



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 1, 2026 – 03:49 AM UTC

PDB ID : 5N6S / pdb_00005n6s
Title : Thermotoga maritima family 1 Glycoside hydrolase complexed with Carba-Cyclophellitol transition state mimic
Authors : Offen, W.; Davies, G.
Deposited on : 2017-02-16
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

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)
Xtrriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
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) : 2.49

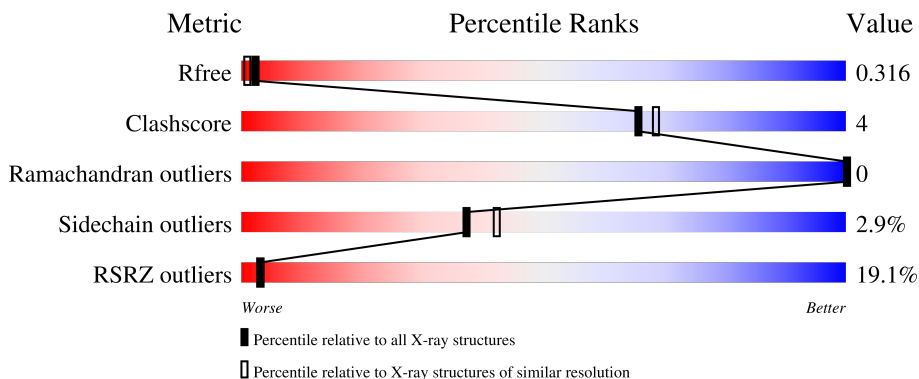
1 Overall quality at a glance

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}	180053	6658 (2.10-2.10)
Clashscore	190562	7164 (2.10-2.10)
Ramachandran outliers	187476	7099 (2.10-2.10)
Sidechain outliers	187428	7100 (2.10-2.10)
RSRZ outliers	180081	6662 (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 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	468	 6% 82% 12% 5%
1	B	468	 6% 79% 14% 5%
1	C	468	 30% 80% 11% 8%
1	D	468	 29% 81% 10% 8%

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 14780 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 Beta-glucosidase A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	443	Total 3608	C 2353	N 601	O 647	S 7	0	2	0
1	B	443	Total 3642	C 2369	N 612	O 655	S 6	0	4	0
1	C	429	Total 3470	C 2264	N 580	O 619	S 7	0	5	1
1	D	431	Total 3435	C 2252	N 572	O 605	S 6	0	2	0

There are 92 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-21	MET	-	initiating methionine	UNP Q08638
A	-20	GLY	-	expression tag	UNP Q08638
A	-19	SER	-	expression tag	UNP Q08638
A	-18	SER	-	expression tag	UNP Q08638
A	-17	HIS	-	expression tag	UNP Q08638
A	-16	HIS	-	expression tag	UNP Q08638
A	-15	HIS	-	expression tag	UNP Q08638
A	-14	HIS	-	expression tag	UNP Q08638
A	-13	HIS	-	expression tag	UNP Q08638
A	-12	HIS	-	expression tag	UNP Q08638
A	-11	SER	-	expression tag	UNP Q08638
A	-10	SER	-	expression tag	UNP Q08638
A	-9	GLY	-	expression tag	UNP Q08638
A	-8	LEU	-	expression tag	UNP Q08638
A	-7	VAL	-	expression tag	UNP Q08638
A	-6	PRO	-	expression tag	UNP Q08638
A	-5	ARG	-	expression tag	UNP Q08638
A	-4	GLY	-	expression tag	UNP Q08638
A	-3	SER	-	expression tag	UNP Q08638
A	-2	HIS	-	expression tag	UNP Q08638
A	-1	MET	-	expression tag	UNP Q08638

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	ALA	-	expression tag	UNP Q08638
A	1	SER	-	expression tag	UNP Q08638
B	-21	MET	-	initiating methionine	UNP Q08638
B	-20	GLY	-	expression tag	UNP Q08638
B	-19	SER	-	expression tag	UNP Q08638
B	-18	SER	-	expression tag	UNP Q08638
B	-17	HIS	-	expression tag	UNP Q08638
B	-16	HIS	-	expression tag	UNP Q08638
B	-15	HIS	-	expression tag	UNP Q08638
B	-14	HIS	-	expression tag	UNP Q08638
B	-13	HIS	-	expression tag	UNP Q08638
B	-12	HIS	-	expression tag	UNP Q08638
B	-11	SER	-	expression tag	UNP Q08638
B	-10	SER	-	expression tag	UNP Q08638
B	-9	GLY	-	expression tag	UNP Q08638
B	-8	LEU	-	expression tag	UNP Q08638
B	-7	VAL	-	expression tag	UNP Q08638
B	-6	PRO	-	expression tag	UNP Q08638
B	-5	ARG	-	expression tag	UNP Q08638
B	-4	GLY	-	expression tag	UNP Q08638
B	-3	SER	-	expression tag	UNP Q08638
B	-2	HIS	-	expression tag	UNP Q08638
B	-1	MET	-	expression tag	UNP Q08638
B	0	ALA	-	expression tag	UNP Q08638
B	1	SER	-	expression tag	UNP Q08638
C	-21	MET	-	initiating methionine	UNP Q08638
C	-20	GLY	-	expression tag	UNP Q08638
C	-19	SER	-	expression tag	UNP Q08638
C	-18	SER	-	expression tag	UNP Q08638
C	-17	HIS	-	expression tag	UNP Q08638
C	-16	HIS	-	expression tag	UNP Q08638
C	-15	HIS	-	expression tag	UNP Q08638
C	-14	HIS	-	expression tag	UNP Q08638
C	-13	HIS	-	expression tag	UNP Q08638
C	-12	HIS	-	expression tag	UNP Q08638
C	-11	SER	-	expression tag	UNP Q08638
C	-10	SER	-	expression tag	UNP Q08638
C	-9	GLY	-	expression tag	UNP Q08638
C	-8	LEU	-	expression tag	UNP Q08638
C	-7	VAL	-	expression tag	UNP Q08638
C	-6	PRO	-	expression tag	UNP Q08638
C	-5	ARG	-	expression tag	UNP Q08638

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	-4	GLY	-	expression tag	UNP Q08638
C	-3	SER	-	expression tag	UNP Q08638
C	-2	HIS	-	expression tag	UNP Q08638
C	-1	MET	-	expression tag	UNP Q08638
C	0	ALA	-	expression tag	UNP Q08638
C	1	SER	-	expression tag	UNP Q08638
D	-21	MET	-	initiating methionine	UNP Q08638
D	-20	GLY	-	expression tag	UNP Q08638
D	-19	SER	-	expression tag	UNP Q08638
D	-18	SER	-	expression tag	UNP Q08638
D	-17	HIS	-	expression tag	UNP Q08638
D	-16	HIS	-	expression tag	UNP Q08638
D	-15	HIS	-	expression tag	UNP Q08638
D	-14	HIS	-	expression tag	UNP Q08638
D	-13	HIS	-	expression tag	UNP Q08638
D	-12	HIS	-	expression tag	UNP Q08638
D	-11	SER	-	expression tag	UNP Q08638
D	-10	SER	-	expression tag	UNP Q08638
D	-9	GLY	-	expression tag	UNP Q08638
D	-8	LEU	-	expression tag	UNP Q08638
D	-7	VAL	-	expression tag	UNP Q08638
D	-6	PRO	-	expression tag	UNP Q08638
D	-5	ARG	-	expression tag	UNP Q08638
D	-4	GLY	-	expression tag	UNP Q08638
D	-3	SER	-	expression tag	UNP Q08638
D	-2	HIS	-	expression tag	UNP Q08638
D	-1	MET	-	expression tag	UNP Q08638
D	0	ALA	-	expression tag	UNP Q08638
D	1	SER	-	expression tag	UNP Q08638

- Molecule 2 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C₂H₆O₂).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 8 4 4	0	1
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	C	1	Total C O 4 2 2	0	0
2	C	1	Total C O 4 2 2	0	0
2	C	1	Total C O 4 2 2	0	0

Continued on next page...

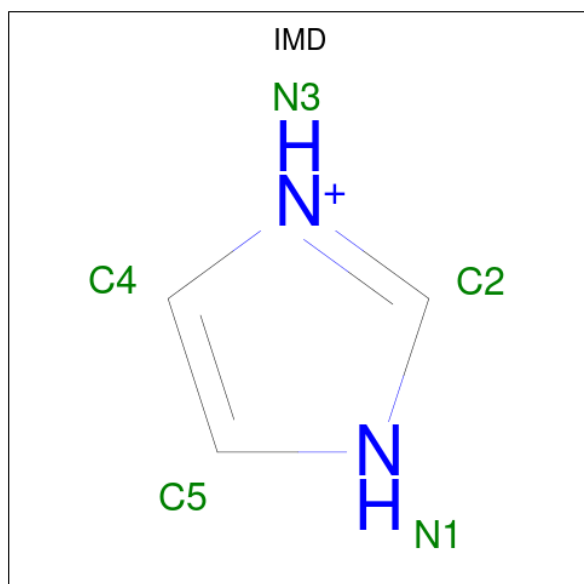
Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	D	1	Total	C	O	0	0
			4	2	2		
2	D	1	Total	C	O	0	0
			4	2	2		
2	D	1	Total	C	O	0	0
			4	2	2		
2	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 3 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

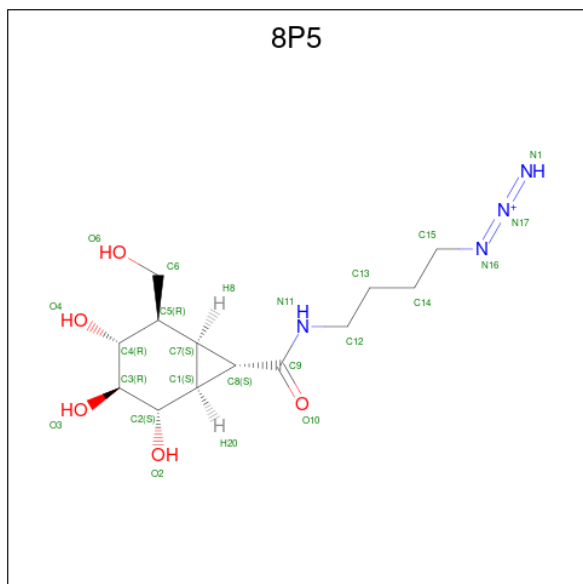
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	2	Total	Cl	0	0
			2	2		
3	B	2	Total	Cl	0	0
			2	2		
3	C	1	Total	Cl	0	0
			1	1		
3	D	1	Total	Cl	0	0
			1	1		

- Molecule 4 is IMIDAZOLE (CCD ID: IMD) (formula: C₃H₅N₂).



