



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 8, 2024 – 09:47 am GMT

PDB ID : 6FTA
Title : Crystal structure of human phosphodiesterase 4D2 catalytic domain with inhibitor NPD-3098
Authors : Singh, A.K.; Brown, D.G.
Deposited on : 2018-02-20
Resolution : 2.34 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

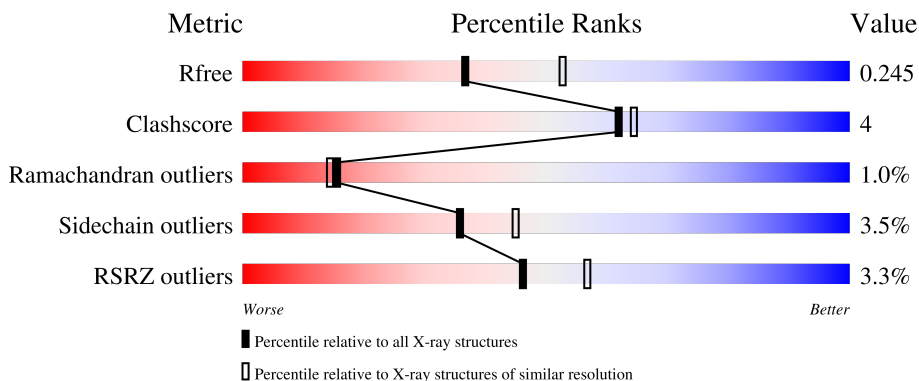
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.34 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2096 (2.36-2.32)
Clashscore	141614	2193 (2.36-2.32)
Ramachandran outliers	138981	2159 (2.36-2.32)
Sidechain outliers	138945	2160 (2.36-2.32)
RSRZ outliers	127900	2067 (2.36-2.32)

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	364	 5% 76% 12% •• 10%
1	B	364	 % 80% 8% • 11%
1	C	364	 3% 78% 7% • 11%
1	D	364	 2% 81% 8% 11%

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 11415 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 cAMP-specific 3',5'-cyclic phosphodiesterase 4D.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	329	Total 2667	C 1686	N 456	O 511	S 14	0	1	0
1	B	324	Total 2622	C 1659	N 448	O 501	S 14	0	0	0
1	C	323	Total 2613	C 1654	N 446	O 499	S 14	0	0	0
1	D	324	Total 2628	C 1663	N 449	O 502	S 14	0	1	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	75	GLY	-	expression tag	UNP Q08499
A	76	SER	-	expression tag	UNP Q08499
A	77	HIS	-	expression tag	UNP Q08499
A	78	MET	-	expression tag	UNP Q08499
B	75	GLY	-	expression tag	UNP Q08499
B	76	SER	-	expression tag	UNP Q08499
B	77	HIS	-	expression tag	UNP Q08499
B	78	MET	-	expression tag	UNP Q08499
C	75	GLY	-	expression tag	UNP Q08499
C	76	SER	-	expression tag	UNP Q08499
C	77	HIS	-	expression tag	UNP Q08499
C	78	MET	-	expression tag	UNP Q08499
D	75	GLY	-	expression tag	UNP Q08499
D	76	SER	-	expression tag	UNP Q08499
D	77	HIS	-	expression tag	UNP Q08499
D	78	MET	-	expression tag	UNP Q08499

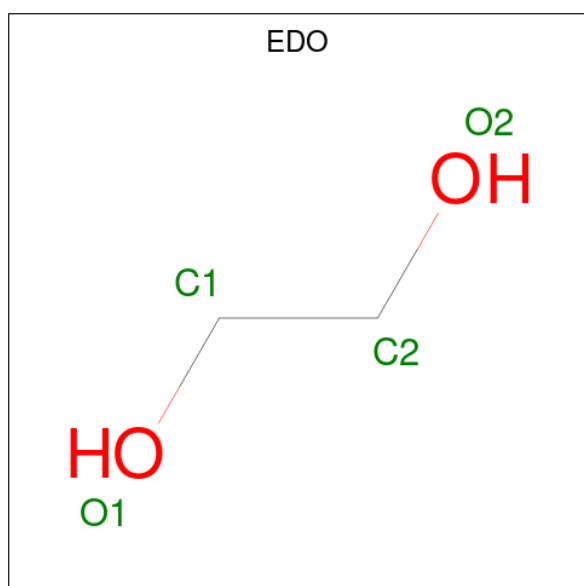
- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



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

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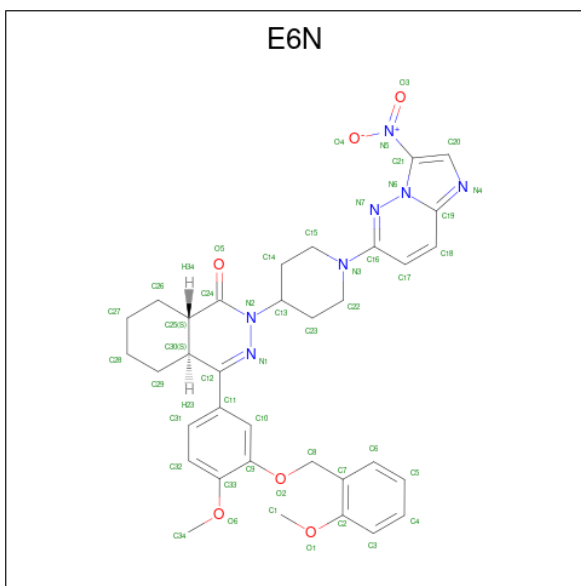
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total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

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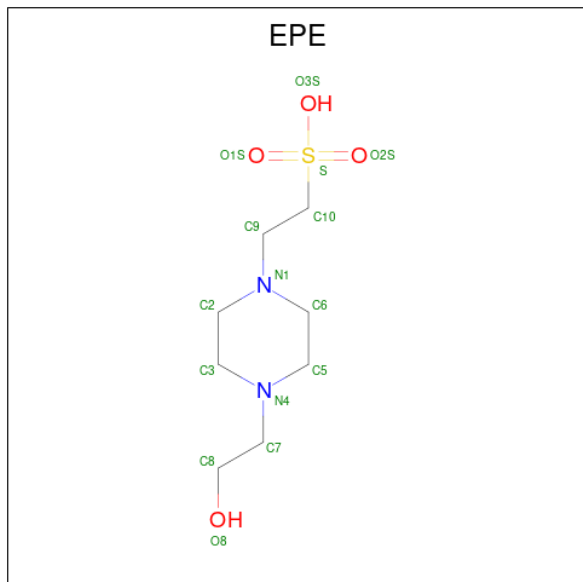
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	D	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 5 is (4 {a} {S},8 {a} {S})-4-[4-methoxy-3-[(2-methoxyphenyl)methoxy]phenyl]-2-[1-(3-nitroimidazo[1,2-b]pyridazin-6-yl)piperidin-4-yl]-4 {a},5,6,7,8,8 {a}-hexahydrophthalazin-1-one (three-letter code: E6N) (formula: C₃₄H₃₇N₇O₆) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	N	O	0	0
			47	34	7	6		
5	B	1	Total	C	N	O	0	0
			47	34	7	6		
5	C	1	Total	C	N	O	0	0
			47	34	7	6		
5	D	1	Total	C	N	O	0	0
			47	34	7	6		

- Molecule 6 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: C₈H₁₈N₂O₄S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
6	A	1	Total 15	8	2	4	1	0	0
6	B	1	Total 15	8	2	4	1	0	0
6	B	1	Total 15	8	2	4	1	0	0
6	C	1	Total 15	8	2	4	1	0	0
6	D	1	Total 15	8	2	4	1	0	0

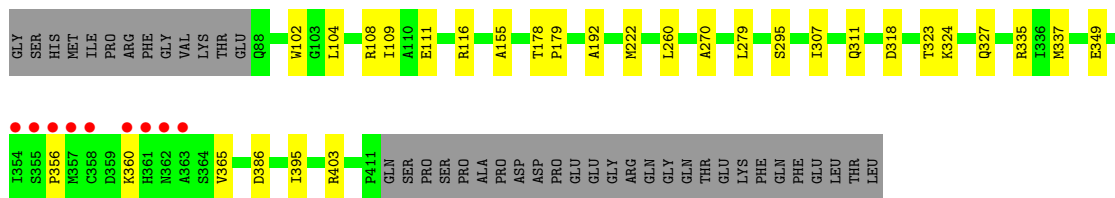
- Molecule 7 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	D	1	Total C O 7 4 3	0	0
7	D	1	Total C O 7 4 3	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	127	Total O 127 127	0	0
8	B	109	Total O 109 109	0	0
8	C	94	Total O 94 94	0	0
8	D	154	Total O 154 154	0	0



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	98.99Å 110.76Å 161.34Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	80.67 – 2.34 80.67 – 2.34	Depositor EDS
% Data completeness (in resolution range)	100.0 (80.67-2.34) 100.0 (80.67-2.34)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.64 (at 2.34Å)	Xtrriage
Refinement program	REFMAC 5.8.0189	Depositor
R, R_{free}	0.181 , 0.240 0.191 , 0.245	Depositor DCC
R_{free} test set	3788 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	46.7	Xtrriage
Anisotropy	0.265	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 43.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	11415	wwPDB-VP
Average B, all atoms (Å ²)	54.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.15% 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: EPE, E6N, MG, ZN, PEG, EDO

