



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 1, 2026 – 04:54 AM UTC

PDB ID : 8A45 / pdb_00008a45
Title : Structural analysis of 1-deoxy-D-xylulose 5-phosphate synthase from *Pseudomonas aeruginosa* with 2-acetyl thiamine diphosphate
Authors : Hamid, R.; Hirsch, A.
Deposited on : 2022-06-10
Resolution : 2.00 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	:	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

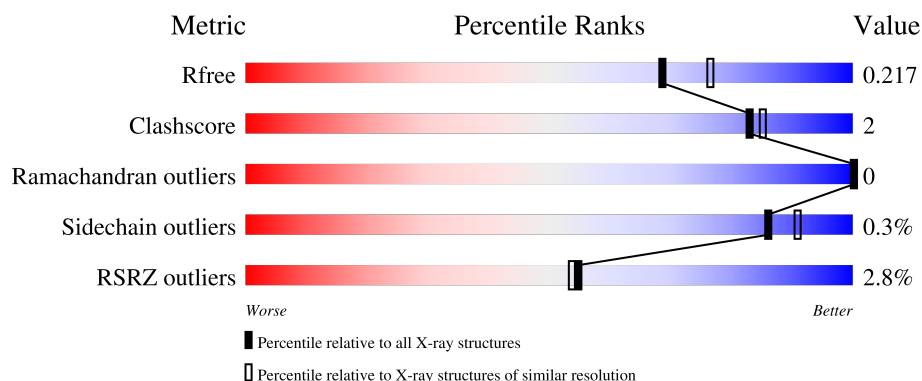
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

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	622	 3% 87% 5% 9%
1	B	622	 3% 86% 5% 8%
1	C	622	 3% 88% 5% 8%
1	D	622	 2% 86% 5% 9%
1	E	622	 2% 87% 5% 9%

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Mol	Chain	Length	Quality of chain
1	F	622	<div><div></div><div>2%</div><div>87%</div><div>5%</div><div>8%</div></div>

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 53209 atoms, of which 24826 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 1-deoxy-D-xylulose-5-phosphate synthase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	567	Total	C	H	N	O	S	0	0	0
			8487	2734	4165	749	818	21			
1	B	570	Total	C	H	N	O	S	0	0	0
			8585	2745	4245	753	821	21			
1	C	570	Total	C	H	N	O	S	0	0	0
			8628	2743	4290	752	822	21			
1	D	566	Total	C	H	N	O	S	0	0	0
			8390	2725	4081	749	814	21			
1	E	567	Total	C	H	N	O	S	0	0	0
			8211	2730	3893	749	818	21			
1	F	573	Total	C	H	N	O	S	0	0	0
			8412	2765	4044	757	824	22			

There are 42 discrepancies between the modelled and reference sequences:

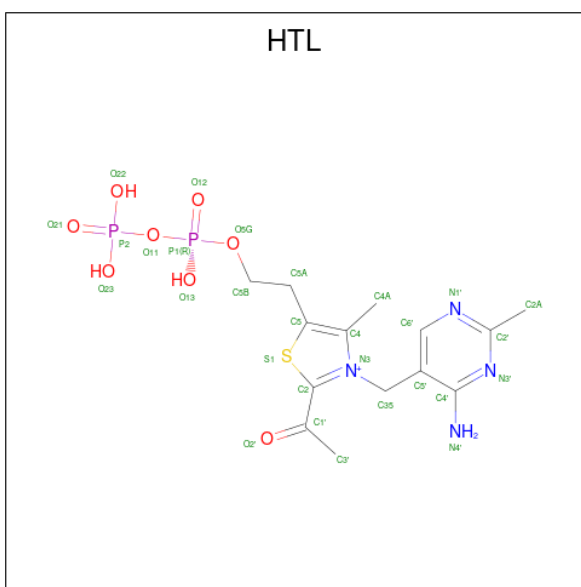
Chain	Residue	Modelled	Actual	Comment	Reference
A	235	GLY	-	linker	PDB ?
A	236	GLY	-	linker	PDB ?
A	237	GLY	-	linker	PDB ?
A	238	GLY	-	linker	PDB ?
A	239	GLY	-	linker	PDB ?
A	240	GLY	-	linker	PDB ?
A	241	PRO	-	linker	PDB ?
B	235	GLY	-	linker	PDB ?
B	236	GLY	-	linker	PDB ?
B	237	GLY	-	linker	PDB ?
B	238	GLY	-	linker	PDB ?
B	239	GLY	-	linker	PDB ?
B	240	GLY	-	linker	PDB ?
B	241	PRO	-	linker	PDB ?
C	235	GLY	-	linker	PDB ?
C	236	GLY	-	linker	PDB ?
C	237	GLY	-	linker	PDB ?