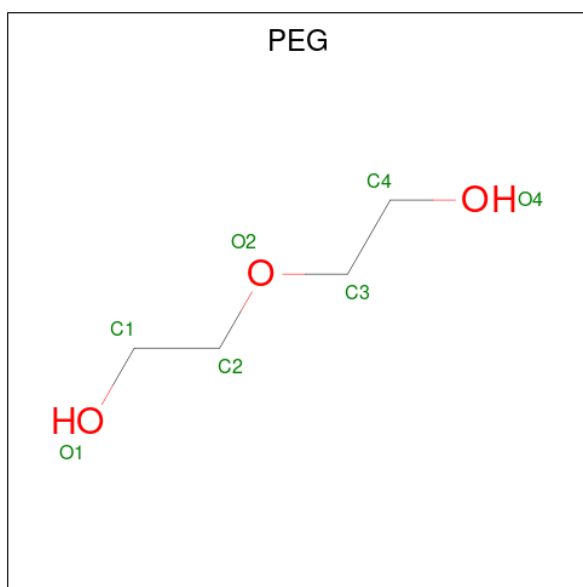
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	N	0	0
			5	3	2		

- Molecule 5 is azanylidene-4-[[[(1 {S},2 {R},3 {R},4 {R},5 {S},6 {S},7 {S})-2-(hydroxymethyl)-3,4,5-tris(oxidanyl)-7-bicyclo[4.1.0]heptanyl]carbonylamino]butylimino]azanium (CCD ID: 8P5) (formula: C₁₃H₂₃N₄O₅).



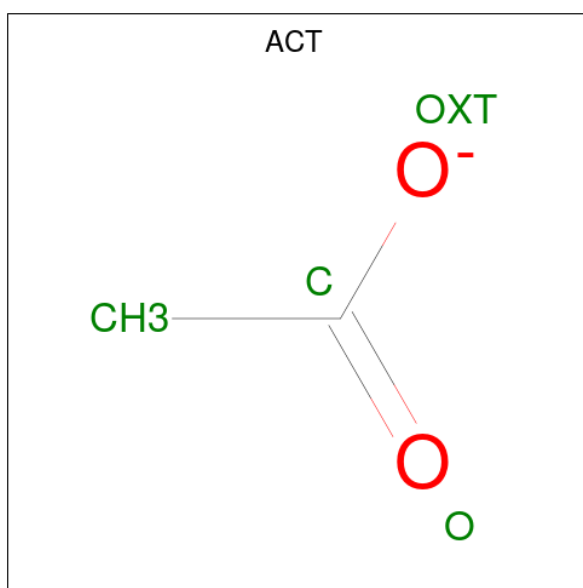
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
5	A	1	Total	C	N	O	0	1
			44	26	8	10		
5	B	1	Total	C	N	O	0	0
			22	13	4	5		
5	C	1	Total	C	N	O	0	0
			22	13	4	5		
5	D	1	Total	C	N	O	0	0
			15	9	1	5		

- Molecule 6 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



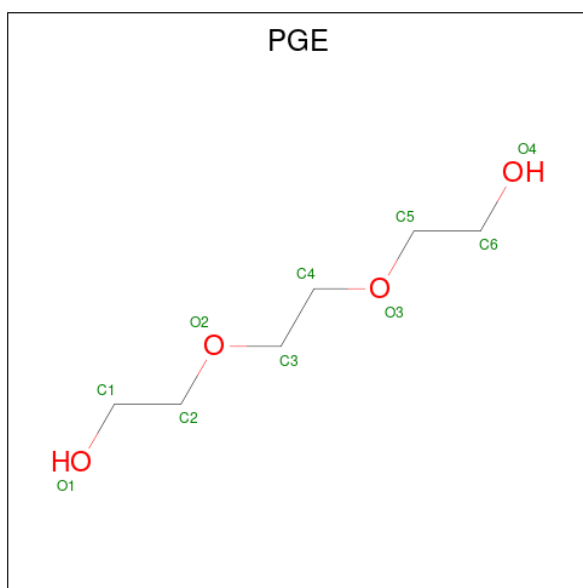
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			7	4	3		
6	B	1	Total	C	O	0	0
			7	4	3		

- Molecule 7 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2^-$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	B	1	Total	C	O	0	0
			4	2	2		
7	C	1	Total	C	O	0	0
			4	2	2		

- Molecule 8 is TRIETHYLENE GLYCOL (CCD ID: PGE) (formula: C₆H₁₄O₄).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	B	1	Total	C O	0	0
			10	6 4		

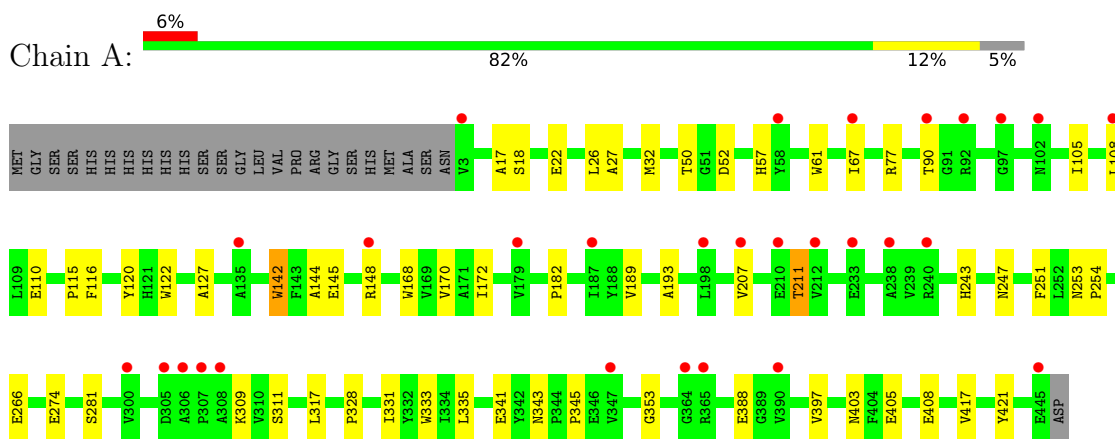
- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	154	Total	O	0	0
			154	154		
9	B	131	Total	O	0	0
			131	131		
9	C	64	Total	O	0	0
			64	64		
9	D	54	Total	O	0	0
			54	54		

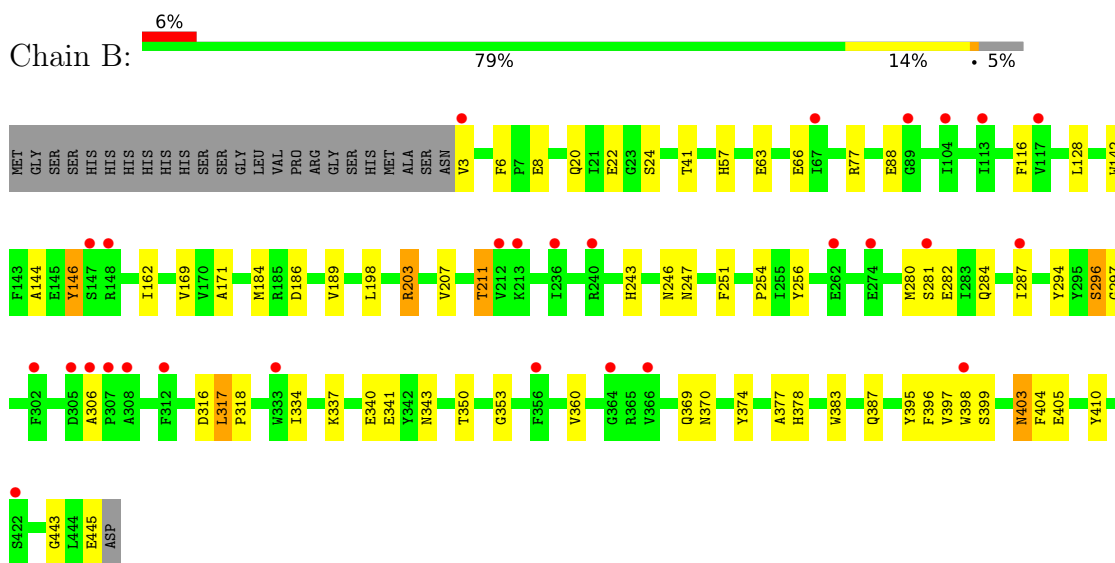
3 Residue-property plots [i](#)

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.

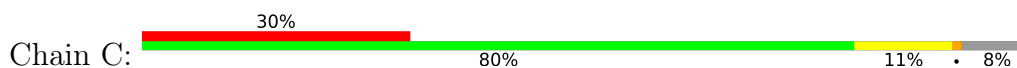
- Molecule 1: Beta-glucosidase A

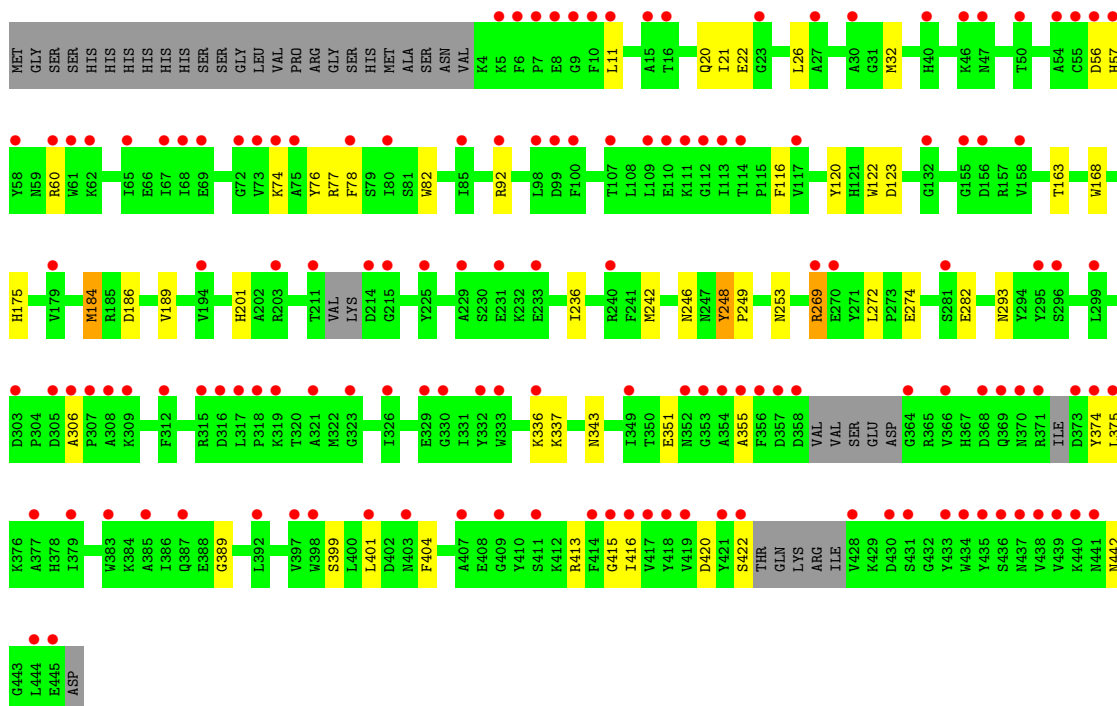


- Molecule 1: Beta-glucosidase A

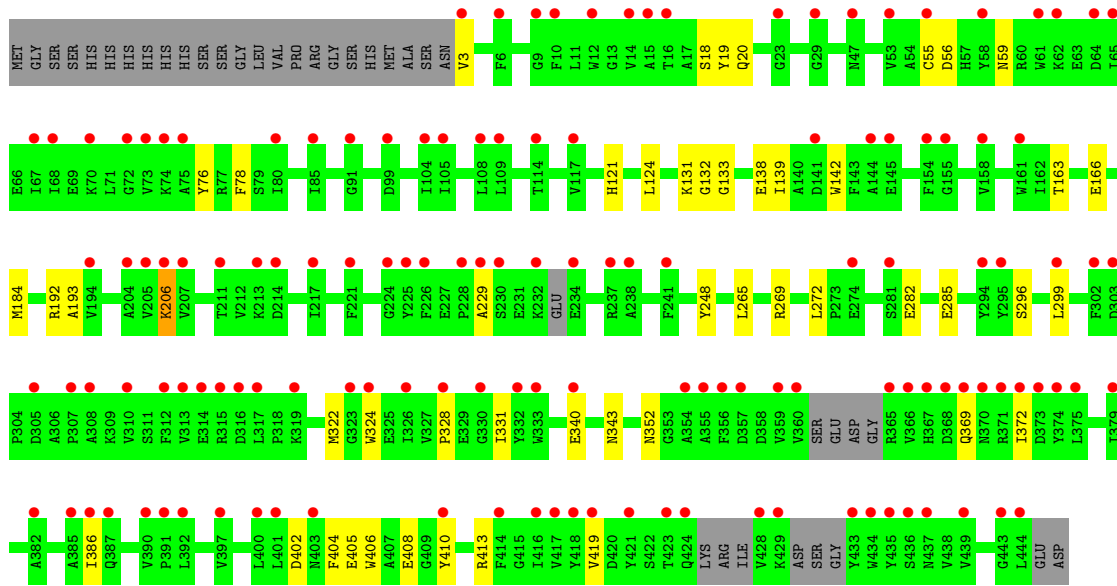
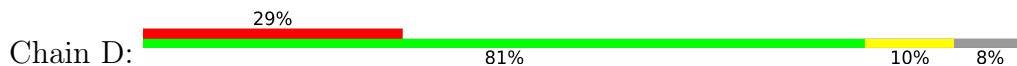


