



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 14, 2026 – 04:46 PM EST

PDB ID : 9Q6J / pdb_00009q6j
Title : Human prolyl endopeptidase (PREP) - complex with KT-2-126
Authors : Fucci, I.J.; Thakur, K.; Pandian, J.; Yoo, E.; Monteiro, D.C.F.
Deposited on : 2025-08-22
Resolution : 1.75 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

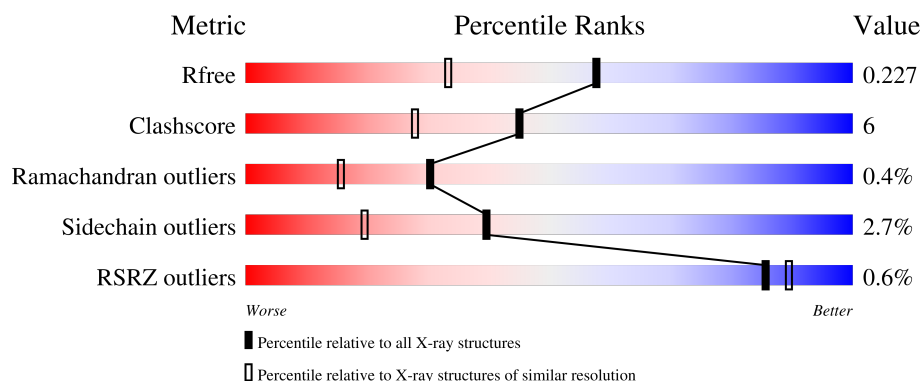
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.75 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	2888 (1.76-1.76)
Clashscore	180529	3097 (1.76-1.76)
Ramachandran outliers	177936	3072 (1.76-1.76)
Sidechain outliers	177891	3072 (1.76-1.76)
RSRZ outliers	164620	2887 (1.76-1.76)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 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	711	% 83% 14% ..
1	B	711	% 84% 14% ..
1	C	711	% 82% 14% ..

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
4	GOL	A	806	-	-	X	-
4	GOL	A	813	-	-	X	-
5	PEG	A	815	-	-	X	-
6	SCN	A	811	-	-	X	-
6	SCN	B	808	-	-	X	-
6	SCN	C	804	-	-	X	-

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 36268 atoms, of which 16987 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.

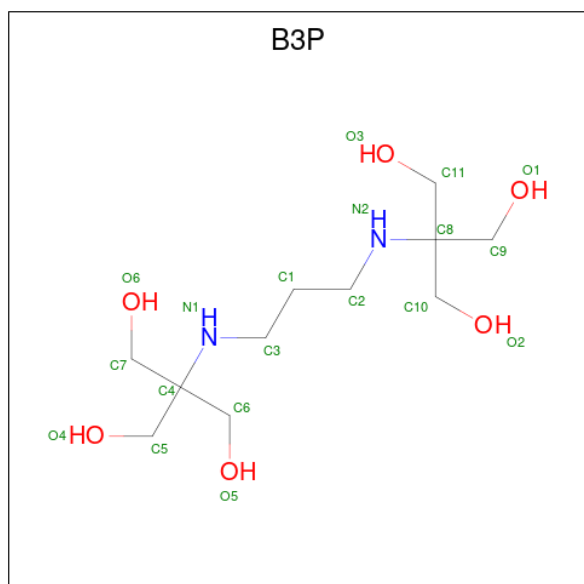
- Molecule 1 is a protein called Prolyl endopeptidase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	707	Total	C	H	N	O	S	176	6	0
			11265	3663	5557	944	1074	27			
1	B	707	Total	C	H	N	O	S	185	5	0
			11254	3659	5551	944	1072	28			
1	C	707	Total	C	H	N	O	S	176	3	0
			11235	3653	5543	944	1068	27			

There are 3 discrepancies between the modelled and reference sequences:

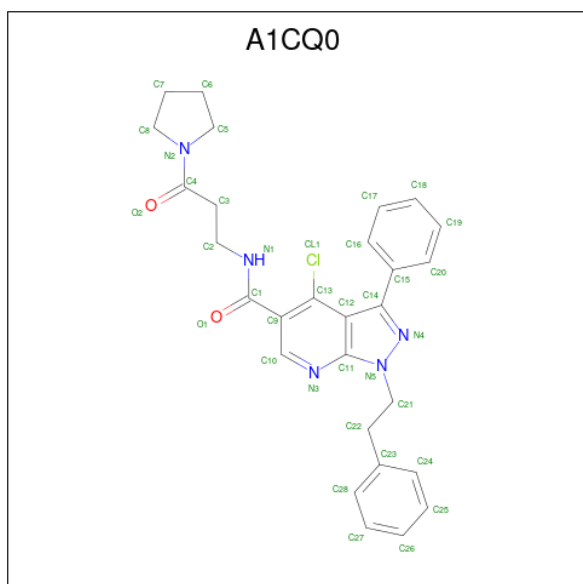
Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	expression tag	UNP P48147
B	0	GLY	-	expression tag	UNP P48147
C	0	GLY	-	expression tag	UNP P48147

- Molecule 2 is 2-[3-(2-HYDROXY-1,1-DIHYDROXYMETHYL-ETHYLAMINO)-PROPYLAMINO]-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (CCD ID: B3P) (formula: C₁₁H₂₆N₂O₆).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	8	0
			45	11	26	2	6		
2	A	1	Total	C	H	N	O	8	0
			45	11	26	2	6		
2	B	1	Total	C	H	N	O	8	0
			45	11	26	2	6		
2	C	1	Total	C	H	N	O	8	0
			45	11	26	2	6		

- Molecule 3 is 4-chloro-N-[3-oxo-3-(pyrrolidin-1-yl)propyl]-3-phenyl-1-(2-phenylethyl)-1H-pyrazolo[3,4-b]pyridine-5-carboxamide (CCD ID: A1CQ0) (formula: $C_{28}H_{28}ClN_5O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	H	N	O	0	0
			63	28	28	5	2		
3	B	1	Total	C	H	N	O	0	0
			63	28	28	5	2		
3	C	1	Total	C	H	N	O	0	0
			63	28	28	5	2		

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



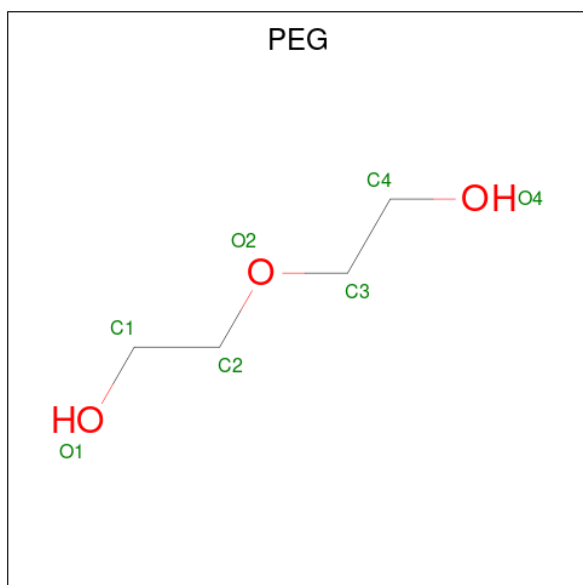
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	H	O	3	0
			14	3	8	3		
4	A	1	Total	C	H	O	3	0
			14	3	8	3		
4	A	1	Total	C	H	O	3	0
			14	3	8	3		
4	A	1	Total	C	H	O	3	0
			14	3	8	3		
4	A	1	Total	C	H	O	3	0
			14	3	8	3		
4	A	1	Total	C	H	O	3	0
			14	3	8	3		
4	B	1	Total	C	H	O	3	0
			14	3	8	3		
4	B	1	Total	C	H	O	3	0
			14	3	8	3		
4	C	1	Total	C	H	O	3	0
			14	3	8	3		
4	C	1	Total	C	H	O	3	0
			14	3	8	3		
4	C	1	Total	C	H	O	3	0
			14	3	8	3		

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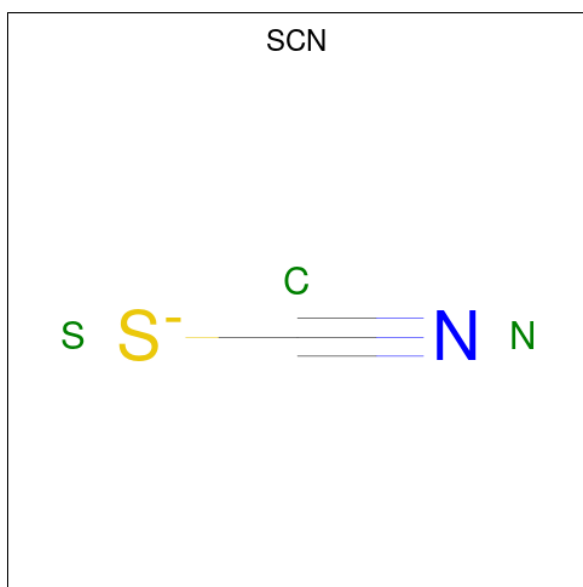
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	C	1	Total	C	H	O	3	0
			14	3	8	3		
4	C	1	Total	C	H	O	3	0
			14	3	8	3		

- Molecule 5 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	H	O	2	0
			17	4	10	3		
5	A	1	Total	C	H	O	2	0
			17	4	10	3		

- Molecule 6 is THIOCYANATE ION (CCD ID: SCN) (formula: CNS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	A	1	Total	C	N	S	0	0
			3	1	1	1		
6	A	1	Total	C	N	S	0	0
			3	1	1	1		
6	A	1	Total	C	N	S	0	0
			3	1	1	1		
6	B	1	Total	C	N	S	0	0
			3	1	1	1		
6	B	1	Total	C	N	S	0	0
			3	1	1	1		
6	B	1	Total	C	N	S	0	0
			3	1	1	1		
6	B	1	Total	C	N	S	0	0
			3	1	1	1		
6	C	1	Total	C	N	S	0	0
			3	1	1	1		
6	C	1	Total	C	N	S	0	0
			3	1	1	1		
6	C	1	Total	C	N	S	0	0
			3	1	1	1		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	771	Total	O	0	1
			772	772		

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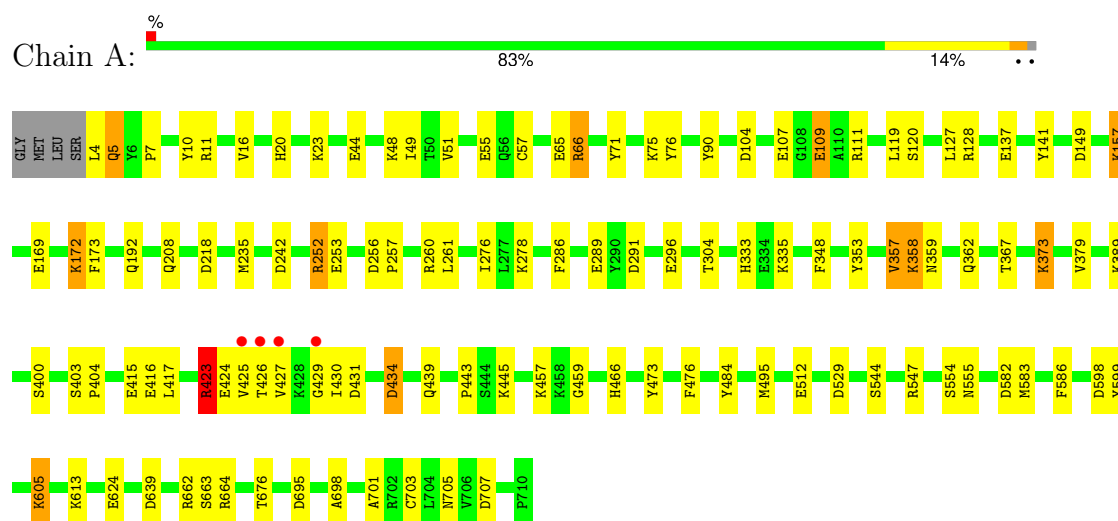
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	B	510	Total 510	O 510	0	0
7	C	572	Total 572	O 572	0	0