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.81	2/2721 (0.1%)	0.89	3/3696 (0.1%)
1	B	0.85	0/2676	0.81	2/3636 (0.1%)
1	C	0.82	0/2667	0.80	4/3624 (0.1%)
1	D	0.87	0/2685	0.82	4/3648 (0.1%)
All	All	0.84	2/10749 (0.0%)	0.83	13/14604 (0.1%)

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	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	351	GLY	C-N	8.00	1.52	1.34
1	A	351	GLY	CA-C	-5.84	1.42	1.51

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	351	GLY	CA-C-N	-14.94	84.33	117.20
1	A	351	GLY	C-N-CA	-12.82	89.64	121.70
1	A	351	GLY	CA-C-O	-6.19	109.47	120.60
1	D	318	ASP	CB-CG-OD1	6.17	123.85	118.30
1	B	201	ASP	CB-CG-OD1	6.02	123.72	118.30
1	C	130	ASP	CB-CG-OD1	5.65	123.39	118.30
1	D	403	ARG	NE-CZ-NH1	5.22	122.91	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	318	ASP	CB-CG-OD2	-5.20	113.62	118.30
1	D	335	ARG	NE-CZ-NH2	-5.19	117.70	120.30
1	B	334	ASP	CB-CG-OD1	5.17	122.95	118.30
1	C	403	ARG	NE-CZ-NH1	5.13	122.86	120.30
1	C	318	ASP	CB-CG-OD1	5.07	122.86	118.30
1	D	335	ARG	NE-CZ-NH1	5.05	122.83	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	351	GLY	Mainchain

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	2667	0	2622	32	0
1	B	2622	0	2578	17	0
1	C	2613	0	2570	34	0
1	D	2628	0	2586	15	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
4	A	28	0	42	0	0
4	B	28	0	42	0	0
4	C	12	0	18	1	0
4	D	48	0	72	3	0
5	A	47	0	0	1	0
5	B	47	0	0	0	0
5	C	47	0	0	1	0
5	D	47	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	A	15	0	17	3	0
6	B	30	0	35	0	0
6	C	15	0	17	0	0
6	D	15	0	17	1	0
7	D	14	0	20	3	0
8	A	127	0	0	2	0
8	B	109	0	0	1	0
8	C	94	0	0	0	0
8	D	154	0	0	0	0
All	All	11415	0	10636	95	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 (95) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:354:ILE:HG21	1:C:359:ASP:OD2	1.66	0.96
1:C:354:ILE:CG2	1:C:359:ASP:OD2	2.19	0.90
1:C:354:ILE:HD12	1:C:354:ILE:H	1.45	0.81
1:C:306:ARG:HH11	1:C:306:ARG:HG2	1.49	0.75
1:C:306:ARG:HG2	1:C:306:ARG:NH1	2.02	0.73
1:C:178:THR:HG1	4:C:504:EDO:HO2	1.34	0.70
1:C:362:ASN:O	1:C:363:ALA:HB3	1.92	0.70
1:A:357:MET:HG3	1:A:368:SER:OG	1.91	0.69
1:C:362:ASN:O	1:C:363:ALA:CB	2.41	0.69
1:A:331:GLN:HE22	6:A:511:EPE:H102	1.57	0.68
1:C:360:LYS:O	1:C:362:ASN:N	2.27	0.67
1:A:350:ARG:O	1:A:351:GLY:O	2.13	0.67
1:C:336:ILE:HG23	1:C:337:MET:HE1	1.80	0.64
1:A:349:GLU:OE1	1:A:349:GLU:N	2.21	0.64
1:B:89:GLU:O	1:B:89:GLU:HG3	1.98	0.63
1:C:306:ARG:HH11	1:C:306:ARG:CG	2.11	0.63
1:B:323:THR:HG23	1:B:395:ILE:HG23	1.82	0.62
1:B:324:LYS:HB3	1:B:325:PRO:HD2	1.81	0.61
1:A:290:LYS:HG2	1:A:290:LYS:O	2.01	0.59
1:D:178:THR:HA	7:D:512:PEG:H42	1.83	0.59
1:A:289:THR:HG22	1:A:289:THR:O	2.03	0.59
1:C:354:ILE:HG22	1:C:359:ASP:OD2	2.01	0.57
1:C:302:ASN:HD21	1:C:304:SER:HB3	1.71	0.56
1:C:184:VAL:HG11	1:C:300:LEU:HD12	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:102:TRP:CE2	1:C:324:LYS:HE2	2.41	0.55
1:C:302:ASN:OD1	1:C:304:SER:N	2.39	0.54
1:B:321:ASN:HB2	1:B:322:PRO:HD3	1.88	0.54
1:A:356:PRO:HB3	5:A:510:E6N:C18	2.38	0.54
1:B:355:SER:HB2	1:B:356:PRO:HD2	1.90	0.54
1:A:107:PHE:HB2	6:A:511:EPE:H101	1.89	0.53
1:A:352:MET:SD	1:A:352:MET:N	2.81	0.52
1:A:359:ASP:O	1:A:362:ASN:O	2.29	0.51
1:A:342:ARG:O	1:A:346:ARG:HG3	2.11	0.51
1:A:283:LEU:O	1:A:287:VAL:HG23	2.11	0.50
1:B:355:SER:O	1:B:358:CYS:HB2	2.12	0.50
1:D:111:GLU:OE2	6:D:518:EPE:H32	2.12	0.50
1:A:347:GLU:HA	1:A:351:GLY:H	1.76	0.49
1:C:98:ASP:HA	1:C:101:LYS:HD2	1.94	0.49
1:A:340:PHE:HB3	1:A:358:CYS:SG	2.53	0.48
1:A:349:GLU:OE2	1:C:147:MET:HG2	2.13	0.48
1:D:155:ALA:CB	4:D:506:EDO:H11	2.43	0.48
1:D:337:MET:HG3	1:D:365:VAL:HG22	1.96	0.48
1:C:302:ASN:ND2	1:C:304:SER:HB3	2.29	0.48
1:C:286:MET:O	1:C:286:MET:HG3	2.13	0.47
1:A:321:ASN:ND2	8:A:604:HOH:O	2.45	0.46
1:D:155:ALA:HB1	4:D:506:EDO:H11	1.97	0.46
1:D:104:LEU:HD11	1:D:109:ILE:CD1	2.46	0.46
1:C:305:ASP:O	1:C:309:VAL:HG23	2.16	0.45
1:C:359:ASP:O	1:C:360:LYS:C	2.54	0.45
1:C:291:LYS:HG3	1:C:299:LEU:HB3	1.99	0.45
1:B:350:ARG:NH1	8:B:604:HOH:O	2.49	0.45
1:C:140:ASP:OD1	1:C:140:ASP:N	2.40	0.45
1:D:179:PRO:HG2	7:D:513:PEG:H21	1.99	0.45
1:A:221:LEU:HD12	1:B:261:ARG:NH2	2.31	0.44
1:C:302:ASN:O	1:C:306:ARG:CD	2.65	0.44
1:C:359:ASP:O	1:C:361:HIS:N	2.50	0.44
1:B:292:VAL:HG12	1:B:298:LEU:HA	2.00	0.44
1:B:104:LEU:HD11	1:B:109:ILE:HD11	2.00	0.44
1:B:175:LEU:O	1:B:178:THR:HB	2.17	0.44
1:A:302:ASN:O	1:A:306:ARG:HG3	2.18	0.44
1:D:155:ALA:HA	4:D:506:EDO:H11	2.00	0.44
1:C:340:PHE:HD2	5:C:506:E6N:C5	2.31	0.43
1:A:342:ARG:NE	1:A:346:ARG:HH21	2.17	0.43
1:B:355:SER:HB2	1:B:356:PRO:CD	2.48	0.43
1:C:284:LYS:O	1:C:288:GLU:HG3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:337:MET:HG2	1:C:365:VAL:HG22	2.01	0.43
1:C:357:MET:HE3	1:C:357:MET:HB3	1.92	0.43
1:A:116:ARG:N	1:A:117:PRO:CD	2.82	0.42
1:A:201:ASP:O	1:A:204:HIS:HB2	2.19	0.42
1:A:373:ILE:HA	1:A:377:VAL:HB	2.01	0.42
1:D:178:THR:CA	7:D:512:PEG:H42	2.49	0.42
1:C:348:ARG:NH1	1:C:359:ASP:OD1	2.52	0.42
1:B:321:ASN:N	1:B:322:PRO:CD	2.82	0.42
1:B:328:LEU:HA	1:B:328:LEU:HD23	1.83	0.42
1:D:192:ALA:HB2	1:D:260:LEU:HD12	2.01	0.42
1:A:104:LEU:HD11	1:A:109:ILE:HD11	2.02	0.42
1:D:307:ILE:O	1:D:311:GLN:HG3	2.19	0.42
1:D:323:THR:HB	1:D:395:ILE:HG23	2.01	0.42
1:C:357:MET:O	1:C:363:ALA:HB1	2.19	0.42
1:D:102:TRP:CE2	1:D:324:LYS:HE2	2.55	0.42
1:A:405:TRP:O	1:A:409:THR:HG23	2.20	0.41
1:B:102:TRP:CE2	1:B:324:LYS:HE2	2.54	0.41
1:B:147:MET:CE	1:D:349:GLU:HB3	2.51	0.41
1:A:329:TYR:OH	1:A:369:GLN:NE2	2.35	0.41
1:C:302:ASN:OD1	1:C:304:SER:HB3	2.21	0.41
1:A:275:LYS:HE2	8:A:618:HOH:O	2.20	0.41
1:C:184:VAL:CG1	1:C:300:LEU:HD12	2.50	0.41
1:A:111:GLU:OE1	6:A:511:EPE:H52	2.21	0.40
1:A:270:ALA:HB1	1:A:279:LEU:HD11	2.02	0.40
1:B:252:LEU:HB3	1:B:257:ARG:HG3	2.04	0.40
1:D:270:ALA:HB1	1:D:279:LEU:HD11	2.02	0.40
1:A:154:HIS:CD2	1:A:154:HIS:N	2.88	0.40
1:A:307:ILE:HD12	1:A:307:ILE:HA	1.93	0.40
1:A:319:LEU:HD12	1:A:380:LEU:CD2	2.51	0.40
1:A:355:SER:HB3	1:A:356:PRO:HD2	2.04	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	328/364 (90%)	307 (94%)	16 (5%)	5 (2%)	10	7
1	B	322/364 (88%)	316 (98%)	6 (2%)	0	100	100
1	C	321/364 (88%)	305 (95%)	9 (3%)	7 (2%)	6	4
1	D	323/364 (89%)	320 (99%)	2 (1%)	1 (0%)	41	47
All	All	1294/1456 (89%)	1248 (96%)	33 (3%)	13 (1%)	15	14