- Molecule 1: Beta-glucosidase A





• Molecule 1: Beta-glucosidase A



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	71.63Å 76.67Å 95.26Å 72.34° 86.39° 85.54°	Depositor
Resolution (Å)	72.91 – 2.10 72.91 – 2.10	Depositor EDS
% Data completeness (in resolution range)	97.3 (72.91-2.10) 97.3 (72.91-2.10)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.00 (at 2.10Å)	Xtrriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.239 , 0.310 0.244 , 0.316	Depositor DCC
R_{free} test set	5391 reflections (4.21%)	wwPDB-VP
Wilson B-factor (Å ²)	27.6	Xtrriage
Anisotropy	0.620	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 49.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.35$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	14780	wwPDB-VP
Average B, all atoms (Å ²)	31.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.24% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: EDO, PEG, PGE, CL, 8P5, IMD, ACT

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	1.35	13/3724 (0.3%)	1.21	10/5064 (0.2%)
1	B	1.31	14/3758 (0.4%)	1.22	13/5109 (0.3%)
1	C	1.04	2/3578 (0.1%)	1.11	10/4865 (0.2%)
1	D	1.05	5/3546 (0.1%)	1.14	9/4831 (0.2%)
All	All	1.20	34/14606 (0.2%)	1.17	42/19869 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	0	1

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	397	VAL	C-O	-9.38	1.13	1.24
1	B	24	SER	C-O	-8.99	1.19	1.23
1	D	166	GLU	C-O	-8.08	1.20	1.23
1	B	397	VAL	C-O	-7.57	1.15	1.24
1	B	340	GLU	C-O	-6.63	1.16	1.24
1	A	50	THR	CA-C	-6.55	1.44	1.52
1	A	343	ASN	CA-CB	6.53	1.58	1.52
1	C	186	ASP	N-CA	6.53	1.54	1.46
1	B	395	TYR	C-O	6.46	1.31	1.23
1	A	311	SER	CA-C	-6.23	1.45	1.52
1	B	41	THR	CA-C	6.22	1.59	1.52
1	A	170	VAL	C-O	-6.16	1.17	1.24
1	C	168	TRP	C-O	-6.15	1.16	1.24
1	A	17	ALA	C-O	6.08	1.31	1.23

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	127	ALA	N-CA	6.07	1.53	1.46
1	B	353	GLY	CA-C	-5.79	1.46	1.52
1	B	297	GLY	N-CA	5.66	1.50	1.44
1	A	189	VAL	N-CA	-5.65	1.40	1.46
1	A	193	ALA	N-CA	-5.58	1.39	1.46
1	B	377	ALA	CA-C	5.56	1.59	1.52
1	B	146	TYR	N-CA	5.54	1.52	1.46
1	B	396	PHE	N-CA	-5.34	1.39	1.46
1	D	193	ALA	C-O	5.25	1.30	1.24
1	A	142	TRP	N-CA	5.22	1.52	1.46
1	B	353	GLY	N-CA	5.19	1.50	1.45
1	B	403	ASN	CA-C	-5.18	1.46	1.52
1	A	335	LEU	CA-C	5.17	1.59	1.52
1	D	166	GLU	CA-C	5.16	1.57	1.53
1	B	318	PRO	CA-C	5.13	1.58	1.52
1	B	378	HIS	C-O	-5.12	1.18	1.24
1	A	353	GLY	N-CA	5.12	1.51	1.45
1	A	122	TRP	CA-C	5.09	1.60	1.52
1	D	163	THR	N-CA	5.09	1.52	1.46
1	D	352	ASN	N-CA	5.04	1.52	1.46

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	52	ASP	N-CA-C	9.79	122.86	111.11
1	C	306	ALA	CA-C-N	7.42	127.45	119.28
1	C	306	ALA	C-N-CA	7.42	127.45	119.28
1	D	265	LEU	N-CA-C	6.84	118.73	111.28
1	D	372	ILE	CB-CA-C	-6.82	103.23	111.97
1	A	61	TRP	N-CA-C	6.44	119.12	111.33
1	C	389	GLY	N-CA-C	6.44	120.47	113.58
1	B	296	SER	N-CA-C	6.29	118.41	108.79
1	B	171	ALA	N-CA-C	6.26	117.90	111.14
1	C	82	TRP	CA-C-N	-6.20	113.42	119.87
1	C	82	TRP	C-N-CA	-6.20	113.42	119.87
1	D	248	TYR	N-CA-C	6.15	123.40	109.81
1	C	343	ASN	CA-C-N	-6.09	115.21	119.66
1	C	343	ASN	C-N-CA	-6.09	115.21	119.66
1	C	22	GLU	N-CA-C	5.96	117.85	111.36
1	D	369	GLN	N-CA-C	-5.92	105.89	113.23
1	D	343	ASN	CA-C-N	-5.88	114.33	120.38
1	D	343	ASN	C-N-CA	-5.88	114.33	120.38

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	374	TYR	N-CA-C	-5.80	104.87	111.14
1	B	334	ILE	CA-C-N	5.79	128.84	120.79
1	B	334	ILE	C-N-CA	5.79	128.84	120.79
1	A	333	TRP	N-CA-C	5.67	117.14	111.07
1	A	18	SER	N-CA-C	5.63	117.10	111.07
1	A	317	LEU	CA-C-N	-5.63	114.16	119.85
1	A	317	LEU	C-N-CA	-5.63	114.16	119.85
1	B	317	LEU	CA-C-N	-5.55	113.98	119.92
1	B	317	LEU	C-N-CA	-5.55	113.98	119.92
1	C	416	ILE	N-CA-C	-5.37	105.15	111.00
1	D	138	GLU	N-CA-C	5.33	119.27	112.34
1	B	370	ASN	N-CA-C	5.33	117.77	111.33
1	B	306	ALA	CA-C-N	5.32	125.39	119.32
1	B	306	ALA	C-N-CA	5.32	125.39	119.32
1	A	120	TYR	N-CA-C	5.28	117.01	108.34
1	B	360	VAL	N-CA-C	-5.26	101.95	108.89
1	A	309	LYS	N-CA-C	5.12	118.79	112.24
1	C	248	TYR	N-CA-C	5.08	121.04	109.81
1	A	27	ALA	N-CA-C	5.08	117.67	110.50
1	A	388	GLU	N-CA-C	5.03	119.14	113.15
1	D	124	LEU	CA-C-N	-5.02	114.59	119.76
1	D	124	LEU	C-N-CA	-5.02	114.59	119.76
1	B	162	ILE	N-CA-C	5.01	115.13	108.11
1	B	443	GLY	N-CA-C	5.01	116.96	110.45

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	121	HIS	Peptide

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3608	0	3443	24	0
1	B	3642	0	3479	32	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	3470	0	3224	27	0
1	D	3435	0	3202	23	0
2	A	12	0	18	0	0
2	B	36	0	53	2	0
2	C	12	0	18	0	0
2	D	16	0	24	5	0
3	A	2	0	0	1	0
3	B	2	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
4	A	5	0	5	1	0
5	A	44	0	0	0	0
5	B	22	0	0	3	0
5	C	22	0	0	0	0
5	D	15	0	0	1	0
6	A	7	0	10	3	0
6	B	7	0	5	0	0
7	B	4	0	3	1	0
7	C	4	0	3	0	0
8	B	10	0	10	0	0
9	A	154	0	0	4	0
9	B	131	0	0	4	0
9	C	64	0	0	0	0
9	D	54	0	0	2	0
All	All	14780	0	13497	106	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 4.