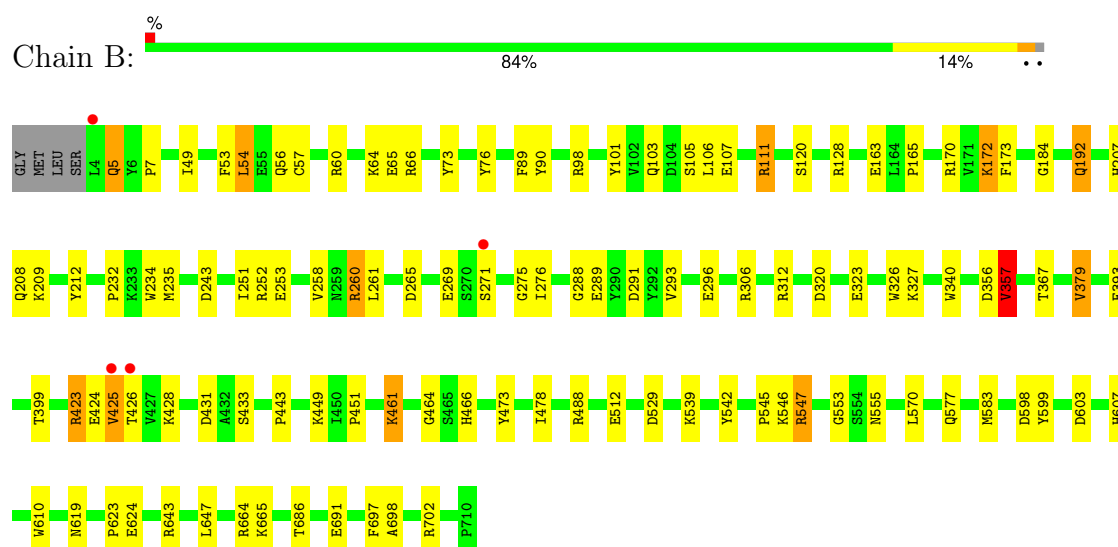
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

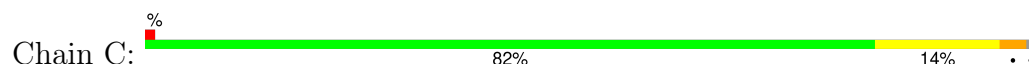
• Molecule 1: Prolyl endopeptidase

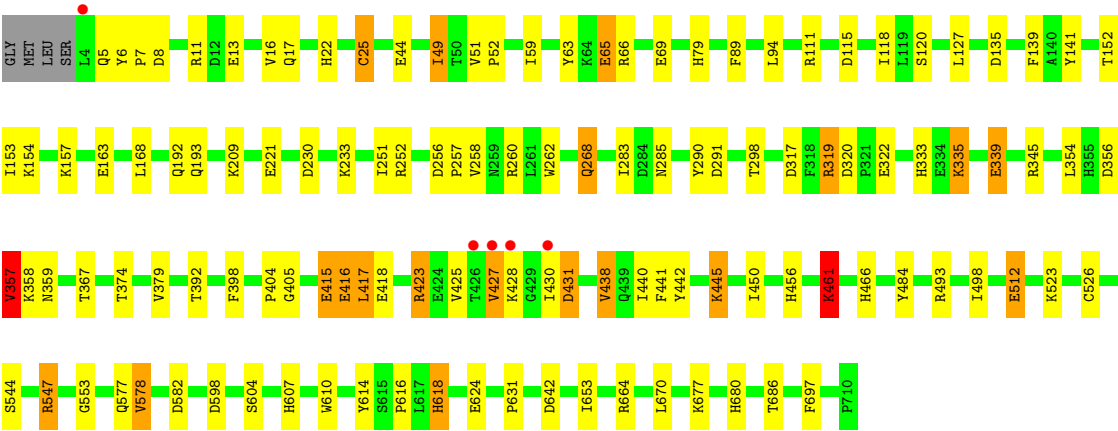


• Molecule 1: Prolyl endopeptidase



• Molecule 1: Prolyl endopeptidase





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	106.13Å 66.94Å 157.18Å 90.00° 99.28° 90.00°	Depositor
Resolution (Å)	43.80 – 1.75 43.80 – 1.75	Depositor EDS
% Data completeness (in resolution range)	76.6 (43.80-1.75) 76.6 (43.80-1.75)	Depositor EDS
R_{merge}	0.24	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.57 (at 1.75Å)	Xtriage
Refinement program	REFMAC 5.8.0430 (refmacat 0.4.105)	Depositor
R, R_{free}	0.164 , 0.226 0.164 , 0.227	Depositor DCC
R_{free} test set	10901 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	16.8	Xtriage
Anisotropy	0.220	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 36.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	36268	wwPDB-VP
Average B, all atoms (Å ²)	24.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.10% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: B3P, A1CQ0, GOL, SCN, PEG

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	1.06	4/5878 (0.1%)	1.46	48/7969 (0.6%)
1	B	0.94	3/5870 (0.1%)	1.44	40/7956 (0.5%)
1	C	0.98	4/5850 (0.1%)	1.46	52/7930 (0.7%)
All	All	0.99	11/17598 (0.1%)	1.45	140/23855 (0.6%)

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	A	0	2
1	B	0	9
1	C	0	5
All	All	0	16

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	260	ARG	NE-CZ	-6.20	1.26	1.33
1	B	449	LYS	C-N	5.65	1.37	1.32
1	B	512	GLU	CD-OE2	5.60	1.35	1.25
1	A	544	SER	CA-CB	5.47	1.61	1.54
1	C	680	HIS	CG-CD2	-5.46	1.29	1.35
1	A	218	ASP	CG-OD2	5.39	1.35	1.25
1	C	319	ARG	NE-CZ	5.32	1.39	1.33
1	A	172	LYS	CB-CG	-5.29	1.36	1.52
1	A	333	HIS	ND1-CE1	5.14	1.37	1.32
1	C	22	HIS	CG-CD2	5.10	1.41	1.35
1	C	582	ASP	C-O	5.04	1.30	1.23

