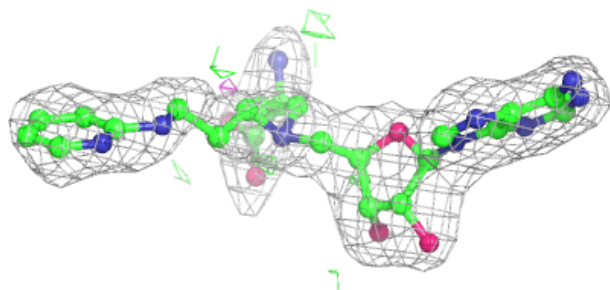
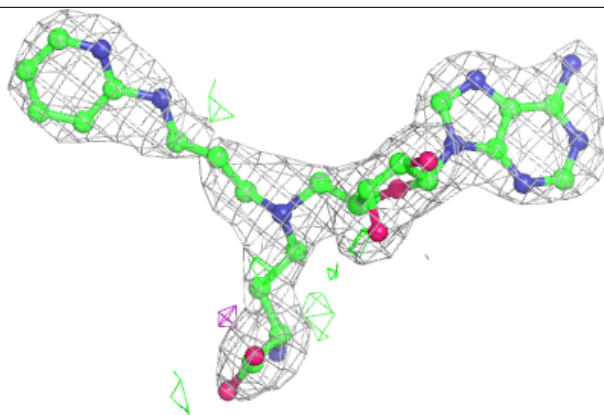
**Electron density around KXW D 501 (A):**

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

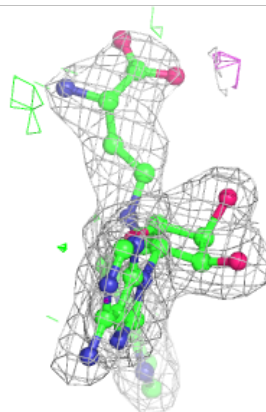
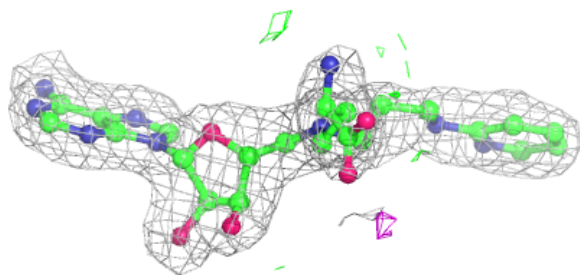
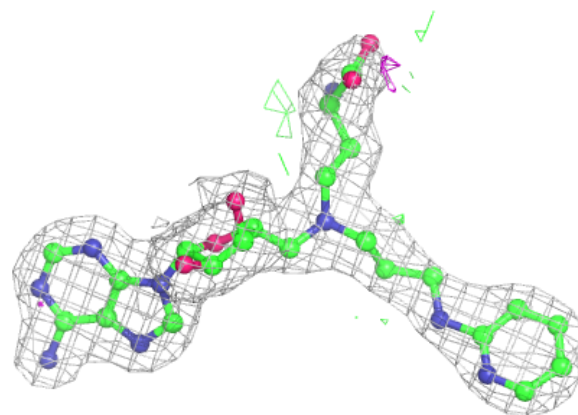


**Electron density around KXW A 501:**

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

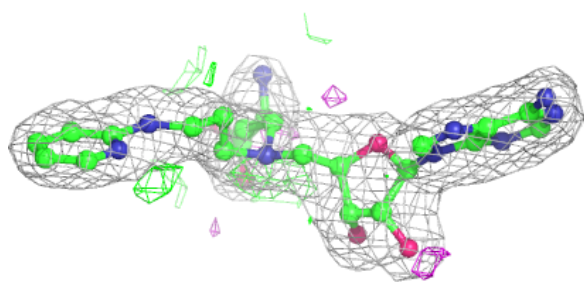
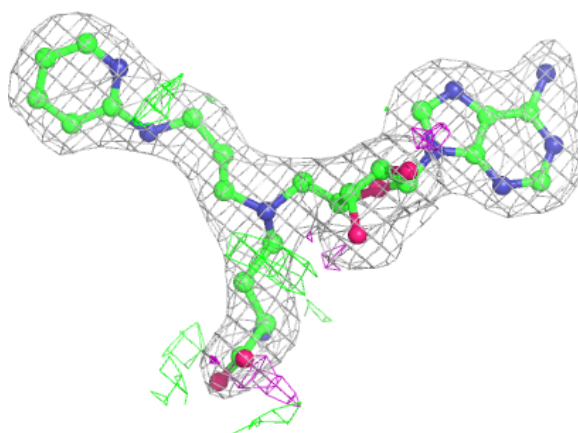
**Electron density around KXW C 501 (B):**

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

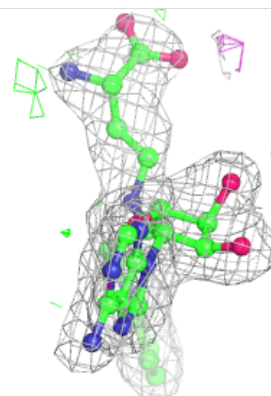
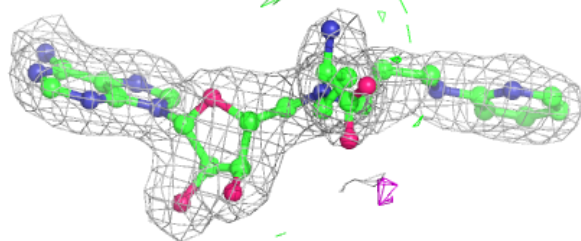
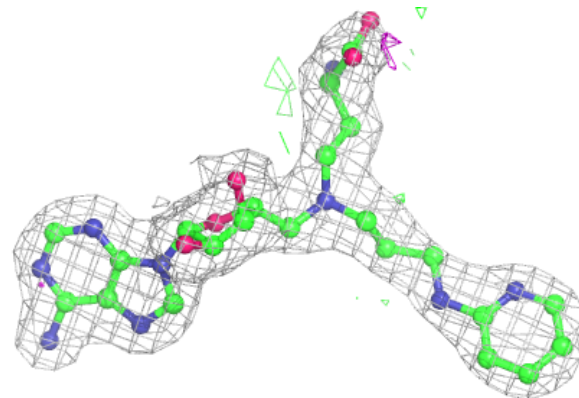


**Electron density around KXW B 501:**

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

**Electron density around KXW C 501 (A):**

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





## 6.5 Other polymers

There are no such residues in this entry.