All (106) 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:D:19:TYR:HA	2:D:501:EDO:H22	1.48	0.95
3:A:504:CL:CL	9:A:727:HOH:O	2.31	0.85
1:D:405:GLU:OE2	5:D:506:8P5:O6	1.98	0.81
1:A:403:ASN:ND2	9:A:602:HOH:O	2.17	0.77
1:A:105:ILE:HD11	9:A:753:HOH:O	1.86	0.75
1:B:203[A]:ARG:HH11	1:B:203[A]:ARG:HG3	1.52	0.74
1:B:369:GLN:NE2	7:B:512:ACT:OXT	2.20	0.74
1:B:207:VAL:O	1:B:211:THR:OG1	2.10	0.70
1:B:203[A]:ARG:HG3	1:B:203[A]:ARG:NH1	2.07	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:341:GLU:HA	6:A:508:PEG:H11	1.76	0.67
1:C:269[A]:ARG:HD2	1:C:269[A]:ARG:O	1.94	0.66
1:A:207:VAL:O	1:A:211:THR:OG1	2.14	0.66
1:B:184:MET:HE2	1:B:189:VAL:HG21	1.83	0.61
1:D:413:ARG:NH1	1:D:419:VAL:O	2.34	0.60
1:C:20:GLN:HA	1:C:404:PHE:HB3	1.84	0.60
1:C:269[A]:ARG:HD2	1:C:269[A]:ARG:C	2.26	0.59
1:B:77:ARG:HA	1:B:116:PHE:O	2.01	0.59
1:B:251:PHE:C	1:B:254:PRO:HD2	2.29	0.58
1:C:269[A]:ARG:O	1:C:269[A]:ARG:CD	2.51	0.57
1:B:243:HIS:O	1:B:247:ASN:HB2	2.05	0.56
1:A:22:GLU:HA	1:A:57:HIS:HB3	1.89	0.55
1:B:146:TYR:CG	9:B:676:HOH:O	2.59	0.55
1:A:77:ARG:HA	1:A:116:PHE:O	2.05	0.55
1:B:203[A]:ARG:HH11	1:B:203[A]:ARG:CG	2.14	0.54
1:C:269[A]:ARG:C	1:C:269[A]:ARG:CD	2.80	0.54
1:C:355:ALA:HA	1:C:413:ARG:O	2.08	0.53
1:C:442:ASN:O	1:C:442:ASN:ND2	2.42	0.52
1:D:229:ALA:HA	1:D:299:LEU:HD11	1.92	0.52
1:B:128:LEU:HD22	1:B:142:TRP:CE3	2.44	0.52
1:C:163:THR:HG21	1:C:201:HIS:ND1	2.24	0.52
1:A:90:THR:CG2	1:A:142:TRP:CD1	2.93	0.51
1:C:26:LEU:HD21	1:C:32:MET:HG2	1.92	0.51
1:D:76:TYR:CZ	1:D:78:PHE:HB3	2.46	0.50
1:D:269:ARG:HA	1:D:272:LEU:HD12	1.93	0.50
1:B:256:TYR:CE1	2:B:508:EDO:H12	2.47	0.50
1:D:55:CYS:SG	1:D:402:ASP:O	2.70	0.49
1:B:169:VAL:HG21	5:B:511:8P5:O10	2.12	0.49
1:C:20:GLN:HG2	1:C:404:PHE:O	2.12	0.49
1:C:374:TYR:O	1:C:375:LEU:C	2.56	0.49
1:A:341:GLU:HG2	6:A:508:PEG:C2	2.44	0.48
1:D:322:MET:HE1	1:D:408:GLU:HG3	1.95	0.48
1:C:56:ASP:HB3	1:C:60:ARG:HE	1.78	0.48
1:B:184:MET:CE	1:B:189:VAL:HG21	2.44	0.47
1:D:56:ASP:OD1	1:D:59:ASN:ND2	2.47	0.47
1:A:145:GLU:OE1	1:B:343:ASN:ND2	2.37	0.47
1:B:144:ALA:HB2	1:B:203[B]:ARG:HG2	1.96	0.47
1:C:21:ILE:HD12	1:C:57:HIS:CG	2.50	0.47
1:C:77:ARG:HA	1:C:116:PHE:O	2.14	0.47
1:A:243:HIS:O	1:A:247:ASN:HB2	2.15	0.47
1:C:175:HIS:HA	1:C:184[A]:MET:HB3	1.97	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:184:MET:HE3	1:D:184:MET:HB2	1.85	0.47
1:B:6:PHE:CZ	1:B:383:TRP:HB2	2.50	0.47
1:A:328:PRO:O	1:A:331:ILE:HG22	2.15	0.46
1:B:405:GLU:OE1	5:B:511:8P5:O4	2.33	0.46
1:D:406:TRP:HB2	2:D:502:EDO:H11	1.97	0.46
1:B:403:ASN:OD1	1:B:403:ASN:C	2.59	0.46
1:D:18:SER:OG	9:D:603:HOH:O	2.20	0.46
1:A:182:PRO:HB2	1:C:184[B]:MET:CE	2.45	0.46
1:D:406:TRP:HB2	2:D:502:EDO:C1	2.45	0.46
1:C:399:SER:O	1:C:415:GLY:HA2	2.16	0.45
1:B:404:PHE:HB2	1:B:410:TYR:CE1	2.52	0.45
1:B:146:TYR:CE2	9:B:676:HOH:O	2.68	0.45
1:B:144:ALA:HB2	1:B:203[A]:ARG:HB3	1.98	0.45
1:D:192:ARG:HG2	2:D:504:EDO:H11	1.98	0.45
1:C:293:ASN:CG	1:C:351:GLU:HB2	2.41	0.45
1:A:108:LEU:HD13	1:A:115:PRO:HB3	1.99	0.45
1:B:287:ILE:O	2:B:508:EDO:H21	2.17	0.45
1:A:144:ALA:O	1:A:145:GLU:C	2.59	0.45
1:B:280:MET:O	1:B:284:GLN:HG3	2.17	0.45
1:B:294:TYR:CD1	1:B:294:TYR:C	2.95	0.45
1:C:120:TYR:CE2	1:C:122:TRP:HA	2.52	0.45
1:D:132:GLY:O	1:D:133:GLY:C	2.60	0.44
1:A:67:ILE:HG21	1:A:417:VAL:HG21	1.99	0.44
1:A:90:THR:HG21	1:A:142:TRP:CD1	2.52	0.44
1:B:20:GLN:O	1:B:403:ASN:HB2	2.16	0.44
1:C:269[C]:ARG:HA	1:C:272:LEU:HD12	2.00	0.44
1:C:184[B]:MET:SD	1:C:189:VAL:HG11	2.58	0.44
1:C:242:MET:HE3	1:C:246:ASN:ND2	2.32	0.44
1:A:26:LEU:HD21	1:A:32:MET:HG2	1.98	0.44
1:C:123:ASP:OD1	1:C:123:ASP:N	2.51	0.44
1:B:63:GLU:O	1:B:66:GLU:HB2	2.18	0.43
1:A:148:ARG:HD3	1:A:207:VAL:HG13	2.01	0.43
1:A:421:TYR:HB3	4:A:506:IMD:C5	2.49	0.43
1:B:146:TYR:CD1	9:B:676:HOH:O	2.72	0.43
1:C:420:ASP:O	1:C:422:SER:N	2.51	0.43
1:A:168:TRP:CZ2	1:A:172:ILE:HG21	2.55	0.42
1:C:175:HIS:HA	1:C:184[B]:MET:HB3	2.00	0.42
1:A:341:GLU:HG2	6:A:508:PEG:H22	2.01	0.42
1:C:76:TYR:CZ	1:C:78:PHE:HB3	2.55	0.42
1:D:328:PRO:O	1:D:331:ILE:HG22	2.19	0.42
1:D:296:SER:HB2	1:D:324:TRP:HB3	2.02	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:186:ASP:OD1	1:B:186:ASP:C	2.62	0.42
1:D:76:TYR:OH	9:D:602:HOH:O	2.13	0.42
1:D:410:TYR:CD2	2:D:503:EDO:H11	2.55	0.42
1:D:20:GLN:HG2	1:D:404:PHE:O	2.21	0.41
1:C:248:TYR:CD1	1:C:249:PRO:HD3	2.55	0.41
1:D:206:LYS:HG2	1:D:285:GLU:OE1	2.19	0.41
1:A:405:GLU:O	1:A:408:GLU:HB2	2.19	0.41
1:B:198:LEU:HD23	1:B:198:LEU:HA	1.85	0.41
5:B:511:8P5:N11	9:B:610:HOH:O	2.37	0.41
1:D:139:ILE:HA	1:D:142:TRP:CE3	2.55	0.41
1:B:22:GLU:HA	1:B:57:HIS:HB3	2.04	0.41
1:B:398:TRP:HA	1:B:399:SER:HA	1.92	0.41
1:A:251:PHE:C	1:A:254:PRO:HD2	2.46	0.40
1:D:55:CYS:O	1:D:56:ASP:C	2.65	0.40
1:A:345:PRO:O	9:A:603:HOH:O	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	443/468 (95%)	423 (96%)	20 (4%)	0	100	100
1	B	445/468 (95%)	422 (95%)	23 (5%)	0	100	100
1	C	425/468 (91%)	401 (94%)	24 (6%)	0	100	100
1	D	423/468 (90%)	398 (94%)	25 (6%)	0	100	100
All	All	1736/1872 (93%)	1644 (95%)	92 (5%)	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	366/399 (92%)	360 (98%)	6 (2%)	55	64
1	B	372/399 (93%)	355 (95%)	17 (5%)	24	25
1	C	337/399 (84%)	321 (95%)	16 (5%)	23	24
1	D	331/399 (83%)	325 (98%)	6 (2%)	51	60
All	All	1406/1596 (88%)	1361 (97%)	45 (3%)	37	38

All (45) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	110	GLU
1	A	211	THR
1	A	253	ASN
1	A	266	GLU
1	A	274	GLU
1	A	281	SER
1	B	3	VAL
1	B	8	GLU
1	B	88	GLU
1	B	203[A]	ARG
1	B	203[B]	ARG
1	B	211	THR
1	B	246	ASN
1	B	281	SER
1	B	282	GLU
1	B	296	SER
1	B	316	ASP
1	B	317	LEU
1	B	337	LYS
1	B	341	GLU
1	B	350	THR
1	B	387	GLN
1	B	445	GLU
1	C	11	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	74	LYS
1	C	92	ARG
1	C	184[A]	MET
1	C	184[B]	MET
1	C	236	ILE
1	C	253	ASN
1	C	269[A]	ARG
1	C	269[B]	ARG
1	C	269[C]	ARG
1	C	274	GLU
1	C	282	GLU
1	C	336[A]	LYS
1	C	336[B]	LYS
1	C	337	LYS
1	C	401	LEU
1	D	3	VAL
1	D	131	LYS
1	D	206	LYS
1	D	282	GLU
1	D	340	GLU
1	D	386	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	441	ASN
1	B	47	ASN
1	B	129	GLN
1	B	223	ASN
1	B	275	ASN
1	C	129	GLN
1	C	246	ASN
1	C	253	ASN
1	D	129	GLN
1	D	284	GLN
1	D	387	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 36 ligands modelled in this entry, 6 are monoatomic - leaving 30 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
2	EDO	A	502	-	3,3,3	0.41	0	2,2,2	0.24	0
2	EDO	D	502	-	3,3,3	0.62	0	2,2,2	0.38	0
7	ACT	C	506	-	3,3,3	0.77	0	3,3,3	0.78	0
2	EDO	B	503	-	3,3,3	0.51	0	2,2,2	0.25	0
2	EDO	D	503	-	3,3,3	0.49	0	2,2,2	0.20	0
5	8P5	B	511	-	23,23,23	2.09	6 (26%)	22,32,32	2.44	6 (27%)
6	PEG	A	508	-	6,6,6	0.53	0	5,5,5	0.56	0
2	EDO	D	501	-	3,3,3	0.82	0	2,2,2	0.82	0
2	EDO	B	508	-	3,3,3	0.46	0	2,2,2	0.81	0
2	EDO	D	504	-	3,3,3	0.40	0	2,2,2	0.27	0
2	EDO	C	501	-	3,3,3	0.60	0	2,2,2	0.37	0
2	EDO	B	506	-	3,3,3	0.50	0	2,2,2	0.17	0
2	EDO	A	501	-	3,3,3	0.58	0	2,2,2	0.39	0
5	8P5	D	506	-	16,16,23	1.95	3 (18%)	16,25,32	1.47	3 (18%)
2	EDO	B	502[A]	-	3,3,3	0.30	0	2,2,2	0.49	0
7	ACT	B	512	-	3,3,3	1.00	0	3,3,3	0.53	0
8	PGE	B	514	6	9,9,9	0.64	0	8,8,8	0.43	0
2	EDO	C	502	-	3,3,3	0.35	0	2,2,2	0.54	0
2	EDO	A	503	-	3,3,3	0.59	0	2,2,2	0.51	0
2	EDO	C	503	-	3,3,3	0.54	0	2,2,2	0.28	0
5	8P5	A	507[B]	-	23,23,23	1.85	5 (21%)	22,32,32	1.17	3 (13%)
2	EDO	B	504	-	3,3,3	0.30	0	2,2,2	0.80	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	EDO	B	501	-	3,3,3	0.56	0	2,2,2	0.45	0
5	8P5	C	505	-	23,23,23	1.68	3 (13%)	22,32,32	1.04	1 (4%)
6	PEG	B	513	8	6,6,6	0.63	0	5,5,5	0.59	0
2	EDO	B	505	-	3,3,3	0.49	0	2,2,2	0.36	0
5	8P5	A	507[A]	-	23,23,23	1.81	4 (17%)	22,32,32	1.22	2 (9%)
2	EDO	B	502[B]	-	3,3,3	0.32	0	2,2,2	0.66	0
2	EDO	B	507	-	3,3,3	0.48	0	2,2,2	0.43	0
4	IMD	A	506	-	5,5,5	0.36	0	5,5,5	0.73	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
2	EDO	A	502	-	-	1/1/1/1	-
2	EDO	D	502	-	-	0/1/1/1	-
2	EDO	B	503	-	-	1/1/1/1	-
2	EDO	D	503	-	-	1/1/1/1	-
5	8P5	B	511	-	-	8/14/43/43	0/2/2/2
6	PEG	A	508	-	-	3/4/4/4	-
2	EDO	D	501	-	-	1/1/1/1	-
2	EDO	B	508	-	-	1/1/1/1	-
2	EDO	D	504	-	-	1/1/1/1	-
2	EDO	C	501	-	-	1/1/1/1	-
2	EDO	B	506	-	-	1/1/1/1	-
2	EDO	A	501	-	-	1/1/1/1	-
5	8P5	D	506	-	-	1/4/35/43	0/2/2/2
2	EDO	B	502[A]	-	-	1/1/1/1	-
8	PGE	B	514	6	-	3/7/7/7	-
2	EDO	C	502	-	-	1/1/1/1	-
2	EDO	A	503	-	-	1/1/1/1	-
2	EDO	C	503	-	-	0/1/1/1	-
5	8P5	A	507[B]	-	-	7/14/43/43	0/2/2/2
2	EDO	B	504	-	-	1/1/1/1	-
2	EDO	B	501	-	-	0/1/1/1	-
5	8P5	C	505	-	-	2/14/43/43	0/2/2/2
6	PEG	B	513	8	-	2/4/4/4	-
2	EDO	B	505	-	-	0/1/1/1	-
5	8P5	A	507[A]	-	-	10/14/43/43	0/2/2/2
2	EDO	B	502[B]	-	-	0/1/1/1	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	EDO	B	507	-	-	1/1/1/1	-
4	IMD	A	506	-	-	-	0/1/1/1