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	352	MET
1	A	354	ILE
1	C	360	LYS
1	C	361	HIS
1	C	363	ALA
1	C	290	LYS
1	C	296	GLY
1	C	357	MET
1	D	356	PRO
1	A	353	GLU
1	A	356	PRO
1	A	363	ALA
1	C	292	VAL

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	301/331 (91%)	288 (96%)	13 (4%)	29	36
1	B	296/331 (89%)	285 (96%)	11 (4%)	34	43
1	C	295/331 (89%)	284 (96%)	11 (4%)	34	43
1	D	297/331 (90%)	290 (98%)	7 (2%)	49	59

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1189/1324 (90%)	1147 (96%)	42 (4%)	36 45

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	116	ARG
1	A	221	LEU
1	A	239	LYS
1	A	288	GLU
1	A	342	ARG
1	A	350	ARG
1	A	352	MET
1	A	355	SER
1	A	357	MET
1	A	359	ASP
1	A	360	LYS
1	A	364	SER
1	A	394	ASP
1	B	90	ASP
1	B	178	THR
1	B	234	LEU
1	B	255	LYS
1	B	258	GLN
1	B	308	GLN
1	B	323	THR
1	B	342	ARG
1	B	358	CYS
1	B	360	LYS
1	B	390	PRO
1	C	140	ASP
1	C	147	MET
1	C	178	THR
1	C	221	LEU
1	C	286	MET
1	C	299	LEU
1	C	306	ARG
1	C	337	MET
1	C	354	ILE
1	C	355	SER
1	C	361	HIS
1	D	108	ARG
1	D	116	ARG

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Mol	Chain	Res	Type
1	D	222	MET
1	D	295	SER
1	D	327	GLN
1	D	360	LYS
1	D	386	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	312	ASN
1	A	331	GLN
1	B	369	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 48 ligands modelled in this entry, 8 are monoatomic - leaving 40 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	$\# Z > 2$
4	EDO	D	510	-	3,3,3	0.45	0	2,2,2	0.42	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	EDO	B	507	-	3,3,3	0.47	0	2,2,2	0.27	0
4	EDO	C	507	-	3,3,3	0.66	0	2,2,2	0.11	0
4	EDO	D	501	-	3,3,3	0.41	0	2,2,2	0.70	0
6	EPE	A	511	-	15,15,15	2.82	1 (6%)	18,20,20	1.83	5 (27%)
4	EDO	D	508	-	3,3,3	0.68	0	2,2,2	0.23	0
4	EDO	B	509	-	3,3,3	0.41	0	2,2,2	0.40	0
4	EDO	D	515	-	3,3,3	0.75	0	2,2,2	0.25	0
5	E6N	A	510	-	48,53,53	1.35	6 (12%)	54,76,76	2.22	14 (25%)
4	EDO	A	503	-	3,3,3	0.45	0	2,2,2	0.32	0
6	EPE	C	505	-	15,15,15	2.87	1 (6%)	18,20,20	7.28	9 (50%)
4	EDO	D	506	-	3,3,3	0.27	0	2,2,2	0.54	0
4	EDO	C	503	-	3,3,3	0.60	0	2,2,2	0.26	0
4	EDO	A	505	-	3,3,3	0.36	0	2,2,2	0.42	0
4	EDO	A	504	-	3,3,3	0.55	0	2,2,2	0.26	0
4	EDO	B	510	-	3,3,3	0.52	0	2,2,2	0.32	0
4	EDO	B	506	-	3,3,3	0.76	0	2,2,2	0.69	0
7	PEG	D	512	-	6,6,6	0.32	0	5,5,5	0.59	0
4	EDO	D	516	-	3,3,3	0.41	0	2,2,2	0.48	0
4	EDO	C	504	-	3,3,3	0.64	0	2,2,2	0.50	0
4	EDO	D	505	-	3,3,3	0.42	0	2,2,2	0.36	0
4	EDO	D	504	-	3,3,3	0.44	0	2,2,2	0.48	0
6	EPE	D	518	-	15,15,15	2.80	1 (6%)	18,20,20	1.72	3 (16%)
4	EDO	D	511	-	3,3,3	0.42	0	2,2,2	0.10	0
4	EDO	D	507	-	3,3,3	0.81	0	2,2,2	0.24	0
5	E6N	B	508	-	48,53,53	1.30	7 (14%)	54,76,76	2.22	13 (24%)
4	EDO	B	505	-	3,3,3	0.36	0	2,2,2	0.57	0
5	E6N	D	514	-	48,53,53	1.35	5 (10%)	54,76,76	2.31	14 (25%)
4	EDO	D	509	-	3,3,3	0.32	0	2,2,2	0.53	0
6	EPE	B	511	-	15,15,15	1.86	1 (6%)	18,20,20	1.57	2 (11%)
4	EDO	A	509	-	3,3,3	0.58	0	2,2,2	0.14	0
7	PEG	D	513	-	6,6,6	0.26	0	5,5,5	0.83	0
4	EDO	A	508	-	3,3,3	0.48	0	2,2,2	0.37	0
4	EDO	D	517	-	3,3,3	0.57	0	2,2,2	0.18	0
4	EDO	B	503	-	3,3,3	0.50	0	2,2,2	0.16	0
4	EDO	A	506	-	3,3,3	0.37	0	2,2,2	0.45	0
5	E6N	C	506	-	48,53,53	1.38	7 (14%)	54,76,76	2.09	10 (18%)
6	EPE	B	512	-	15,15,15	2.71	1 (6%)	18,20,20	1.66	3 (16%)
4	EDO	A	507	-	3,3,3	0.53	0	2,2,2	0.30	0
4	EDO	B	504	-	3,3,3	0.40	0	2,2,2	0.44	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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EDO	D	510	-	-	1/1/1/1	-
4	EDO	B	507	-	-	1/1/1/1	-
4	EDO	C	507	-	-	1/1/1/1	-
4	EDO	D	501	-	-	0/1/1/1	-
6	EPE	A	511	-	-	7/9/19/19	0/1/1/1
4	EDO	D	508	-	-	1/1/1/1	-
4	EDO	B	509	-	-	0/1/1/1	-
4	EDO	D	515	-	-	1/1/1/1	-
5	E6N	A	510	-	-	5/21/62/62	0/7/7/7
4	EDO	A	503	-	-	1/1/1/1	-
6	EPE	C	505	-	-	2/9/19/19	0/1/1/1
4	EDO	D	506	-	-	1/1/1/1	-
4	EDO	C	503	-	-	1/1/1/1	-
4	EDO	A	505	-	-	1/1/1/1	-
4	EDO	A	504	-	-	1/1/1/1	-
4	EDO	B	510	-	-	0/1/1/1	-
4	EDO	B	506	-	-	1/1/1/1	-
7	PEG	D	512	-	-	3/4/4/4	-
4	EDO	D	516	-	-	1/1/1/1	-
4	EDO	C	504	-	-	1/1/1/1	-
4	EDO	D	505	-	-	1/1/1/1	-
4	EDO	D	504	-	-	0/1/1/1	-
6	EPE	D	518	-	-	5/9/19/19	0/1/1/1
4	EDO	D	511	-	-	0/1/1/1	-
4	EDO	D	507	-	-	1/1/1/1	-
5	E6N	B	508	-	-	5/21/62/62	0/7/7/7
4	EDO	B	505	-	-	1/1/1/1	-
5	E6N	D	514	-	-	7/21/62/62	0/7/7/7
4	EDO	D	509	-	-	1/1/1/1	-
6	EPE	B	511	-	-	4/9/19/19	0/1/1/1
4	EDO	A	509	-	-	1/1/1/1	-
7	PEG	D	513	-	-	0/4/4/4	-
4	EDO	A	508	-	-	1/1/1/1	-
4	EDO	D	517	-	-	1/1/1/1	-
4	EDO	B	503	-	-	1/1/1/1	-
4	EDO	A	506	-	-	1/1/1/1	-
5	E6N	C	506	-	-	5/21/62/62	0/7/7/7
6	EPE	B	512	-	-	5/9/19/19	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EDO	A	507	-	-	1/1/1/1	-
4	EDO	B	504	-	-	1/1/1/1	-