All (140) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	268	GLN	CB-CA-C	-9.71	91.66	110.11
1	C	423	ARG	CB-CA-C	-9.69	92.60	110.62
1	C	268	GLN	N-CA-CB	9.40	125.66	110.42
1	C	416	GLU	CB-CA-C	-9.11	95.19	110.68
1	B	56	GLN	CB-CA-C	-9.06	93.27	110.67
1	C	445	LYS	N-CA-CB	-8.65	97.36	110.16
1	B	603	ASP	CA-CB-CG	8.31	120.91	112.60
1	B	624	GLU	CB-CA-C	-8.24	96.84	110.85
1	C	291	ASP	CA-CB-CG	8.04	120.64	112.60
1	A	109	GLU	CB-CG-CD	7.79	125.84	112.60
1	A	253	GLU	CB-CG-CD	7.78	125.83	112.60
1	A	547	ARG	CG-CD-NE	-7.66	95.14	112.00
1	A	512	GLU	CB-CG-CD	7.59	125.50	112.60
1	A	252	ARG	CG-CD-NE	-7.54	95.42	112.00
1	B	128	ARG	NE-CZ-NH1	-7.31	114.19	121.50
1	A	348	PHE	CA-CB-CG	7.26	121.06	113.80
1	B	192	GLN	N-CA-CB	-7.15	98.32	109.69
1	C	320	ASP	CA-CB-CG	7.15	119.75	112.60
1	A	663	SER	CA-CB-OG	-7.14	96.83	111.10
1	A	424	GLU	CG-CD-OE2	-7.05	102.18	118.40
1	C	319	ARG	CD-NE-CZ	6.95	134.13	124.40
1	A	416	GLU	CB-CA-C	-6.95	98.10	109.56
1	C	44	GLU	CB-CG-CD	-6.90	100.87	112.60
1	B	172	LYS	N-CA-CB	-6.90	98.69	111.52
1	A	547	ARG	CB-CA-C	-6.84	98.87	110.64
1	C	8	ASP	CB-CA-C	-6.75	98.51	109.72
1	C	697	PHE	CA-CB-CG	-6.75	107.05	113.80
1	B	461	LYS	CB-CA-C	-6.73	98.16	109.53
1	C	367	THR	CA-CB-OG1	-6.68	99.57	109.60
1	C	374	THR	CA-CB-OG1	-6.66	99.61	109.60
1	A	172	LYS	N-CA-CB	-6.55	99.34	111.52
1	C	642	ASP	CA-CB-CG	6.53	119.12	112.60
1	C	686	THR	CA-CB-OG1	-6.49	99.87	109.60
1	A	707	ASP	CA-CB-CG	6.47	119.07	112.60
1	C	624	GLU	CB-CA-C	-6.47	100.05	110.79
1	A	128	ARG	NE-CZ-NH1	-6.45	115.05	121.50
1	C	252	ARG	NE-CZ-NH1	-6.42	115.08	121.50
1	A	149	ASP	CA-CB-CG	6.38	118.98	112.60
1	B	320	ASP	CB-CA-C	6.35	122.68	110.17
1	B	89	PHE	CA-CB-CG	-6.34	107.45	113.80
1	C	618	HIS	CA-CB-CG	-6.34	107.46	113.80
1	A	476	PHE	CA-CB-CG	-6.33	107.47	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	139	PHE	N-CA-CB	-6.32	99.87	110.80
1	B	399	THR	OG1-CB-CG2	-6.32	96.66	109.30
1	B	165	PRO	CB-CA-C	-6.27	102.95	112.11
1	C	512	GLU	CB-CG-CD	6.19	123.12	112.60
1	B	697	PHE	CA-CB-CG	-6.15	107.65	113.80
1	C	25	CYS	CB-CA-C	6.10	119.78	109.84
1	C	339	GLU	CG-CD-OE1	6.09	132.40	118.40
1	A	367	THR	OG1-CB-CG2	-6.08	97.14	109.30
1	B	443	PRO	CB-CA-C	6.05	118.19	111.11
1	C	152	THR	OG1-CB-CG2	-6.05	97.21	109.30
1	A	705	ASN	CA-CB-CG	-5.99	106.61	112.60
1	C	135	ASP	CA-CB-CG	5.98	118.58	112.60
1	A	291	ASP	CA-CB-CG	5.97	118.57	112.60
1	A	639	ASP	CA-CB-CG	5.96	118.56	112.60
1	A	51	VAL	O-C-N	-5.93	116.63	120.42
1	B	291	ASP	CA-CB-CG	5.93	118.53	112.60
1	B	209	LYS	CB-CA-C	-5.92	99.11	110.24
1	B	367	THR	OG1-CB-CG2	-5.91	97.49	109.30
1	B	624	GLU	N-CA-CB	5.90	118.89	110.16
1	A	137	GLU	CG-CD-OE1	5.89	131.96	118.40
1	C	317	ASP	CA-CB-CG	5.87	118.47	112.60
1	A	466	HIS	CA-C-O	5.85	124.46	119.66
1	C	441	PHE	CA-CB-CG	-5.85	107.95	113.80
1	C	233	LYS	CB-CA-C	5.83	119.80	109.65
1	C	339	GLU	CG-CD-OE2	-5.79	105.09	118.40
1	B	265	ASP	CA-CB-CG	5.77	118.37	112.60
1	C	461	LYS	N-CA-CB	5.76	119.56	110.23
1	C	49	ILE	CB-CA-C	-5.75	104.69	111.94
1	A	373	LYS	CB-CA-C	-5.74	99.66	110.16
1	C	461	LYS	CB-CA-C	-5.73	100.08	109.53
1	C	66	ARG	NE-CZ-NH2	5.72	124.34	119.20
1	B	426	THR	CA-CB-OG1	-5.71	101.03	109.60
1	C	258	VAL	N-CA-C	-5.71	100.25	108.42
1	B	53	PHE	O-C-N	5.68	129.26	122.27
1	A	423	ARG	CB-CA-C	-5.67	99.65	109.86
1	A	65[A]	GLU	CB-CG-CD	5.67	122.24	112.60
1	A	65[B]	GLU	CB-CG-CD	5.67	122.24	112.60
1	B	393	GLU	N-CA-CB	-5.66	102.61	111.56
1	A	55	GLU	CB-CA-C	-5.64	100.19	110.63
1	A	512	GLU	CG-CD-OE1	5.63	131.35	118.40
1	A	253	GLU	N-CA-C	-5.62	106.47	113.38
1	A	547	ARG	CB-CG-CD	-5.61	98.39	111.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	107	GLU	CB-CG-CD	5.59	122.11	112.60
1	C	6	TYR	CB-CA-C	5.58	118.25	109.27
1	A	424	GLU	CG-CD-OE1	5.56	131.19	118.40
1	B	269	GLU	CA-C-N	5.56	128.76	120.31
1	B	269	GLU	C-N-CA	5.56	128.76	120.31
1	B	53	PHE	CA-CB-CG	-5.55	108.25	113.80
1	B	5	GLN	CB-CA-C	-5.54	101.21	110.19
1	C	339	GLU	N-CA-CB	-5.52	101.96	110.13
1	A	107	GLU	CB-CA-C	5.51	119.78	111.18
1	B	60	ARG	CD-NE-CZ	5.50	132.10	124.40
1	A	11	ARG	CD-NE-CZ	5.47	132.05	124.40
1	C	526	CYS	CB-CA-C	-5.45	102.33	110.88
1	A	429	GLY	CA-C-N	-5.44	115.93	122.90
1	A	429	GLY	C-N-CA	-5.44	115.93	122.90
1	A	582	ASP	CA-CB-CG	5.43	118.03	112.60
1	A	10	TYR	CB-CA-C	5.42	117.97	109.84
1	B	686	THR	CA-CB-OG1	-5.39	101.52	109.60
1	B	424	GLU	CB-CG-CD	-5.35	103.51	112.60
1	A	445	LYS	CB-CA-C	-5.33	101.61	110.68
1	B	327	LYS	N-CA-CB	5.33	118.94	110.57
1	B	379	VAL	N-CA-CB	-5.33	104.91	110.82
1	B	512	GLU	N-CA-CB	5.32	118.41	110.22
1	C	431	ASP	CA-CB-CG	5.32	117.92	112.60
1	B	105	SER	CA-C-O	-5.31	115.60	121.28
1	B	529	ASP	CA-CB-CG	5.30	117.90	112.60
1	A	662	ARG	NE-CZ-NH2	5.30	123.97	119.20
1	C	233	LYS	CB-CG-CD	5.26	123.41	111.30
1	C	319	ARG	CG-CD-NE	5.23	123.51	112.00
1	C	89	PHE	N-CA-CB	5.22	119.14	110.52
1	A	253	GLU	N-CA-CB	5.22	118.31	110.53
1	A	676	THR	CA-CB-CG2	5.20	119.33	110.50
1	B	542	TYR	N-CA-CB	5.18	117.80	110.13
1	C	631	PRO	CB-CA-C	5.17	117.80	111.12
1	C	333	HIS	CA-CB-CG	-5.17	108.63	113.80
1	C	415	GLU	CA-C-N	5.17	127.46	120.38
1	C	415	GLU	C-N-CA	5.17	127.46	120.38
1	C	65	GLU	CG-CD-OE2	-5.16	106.52	118.40
1	A	445	LYS	N-CA-CB	5.16	117.80	110.06
1	B	293	VAL	N-CA-CB	-5.14	106.48	111.57
1	B	243	ASP	CA-CB-CG	5.14	117.74	112.60
1	A	424	GLU	N-CA-CB	-5.13	101.84	111.13
1	B	451	PRO	N-CA-CB	5.12	108.12	103.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	367	THR	CA-CB-OG1	-5.09	101.96	109.60
1	C	670	LEU	N-CA-CB	-5.09	102.61	110.65
1	C	415	GLU	CB-CG-CD	5.09	121.25	112.60
1	A	439	GLN	CB-CA-C	-5.08	101.72	110.16
1	C	319	ARG	CA-CB-CG	5.08	124.25	114.10
1	B	619	ASN	CA-CB-CG	-5.04	107.56	112.60
1	A	457	LYS	CG-CD-CE	5.03	122.88	111.30
1	C	65	GLU	CG-CD-OE1	5.03	129.98	118.40
1	B	664	ARG	CB-CA-C	5.03	119.40	110.85
1	B	128	ARG	NE-CZ-NH2	5.02	123.72	119.20
1	A	529	ASP	CA-CB-CG	5.02	117.62	112.60
1	C	547	ARG	CG-CD-NE	-5.01	100.98	112.00
1	C	423	ARG	NE-CZ-NH1	-5.01	116.49	121.50
1	C	653	ILE	CA-C-O	-5.00	115.75	120.95

There are no chirality outliers.

All (16) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	423	ARG	Sidechain
1	A	66	ARG	Sidechain
1	B	170	ARG	Sidechain
1	B	312	ARG	Sidechain
1	B	423	ARG	Sidechain
1	B	488	ARG	Sidechain
1	B	547[A]	ARG	Sidechain
1	B	547[B]	ARG	Sidechain
1	B	643	ARG	Sidechain
1	B	702	ARG	Sidechain
1	B	98	ARG	Sidechain
1	C	111	ARG	Sidechain
1	C	493	ARG	Sidechain
1	C	547	ARG	Sidechain
1	C	578	VAL	Mainchain
1	C	664	ARG	Sidechain

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	5708	5557	5534	66	0
1	B	5703	5551	5528	58	0
1	C	5692	5543	5520	66	0
2	A	38	52	52	3	0
2	B	19	26	26	2	0
2	C	19	26	26	0	0
3	A	35	28	0	2	0
3	B	35	28	0	2	0
3	C	35	28	0	0	0
4	A	48	64	64	18	0
4	B	12	16	16	0	0
4	C	36	48	48	7	0
5	A	14	20	20	5	0
6	A	9	0	0	3	0
6	B	15	0	0	4	0
6	C	9	0	0	2	0
7	A	772	0	0	17	0
7	B	510	0	0	8	0
7	C	572	0	0	17	0
All	All	19281	16987	16834	197	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 6.