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	511	8P5	N17-N16	7.18	1.40	1.23
5	C	505	8P5	N17-N16	6.45	1.39	1.23
5	A	507[B]	8P5	N17-N16	6.31	1.38	1.23
5	D	506	8P5	C8-C9	-6.26	1.47	1.51
5	A	507[A]	8P5	N17-N16	5.83	1.37	1.23
5	A	507[A]	8P5	N1-N17	-4.22	1.14	1.23
5	A	507[B]	8P5	C5-C4	-3.24	1.49	1.53
5	B	511	8P5	C5-C4	-3.16	1.50	1.53
5	A	507[B]	8P5	N1-N17	-2.77	1.17	1.23
5	B	511	8P5	C8-C7	2.73	1.56	1.52
5	D	506	8P5	C5-C4	-2.66	1.50	1.53
5	C	505	8P5	N1-N17	-2.48	1.18	1.23
5	A	507[A]	8P5	C5-C4	-2.36	1.50	1.53
5	A	507[A]	8P5	C8-C7	2.35	1.55	1.52
5	B	511	8P5	C8-C1	2.32	1.55	1.52
5	C	505	8P5	C5-C4	-2.31	1.50	1.53
5	A	507[B]	8P5	C5-C7	-2.24	1.50	1.54
5	B	511	8P5	C5-C7	-2.22	1.50	1.54
5	B	511	8P5	C8-C9	2.19	1.55	1.51
5	D	506	8P5	C8-C1	2.15	1.55	1.52
5	A	507[B]	8P5	C8-C1	2.07	1.55	1.52

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	511	8P5	C8-C9-N11	8.92	128.48	115.65
5	D	506	8P5	O2-C2-C3	-3.91	101.17	110.38
5	B	511	8P5	O10-C9-C8	-3.69	114.56	122.36
5	B	511	8P5	O10-C9-N11	-2.89	116.86	122.98
5	A	507[B]	8P5	C8-C9-N11	2.78	119.65	115.65
5	B	511	8P5	O4-C4-C3	2.71	116.76	110.38
5	A	507[B]	8P5	C13-C12-N11	-2.70	104.62	112.20
5	A	507[A]	8P5	C2-C3-C4	2.66	115.50	110.83
5	A	507[A]	8P5	C12-N11-C9	-2.60	117.87	122.55
5	C	505	8P5	C5-C4-C3	-2.58	106.45	110.77
5	A	507[B]	8P5	O10-C9-N11	-2.55	117.58	122.98

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	506	8P5	O3-C3-C2	-2.35	104.84	110.38
5	D	506	8P5	C5-C4-C3	-2.31	106.89	110.77
5	B	511	8P5	O3-C3-C2	-2.24	105.10	110.38
5	B	511	8P5	C5-C4-C3	-2.00	107.41	110.77

There are no chirality outliers.

All (50) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	507[A]	8P5	C4-C5-C6-O6
5	A	507[A]	8P5	C7-C5-C6-O6
5	A	507[A]	8P5	C1-C8-C9-O10
5	A	507[A]	8P5	C1-C8-C9-N11
5	A	507[B]	8P5	C4-C5-C6-O6
5	A	507[B]	8P5	C7-C5-C6-O6
5	A	507[B]	8P5	C8-C9-N11-C12
5	A	507[B]	8P5	O10-C9-N11-C12
5	A	507[B]	8P5	C13-C14-C15-N16
5	B	511	8P5	C7-C8-C9-O10
5	B	511	8P5	C7-C8-C9-N11
8	B	514	PGE	C1-C2-O2-C3
6	B	513	PEG	C1-C2-O2-C3
5	A	507[B]	8P5	N11-C12-C13-C14
5	A	507[A]	8P5	N11-C12-C13-C14
5	C	505	8P5	N11-C12-C13-C14
6	B	513	PEG	O1-C1-C2-O2
8	B	514	PGE	C6-C5-O3-C4
5	B	511	8P5	C7-C5-C6-O6
2	A	501	EDO	O1-C1-C2-O2
2	A	503	EDO	O1-C1-C2-O2
2	D	501	EDO	O1-C1-C2-O2
5	A	507[A]	8P5	O10-C9-N11-C12
5	A	507[A]	8P5	C8-C9-N11-C12
5	A	507[A]	8P5	C15-N16-N17-N1
6	A	508	PEG	C4-C3-O2-C2
5	A	507[B]	8P5	C12-C13-C14-C15
2	B	506	EDO	O1-C1-C2-O2
2	C	501	EDO	O1-C1-C2-O2
2	D	504	EDO	O1-C1-C2-O2
5	C	505	8P5	C12-C13-C14-C15
5	B	511	8P5	C4-C5-C6-O6
5	B	511	8P5	N11-C12-C13-C14

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
2	B	503	EDO	O1-C1-C2-O2
2	C	502	EDO	O1-C1-C2-O2
5	B	511	8P5	C1-C8-C9-O10
5	A	507[A]	8P5	C7-C8-C9-N11
2	B	508	EDO	O1-C1-C2-O2
5	B	511	8P5	C12-C13-C14-C15
2	B	502[A]	EDO	O1-C1-C2-O2
2	B	504	EDO	O1-C1-C2-O2
8	B	514	PGE	O2-C3-C4-O3
2	A	502	EDO	O1-C1-C2-O2
5	A	507[A]	8P5	C7-C8-C9-O10
2	B	507	EDO	O1-C1-C2-O2
2	D	503	EDO	O1-C1-C2-O2
6	A	508	PEG	O2-C3-C4-O4
5	B	511	8P5	C1-C8-C9-N11
5	D	506	8P5	C7-C5-C6-O6
6	A	508	PEG	C1-C2-O2-C3

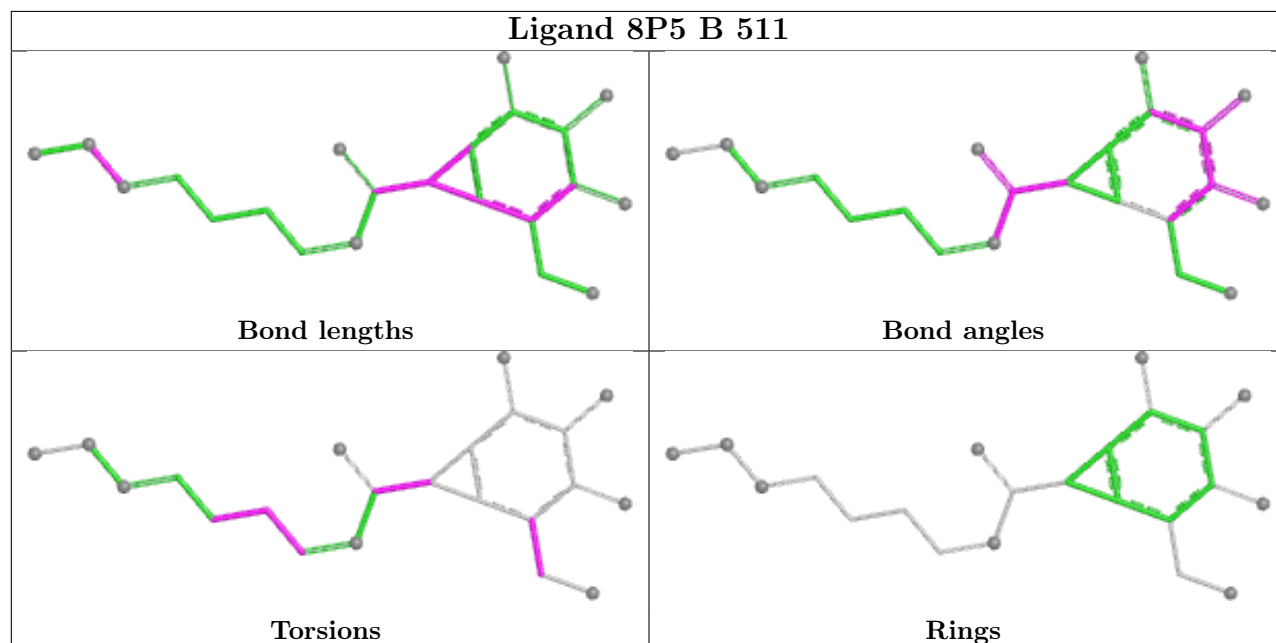
There are no ring outliers.