All (30) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	C	505	EPE	C10-S	-10.78	1.62	1.77
6	A	511	EPE	C10-S	-10.74	1.62	1.77
6	D	518	EPE	C10-S	-10.43	1.62	1.77
6	B	512	EPE	C10-S	-10.23	1.63	1.77
6	B	511	EPE	C10-S	-6.63	1.68	1.77
5	C	506	E6N	C27-C28	-4.88	1.32	1.51
5	A	510	E6N	C27-C28	-4.75	1.32	1.51
5	B	508	E6N	C27-C28	-4.74	1.32	1.51
5	D	514	E6N	C27-C28	-4.68	1.33	1.51
5	A	510	E6N	C19-N4	4.05	1.37	1.33
5	C	506	E6N	C21-N5	-4.02	1.38	1.45
5	D	514	E6N	C19-N4	3.73	1.36	1.33
5	A	510	E6N	C17-C16	3.36	1.47	1.39
5	D	514	E6N	C16-N7	3.30	1.36	1.32
5	C	506	E6N	N2-N1	-3.20	1.31	1.37
5	B	508	E6N	C19-N4	3.17	1.36	1.33
5	D	514	E6N	C17-C16	3.04	1.46	1.39
5	B	508	E6N	C17-C16	3.02	1.46	1.39
5	D	514	E6N	C25-C24	-2.96	1.46	1.51
5	B	508	E6N	C16-N7	2.95	1.36	1.32
5	B	508	E6N	C21-N5	-2.81	1.40	1.45
5	A	510	E6N	C16-N7	2.63	1.35	1.32
5	A	510	E6N	C21-N5	-2.63	1.41	1.45
5	C	506	E6N	C25-C24	-2.44	1.47	1.51
5	C	506	E6N	C19-N4	2.34	1.35	1.33
5	C	506	E6N	C16-N3	-2.22	1.33	1.37
5	A	510	E6N	C13-N2	2.20	1.50	1.47
5	B	508	E6N	C13-N2	2.03	1.50	1.47
5	B	508	E6N	C25-C24	-2.02	1.48	1.51
5	C	506	E6N	C24-N2	-2.01	1.32	1.36

All (73) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	C	505	EPE	O1S-S-C10	-24.32	77.64	106.92
6	C	505	EPE	O2S-S-C10	-16.24	87.36	106.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	506	E6N	C29-C30-C25	-8.89	96.19	110.71
5	D	514	E6N	C29-C30-C25	-8.71	96.49	110.71
6	C	505	EPE	O3S-S-C10	-7.65	93.39	105.77
5	B	508	E6N	C29-C30-C25	-7.38	98.65	110.71
5	A	510	E6N	C29-C30-C25	-7.32	98.74	110.71
5	B	508	E6N	C27-C28-C29	6.13	123.92	111.42
5	D	514	E6N	C27-C28-C29	5.95	123.55	111.42
5	A	510	E6N	C27-C28-C29	5.71	123.06	111.42
5	D	514	E6N	C27-C26-C25	-5.59	102.05	111.77
5	C	506	E6N	C27-C28-C29	5.36	122.34	111.42
5	C	506	E6N	C26-C25-C24	5.23	121.77	111.41
6	B	511	EPE	O1S-S-C10	5.06	113.01	106.92
5	C	506	E6N	C28-C27-C26	4.83	121.27	111.42
5	A	510	E6N	C31-C11-C12	4.81	126.45	120.75
5	A	510	E6N	C26-C25-C24	4.52	120.35	111.41
5	A	510	E6N	C28-C27-C26	4.50	120.59	111.42
5	D	514	E6N	C26-C25-C24	4.47	120.26	111.41
5	B	508	E6N	C27-C26-C25	-4.42	104.08	111.77
5	D	514	E6N	C28-C27-C26	4.33	120.25	111.42
5	B	508	E6N	C28-C27-C26	4.26	120.10	111.42
5	B	508	E6N	C26-C25-C24	4.20	119.73	111.41
5	A	510	E6N	C27-C26-C25	-4.14	104.58	111.77
6	D	518	EPE	O2S-S-C10	3.82	111.52	106.92
5	D	514	E6N	C8-C7-C2	3.81	126.68	120.49
5	C	506	E6N	C31-C11-C12	3.80	125.25	120.75
5	B	508	E6N	C18-C17-C16	3.78	123.44	118.55
5	B	508	E6N	C14-C13-N2	3.76	115.03	110.86
5	B	508	E6N	C31-C11-C12	3.72	125.16	120.75
6	A	511	EPE	O2S-S-C10	3.71	111.38	106.92
5	B	508	E6N	C17-C16-N7	-3.71	119.85	124.15
6	B	512	EPE	O3S-S-C10	3.63	111.64	105.77
6	A	511	EPE	O3S-S-C10	3.51	111.45	105.77
5	A	510	E6N	C17-C16-N7	-3.47	120.12	124.15
5	C	506	E6N	C27-C26-C25	-3.45	105.77	111.77
5	A	510	E6N	C14-C13-N2	3.38	114.61	110.86
5	A	510	E6N	C26-C25-C30	-3.35	105.24	110.71
6	D	518	EPE	O3S-S-C10	3.22	110.98	105.77
5	B	508	E6N	C8-C7-C2	3.14	125.59	120.49
6	A	511	EPE	O1S-S-C10	3.08	110.62	106.92
6	B	511	EPE	O3S-S-C10	3.06	110.71	105.77
5	A	510	E6N	C18-C17-C16	3.02	122.45	118.55
5	D	514	E6N	C18-C17-C16	2.98	122.41	118.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	514	E6N	C14-C13-N2	2.98	114.16	110.86
5	B	508	E6N	C26-C25-C30	-2.91	105.96	110.71
5	D	514	E6N	C17-C16-N7	-2.88	120.81	124.15
5	A	510	E6N	C8-C7-C2	2.87	125.15	120.49
6	B	512	EPE	O1S-S-C10	2.78	110.26	106.92
6	C	505	EPE	O3S-S-O2S	2.75	117.99	111.27
6	C	505	EPE	O2S-S-O1S	2.71	123.33	113.95
6	D	518	EPE	O2S-S-O1S	-2.64	104.81	113.95
5	A	510	E6N	C12-N1-N2	2.59	121.68	118.97
5	C	506	E6N	C17-C18-C19	-2.49	116.75	119.76
6	C	505	EPE	O3S-S-O1S	2.43	117.20	111.27
5	C	506	E6N	C18-C17-C16	2.42	121.69	118.55
6	A	511	EPE	O3S-S-O2S	-2.38	105.47	111.27
6	C	505	EPE	C7-N4-C3	-2.35	105.23	111.23
6	C	505	EPE	C5-C6-N1	-2.32	105.89	110.64
5	C	506	E6N	C20-C21-N5	2.28	128.76	126.98
5	B	508	E6N	C17-C18-C19	-2.26	117.02	119.76
5	A	510	E6N	O2-C9-C33	2.22	120.33	115.73
5	D	514	E6N	C26-C25-C30	-2.22	107.08	110.71
5	D	514	E6N	C12-N1-N2	2.21	121.29	118.97
5	D	514	E6N	O5-C24-C25	-2.20	116.55	121.88
5	D	514	E6N	C17-C18-C19	-2.12	117.19	119.76
5	A	510	E6N	C17-C18-C19	-2.11	117.20	119.76
5	B	508	E6N	C15-N3-C16	2.08	125.22	120.39
6	C	505	EPE	C9-N1-C2	-2.07	105.93	111.23
5	C	506	E6N	C8-C7-C2	2.05	123.82	120.49
6	A	511	EPE	C6-C5-N4	-2.03	106.47	110.64
6	B	512	EPE	O2S-S-C10	2.03	109.36	106.92
5	D	514	E6N	O5-C24-N2	2.01	124.09	121.64

There are no chirality outliers.