All (197) 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:B:547[B]:ARG:HG2	1:B:547[B]:ARG:HH11	1.23	1.00
4:A:804:GOL:H11	7:A:1396:HOH:O	1.63	0.97
1:C:17[B]:GLN:NE2	7:C:902:HOH:O	1.97	0.95
1:C:192:GLN:HE21	1:C:193:GLN:H	1.20	0.88
1:A:379:VAL:HG12	6:A:811:SCN:S	2.13	0.88
1:C:17[A]:GLN:OE1	7:C:901:HOH:O	1.93	0.85
1:C:154:LYS:HD3	7:C:1394:HOH:O	1.75	0.85
1:B:379:VAL:HG12	7:B:1346:HOH:O	1.80	0.82
1:A:172:LYS:HD3	1:A:173:PHE:CE2	2.18	0.78
1:C:25:CYS:HB3	7:C:1339:HOH:O	1.85	0.76
1:A:459:GLY:N	4:A:808:GOL:O1	2.14	0.75
1:C:221:GLU:OE2	7:C:903:HOH:O	2.05	0.75
1:C:13:GLU:OE1	7:C:906:HOH:O	2.08	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:276:ILE:HD12	4:A:804:GOL:O2	1.89	0.71
1:A:404:PRO:HG2	1:A:425:VAL:HG23	1.73	0.69
1:A:76:TYR:CD1	1:A:423:ARG:HD3	2.28	0.69
1:B:276:ILE:HD12	6:B:808:SCN:N	2.07	0.69
1:C:431:ASP:OD1	7:C:907:HOH:O	2.10	0.68
1:C:209:LYS:HD2	7:C:1368:HOH:O	1.93	0.68
1:C:11:ARG:H	4:C:811:GOL:H31	1.59	0.68
1:A:44[A]:GLU:CD	7:A:904:HOH:O	2.37	0.67
2:A:802:B3P:O6	7:A:901:HOH:O	2.03	0.67
1:C:431:ASP:HB3	7:C:934:HOH:O	1.95	0.65
1:A:208:GLN:HE22	1:A:235:MET:HE3	1.62	0.64
1:C:285:ASN:HD21	4:C:806:GOL:H2	1.63	0.63
1:B:76:TYR:CD1	1:B:423:ARG:HD3	2.33	0.63
4:A:813:GOL:H11	7:A:919:HOH:O	1.99	0.62
1:A:208:GLN:NE2	1:A:235:MET:HE3	2.15	0.61
1:A:389:LYS:NZ	4:A:806:GOL:O2	2.31	0.61
1:A:358:LYS:HD2	1:A:379:VAL:HG13	1.82	0.61
1:B:478:ILE:HD13	7:B:957:HOH:O	2.01	0.61
1:C:268:GLN:NE2	7:C:916:HOH:O	2.34	0.60
1:A:192:GLN:HE22	5:A:815:PEG:H41	1.67	0.60
1:B:235[B]:MET:SD	3:B:800:A1CQ0:C19	2.89	0.60
1:B:323:GLU:HG3	1:B:326:TRP:CZ3	2.37	0.60
1:B:207:HIS:CE1	1:B:232:PRO:HG3	2.37	0.59
1:A:664[B]:ARG:NH2	7:A:908:HOH:O	2.33	0.59
1:C:7:PRO:HD3	1:C:49:ILE:HD11	1.84	0.58
1:C:466:HIS:HB2	1:C:498:ILE:HD12	1.84	0.58
1:C:427:VAL:HG23	1:C:484:TYR:OH	2.03	0.58
1:A:400:SER:HB2	6:A:811:SCN:N	2.19	0.57
1:A:169:GLU:HB3	5:A:815:PEG:H32	1.86	0.57
1:B:7:PRO:HD3	1:B:49:ILE:CD1	2.34	0.57
1:B:547[B]:ARG:HG2	1:B:547[B]:ARG:NH1	2.03	0.57
1:A:256[B]:ASP:OD1	1:A:257:PRO:HD2	2.04	0.57
1:C:404:PRO:HB2	1:C:425:VAL:HG23	1.87	0.57
1:B:276:ILE:HG23	6:B:808:SCN:N	2.20	0.56
1:B:306:ARG:HH22	1:C:428:LYS:HE3	1.69	0.56
1:A:703:CYS:HA	4:A:803:GOL:H31	1.88	0.56
1:B:73:TYR:CD2	1:B:425:VAL:HG21	2.42	0.55
1:A:459:GLY:H	4:A:808:GOL:HO1	1.46	0.55
1:A:119:LEU:O	7:A:902:HOH:O	2.18	0.55
1:A:252:ARG:NE	4:A:813:GOL:H32	2.21	0.55
3:A:801:A1CQ0:C11	4:A:813:GOL:H31	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:54:LEU:HA	1:B:57:CYS:SG	2.47	0.54
1:B:173:PHE:HB3	1:B:235[B]:MET:HE1	1.88	0.54
1:A:257:PRO:HB3	2:A:802:B3P:H91	1.88	0.54
1:C:127:LEU:HD11	1:C:141:TYR:HB2	1.88	0.54
1:A:76:TYR:CG	1:A:423:ARG:HD3	2.43	0.53
1:A:252:ARG:CD	4:A:813:GOL:H32	2.38	0.53
1:A:379:VAL:CG1	6:A:811:SCN:S	2.93	0.53
1:A:296:GLU:HG3	7:A:1523:HOH:O	2.08	0.53
1:B:296:GLU:HG3	7:B:1377:HOH:O	2.08	0.53
1:B:547[B]:ARG:HH11	1:B:547[B]:ARG:CG	2.09	0.52
1:C:322:GLU:OE1	7:C:908:HOH:O	2.18	0.51
1:A:260:ARG:HG3	1:A:286:PHE:CE1	2.45	0.51
1:A:71:TYR:CZ	1:A:75:LYS:HE2	2.45	0.51
1:C:404:PRO:CG	1:C:427:VAL:HB	2.41	0.51
1:B:120:SER:HB3	7:B:1106:HOH:O	2.11	0.51
1:C:209:LYS:CE	7:C:1368:HOH:O	2.60	0.50
1:B:276:ILE:CG2	6:B:808:SCN:N	2.74	0.50
1:C:339:GLU:OE1	1:C:359:ASN:ND2	2.43	0.50
1:B:234:TRP:CD1	1:B:253[B]:GLU:HG3	2.47	0.50
1:C:438:VAL:HG23	1:C:440:ILE:HG23	1.93	0.50
1:B:184:GLY:HA3	1:B:212:TYR:CZ	2.46	0.50
1:B:172:LYS:HD3	1:B:173:PHE:CE2	2.47	0.50
3:A:801:A1CQ0:C21	4:A:813:GOL:O3	2.60	0.49
1:C:356:ASP:C	1:C:357:VAL:HG23	2.37	0.49
1:B:251:ILE:HB	1:B:260:ARG:HB2	1.95	0.49
1:C:256:ASP:OD1	1:C:257:PRO:HD2	2.13	0.49
1:C:618:HIS:O	4:C:802:GOL:H32	2.13	0.49
2:A:802:B3P:H92	4:A:813:GOL:H12	1.94	0.49
1:C:285:ASN:HD21	4:C:806:GOL:C2	2.25	0.49
1:C:154:LYS:CD	7:C:1394:HOH:O	2.45	0.49
1:C:268:GLN:HB2	7:C:1015:HOH:O	2.12	0.49
1:B:64:LYS:HE3	1:B:691:GLU:OE2	2.13	0.48
1:A:252:ARG:HD2	4:A:813:GOL:H32	1.94	0.48
5:A:805:PEG:H11	7:A:1285:HOH:O	2.13	0.48
1:B:623:PRO:O	1:B:665:LYS:NZ	2.44	0.48
1:A:256[B]:ASP:OD1	1:A:257:PRO:CD	2.61	0.48
1:A:278:LYS:HB2	1:A:278:LYS:HE3	1.59	0.48
1:A:427:VAL:HA	7:A:1262:HOH:O	2.14	0.48
1:C:262:TRP:CH2	4:C:808:GOL:H32	2.49	0.48
1:B:235[B]:MET:SD	3:B:800:A1CQ0:C18	3.02	0.48
1:C:345:ARG:HG3	1:C:392:THR:HA	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:57:CYS:HB3	1:B:698:ALA:HB1	1.96	0.47
1:C:358:LYS:HD2	1:C:379:VAL:HG13	1.96	0.47
1:B:258:VAL:HG12	1:B:288:GLY:HA2	1.97	0.47
1:A:120:SER:HB2	7:A:1430:HOH:O	2.15	0.47
1:A:256[B]:ASP:CG	7:A:924:HOH:O	2.57	0.47
1:C:209:LYS:CD	7:C:1368:HOH:O	2.56	0.47
1:A:276:ILE:HG21	4:A:804:GOL:H2	1.97	0.47
1:B:323:GLU:HA	1:B:326:TRP:CD2	2.50	0.47
1:A:157:LYS:HE3	7:A:1565:HOH:O	2.15	0.47
1:B:163:GLU:HG2	7:B:1131:HOH:O	2.15	0.47
1:B:323:GLU:HA	1:B:326:TRP:CE2	2.51	0.46
1:C:127:LEU:CD1	1:C:141:TYR:HB2	2.46	0.46
1:B:252:ARG:NH2	1:B:289:GLU:OE1	2.48	0.46
1:B:323:GLU:HG3	1:B:326:TRP:CE3	2.51	0.46
1:B:553:GLY:HA2	1:B:577:GLN:O	2.15	0.46
1:C:298:THR:OG1	1:C:319:ARG:NH1	2.42	0.46
1:A:57:CYS:HB3	1:A:698:ALA:HB1	1.97	0.46
1:B:57:CYS:CB	1:B:698:ALA:HB1	2.45	0.46
1:A:104[B]:ASP:OD2	1:A:111:ARG:NH1	2.45	0.46
1:A:613:LYS:HE3	7:A:1159:HOH:O	2.16	0.46
1:B:172:LYS:HG2	1:B:173:PHE:CD2	2.50	0.46
1:B:431:ASP:OD1	1:B:431:ASP:C	2.58	0.46
1:C:425:VAL:HG22	6:C:804:SCN:N	2.31	0.46
2:B:802:B3P:H31	2:B:802:B3P:O6	2.16	0.46
1:B:466:HIS:O	1:B:547[A]:ARG:HD3	2.16	0.45
1:C:398:PHE:O	1:C:405:GLY:HA2	2.16	0.45
1:A:695:ASP:OD2	4:A:810:GOL:O3	2.29	0.45
1:C:427:VAL:CG2	1:C:430:ILE:HB	2.46	0.45
1:A:389:LYS:HD3	4:A:806:GOL:O2	2.16	0.45
1:C:65:GLU:O	1:C:69:GLU:HG3	2.16	0.45
1:C:405:GLY:HA3	6:C:804:SCN:N	2.32	0.45
1:A:404:PRO:HB2	1:A:425:VAL:HG21	1.97	0.45
1:B:473:TYR:CZ	1:B:555:ASN:HB3	2.52	0.44
1:B:464:GLY:O	1:B:547[A]:ARG:HD2	2.18	0.44
1:C:115:ASP:O	1:C:118:ILE:HG12	2.17	0.44
1:C:335:LYS:NZ	1:C:356:ASP:OD1	2.51	0.44
1:A:7:PRO:HD3	1:A:49:ILE:CD1	2.46	0.44
1:B:340:TRP:HA	6:B:803:SCN:S	2.58	0.44
1:A:242:ASP:CB	4:A:806:GOL:H2	2.47	0.44
1:A:169:GLU:OE1	5:A:815:PEG:H31	2.18	0.44
1:A:495:MET:HE3	1:A:701:ALA:HB2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:173:PHE:CB	1:B:235[B]:MET:HE1	2.46	0.44
1:A:353:TYR:O	1:A:359:ASN:HA	2.18	0.43
1:A:7:PRO:HD3	1:A:49:ILE:HD12	1.98	0.43
1:A:389:LYS:CE	4:A:806:GOL:O2	2.66	0.43
1:C:466:HIS:HB2	1:C:498:ILE:CD1	2.48	0.43
1:C:192:GLN:NE2	1:C:192:GLN:HA	2.33	0.43
1:A:20:HIS:HB3	1:A:605:LYS:HG3	1.99	0.43
1:A:44[B]:GLU:CD	7:A:912:HOH:O	2.61	0.43
1:C:523:LYS:HG2	1:C:614:TYR:CZ	2.54	0.43
1:C:607:HIS:CD2	1:C:610:TRP:CH2	3.07	0.43
1:B:356:ASP:C	1:B:357:VAL:HG23	2.44	0.43
1:C:445:LYS:HE3	1:C:445:LYS:HB2	1.63	0.43
1:C:677:LYS:HE2	1:C:677:LYS:HB3	1.88	0.43
1:C:51:VAL:N	1:C:52:PRO:CD	2.81	0.43
1:C:461:LYS:HD2	1:C:461:LYS:H	1.84	0.43
1:B:208:GLN:HE22	1:B:235[B]:MET:HE3	1.84	0.42
1:C:230:ASP:OD2	7:C:909:HOH:O	2.21	0.42
1:C:440:ILE:C	1:C:440:ILE:HD12	2.43	0.42
1:A:16:VAL:HG11	1:A:23:LYS:HD3	2.01	0.42
1:B:90:TYR:HB3	1:B:101:TYR:CE1	2.55	0.42
1:C:153:ILE:HB	1:C:168:LEU:HB2	2.01	0.42
1:C:262:TRP:HH2	4:C:808:GOL:H32	1.84	0.42
1:A:192:GLN:NE2	5:A:815:PEG:O2	2.52	0.42
1:C:416:GLU:O	1:C:417:LEU:O	2.37	0.42
1:A:5:GLN:NE2	7:A:959:HOH:O	2.52	0.42
1:A:586:PHE:CD1	1:A:586:PHE:C	2.98	0.42
1:B:66:ARG:HA	1:B:66:ARG:HD2	1.87	0.42
1:B:111:ARG:HB2	7:B:1216:HOH:O	2.19	0.42
1:B:275:GLY:O	1:B:276:ILE:C	2.62	0.42
1:A:473:TYR:CZ	1:A:555:ASN:HB3	2.55	0.42
2:B:802:B3P:O6	2:B:802:B3P:C3	2.67	0.42
1:C:290:TYR:OH	4:C:806:GOL:H12	2.20	0.42
1:A:583:MET:HE1	1:A:599:TYR:CD2	2.55	0.41
1:A:362:GLN:NE2	7:A:945:HOH:O	2.53	0.41
1:B:607:HIS:CD2	1:B:610:TRP:CH2	3.09	0.41
1:A:289:GLU:O	1:A:304:THR:HA	2.21	0.41
1:A:75:LYS:O	1:A:90:TYR:HA	2.21	0.41
1:C:251:ILE:HB	1:C:260:ARG:HB2	2.03	0.41
1:C:456:HIS:NE2	7:C:913:HOH:O	2.31	0.41
1:A:404:PRO:HA	1:A:484:TYR:CG	2.55	0.41
1:C:192:GLN:HE21	1:C:193:GLN:N	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:ARG:HD2	1:A:66:ARG:HA	1.82	0.41
1:B:431:ASP:OD1	1:B:433:SER:OG	2.36	0.41
1:B:570:LEU:HA	1:B:570:LEU:HD23	1.87	0.41
1:B:647:LEU:C	1:B:647:LEU:HD12	2.46	0.41
1:C:442:TYR:OH	1:C:450:ILE:HG21	2.20	0.41
1:C:553:GLY:HA2	1:C:577:GLN:O	2.21	0.41
1:A:127:LEU:HD11	1:A:141:TYR:HB2	2.03	0.41
1:B:172:LYS:HD3	1:B:173:PHE:HE2	1.84	0.41
1:B:208:GLN:NE2	1:B:235[B]:MET:HE3	2.35	0.41
1:C:94:LEU:HD23	1:C:94:LEU:HA	1.90	0.41
1:A:44[B]:GLU:HG3	1:A:48:LYS:HZ2	1.86	0.41
1:A:431:ASP:O	1:A:434:ASP:HB2	2.21	0.41
1:B:545:PRO:HD2	7:B:1202:HOH:O	2.21	0.40
1:A:443:PRO:HD2	7:A:967:HOH:O	2.20	0.40
1:B:192:GLN:HA	7:B:940:HOH:O	2.21	0.40
1:B:583:MET:HE1	1:B:599:TYR:CD2	2.56	0.40
1:C:79:HIS:HE1	1:C:423:ARG:NH1	2.19	0.40
1:C:63:TYR:CD1	1:C:63:TYR:C	3.00	0.40
1:A:373:LYS:HE2	1:A:417:LEU:O	2.22	0.40
1:B:306:ARG:NH2	1:C:428:LYS:HE3	2.35	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	711/711 (100%)	687 (97%)	22 (3%)	2 (0%)	37	22
1	B	710/711 (100%)	682 (96%)	25 (4%)	3 (0%)	30	16
1	C	708/711 (100%)	681 (96%)	24 (3%)	3 (0%)	30	16
All	All	2129/2133 (100%)	2050 (96%)	71 (3%)	8 (0%)	30	16