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Chain	Residue	Modelled	Actual	Comment	Reference
C	238	GLY	-	linker	PDB ?
C	239	GLY	-	linker	PDB ?
C	240	GLY	-	linker	PDB ?
C	241	PRO	-	linker	PDB ?
D	235	GLY	-	linker	PDB ?
D	236	GLY	-	linker	PDB ?
D	237	GLY	-	linker	PDB ?
D	238	GLY	-	linker	PDB ?
D	239	GLY	-	linker	PDB ?
D	240	GLY	-	linker	PDB ?
D	241	PRO	-	linker	PDB ?
E	235	GLY	-	linker	PDB ?
E	236	GLY	-	linker	PDB ?
E	237	GLY	-	linker	PDB ?
E	238	GLY	-	linker	PDB ?
E	239	GLY	-	linker	PDB ?
E	240	GLY	-	linker	PDB ?
E	241	PRO	-	linker	PDB ?
F	235	GLY	-	linker	PDB ?
F	236	GLY	-	linker	PDB ?
F	237	GLY	-	linker	PDB ?
F	238	GLY	-	linker	PDB ?
F	239	GLY	-	linker	PDB ?
F	240	GLY	-	linker	PDB ?
F	241	PRO	-	linker	PDB ?

- Molecule 2 is 2-ACETYL-THIAMINE DIPHOSPHATE (CCD ID: HTL) (formula: C₁₄H₂₁N₄O₈P₂S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
2	A	1	Total 47	C 14	H 18	N 4	O 8	P 2	S 1	0	0
2	B	1	Total 47	C 14	H 18	N 4	O 8	P 2	S 1	0	0
2	C	1	Total 47	C 14	H 18	N 4	O 8	P 2	S 1	0	0
2	D	1	Total 47	C 14	H 18	N 4	O 8	P 2	S 1	0	0
2	E	1	Total 47	C 14	H 18	N 4	O 8	P 2	S 1	0	0
2	F	1	Total 47	C 14	H 18	N 4	O 8	P 2	S 1	0	0

- Molecule 3 is MAGNESIUM ION (CCD ID: 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
3	E	1	Total Mg 1 1	0	0
3	F	1	Total Mg 1 1	0	0

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	3	Total 3	Ca 3	0	0
4	D	4	Total 4	Ca 4	0	0
4	E	1	Total 1	Ca 1	0	0
4	F	4	Total 4	Ca 4	0	0

- Molecule 5 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total 1	Na 1	0	0
5	B	1	Total 1	Na 1	0	0
5	C	1	Total 1	Na 1	0	0
5	E	1	Total 1	Na 1	0	0