All (72) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	511	EPE	S-C10-C9-N1
6	A	511	EPE	C9-C10-S-O1S
6	A	511	EPE	C9-C10-S-O3S
6	B	511	EPE	N4-C7-C8-O8
6	B	511	EPE	C9-C10-S-O2S
6	C	505	EPE	C10-C9-N1-C6
6	D	518	EPE	S-C10-C9-N1
6	D	518	EPE	C9-C10-S-O2S

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Mol	Chain	Res	Type	Atoms
5	D	514	E6N	C2-C7-C8-O2
7	D	512	PEG	C4-C3-O2-C2
6	A	511	EPE	N4-C7-C8-O8
5	B	508	E6N	C2-C7-C8-O2
5	A	510	E6N	C2-C7-C8-O2
5	D	514	E6N	C6-C7-C8-O2
4	A	509	EDO	O1-C1-C2-O2
6	B	512	EPE	C9-C10-S-O3S
7	D	512	PEG	O2-C3-C4-O4
5	B	508	E6N	C6-C7-C8-O2
4	A	503	EDO	O1-C1-C2-O2
4	B	503	EDO	O1-C1-C2-O2
4	B	504	EDO	O1-C1-C2-O2
4	B	505	EDO	O1-C1-C2-O2
4	D	508	EDO	O1-C1-C2-O2
4	D	515	EDO	O1-C1-C2-O2
5	C	506	E6N	C2-C7-C8-O2
5	D	514	E6N	C33-C9-O2-C8
5	D	514	E6N	C7-C8-O2-C9
6	B	511	EPE	C9-C10-S-O3S
5	A	510	E6N	C7-C8-O2-C9
5	B	508	E6N	C7-C8-O2-C9
5	D	514	E6N	C10-C9-O2-C8
5	A	510	E6N	C6-C7-C8-O2
5	C	506	E6N	C7-C8-O2-C9
4	C	507	EDO	O1-C1-C2-O2
5	A	510	E6N	C10-C9-O2-C8
5	A	510	E6N	C33-C9-O2-C8
5	B	508	E6N	C10-C9-O2-C8
6	B	512	EPE	C10-C9-N1-C2
6	B	512	EPE	C10-C9-N1-C6
5	C	506	E6N	C10-C9-O2-C8
5	D	514	E6N	C17-C16-N3-C15
4	A	508	EDO	O1-C1-C2-O2
4	D	506	EDO	O1-C1-C2-O2
4	D	507	EDO	O1-C1-C2-O2
5	B	508	E6N	C33-C9-O2-C8
7	D	512	PEG	C1-C2-O2-C3
6	A	511	EPE	C8-C7-N4-C3
4	A	506	EDO	O1-C1-C2-O2
6	A	511	EPE	C9-C10-S-O2S
6	B	511	EPE	C9-C10-S-O1S

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Mol	Chain	Res	Type	Atoms
6	B	512	EPE	C9-C10-S-O1S
6	B	512	EPE	C9-C10-S-O2S
5	C	506	E6N	C6-C7-C8-O2
5	C	506	E6N	C33-C9-O2-C8
6	D	518	EPE	C8-C7-N4-C3
4	C	504	EDO	O1-C1-C2-O2
4	D	510	EDO	O1-C1-C2-O2
6	A	511	EPE	C8-C7-N4-C5
5	D	514	E6N	N7-C16-N3-C15
6	D	518	EPE	C8-C7-N4-C5
4	C	503	EDO	O1-C1-C2-O2
6	C	505	EPE	N4-C7-C8-O8
6	D	518	EPE	C9-C10-S-O3S
4	A	504	EDO	O1-C1-C2-O2
4	A	505	EDO	O1-C1-C2-O2
4	A	507	EDO	O1-C1-C2-O2
4	B	506	EDO	O1-C1-C2-O2
4	D	505	EDO	O1-C1-C2-O2
4	D	509	EDO	O1-C1-C2-O2
4	D	516	EDO	O1-C1-C2-O2
4	D	517	EDO	O1-C1-C2-O2
4	B	507	EDO	O1-C1-C2-O2

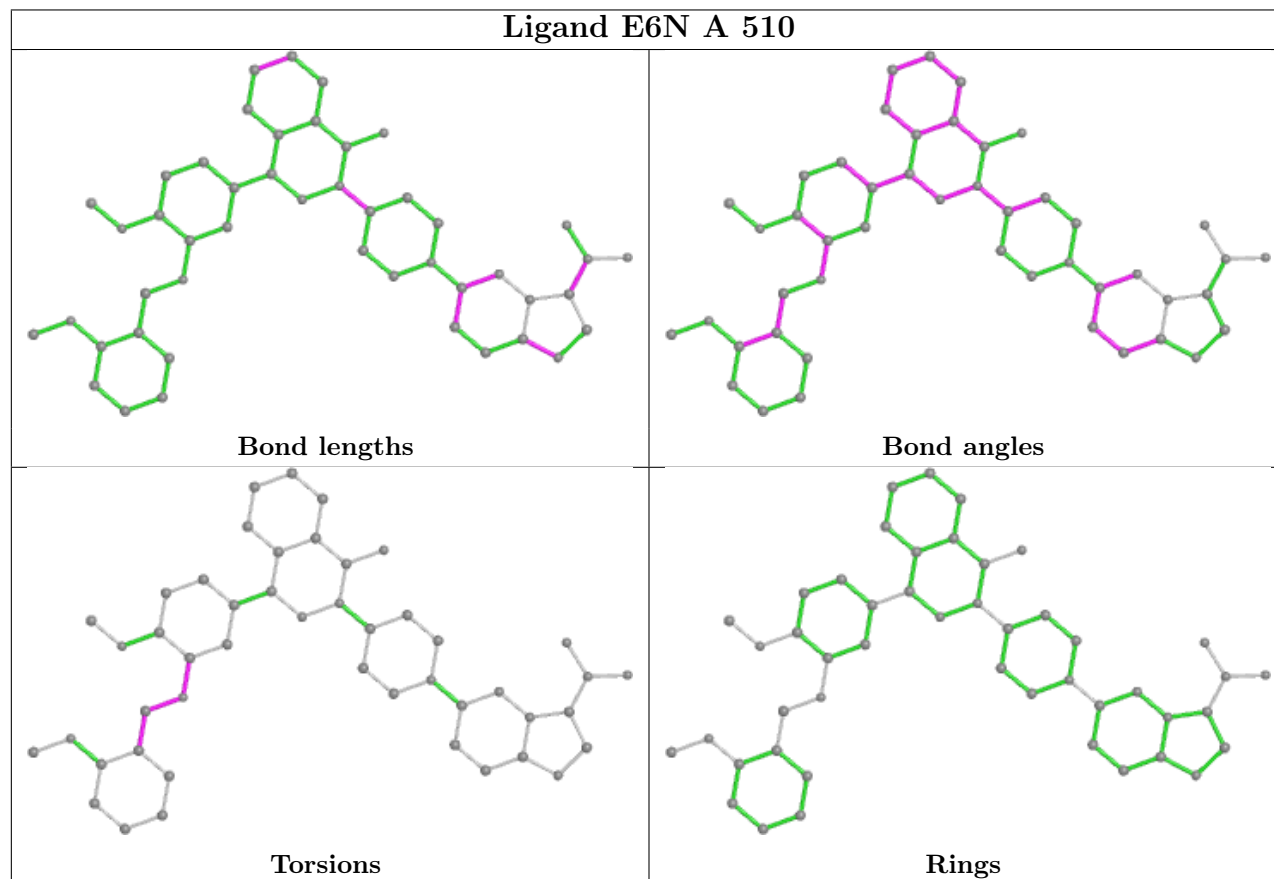
There are no ring outliers.