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	417	LEU
1	B	271	SER
1	B	428	LYS
1	C	357	VAL
1	B	357	VAL
1	A	554	SER
1	A	357	VAL
1	C	578	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	620/617 (100%)	604 (97%)	16 (3%)	41	21
1	B	619/617 (100%)	604 (98%)	15 (2%)	44	24
1	C	617/617 (100%)	596 (97%)	21 (3%)	32	12
All	All	1856/1851 (100%)	1804 (97%)	52 (3%)	40	18

All (52) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	LEU
1	A	5	GLN
1	A	109	GLU
1	A	157	LYS
1	A	261	LEU
1	A	335	LYS
1	A	357	VAL
1	A	358	LYS
1	A	403	SER
1	A	415	GLU
1	A	426	THR
1	A	430	ILE
1	A	434	ASP

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Mol	Chain	Res	Type
1	A	598	ASP
1	A	605	LYS
1	A	624	GLU
1	B	5	GLN
1	B	54	LEU
1	B	65[A]	GLU
1	B	65[B]	GLU
1	B	103	GLN
1	B	106	LEU
1	B	107	GLU
1	B	111	ARG
1	B	261	LEU
1	B	357	VAL
1	B	425	VAL
1	B	461	LYS
1	B	539	LYS
1	B	546	LYS
1	B	598	ASP
1	C	5	GLN
1	C	16[A]	VAL
1	C	16[B]	VAL
1	C	59	ILE
1	C	120	SER
1	C	157	LYS
1	C	163	GLU
1	C	283	ILE
1	C	335	LYS
1	C	354	LEU
1	C	357	VAL
1	C	415	GLU
1	C	418	GLU
1	C	427	VAL
1	C	438	VAL
1	C	461	LYS
1	C	512	GLU
1	C	544	SER
1	C	598	ASP
1	C	604	SER
1	C	616	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	103	GLN
1	A	205	ASN
1	A	268	GLN
1	A	362	GLN
1	A	477	ASN
1	A	524	GLN
1	A	531	GLN
1	A	566	GLN
1	A	606	GLN
1	B	103	GLN
1	B	193	GLN
1	B	205	ASN
1	B	397	GLN
1	B	483	ASN
1	B	503	ASN
1	B	524	GLN
1	B	531	GLN
1	B	566	GLN
1	C	79	HIS
1	C	192	GLN
1	C	193	GLN
1	C	205	ASN
1	C	268	GLN
1	C	388	GLN
1	C	397	GLN
1	C	436	GLN
1	C	503	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

36 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	$\# Z > 2$
4	GOL	A	809	-	5,5,5	0.20	0	5,5,5	0.54	0
4	GOL	C	809	-	5,5,5	0.20	0	5,5,5	0.63	0
6	SCN	A	811	-	1,2,2	0.40	0	0,1,1	-	-
6	SCN	B	807	-	1,2,2	0.70	0	0,1,1	-	-
6	SCN	C	810	-	1,2,2	0.50	0	0,1,1	-	-
4	GOL	C	811	-	5,5,5	0.37	0	5,5,5	0.73	0
4	GOL	C	808	-	5,5,5	0.53	0	5,5,5	1.01	0
6	SCN	B	803	-	1,2,2	1.03	0	0,1,1	-	-
5	PEG	A	815	-	6,6,6	0.36	0	5,5,5	0.41	0
6	SCN	A	814	-	1,2,2	0.48	0	0,1,1	-	-
3	A1CQ0	B	800	1	36,39,40	0.92	1 (2%)	41,53,55	1.27	4 (9%)
2	B3P	C	803	-	18,18,18	1.02	2 (11%)	23,23,23	1.62	5 (21%)
4	GOL	B	801	-	5,5,5	0.36	0	5,5,5	0.69	0
4	GOL	A	803	-	5,5,5	0.14	0	5,5,5	0.72	0
4	GOL	C	802	-	5,5,5	0.23	0	5,5,5	0.94	0
4	GOL	C	806	-	5,5,5	0.48	0	5,5,5	1.53	0
2	B3P	B	802	-	18,18,18	0.94	0	23,23,23	1.51	3 (13%)
4	GOL	B	806	-	5,5,5	0.46	0	5,5,5	0.70	0
3	A1CQ0	A	801	1	36,39,40	1.50	5 (13%)	41,53,55	1.41	5 (12%)
5	PEG	A	805	-	6,6,6	0.63	0	5,5,5	0.40	0
6	SCN	B	805	-	1,2,2	0.28	0	0,1,1	-	-
4	GOL	A	812	-	5,5,5	0.27	0	5,5,5	0.53	0
6	SCN	B	808	-	1,2,2	1.09	0	0,1,1	-	-
4	GOL	A	808	-	5,5,5	0.14	0	5,5,5	0.44	0
2	B3P	A	800	-	18,18,18	0.81	0	23,23,23	0.79	0
6	SCN	B	804	-	1,2,2	0.48	0	0,1,1	-	-
4	GOL	A	806	-	5,5,5	0.38	0	5,5,5	0.72	0
6	SCN	C	804	-	1,2,2	0.67	0	0,1,1	-	-
4	GOL	C	807	-	5,5,5	0.21	0	5,5,5	0.50	0
4	GOL	A	813	-	5,5,5	0.23	0	5,5,5	0.48	0
2	B3P	A	802	-	18,18,18	1.10	2 (11%)	23,23,23	1.52	5 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	SCN	A	807	-	1,2,2	0.61	0	0,1,1	-	-
6	SCN	C	805	-	1,2,2	1.15	0	0,1,1	-	-
4	GOL	A	804	-	5,5,5	0.44	0	5,5,5	1.56	1 (20%)
3	A1CQ0	C	801	1	36,39,40	1.24	4 (11%)	41,53,55	1.29	4 (9%)
4	GOL	A	810	-	5,5,5	0.30	0	5,5,5	0.37	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	GOL	A	809	-	-	0/4/4/4	-
4	GOL	C	809	-	-	1/4/4/4	-
4	GOL	C	811	-	-	2/4/4/4	-
4	GOL	C	808	-	-	4/4/4/4	-
5	PEG	A	815	-	-	1/4/4/4	-
3	A1CQ0	B	800	1	-	10/23/30/30	0/5/5/5
2	B3P	C	803	-	-	9/28/28/28	-
4	GOL	B	801	-	-	2/4/4/4	-
4	GOL	A	803	-	-	4/4/4/4	-
4	GOL	C	802	-	-	2/4/4/4	-
4	GOL	C	806	-	-	4/4/4/4	-
2	B3P	B	802	-	-	9/28/28/28	-
4	GOL	B	806	-	-	2/4/4/4	-
3	A1CQ0	A	801	1	-	8/23/30/30	0/5/5/5
5	PEG	A	805	-	-	2/4/4/4	-
4	GOL	A	812	-	-	4/4/4/4	-
4	GOL	A	808	-	-	2/4/4/4	-
2	B3P	A	800	-	-	0/28/28/28	-
4	GOL	A	806	-	-	2/4/4/4	-
4	GOL	C	807	-	-	2/4/4/4	-
4	GOL	A	813	-	-	1/4/4/4	-
2	B3P	A	802	-	-	7/28/28/28	-
4	GOL	A	804	-	-	2/4/4/4	-
3	A1CQ0	C	801	1	-	9/23/30/30	0/5/5/5
4	GOL	A	810	-	-	4/4/4/4	-

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	801	A1CQ0	C13-C9	4.82	1.46	1.37
3	C	801	A1CQ0	N4-N5	3.64	1.41	1.37
3	A	801	A1CQ0	C10-C9	3.05	1.44	1.39
3	C	801	A1CQ0	C13-C9	2.97	1.42	1.37
2	A	802	B3P	C10-C8	2.78	1.56	1.53
3	A	801	A1CQ0	C27-C26	2.76	1.44	1.38
3	C	801	A1CQ0	C10-C9	2.48	1.43	1.39
2	C	803	B3P	C5-C4	2.36	1.56	1.53
3	A	801	A1CQ0	C14-N4	-2.23	1.33	1.35
3	B	800	A1CQ0	C11-N3	-2.18	1.32	1.35
3	A	801	A1CQ0	C24-C23	2.09	1.43	1.38
2	A	802	B3P	C9-C8	2.04	1.55	1.53
3	C	801	A1CQ0	C11-N3	-2.01	1.32	1.35
2	C	803	B3P	C11-C8	2.00	1.55	1.53

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	801	A1CQ0	C9-C13-C12	-4.78	115.77	121.15
3	B	800	A1CQ0	C9-C13-C12	-4.48	116.11	121.15
3	A	801	A1CQ0	C3-C2-N1	-4.09	103.30	112.00
2	B	802	B3P	O5-C6-C4	3.96	119.73	111.68
3	B	800	A1CQ0	C2-N1-C1	-3.91	113.27	122.11
2	C	803	B3P	O4-C5-C4	3.40	118.60	111.68
2	C	803	B3P	C2-N2-C8	3.31	121.01	116.17
3	C	801	A1CQ0	C9-C13-C12	-3.28	117.45	121.15
2	A	802	B3P	O3-C11-C8	-3.23	105.10	111.68
2	C	803	B3P	C5-C4-N1	3.23	118.64	109.02
3	C	801	A1CQ0	C21-C22-C23	3.19	120.87	112.30
3	A	801	A1CQ0	C15-C14-N4	-3.03	115.59	120.78
3	C	801	A1CQ0	C15-C14-N4	-2.95	115.74	120.78
3	C	801	A1CQ0	C3-C4-N2	-2.74	113.94	118.09
2	B	802	B3P	C7-C4-N1	-2.71	100.94	109.02
2	A	802	B3P	C5-C4-N1	2.66	116.94	109.02
2	C	803	B3P	O2-C10-C8	-2.59	106.42	111.68
3	A	801	A1CQ0	O1-C1-N1	-2.52	117.68	122.59
2	B	802	B3P	C1-C3-N1	2.52	117.07	110.98
2	A	802	B3P	C6-C4-N1	-2.43	101.76	109.02
2	A	802	B3P	C11-C8-C10	-2.39	104.79	110.02
4	A	804	GOL	O2-C2-C1	-2.31	99.64	109.18
2	A	802	B3P	O2-C10-C8	-2.30	107.01	111.68
2	C	803	B3P	C11-C8-C10	-2.27	105.05	110.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	800	A1CQ0	O1-C1-N1	-2.26	118.18	122.59
3	A	801	A1CQ0	C3-C4-N2	2.13	121.31	118.09
3	B	800	A1CQ0	C14-C12-C11	-2.11	103.18	106.89

There are no chirality outliers.