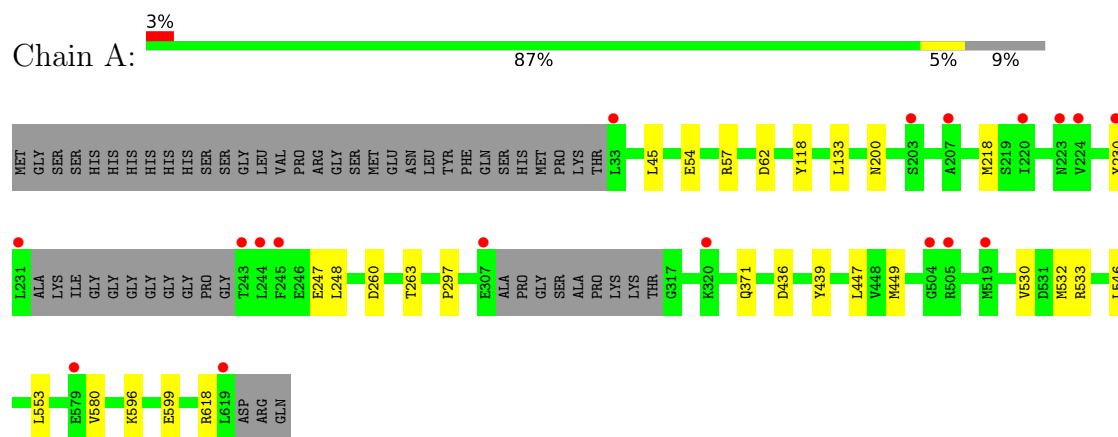
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	396	Total 396	O 396	0	0
6	B	354	Total 354	O 354	0	0
6	C	382	Total 382	O 382	0	0
6	D	352	Total 352	O 352	0	0
6	E	343	Total 343	O 343	0	0
6	F	365	Total 365	O 365	0	0

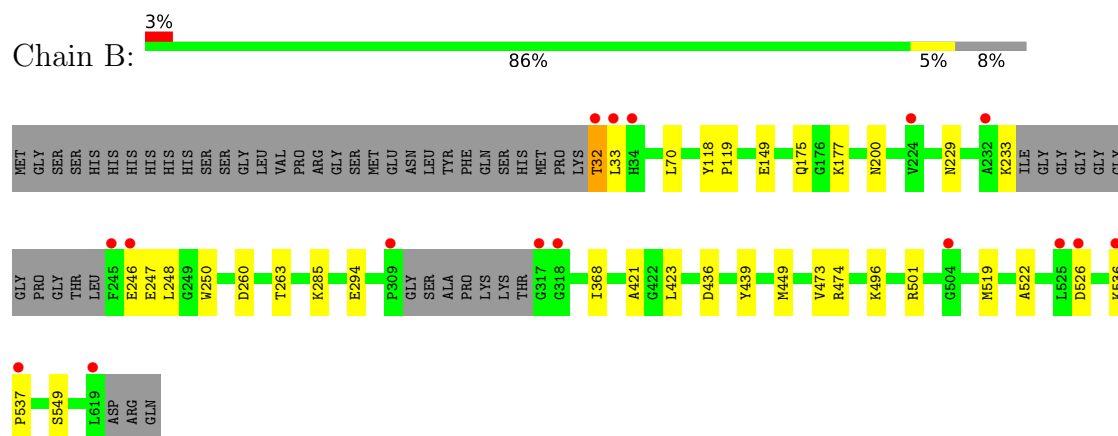
3 Residue-property plots [i](#)

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.

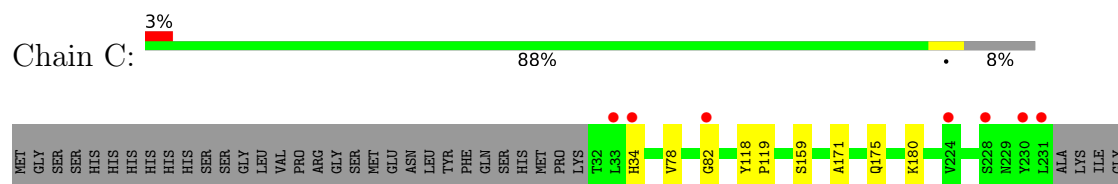
- Molecule 1: 1-deoxy-D-xylulose-5-phosphate synthase