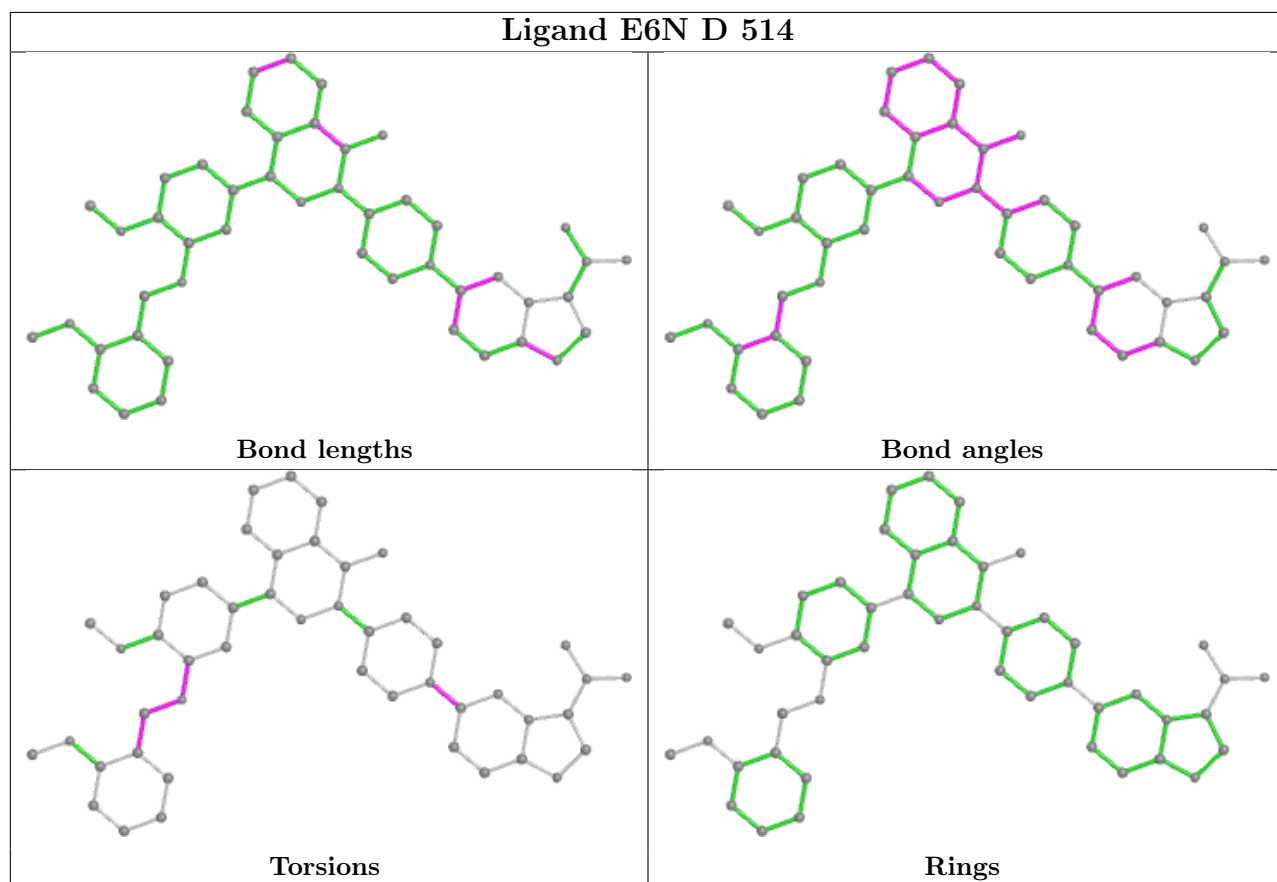
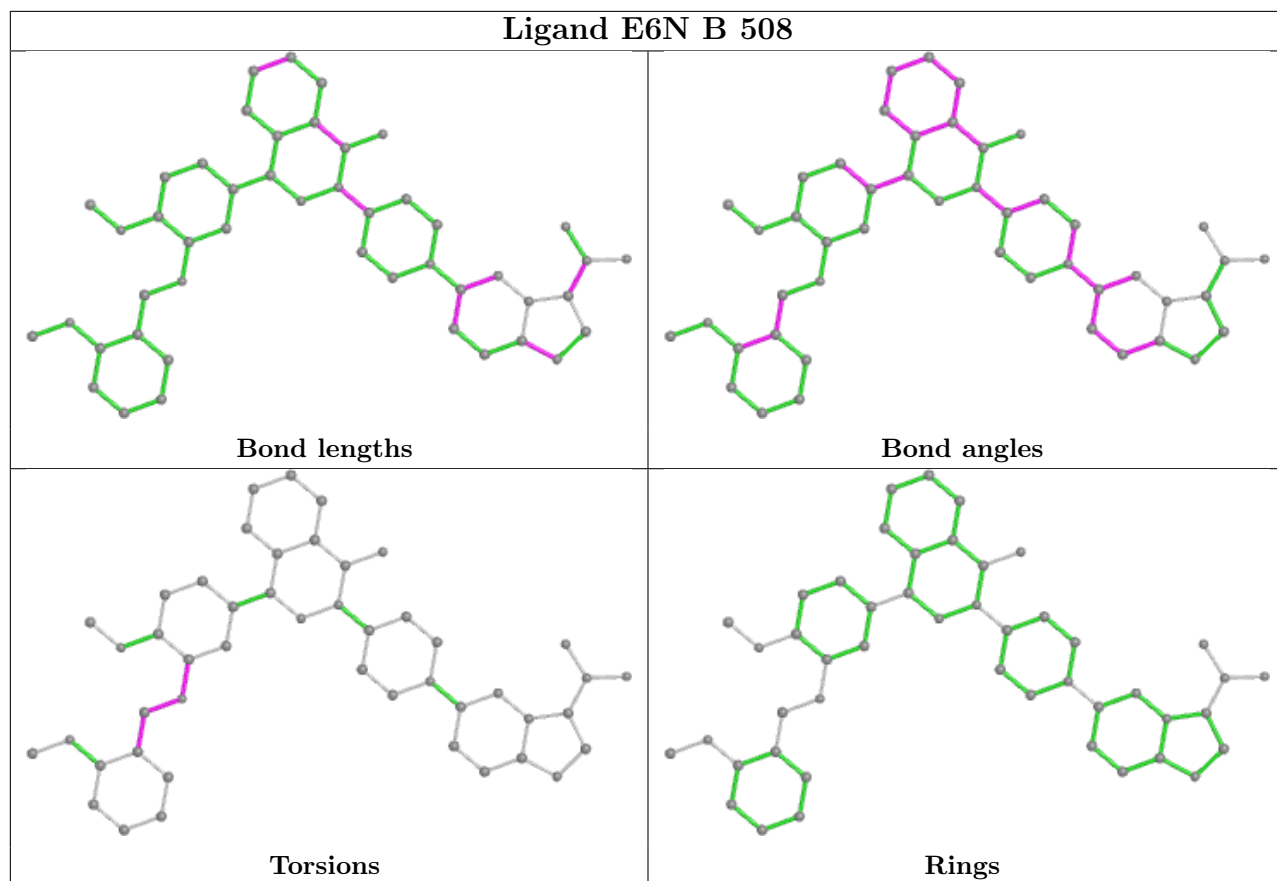
8 monomers are involved in 13 short contacts:

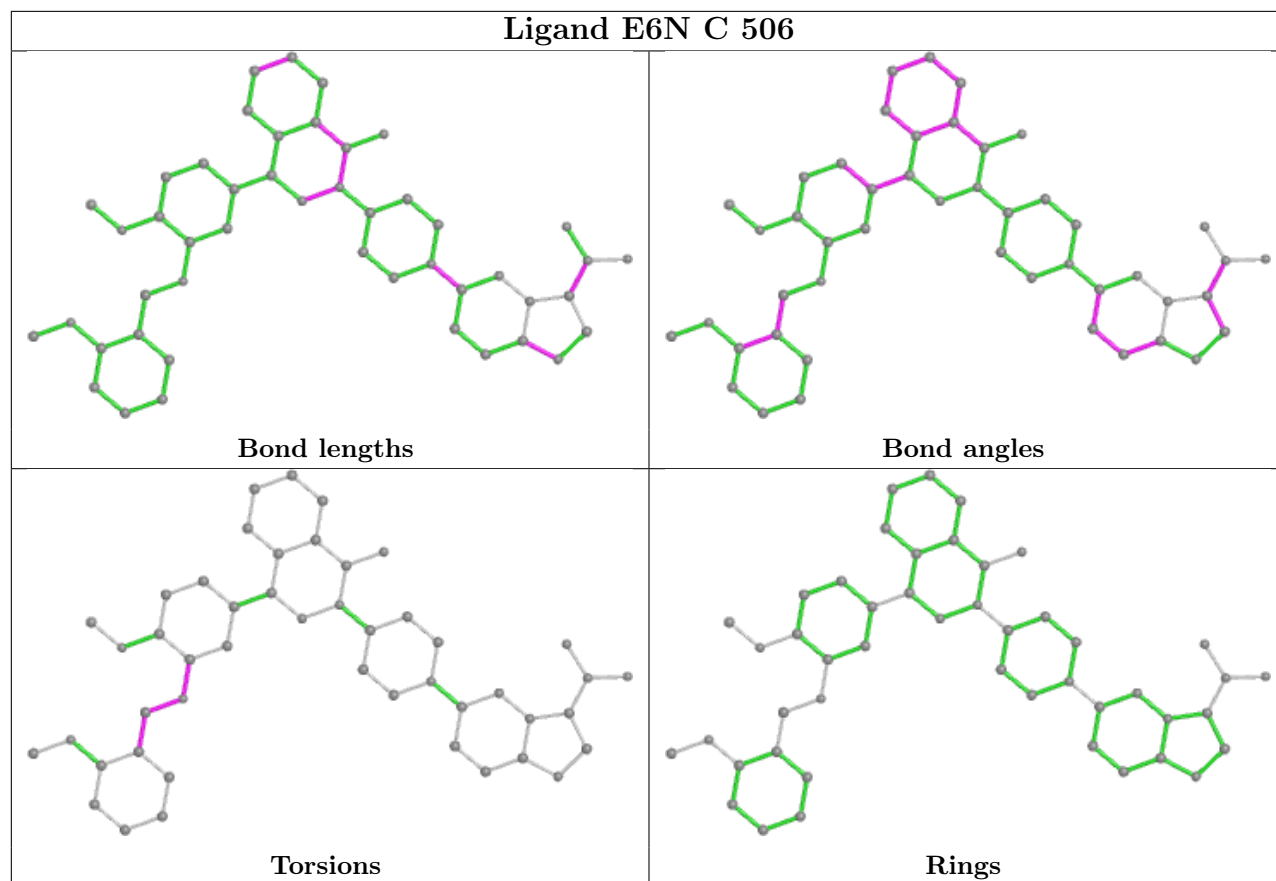
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	511	EPE	3	0
5	A	510	E6N	1	0
4	D	506	EDO	3	0
7	D	512	PEG	2	0
4	C	504	EDO	1	0
6	D	518	EPE	1	0
7	D	513	PEG	1	0
5	C	506	E6N	1	0