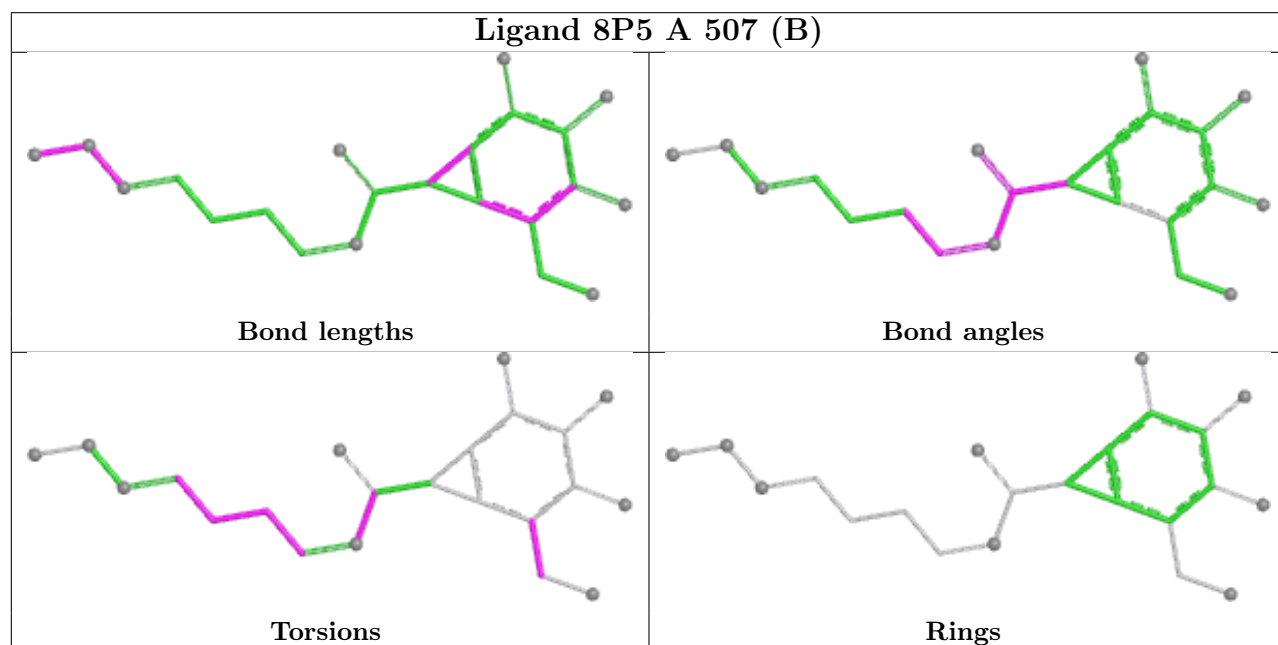
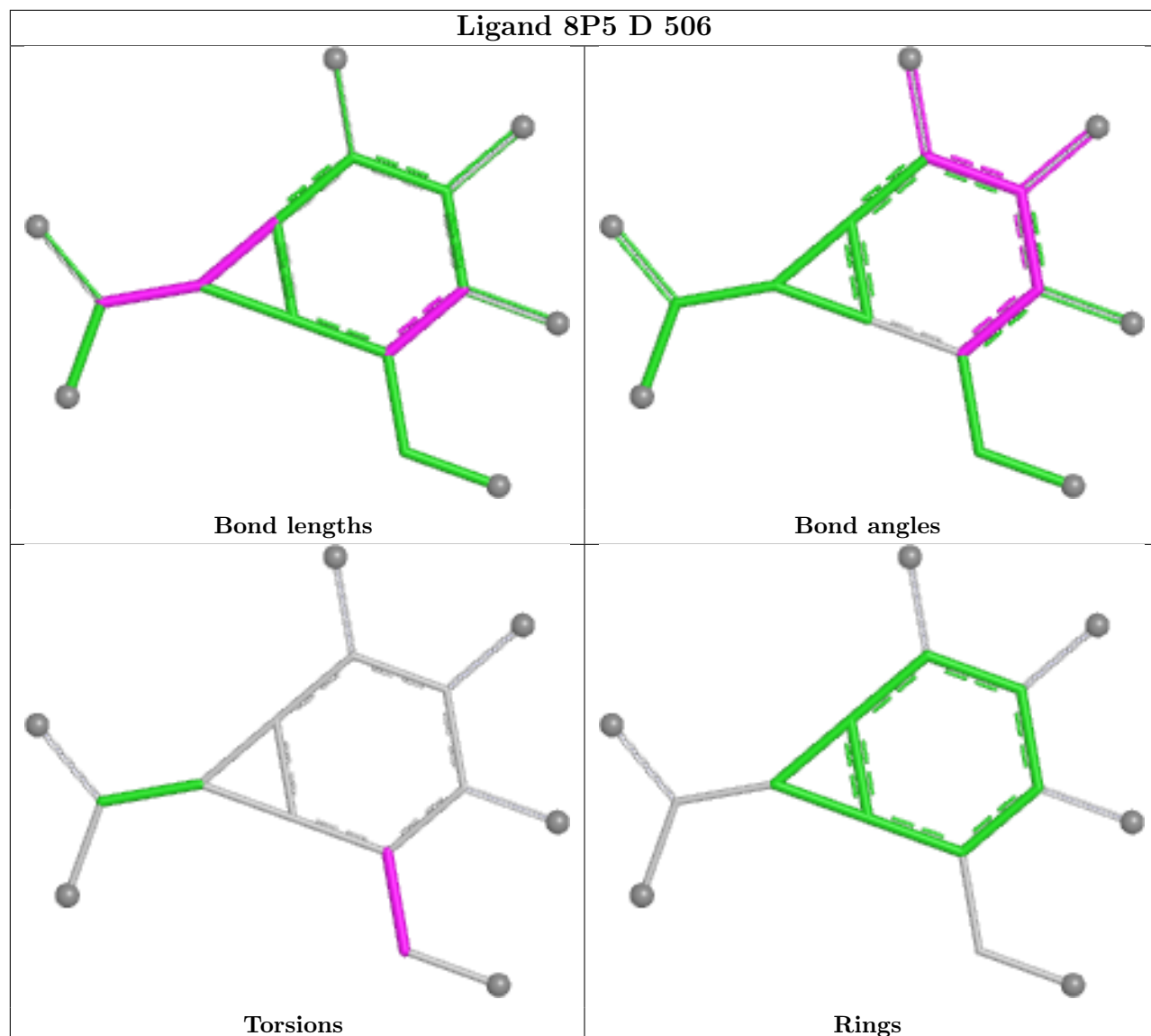
10 monomers are involved in 16 short contacts:

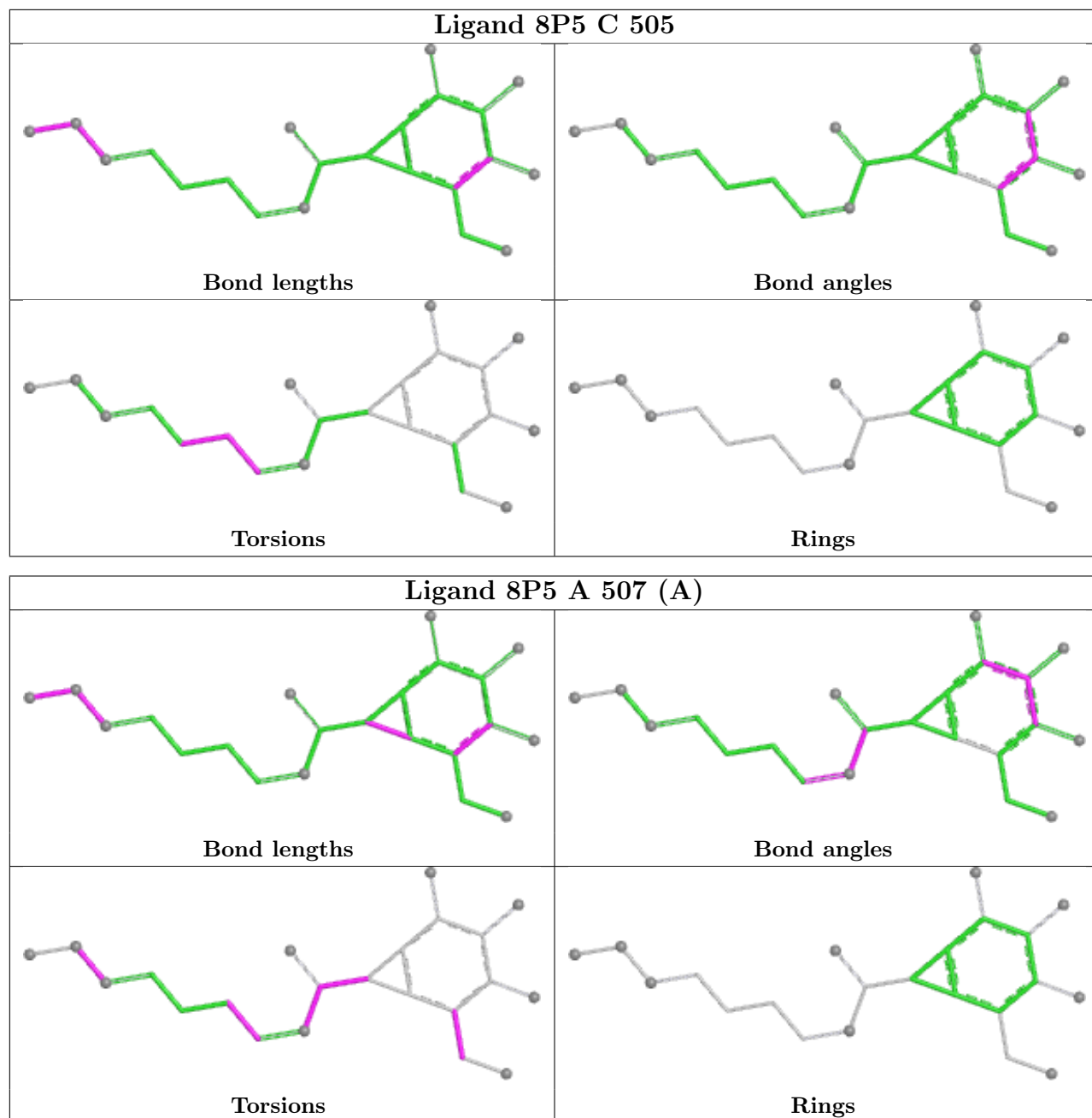
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	502	EDO	2	0
2	D	503	EDO	1	0
5	B	511	8P5	3	0
6	A	508	PEG	3	0
2	D	501	EDO	1	0
2	B	508	EDO	2	0
2	D	504	EDO	1	0
5	D	506	8P5	1	0
7	B	512	ACT	1	0
4	A	506	IMD	1	0

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	443/468 (94%)	0.84	29 (6%) 25 26	13, 25, 40, 56	13 (2%)
1	B	443/468 (94%)	0.91	28 (6%) 26 27	12, 26, 40, 62	19 (4%)
1	C	429/468 (91%)	1.70	140 (32%) 1 1	9, 35, 56, 65	53 (12%)
1	D	431/468 (92%)	1.70	137 (31%) 1 1	12, 36, 55, 63	47 (10%)
All	All	1746/1872 (93%)	1.28	334 (19%) 3 3	9, 29, 53, 65	132 (7%)