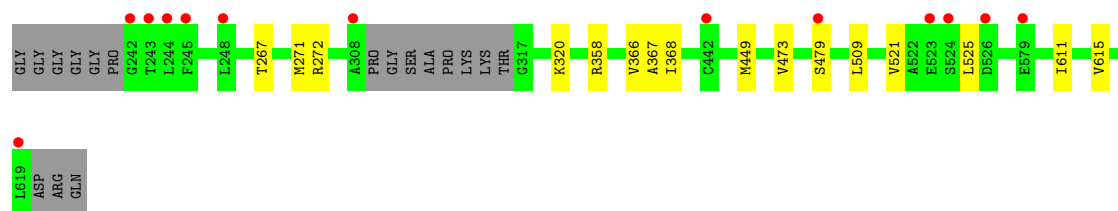


- Molecule 1: 1-deoxy-D-xylulose-5-phosphate synthase

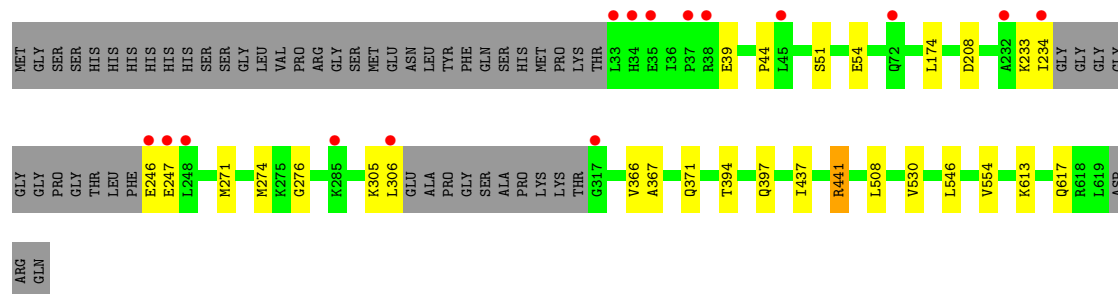
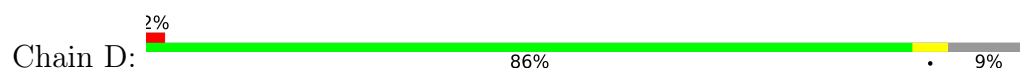


- Molecule 1: 1-deoxy-D-xylulose-5-phosphate synthase

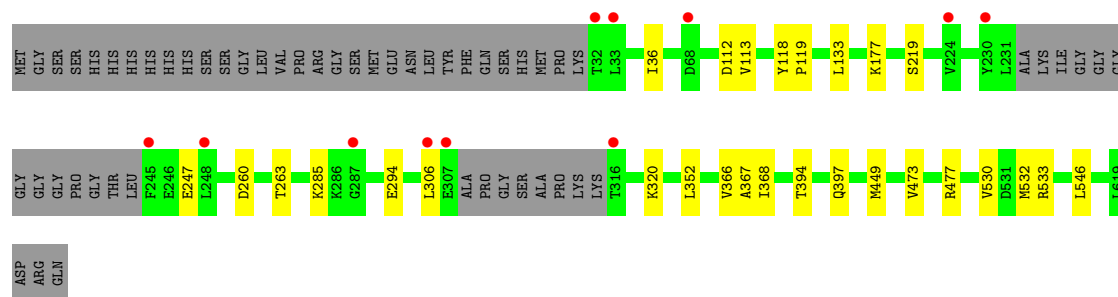
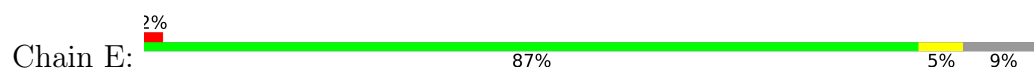