All (93) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	802	B3P	N1-C4-C5-O4
2	A	802	B3P	C6-C4-C5-O4
2	A	802	B3P	C7-C4-C5-O4
2	B	802	B3P	N1-C4-C7-O6
2	B	802	B3P	C5-C4-C7-O6
2	B	802	B3P	C6-C4-C7-O6
2	B	802	B3P	C9-C8-N2-C2
2	B	802	B3P	C11-C8-N2-C2
2	C	803	B3P	N1-C4-C5-O4
2	C	803	B3P	C6-C4-C5-O4
2	C	803	B3P	C7-C4-C5-O4
2	C	803	B3P	C5-C4-C7-O6
2	C	803	B3P	C6-C4-C7-O6
3	A	801	A1CQ0	O1-C1-C9-C10
3	A	801	A1CQ0	N4-C14-C15-C20
3	A	801	A1CQ0	N5-C21-C22-C23
3	B	800	A1CQ0	O1-C1-C9-C10
3	B	800	A1CQ0	N4-C14-C15-C16
3	B	800	A1CQ0	N4-C14-C15-C20
3	B	800	A1CQ0	N5-C21-C22-C23
3	C	801	A1CQ0	N4-C14-C15-C16
3	C	801	A1CQ0	N5-C21-C22-C23
4	A	803	GOL	O1-C1-C2-C3
4	A	806	GOL	O1-C1-C2-O2
4	A	806	GOL	O1-C1-C2-C3
4	A	812	GOL	O1-C1-C2-C3
4	B	806	GOL	C1-C2-C3-O3
4	C	802	GOL	O1-C1-C2-C3
4	C	806	GOL	C1-C2-C3-O3
4	C	806	GOL	O2-C2-C3-O3
4	C	808	GOL	O1-C1-C2-C3
4	C	808	GOL	C1-C2-C3-O3
4	C	808	GOL	O2-C2-C3-O3
4	C	811	GOL	C1-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
3	C	801	A1CQ0	O1-C1-C9-C10
3	B	800	A1CQ0	O1-C1-C9-C13
3	C	801	A1CQ0	O1-C1-C9-C13
3	A	801	A1CQ0	O1-C1-C9-C13
3	C	801	A1CQ0	N1-C1-C9-C13
3	B	800	A1CQ0	N1-C1-C9-C10
3	C	801	A1CQ0	N1-C1-C9-C10
3	B	800	A1CQ0	N1-C1-C9-C13
3	A	801	A1CQ0	N1-C1-C9-C10
3	A	801	A1CQ0	N1-C1-C9-C13
2	A	802	B3P	C2-C1-C3-N1
4	A	803	GOL	O1-C1-C2-O2
4	C	802	GOL	O1-C1-C2-O2
4	C	808	GOL	O1-C1-C2-O2
4	C	811	GOL	O2-C2-C3-O3
5	A	815	PEG	O2-C3-C4-O4
2	B	802	B3P	C3-C1-C2-N2
2	C	803	B3P	C1-C3-N1-C4
5	A	805	PEG	O1-C1-C2-O2
4	A	803	GOL	C1-C2-C3-O3
4	A	804	GOL	O1-C1-C2-C3
4	A	808	GOL	C1-C2-C3-O3
4	A	810	GOL	O1-C1-C2-C3
4	A	810	GOL	C1-C2-C3-O3
4	A	812	GOL	C1-C2-C3-O3
4	A	813	GOL	O1-C1-C2-C3
4	B	801	GOL	C1-C2-C3-O3
4	C	806	GOL	O1-C1-C2-C3
4	C	807	GOL	C1-C2-C3-O3
4	C	809	GOL	C1-C2-C3-O3
4	A	810	GOL	O1-C1-C2-O2
4	A	812	GOL	O1-C1-C2-O2
4	B	806	GOL	O2-C2-C3-O3
4	C	806	GOL	O1-C1-C2-O2
2	B	802	B3P	C2-C1-C3-N1
4	A	804	GOL	O1-C1-C2-O2
4	A	812	GOL	O2-C2-C3-O3
2	B	802	B3P	C10-C8-N2-C2
2	C	803	B3P	C5-C4-C6-O5
2	A	802	B3P	C1-C3-N1-C4
2	C	803	B3P	C3-C1-C2-N2
4	A	810	GOL	O2-C2-C3-O3

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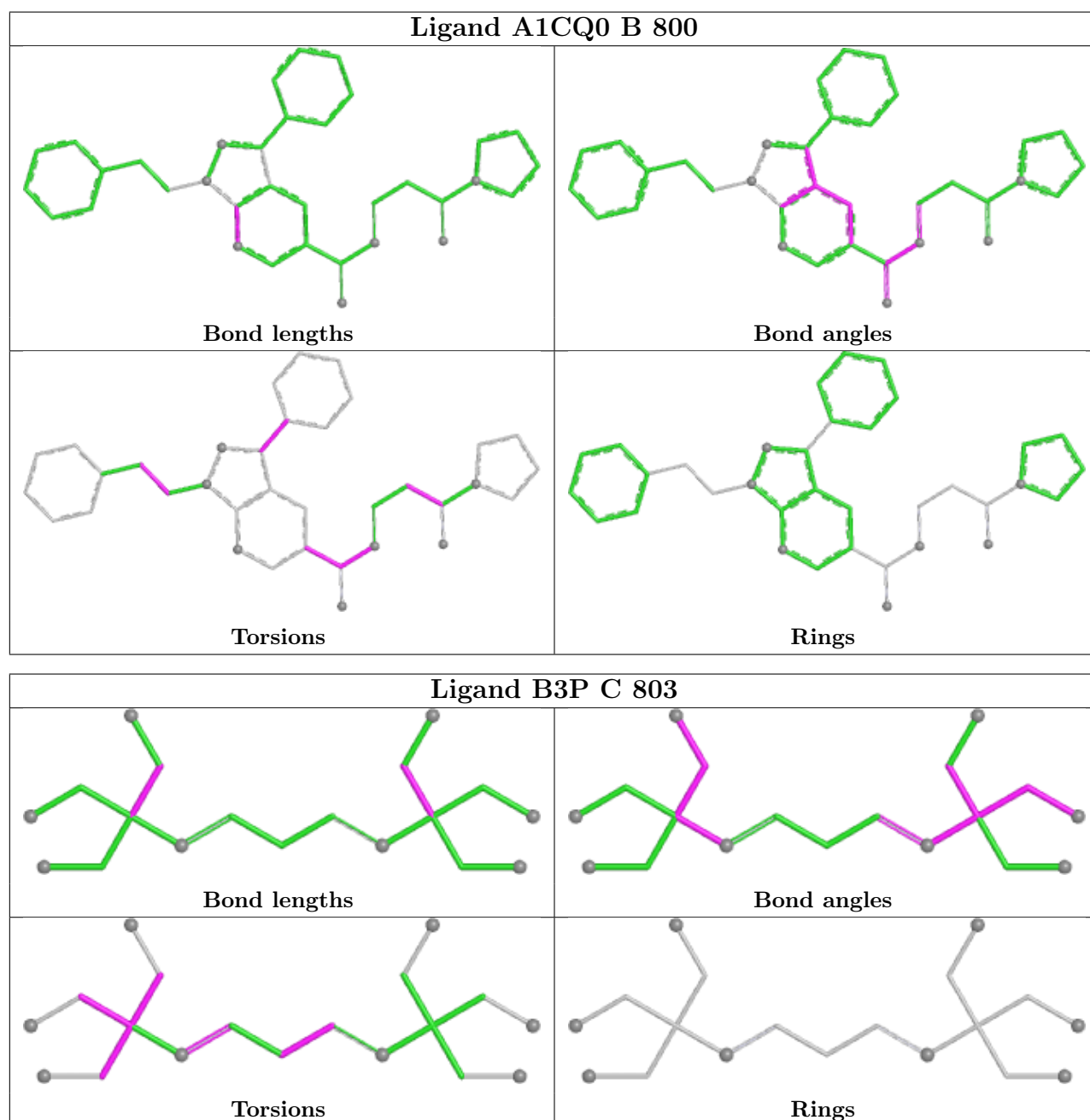
Mol	Chain	Res	Type	Atoms
4	C	807	GOL	O2-C2-C3-O3
3	B	800	A1CQ0	C9-C1-N1-C2
3	B	800	A1CQ0	C2-C3-C4-O2
3	B	800	A1CQ0	C2-C3-C4-N2
4	B	801	GOL	O2-C2-C3-O3
3	A	801	A1CQ0	N4-C14-C15-C16
2	B	802	B3P	C5-C4-N1-C3
2	C	803	B3P	N1-C4-C7-O6
2	A	802	B3P	C5-C4-C7-O6
4	A	808	GOL	O2-C2-C3-O3
5	A	805	PEG	C4-C3-O2-C2
4	A	803	GOL	O2-C2-C3-O3
2	A	802	B3P	C6-C4-C7-O6
3	C	801	A1CQ0	C21-C22-C23-C28
3	C	801	A1CQ0	C21-C22-C23-C24
3	C	801	A1CQ0	N4-C14-C15-C20
3	A	801	A1CQ0	C12-C14-C15-C20