All (334) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	419	VAL	9.0
1	C	308	ALA	8.8
1	D	419	VAL	8.6
1	D	360	VAL	8.0
1	C	422	SER	7.8
1	B	306	ALA	7.7
1	D	359	VAL	7.6
1	D	3	VAL	7.2
1	D	366	VAL	7.2
1	D	307	PRO	7.0
1	C	364	GLY	6.7
1	C	307	PRO	6.5
1	C	356	PHE	6.4
1	C	434	TRP	6.2
1	D	73	VAL	6.1
1	C	326	ILE	6.0
1	B	307	PRO	6.0
1	D	72	GLY	6.0
1	C	109	LEU	5.8
1	C	214	ASP	5.8
1	D	326	ILE	5.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	434	TRP	5.8
1	A	3	VAL	5.8
1	D	367	HIS	5.7
1	C	358	ASP	5.6
1	D	305	ASP	5.5
1	D	68	ILE	5.4
1	D	435	TYR	5.1
1	A	305	ASP	5.0
1	B	3	VAL	5.0
1	C	368	ASP	4.9
1	D	62	LYS	4.8
1	D	365	ARG	4.7
1	C	299	LEU	4.7
1	C	50	THR	4.5
1	C	75	ALA	4.5
1	D	372	ILE	4.5
1	D	437	ASN	4.5
1	C	357	ASP	4.5
1	D	373	ASP	4.4
1	C	229	ALA	4.4
1	D	371	ARG	4.4
1	D	74	LYS	4.3
1	C	366	VAL	4.2
1	D	330	GLY	4.2
1	B	366	VAL	4.2
1	D	299	LEU	4.2
1	C	411	SER	4.1
1	D	356	PHE	4.1
1	C	57	HIS	4.0
1	D	213	LYS	3.9
1	D	424	GLN	3.9
1	C	312	PHE	3.9
1	D	104	ILE	3.8
1	D	312	PHE	3.8
1	D	370	ASN	3.7
1	D	75	ALA	3.7
1	C	317	LEU	3.7
1	C	440	LYS	3.7
1	C	68	ILE	3.7
1	C	72	GLY	3.6
1	D	323	GLY	3.6
1	C	15	ALA	3.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	225	TYR	3.6
1	C	436	SER	3.6
1	D	416	ILE	3.6
1	C	269[A]	ARG	3.6
1	C	379	ILE	3.6
1	C	233	GLU	3.6
1	C	403	ASN	3.6
1	D	374	TYR	3.6
1	A	207	VAL	3.5
1	D	205	VAL	3.5
1	D	418	TYR	3.5
1	D	423	THR	3.5
1	B	305	ASP	3.4
1	C	336[A]	LYS	3.4
1	C	369	GLN	3.4
1	C	437	ASN	3.4
1	D	53	VAL	3.4
1	D	355	ALA	3.4
1	A	90	THR	3.4
1	B	274	GLU	3.4
1	C	9	GLY	3.3
1	C	438	VAL	3.3
1	C	416	ILE	3.3
1	C	110	GLU	3.3
1	D	436	SER	3.3
1	C	417	VAL	3.3
1	D	67	ILE	3.3
1	D	368	ASP	3.2
1	D	10	PHE	3.2
1	C	370	ASN	3.2
1	D	369	GLN	3.2
1	C	67	ILE	3.2
1	C	332	TYR	3.2
1	D	386	ILE	3.2
1	B	148[A]	ARG	3.2
1	C	30	ALA	3.1
1	C	354	ALA	3.1
1	C	433	TYR	3.1
1	D	433	TYR	3.1
1	D	9	GLY	3.1
1	D	206	LYS	3.1
1	C	27	ALA	3.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	23	GLY	3.1
1	C	211	THR	3.1
1	C	371	ARG	3.1
1	D	308	ALA	3.1
1	D	400	LEU	3.1
1	C	353	GLY	3.0
1	C	315	ARG	3.0
1	C	305	ASP	3.0
1	D	316	ASP	3.0
1	C	401	LEU	3.0
1	A	240	ARG	3.0
1	D	224	GLY	3.0
1	D	328	PRO	3.0
1	D	55	CYS	3.0
1	D	230	SER	3.0
1	C	16	THR	3.0
1	C	316	ASP	3.0
1	C	54	ALA	2.9
1	C	6	PHE	2.9
1	D	225	TYR	2.9
1	D	232	LYS	2.9
1	D	444	LEU	2.9
1	A	97	GLY	2.9
1	D	211	THR	2.9
1	C	8	GLU	2.9
1	C	435	TYR	2.9
1	D	47	ASN	2.9
1	C	377	ALA	2.9
1	D	15	ALA	2.9
1	C	330	GLY	2.9
1	A	212	VAL	2.9
1	D	390	VAL	2.9
1	C	65	ILE	2.9
1	C	80	ILE	2.9
1	D	414	PHE	2.9
1	D	91	GLY	2.9
1	D	317	LEU	2.8
1	D	375	LEU	2.8
1	B	281	SER	2.8
1	C	355	ALA	2.8
1	C	415	GLY	2.8
1	C	117	VAL	2.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	6	PHE	2.8
1	A	67	ILE	2.8
1	C	60	ARG	2.8
1	D	340	GLU	2.8
1	D	428	VAL	2.8
1	D	80	ILE	2.8
1	C	61	TRP	2.8
1	C	240	ARG	2.7
1	D	61	TRP	2.8
1	C	445	GLU	2.7
1	D	16	THR	2.7
1	D	207	VAL	2.7
1	D	214	ASP	2.7
1	C	306	ALA	2.7
1	C	374	TYR	2.7
1	D	85	ILE	2.7
1	D	141	ASP	2.7
1	D	324	TRP	2.7
1	C	375	LEU	2.7
1	D	313	VAL	2.7
1	C	321	ALA	2.6
1	D	385	ALA	2.6
1	C	414	PHE	2.6
1	C	318	PRO	2.6
1	C	319	LYS	2.6
1	C	398	TRP	2.6
1	D	333	TRP	2.6
1	A	306	ALA	2.6
1	D	403	ASN	2.6
1	A	390	VAL	2.6
1	C	55	CYS	2.6
1	B	364	GLY	2.6
1	C	47	ASN	2.6
1	A	198	LEU	2.6
1	B	312	PHE	2.6
1	D	117	VAL	2.6
1	D	217	ILE	2.6
1	C	74	LYS	2.6
1	C	111	LYS	2.6
1	D	315	ARG	2.6
1	D	391	PRO	2.6
1	C	98	LEU	2.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	300	VAL	2.5
1	D	417	VAL	2.5
1	C	421	TYR	2.5
1	D	443	GLY	2.5
1	D	158	VAL	2.5
1	A	210	GLU	2.5
1	C	333	TRP	2.5
1	D	161	TRP	2.5
1	C	62	LYS	2.5
1	D	23	GLY	2.5
1	D	319	LYS	2.5
1	D	194	VAL	2.5
1	C	418	TYR	2.5
1	D	410	TYR	2.5
1	C	56	ASP	2.5
1	D	144	ALA	2.5
1	D	401	LEU	2.5
1	B	89	GLY	2.5
1	D	310	VAL	2.4
1	A	135	ALA	2.4
1	C	46	LYS	2.4
1	D	226	PHE	2.4
1	D	65	ILE	2.4
1	C	383	TRP	2.4
1	A	365	ARG	2.4
1	D	70	LYS	2.4
1	D	429	LYS	2.4
1	C	11	LEU	2.4
1	C	10	PHE	2.4
1	D	154	PHE	2.4
1	C	303	ASP	2.4
1	A	445	GLU	2.4
1	C	100	PHE	2.4
1	B	117	VAL	2.4
1	B	287	ILE	2.4
1	C	85	ILE	2.4
1	C	158	VAL	2.4
1	C	397	VAL	2.4
1	D	294	TYR	2.3
1	C	231	GLU	2.3
1	D	204	ALA	2.3
1	D	229	ALA	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	354	ALA	2.3
1	A	108	LEU	2.3
1	D	387	GLN	2.3
1	A	364	GLY	2.3
1	C	155	GLY	2.3
1	D	237	ARG	2.3
1	C	281	SER	2.3
1	D	12	TRP	2.3
1	D	58	TYR	2.3
1	D	238	ALA	2.3
1	D	357	ASP	2.3
1	C	296	SER	2.3
1	D	281	SER	2.3
1	C	373	ASP	2.3
1	D	234	GLU	2.3
1	A	187	ILE	2.3
1	A	102	ASN	2.3
1	C	441	ASN	2.3
1	A	308	ALA	2.3
1	C	5	LYS	2.3
1	C	430	ASP	2.3
1	C	409	GLY	2.3
1	D	332	TYR	2.3
1	C	69	GLU	2.2
1	B	104	ILE	2.2
1	B	212	VAL	2.2
1	C	194	VAL	2.2
1	A	92	ARG	2.2
1	D	99	ASP	2.2
1	D	303	ASP	2.2
1	C	112	GLY	2.2
1	D	382	ALA	2.2
1	C	444	LEU	2.2
1	C	58	TYR	2.2
1	D	274	GLU	2.2
1	B	398	TRP	2.2
1	B	302	PHE	2.2
1	D	221	PHE	2.2
1	D	14	VAL	2.2
1	D	439	VAL	2.2
1	C	132	GLY	2.2
1	C	215	GLY	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	155	GLY	2.2
1	C	392	LEU	2.2
1	C	431	SER	2.2
1	D	114	THR	2.2
1	D	302	PHE	2.2
1	D	64	ASP	2.2
1	C	428	VAL	2.2
1	C	439	VAL	2.2
1	C	7	PRO	2.1
1	C	107	THR	2.2
1	C	156	ASP	2.2
1	B	262	GLU	2.1
1	D	241	PHE	2.1
1	A	347	VAL	2.1
1	A	238	ALA	2.1
1	D	392	LEU	2.1
1	C	309	LYS	2.1
1	D	421	TYR	2.1
1	A	307	PRO	2.1
1	B	333	TRP	2.1
1	B	67	ILE	2.1
1	B	113	ILE	2.1
1	B	356	PHE	2.1
1	C	349	ILE	2.1
1	A	179	VAL	2.1
1	C	385	ALA	2.1
1	A	233	GLU	2.1
1	A	58	TYR	2.1
1	C	295	TYR	2.1
1	C	114	THR	2.1
1	C	387	GLN	2.1
1	C	40	HIS	2.1
1	A	148	ARG	2.1
1	B	236	ILE	2.1
1	B	240[A]	ARG	2.1
1	C	92	ARG	2.1
1	C	73	VAL	2.1
1	D	397	VAL	2.1
1	C	270	GLU	2.1
1	D	314	GLU	2.1
1	C	352	ASN	2.1
1	C	99	ASP	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	323	GLY	2.1
1	C	113	ILE	2.1
1	D	105	ILE	2.1
1	D	379	ILE	2.1
1	C	78	PHE	2.1
1	C	179	VAL	2.1
1	B	147	SER	2.1
1	B	422	SER	2.1
1	C	329	GLU	2.0
1	D	108	LEU	2.0
1	D	109	LEU	2.0
1	D	228	PRO	2.0
1	D	295	TYR	2.0
1	D	145	GLU	2.0
1	B	308	ALA	2.0
1	C	407	ALA	2.0
1	C	203[A]	ARG	2.0
1	B	213	LYS	2.0
1	D	29	GLY	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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
8	PGE	B	514	10/10	0.61	0.21	31,37,46,47	10
6	PEG	A	508	7/7	0.64	0.29	21,23,25,29	7
2	EDO	C	503	4/4	0.66	0.19	49,51,53,54	0
6	PEG	B	513	7/7	0.67	0.18	31,39,47,49	7

Continued on next page...