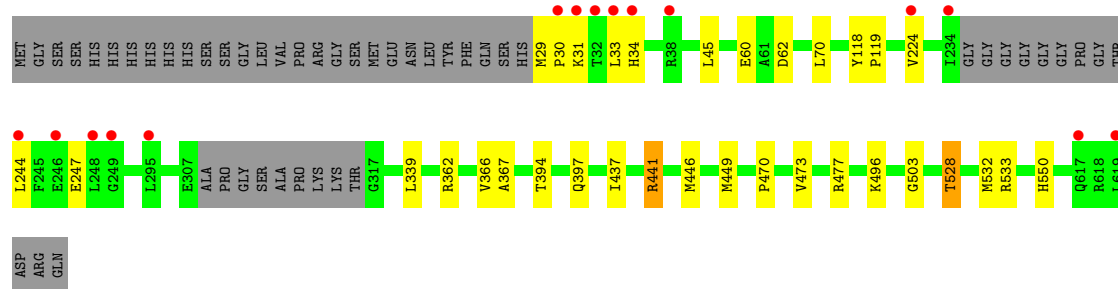
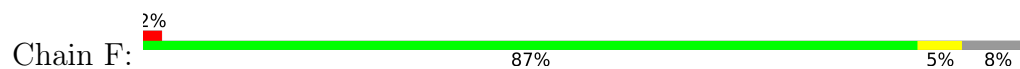
- Molecule 1: 1-deoxy-D-xylulose-5-phosphate synthase



- Molecule 1: 1-deoxy-D-xylulose-5-phosphate synthase



- Molecule 1: 1-deoxy-D-xylulose-5-phosphate synthase



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	117.12Å 138.01Å 231.63Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.59 – 2.00 48.59 – 2.00	Depositor EDS
% Data completeness (in resolution range)	99.4 (48.59-2.00) 99.4 (48.59-2.00)	Depositor EDS
R_{merge}	0.03	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.23 (at 2.00Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487, PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.183 , 0.217 0.183 , 0.217	Depositor DCC
R_{free} test set	12523 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å ²)	24.2	Xtriage
Anisotropy	0.533	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.40 , 36.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	53209	wwPDB-VP
Average B, all atoms (Å ²)	31.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 17.38% 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: HTL, CA, MG, NA

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	0.10	0/4408	0.29	0/5977
1	B	0.11	0/4427	0.30	0/6003
1	C	0.11	0/4424	0.30	0/5999
1	D	0.10	0/4394	0.30	0/5957
1	E	0.11	0/4404	0.30	0/5971
1	F	0.12	0/4455	0.31	0/6039
All	All	0.11	0/26512	0.30	0/35946

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	4322	4165	4289	17	0
1	B	4340	4245	4308	27	0
1	C	4338	4290	4304	16	0
1	D	4309	4081	4285	29	0
1	E	4318	3893	4279	18	0
1	F	4368	4044	4347	24	0
2	A	29	18	18	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	29	18	18	1	0
2	C	29	18	18	1	0
2	D	29	18	18	0	0
2	E	29	18	18	2	0
2	F	29	18	18	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
3	E	1	0	0	0	0
3	F	1	0	0	0	0
4	A	3	0	0	0	0
4	D	4	0	0	0	0
4	E	1	0	0	0	0
4	F	4	0	0	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	E	1	0	0	0	0
6	A	396	0	0	1	0
6	B	354	0	0	3	0
6	C	382	0	0	1	3
6	D	352	0	0	1	0
6	E	343	0	0	1	3
6	F	365	0	0	4	0
All	All	28383	24826	25920	127	3