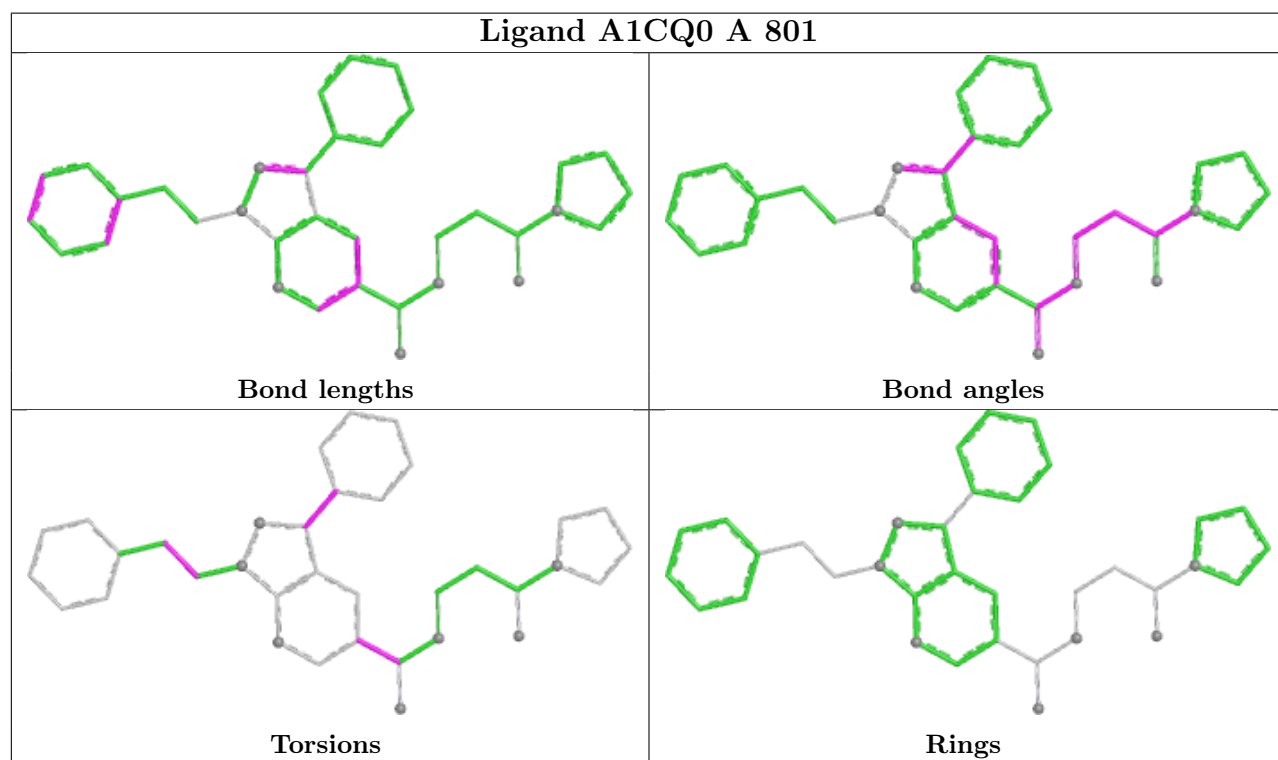
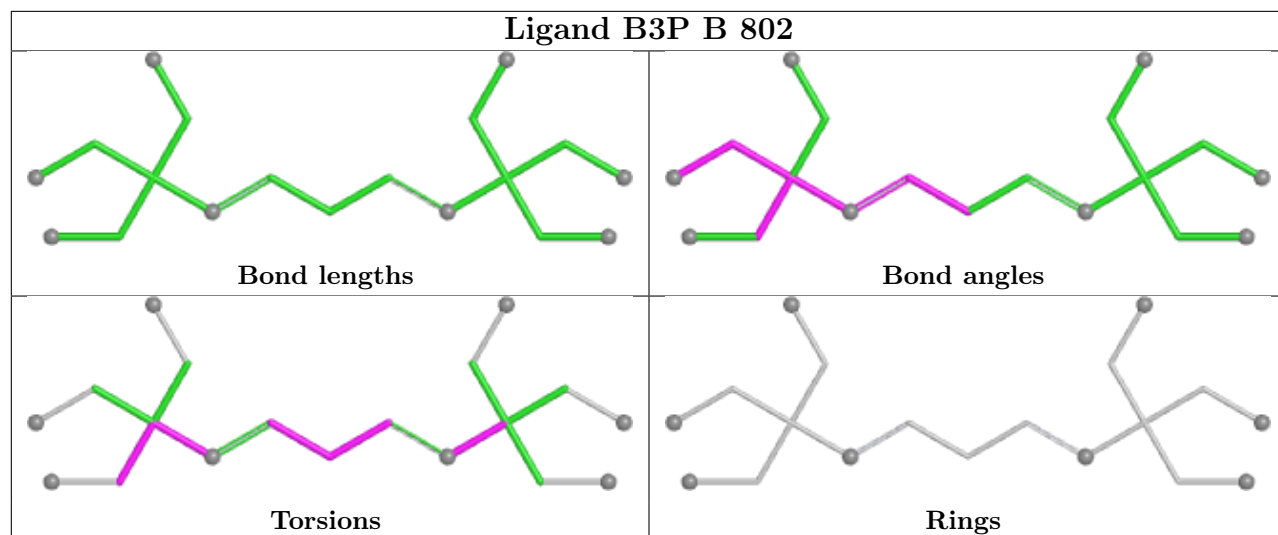
There are no ring outliers.

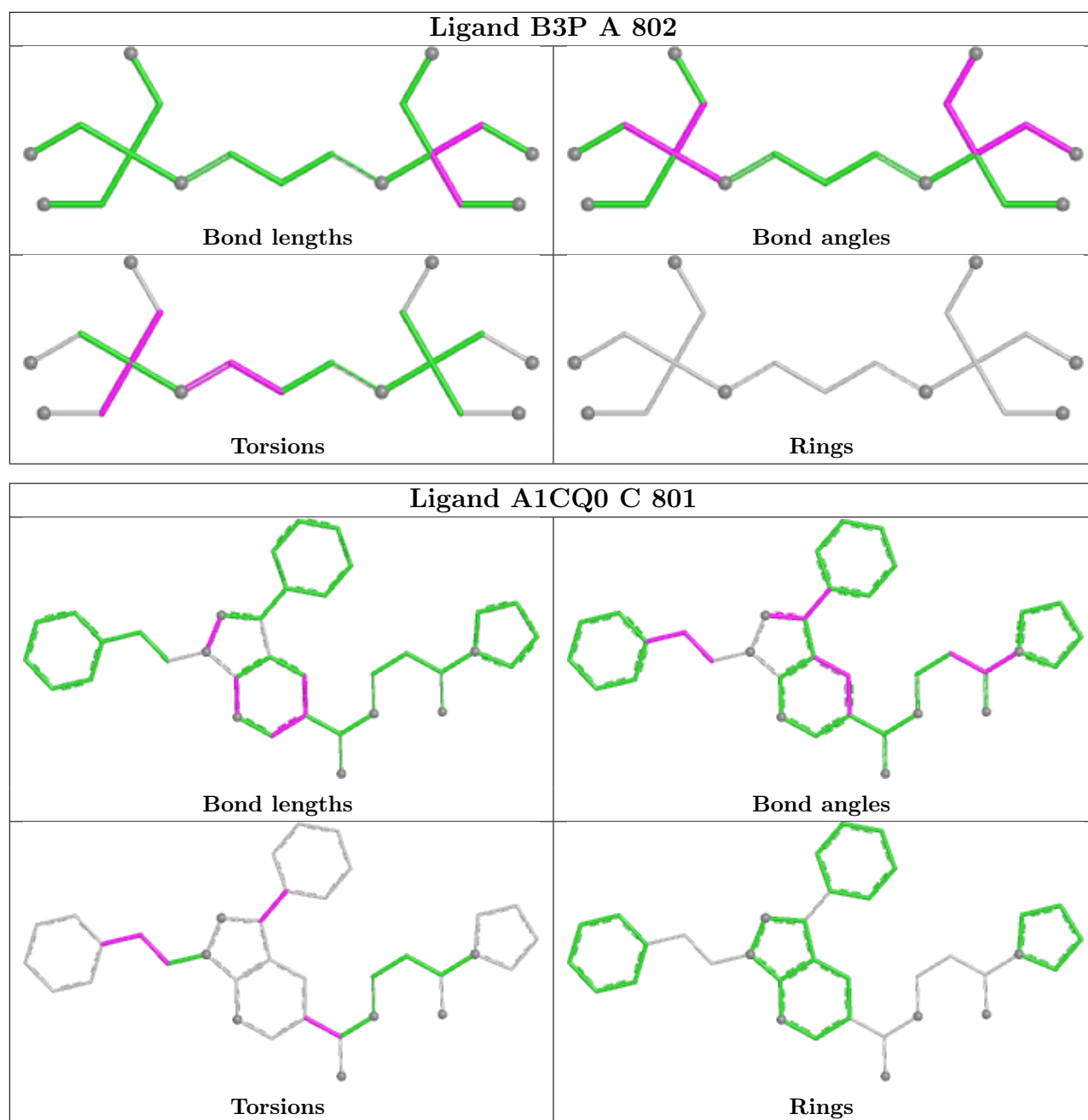
20 monomers are involved in 45 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	811	SCN	3	0
4	C	811	GOL	1	0
4	C	808	GOL	2	0
6	B	803	SCN	1	0
5	A	815	PEG	4	0
3	B	800	A1CQ0	2	0
4	A	803	GOL	1	0
4	C	802	GOL	1	0
4	C	806	GOL	3	0
2	B	802	B3P	2	0
3	A	801	A1CQ0	2	0
5	A	805	PEG	1	0
6	B	808	SCN	3	0
4	A	808	GOL	2	0
4	A	806	GOL	4	0
6	C	804	SCN	2	0
4	A	813	GOL	7	0
2	A	802	B3P	3	0
4	A	804	GOL	3	0
4	A	810	GOL	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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	707/711 (99%)	-0.92	4 (0%) 85 89	5, 16, 32, 74	6 (0%)
1	B	707/711 (99%)	-0.53	4 (0%) 85 89	10, 24, 46, 80	5 (0%)
1	C	707/711 (99%)	-0.56	5 (0%) 84 88	8, 23, 48, 84	3 (0%)
All	All	2121/2133 (99%)	-0.67	13 (0%) 85 89	5, 21, 44, 84	14 (0%)

All (13) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	427	VAL	3.8
1	A	427	VAL	3.4
1	C	4	LEU	3.0
1	C	426	THR	2.6
1	A	426	THR	2.5
1	B	425	VAL	2.5
1	C	430	ILE	2.4
1	B	426	THR	2.4
1	A	429	GLY	2.4
1	B	4	LEU	2.3
1	C	428	LYS	2.2
1	B	271	SER	2.1
1	A	425	VAL	2.1

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

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

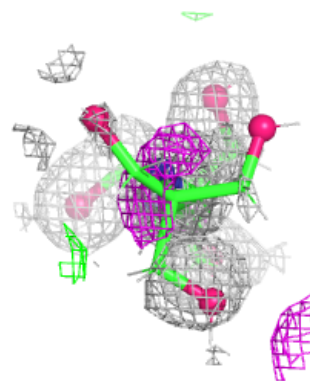
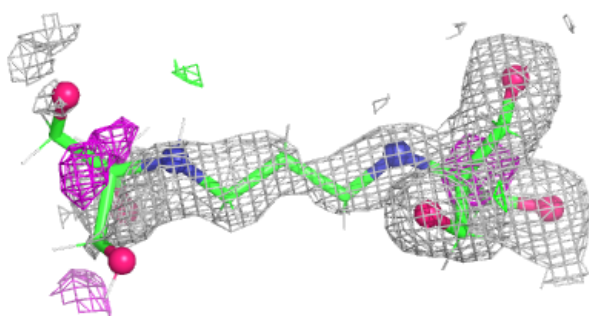
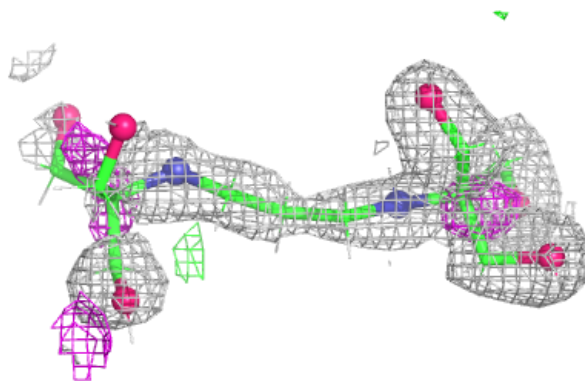
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	PEG	A	815	7/7	0.77	0.29	17,21,30,30	17
4	GOL	A	812	6/6	0.82	0.12	30,44,47,53	3
6	SCN	B	804	3/3	0.83	0.15	45,45,48,69	0
4	GOL	A	809	6/6	0.84	0.12	30,36,39,39	3
4	GOL	C	807	6/6	0.85	0.11	30,45,49,50	3
4	GOL	A	813	6/6	0.86	0.11	29,30,32,35	14
4	GOL	A	808	6/6	0.87	0.16	24,25,30,30	14
4	GOL	A	803	6/6	0.88	0.11	30,42,48,59	3
4	GOL	C	809	6/6	0.88	0.10	30,44,53,62	3
5	PEG	A	805	7/7	0.88	0.12	30,43,47,49	2
4	GOL	A	806	6/6	0.88	0.15	21,23,30,30	14
4	GOL	B	806	6/6	0.88	0.11	30,43,48,50	3
4	GOL	C	806	6/6	0.89	0.10	24,34,37,39	3
6	SCN	A	814	3/3	0.89	0.13	34,34,42,60	0
4	GOL	B	801	6/6	0.89	0.11	30,38,41,42	3
6	SCN	B	805	3/3	0.89	0.10	40,40,45,71	0
6	SCN	C	805	3/3	0.89	0.12	33,33,39,58	0
2	B3P	C	803	19/19	0.90	0.12	23,40,59,62	8
2	B3P	B	802	19/19	0.90	0.12	21,35,70,83	8
6	SCN	B	808	3/3	0.90	0.12	45,45,48,62	0
4	GOL	C	811	6/6	0.90	0.12	30,43,54,58	3
2	B3P	A	802	19/19	0.91	0.13	15,32,71,73	8
4	GOL	C	802	6/6	0.91	0.10	24,35,41,43	3
4	GOL	C	808	6/6	0.91	0.12	23,30,32,43	3
4	GOL	A	810	6/6	0.92	0.09	28,32,35,38	3
6	SCN	C	804	3/3	0.92	0.17	51,51,64,82	0
4	GOL	A	804	6/6	0.92	0.11	21,33,44,47	3
6	SCN	C	810	3/3	0.92	0.09	26,26,38,63	0
3	A1CQ0	A	801	35/36	0.95	0.07	10,24,36,41	0
6	SCN	B	803	3/3	0.95	0.18	39,39,39,45	0
3	A1CQ0	B	800	35/36	0.95	0.09	14,29,58,67	0
6	SCN	A	807	3/3	0.95	0.11	29,29,30,46	0
6	SCN	A	811	3/3	0.96	0.16	33,33,36,44	0
3	A1CQ0	C	801	35/36	0.97	0.06	11,19,37,38	0
2	B3P	A	800	19/19	0.98	0.04	9,12,30,30	8
6	SCN	B	807	3/3	0.98	0.06	39,39,40,42	0