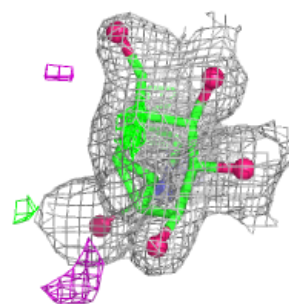
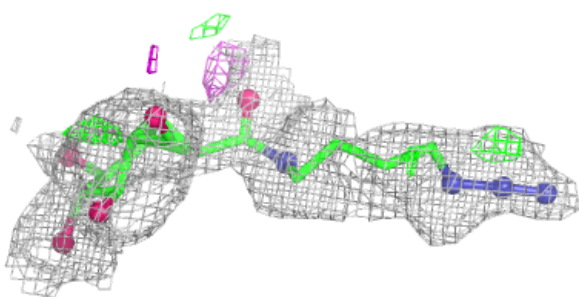
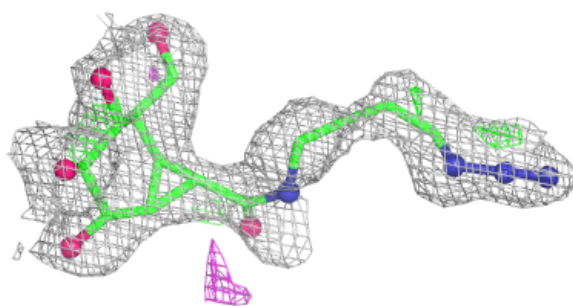
Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	EDO	B	507	4/4	0.69	0.16	41,42,44,46	0
5	8P5	A	507[B]	22/22	0.73	0.25	23,29,30,35	22
5	8P5	A	507[A]	22/22	0.73	0.25	30,41,47,52	22
2	EDO	B	504	4/4	0.74	0.23	21,22,22,24	4
5	8P5	B	511	22/22	0.75	0.20	21,39,44,49	0
2	EDO	C	502	4/4	0.78	0.21	20,20,21,22	4
7	ACT	B	512	4/4	0.78	0.15	39,46,46,46	0
2	EDO	B	508	4/4	0.78	0.19	13,14,14,16	4
2	EDO	D	504	4/4	0.80	0.19	20,20,20,21	4
2	EDO	B	505	4/4	0.80	0.20	12,13,14,15	4
7	ACT	C	506	4/4	0.81	0.24	25,26,27,27	4
2	EDO	A	501	4/4	0.81	0.12	21,22,23,25	0
3	CL	D	505	1/1	0.84	0.15	60,60,60,60	0
2	EDO	A	503	4/4	0.84	0.13	16,16,16,17	4
3	CL	B	509	1/1	0.84	0.15	58,58,58,58	0
3	CL	B	510	1/1	0.85	0.12	44,44,44,44	0
2	EDO	D	501	4/4	0.85	0.14	34,35,37,37	0
5	8P5	D	506	15/22	0.86	0.12	28,32,35,41	0
5	8P5	C	505	22/22	0.86	0.14	27,33,37,39	7
2	EDO	D	502	4/4	0.87	0.10	30,32,33,36	0
4	IMD	A	506	5/5	0.88	0.14	42,43,46,49	0
2	EDO	D	503	4/4	0.89	0.11	44,45,47,48	0
2	EDO	B	506	4/4	0.89	0.21	23,23,25,25	4
3	CL	C	504	1/1	0.89	0.14	58,58,58,58	0
2	EDO	A	502	4/4	0.90	0.10	31,35,35,36	0
2	EDO	B	501	4/4	0.90	0.09	29,31,32,33	0
2	EDO	B	503	4/4	0.91	0.12	19,19,19,19	4
2	EDO	C	501	4/4	0.91	0.10	28,32,33,33	0
3	CL	A	505	1/1	0.91	0.23	46,46,46,46	0
2	EDO	B	502[B]	4/4	0.92	0.12	31,33,33,34	4
2	EDO	B	502[A]	4/4	0.92	0.12	25,25,26,28	4
3	CL	A	504	1/1	0.94	0.09	49,49,49,49	0

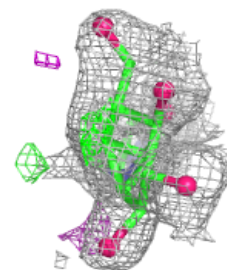
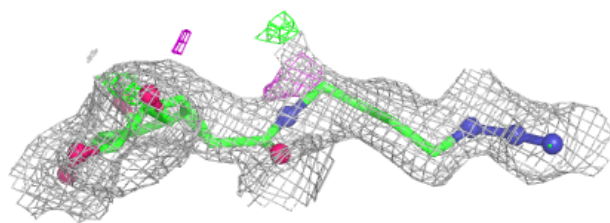
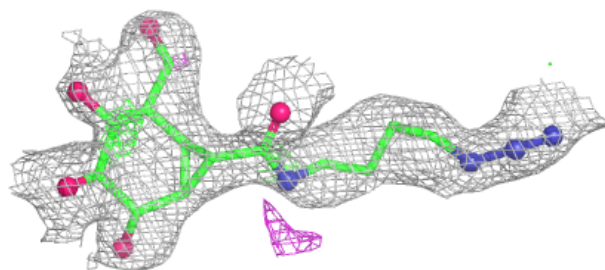
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around 8P5 A 507 (B):

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

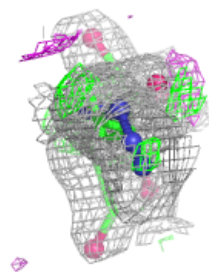
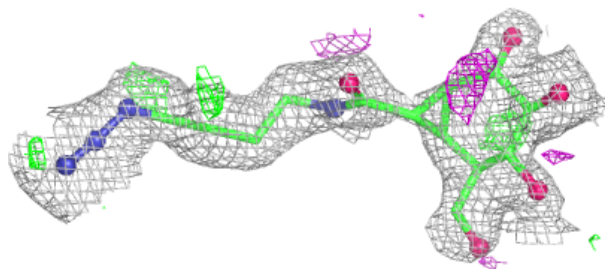
**Electron density around 8P5 A 507 (A):**

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



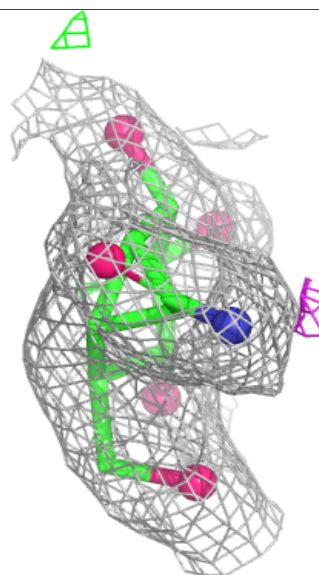
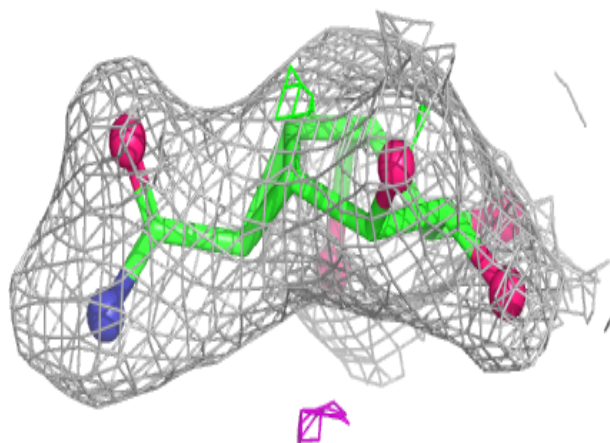
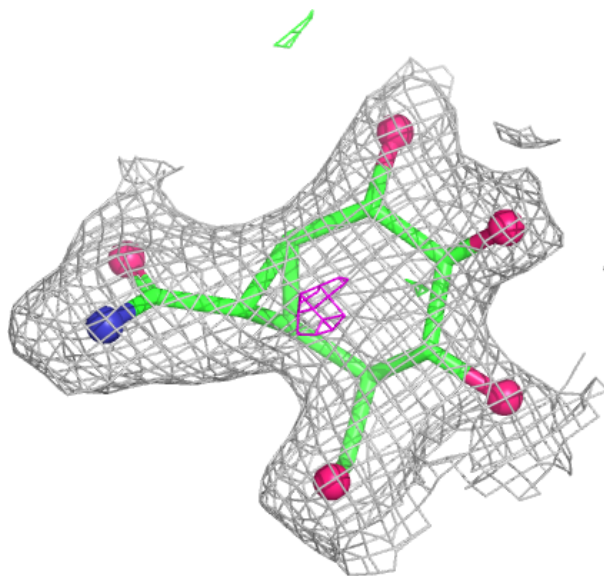
Electron density around 8P5 B 511:

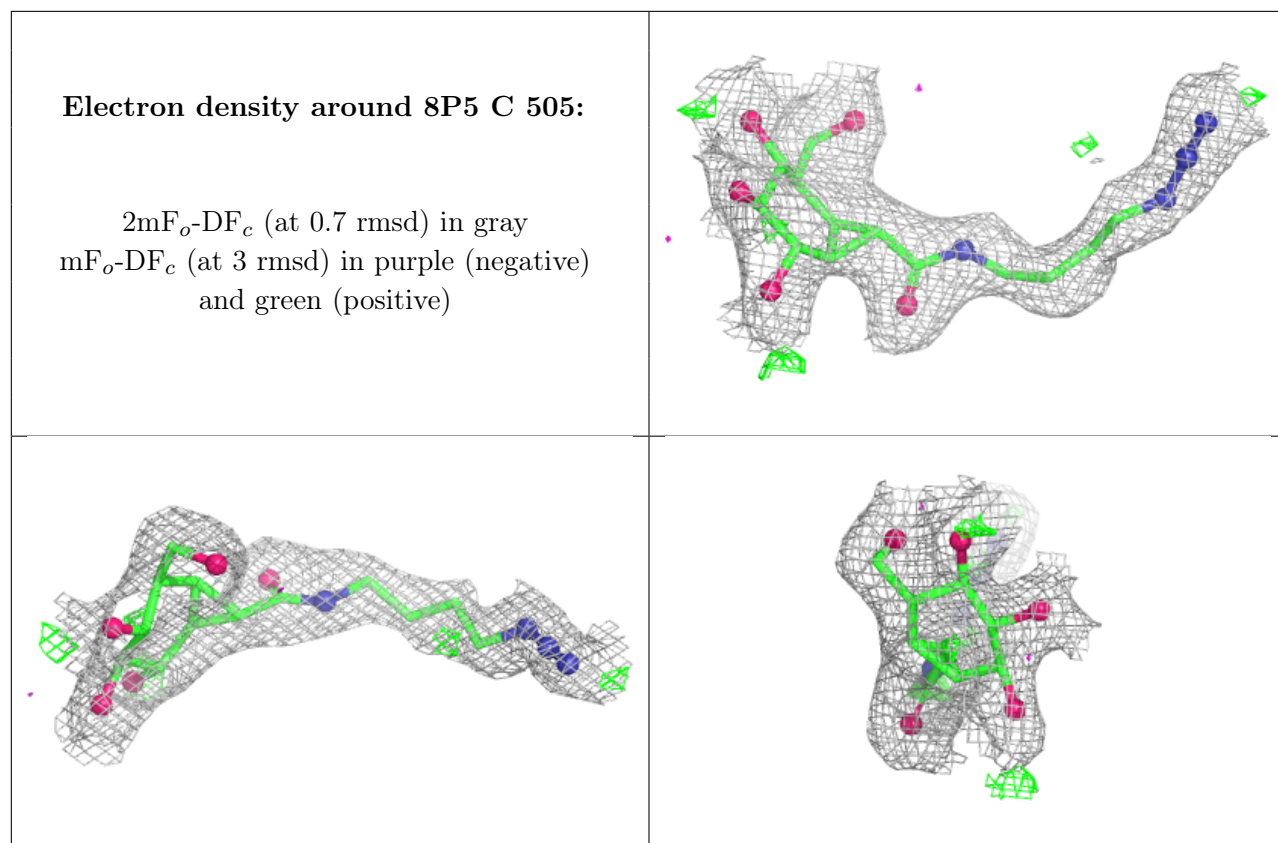
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around 8P5 D 506:

$2mF_o-DF_c$ (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.