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (127) 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:305:LYS:HD2	1:D:306:LEU:HD23	1.48	0.96
1:C:358:ARG:NH1	6:C:801:HOH:O	2.06	0.89
1:A:230:TYR:CE2	1:D:247:GLU:HG2	2.14	0.83
1:B:149:GLU:OE1	6:B:801:HOH:O	2.03	0.76
1:F:247:GLU:OE1	1:F:247:GLU:HA	1.83	0.75
1:D:271:MET:HA	1:D:274:MET:HE3	1.66	0.75
1:A:371:GLN:NE2	1:D:371:GLN:OE1	2.30	0.64
1:F:60:GLU:OE2	6:F:801:HOH:O	2.14	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:31:LYS:HD3	1:F:31:LYS:H	1.64	0.63
1:B:421:ALA:HB1	1:B:474:ARG:CZ	2.28	0.62
1:D:233:LYS:HG2	1:D:234:ILE:HG22	1.82	0.61
1:C:521:VAL:HG12	1:C:525:LEU:HD13	1.83	0.61
1:A:260:ASP:OD2	1:A:263:THR:OG1	2.15	0.61
1:D:271:MET:CA	1:D:274:MET:HE3	2.31	0.60
1:D:508:LEU:HD23	1:D:554:VAL:HB	1.84	0.60
1:B:229:ASN:O	1:B:233:LYS:HG2	2.02	0.60
1:C:34:HIS:CE1	1:D:174:LEU:HD23	2.38	0.59
1:D:247:GLU:O	1:D:247:GLU:HG3	2.02	0.58
1:B:247:GLU:HA	1:B:247:GLU:OE2	2.01	0.58
1:B:436:ASP:OD2	1:B:474:ARG:HD2	2.04	0.57
1:D:305:LYS:CD	1:D:306:LEU:HD23	2.28	0.57
1:F:394:THR:O	1:F:397:GLN:HG2	2.05	0.56
1:B:501:ARG:HB2	1:B:519:MET:HE1	1.87	0.56
1:D:305:LYS:HB2	1:D:306:LEU:HD22	1.87	0.56
1:C:320:LYS:HA	1:C:479:SER:HA	1.89	0.54
1:F:33:LEU:HD12	1:F:34:HIS:H	1.72	0.54
1:B:233:LYS:HE2	1:B:233:LYS:N	2.24	0.53
1:B:32:THR:O	1:B:33:LEU:HD22	2.10	0.52
1:E:260:ASP:OD2	1:E:263:THR:OG1	2.24	0.52
1:E:36:ILE:HG21	1:E:306:LEU:HD11	1.92	0.52
1:E:36:ILE:CG2	1:E:306:LEU:HD11	2.41	0.51
1:E:247:GLU:HA	1:E:247:GLU:OE1	2.11	0.50
1:E:285:LYS:HE3	1:E:294:GLU:HG2	1.92	0.50
1:D:44:PRO:O	6:D:801:HOH:O	2.20	0.50
1:E:394:THR:O	1:E:397:GLN:HG2	2.11	0.50
1:F:449:MET:HE3	1:F:473:VAL:HG22	1.94	0.50
1:F:528:THR:HG21	1:F:550:HIS:NE2	2.26	0.50
1:B:200:ASN:HD21	1:B:248:LEU:HD22	1.75	0.50
1:B:200:ASN:ND2	1:B:248:LEU:HD22	2.27	0.49
1:B:32:THR:HG22	6:B:894:HOH:O	2.11	0.49
1:F:503:GLY:H	1:F:528:THR:HG22	1.77	0.49
1:D:39:GLU:HA	1:D:39:GLU:OE1	2.12	0.49
1:F:477:ARG:NH2	6:F:811:HOH:O	2.46	0.49
1:A:553:LEU:HD22	1:A:580:VAL:HG11	1.95	0.49
1:D:306:LEU:HD22	1:D:306:LEU:N	2.28	0.48
1:B:421:ALA:HB1	1:B:474:ARG:NH2	2.29	0.48
1:F:224:VAL:O	1:F:224:VAL:HG13	2.12	0.48
1:A:118:TYR:CZ	1:A:133:LEU:HD21	2.48	0.48
1:C:180:LYS:HE3	1:C:272:ARG:O	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:366:VAL:O	1:F:367:ALA:HB3	2.14	0.48