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

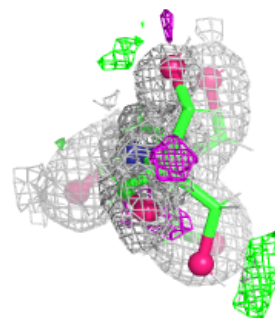
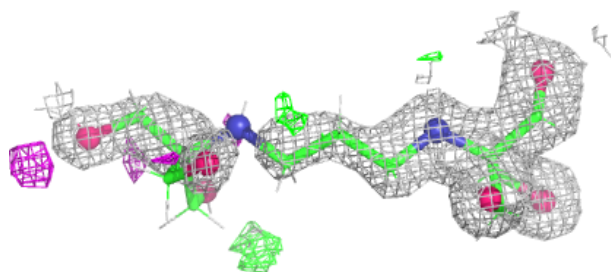
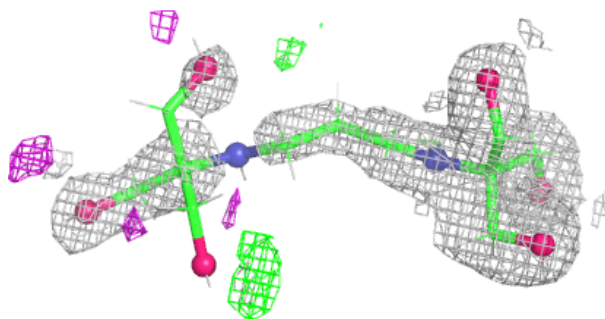
Electron density around B3P C 803:

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

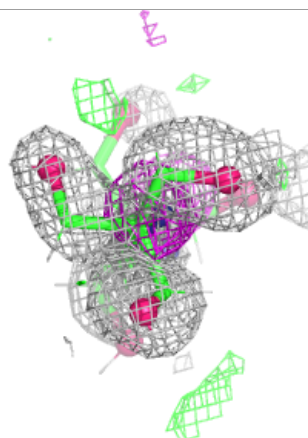
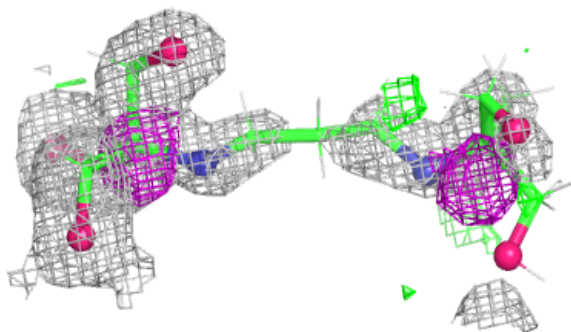
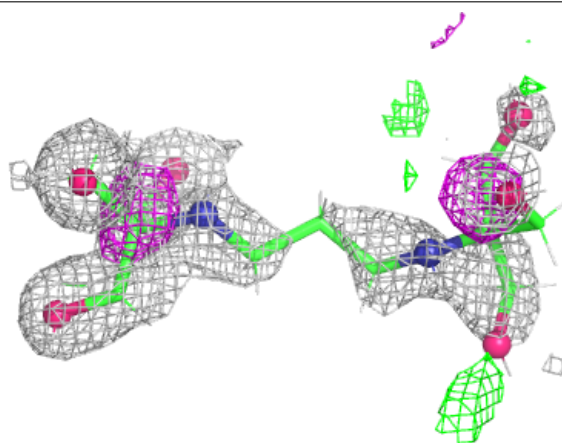


Electron density around B3P B 802:

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

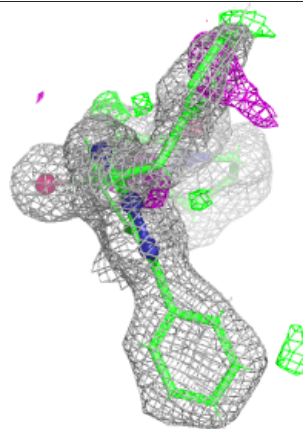
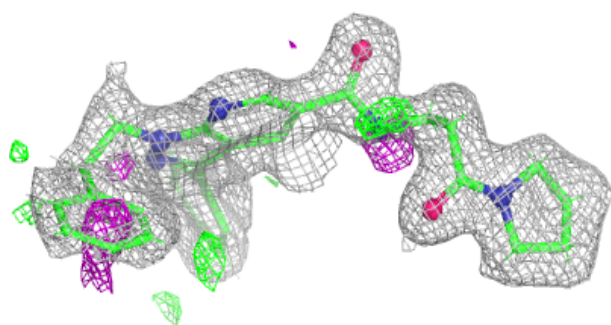
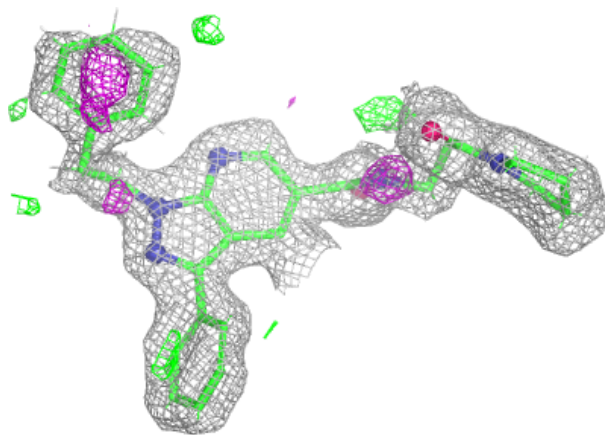
**Electron density around B3P A 802:**

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



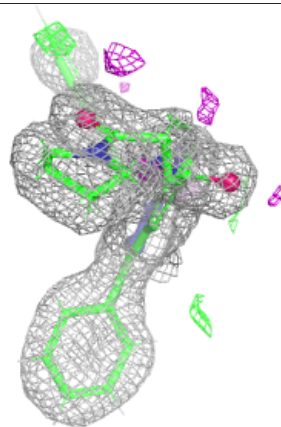
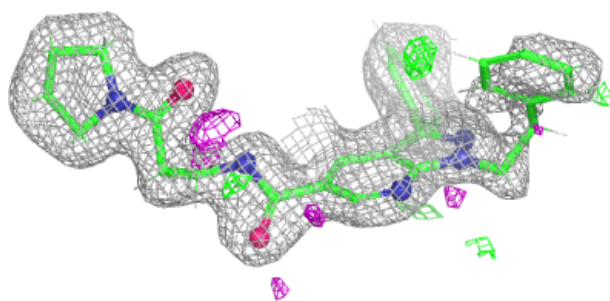
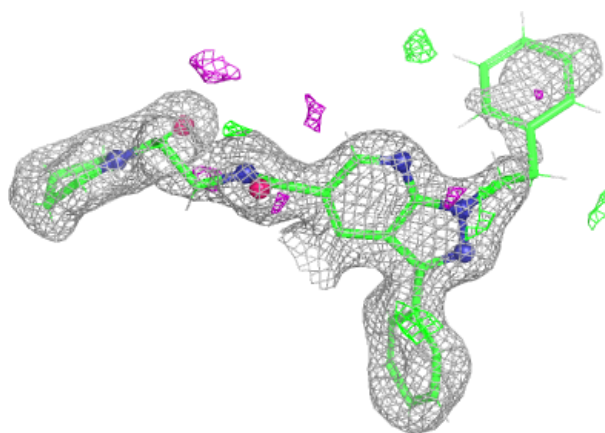
Electron density around A1CQ0 A 801:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



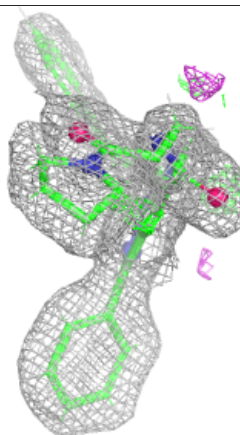
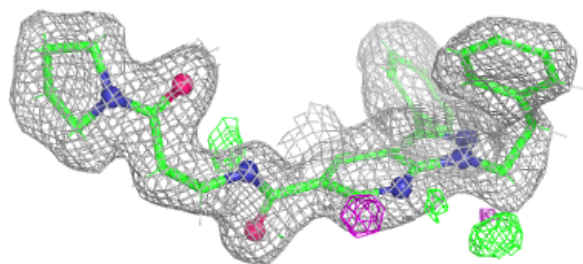
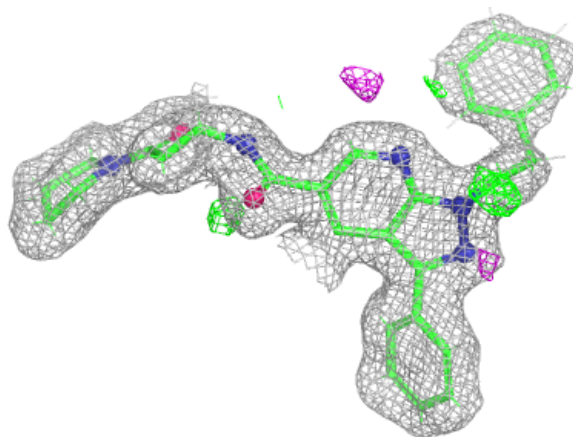
Electron density around A1CQ0 B 800:

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



Electron density around A1CQ0 C 801:

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



6.5 Other polymers [i](#)

There are no such residues in this entry.