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

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	329/364 (90%)	0.33	17 (5%) 27 38	31, 49, 99, 137	13 (3%)
1	B	324/364 (89%)	-0.05	5 (1%) 73 81	30, 50, 82, 130	0
1	C	323/364 (88%)	0.30	12 (3%) 41 52	32, 51, 93, 133	11 (3%)
1	D	324/364 (89%)	0.06	9 (2%) 53 63	29, 42, 79, 144	0
All	All	1300/1456 (89%)	0.16	43 (3%) 46 57	29, 48, 92, 144	24 (1%)

All (43) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	358	CYS	15.3
1	A	356	PRO	14.4
1	A	361	HIS	12.5
1	A	358	CYS	11.6
1	C	360	LYS	11.5
1	A	354	ILE	9.5
1	A	363	ALA	9.2
1	C	357	MET	9.0
1	C	356	PRO	8.4
1	A	362	ASN	8.3
1	C	354	ILE	7.9
1	A	355	SER	7.6
1	C	361	HIS	6.8
1	A	360	LYS	6.6
1	D	357	MET	6.3
1	A	357	MET	5.8
1	D	358	CYS	5.6
1	A	351	GLY	5.4
1	C	359	ASP	5.1
1	C	355	SER	5.1
1	A	352	MET	5.1

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Mol	Chain	Res	Type	RSRZ
1	D	354	ILE	4.8
1	B	361	HIS	4.2
1	D	361	HIS	3.9
1	C	295	SER	3.8
1	A	353	GLU	3.7
1	D	356	PRO	3.7
1	A	350	ARG	3.6
1	C	363	ALA	3.5
1	D	362	ASN	3.5
1	D	355	SER	3.3
1	A	340	PHE	3.1
1	C	352	MET	3.0
1	A	359	ASP	3.0
1	B	89	GLU	3.0
1	B	357	MET	2.8
1	C	353	GLU	2.8
1	B	358	CYS	2.6
1	A	294	SER	2.5
1	D	363	ALA	2.3
1	A	375	TYR	2.2
1	D	360	LYS	2.1
1	B	363	ALA	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 monosaccharides in this entry.

6.4 Ligands [\(i\)](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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
4	EDO	C	507	4/4	0.66	0.27	68,80,83,84	0

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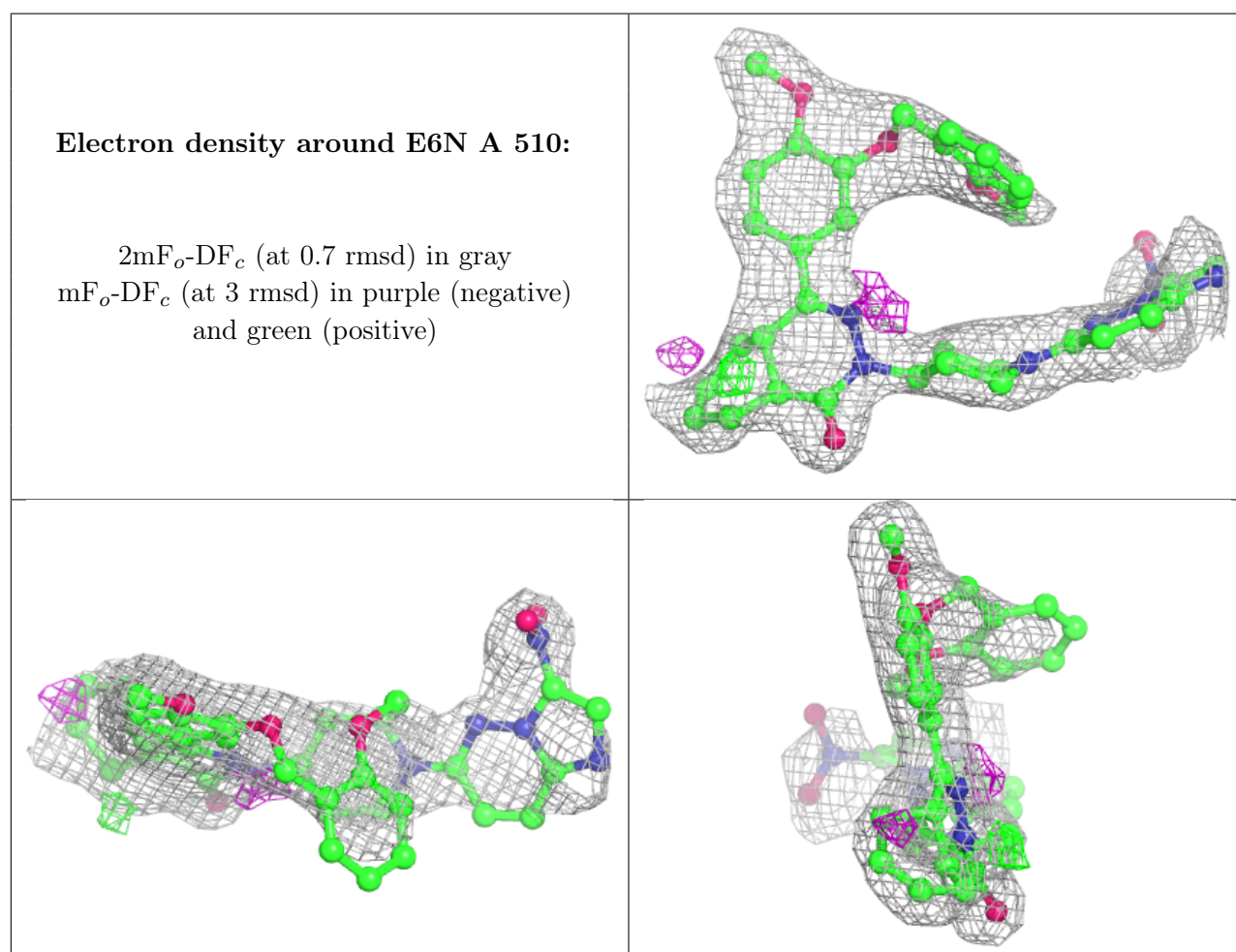
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	EDO	D	507	4/4	0.69	0.22	71,81,81,85	0
4	EDO	D	515	4/4	0.72	0.20	62,68,70,74	0
7	PEG	D	513	7/7	0.74	0.26	54,58,66,71	0
4	EDO	C	504	4/4	0.76	0.21	78,78,88,89	0
4	EDO	B	506	4/4	0.80	0.28	62,70,79,80	0
4	EDO	A	507	4/4	0.83	0.32	77,81,84,87	0
4	EDO	B	504	4/4	0.84	0.44	77,79,79,81	0
5	E6N	A	510	47/47	0.86	0.26	58,87,139,150	0
5	E6N	C	506	47/47	0.86	0.16	48,67,111,125	0
4	EDO	A	509	4/4	0.86	0.24	54,60,66,69	0
7	PEG	D	512	7/7	0.87	0.29	53,54,61,62	0
4	EDO	D	501	4/4	0.88	0.17	57,59,61,69	0
4	EDO	D	509	4/4	0.89	0.20	67,68,73,77	0
4	EDO	B	507	4/4	0.89	0.24	74,80,93,100	0
4	EDO	B	510	4/4	0.89	0.14	75,76,76,76	0
4	EDO	D	504	4/4	0.90	0.22	76,77,80,82	0
5	E6N	D	514	47/47	0.90	0.22	46,69,126,132	0
4	EDO	C	503	4/4	0.90	0.14	63,64,71,75	0
4	EDO	D	508	4/4	0.90	0.18	51,59,69,75	0
6	EPE	B	511	15/15	0.91	0.23	76,99,110,114	0
4	EDO	D	510	4/4	0.91	0.24	66,74,84,92	0
5	E6N	B	508	47/47	0.91	0.18	46,62,112,117	0
4	EDO	A	508	4/4	0.92	0.29	76,76,78,80	0
4	EDO	D	506	4/4	0.92	0.26	53,60,64,76	0
6	EPE	B	512	15/15	0.93	0.18	63,100,115,117	0
4	EDO	D	516	4/4	0.93	0.16	69,73,75,76	0
4	EDO	A	503	4/4	0.93	0.17	77,78,82,85	0
4	EDO	D	517	4/4	0.94	0.19	51,54,56,57	0
6	EPE	A	511	15/15	0.94	0.15	71,102,120,122	0
4	EDO	A	505	4/4	0.94	0.18	51,52,53,54	0
4	EDO	A	504	4/4	0.95	0.22	52,66,69,70	0
4	EDO	B	505	4/4	0.95	0.33	66,68,72,76	0
4	EDO	B	503	4/4	0.95	0.27	67,68,69,74	0
4	EDO	D	511	4/4	0.95	0.18	53,54,57,57	0
4	EDO	A	506	4/4	0.96	0.17	51,52,55,64	0
4	EDO	B	509	4/4	0.96	0.12	66,67,68,69	0
6	EPE	D	518	15/15	0.97	0.17	46,109,128,132	0
4	EDO	D	505	4/4	0.97	0.14	49,52,52,54	0
6	EPE	C	505	15/15	0.97	0.15	53,75,90,95	0
2	ZN	A	501	1/1	0.99	0.18	43,43,43,43	0
3	MG	B	502	1/1	0.99	0.17	28,28,28,28	0
3	MG	C	502	1/1	0.99	0.14	23,23,23,23	0

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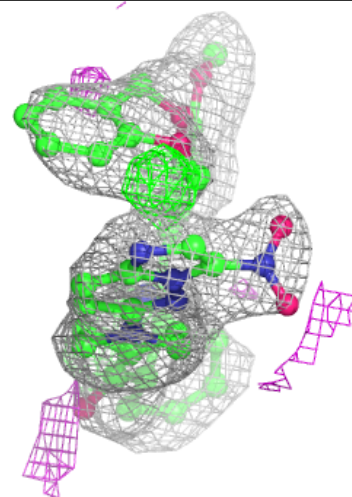
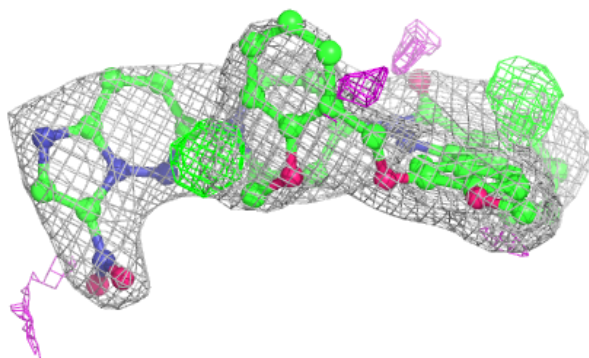
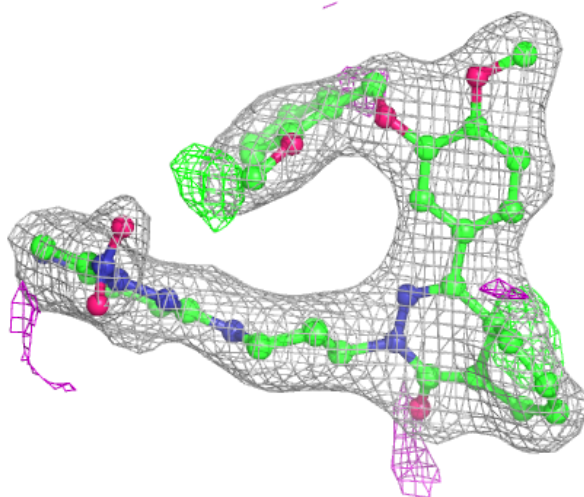
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	MG	D	503	1/1	0.99	0.13	22,22,22,22	0
3	MG	A	502	1/1	1.00	0.15	29,29,29,29	0
2	ZN	B	501	1/1	1.00	0.13	44,44,44,44	0
2	ZN	C	501	1/1	1.00	0.16	42,42,42,42	0
2	ZN	D	502	1/1	1.00	0.16	38,38,38,38	0

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.



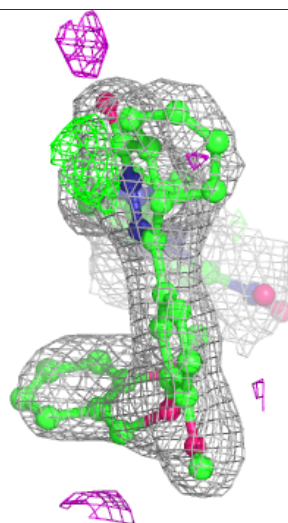
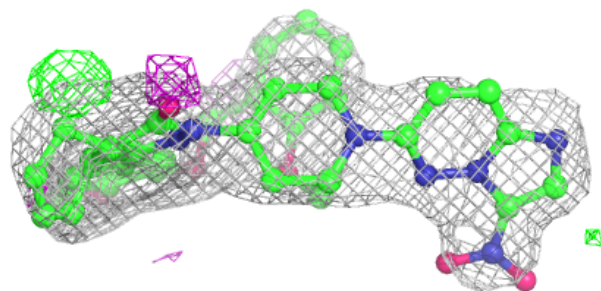
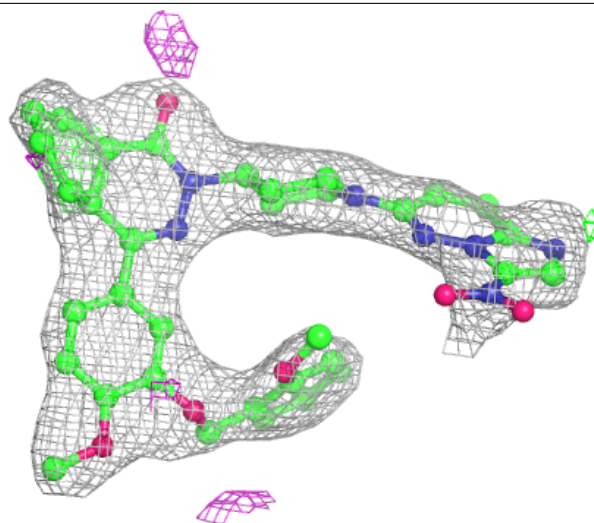
Electron density around E6N C 506:

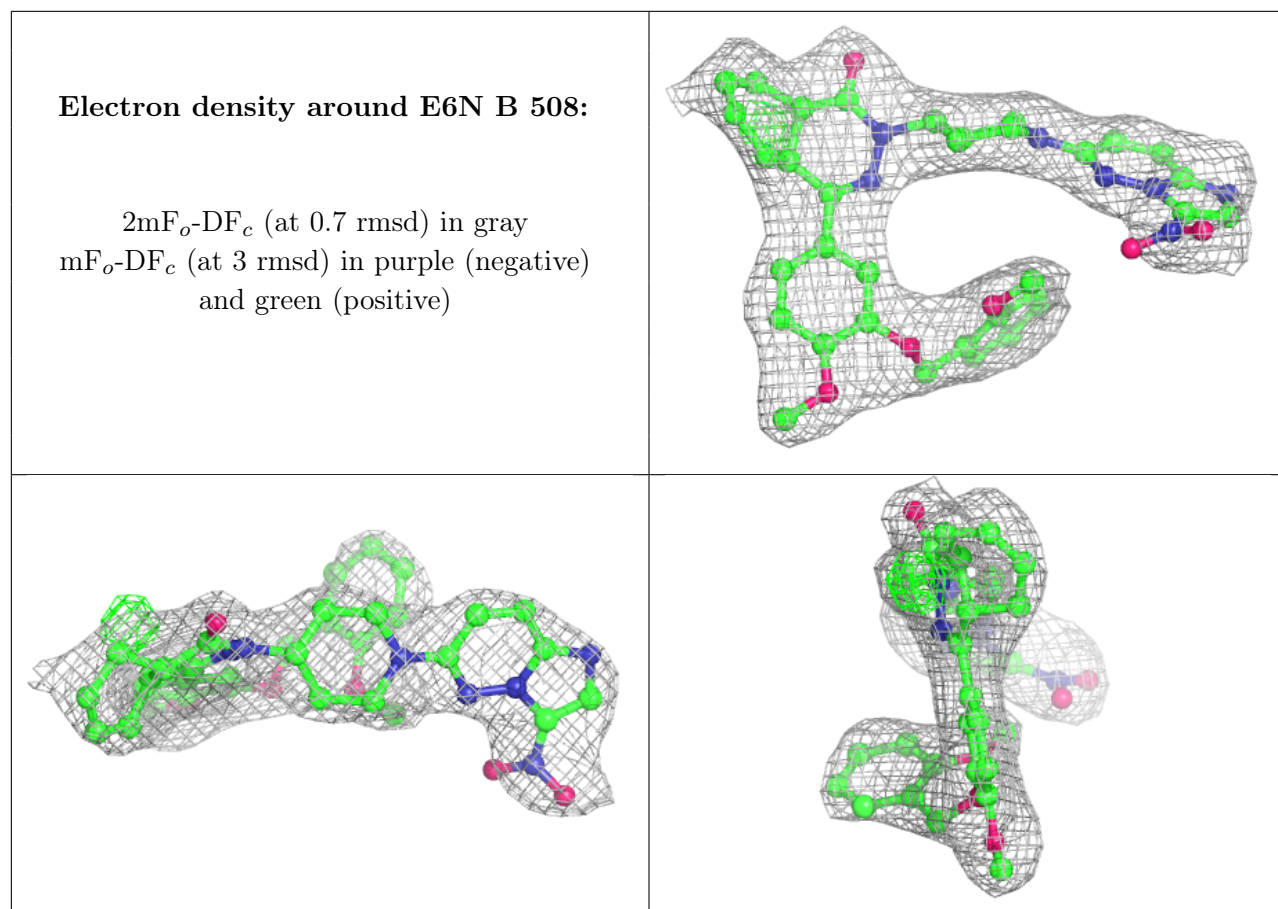
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around E6N D 514:

$2mF_o-DF_c$ (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.