1:D:246:GLU:HA	1:D:246:GLU:OE1	2.14	0.47
1:D:613:LYS:O	1:D:617:GLN:HG3	2.14	0.47
1:F:70:LEU:HD23	1:F:70:LEU:O	2.15	0.47
1:B:449:MET:HE3	1:B:473:VAL:HG22	1.97	0.47
1:D:366:VAL:O	1:D:367:ALA:HB3	2.13	0.47
1:E:118:TYR:CZ	1:E:133:LEU:HD21	2.50	0.47
1:B:260:ASP:OD2	1:B:263:THR:OG1	2.31	0.47
1:F:244:LEU:HD23	6:F:1022:HOH:O	2.14	0.47
1:D:234:ILE:O	1:D:234:ILE:HG13	2.14	0.46
1:F:437:ILE:O	1:F:441:ARG:HB3	2.15	0.46
1:D:394:THR:O	1:D:397:GLN:HG2	2.14	0.46
1:E:530:VAL:HG21	1:E:546:LEU:HD11	1.97	0.46
1:B:421:ALA:HB1	1:B:474:ARG:NE	2.31	0.46
1:C:366:VAL:O	1:C:367:ALA:HB3	2.15	0.46
1:E:320:LYS:HE3	6:E:1050:HOH:O	2.15	0.46
1:C:368:ILE:HD13	2:C:701:HTL:H4A2	1.97	0.45
1:E:366:VAL:O	1:E:367:ALA:HB3	2.14	0.45
1:F:528:THR:CG2	1:F:550:HIS:NE2	2.79	0.45
1:F:45:LEU:HD21	1:F:62:ASP:HB3	1.99	0.45
1:A:200:ASN:OD1	1:A:248:LEU:HD22	2.17	0.45
1:B:175:GLN:NE2	6:B:807:HOH:O	2.35	0.45
1:B:368:ILE:HD13	2:B:701:HTL:H4A2	1.99	0.45
1:A:530:VAL:HG21	1:A:546:LEU:HD11	1.99	0.44
1:D:437:ILE:O	1:D:441:ARG:HB3	2.17	0.44
1:C:34:HIS:CE1	1:D:174:LEU:CD2	3.01	0.44
1:D:394:THR:O	1:D:397:GLN:CG	2.66	0.44
1:B:175:GLN:HG3	1:B:177:LYS:HG3	1.98	0.44
1:D:530:VAL:HG21	1:D:546:LEU:HD11	2.00	0.44
1:E:449:MET:HE3	1:E:473:VAL:HG22	1.99	0.44
1:E:118:TYR:HB2	1:E:119:PRO:HD3	2.00	0.44
1:E:285:LYS:HE3	1:E:294:GLU:CG	2.48	0.43
1:F:118:TYR:HB2	1:F:119:PRO:HD3	2.00	0.43
1:F:496:LYS:HE3	6:F:859:HOH:O	2.18	0.43
1:D:306:LEU:HD22	1:D:306:LEU:H	1.81	0.43
1:B:522:ALA:O	1:B:526:ASP:N	2.52	0.43
1:F:446:MET:SD	1:F:470:PRO:HB2	2.59	0.43
1:C:611:ILE:O	1:C:615:VAL:HG23	2.18	0.43
1:E:532:MET:O	1:E:533:ARG:HB2	2.19	0.43
1:C:78:VAL:CG1	1:C:82:GLY:O	2.67	0.43
1:D:208:ASP:OD1	1:D:276:GLY:N	2.39	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:447:LEU:HG	1:A:449:MET:HE2	2.00	0.43
1:A:596:LYS:HB2	1:A:599:GLU:HG3	2.01	0.43
1:E:177:LYS:HA	1:E:177:LYS:HD2	1.69	0.43
1:E:352:LEU:HD12	1:E:352:LEU:N	2.33	0.43
1:E:368:ILE:CD1	2:E:701:HTL:H4A3	2.49	0.42
1:F:29:MET:HA	1:F:30:PRO:HD3	1.93	0.42
1:B:118:TYR:HB2	1:B:119:PRO:HD3	2.02	0.42
2:E:701:HTL:H4'2	2:E:701:HTL:C1'	2.32	0.42
1:F:339:LEU:O	1:F:362:ARG:HD2	2.20	0.42
1:D:51:SER:OG	1:D:54:GLU:OE2	2.36	0.42
1:E:112:ASP:O	1:E:113:VAL:HB	2.19	0.42
1:A:532:MET:O	1:A:533:ARG:HB2	2.20	0.41
1:F:503:GLY:C	1:F:528:THR:HG22	2.44	0.41
1:B:496:LYS:HD2	1:B:496:LYS:HA	1.79	0.41
1:F:31:LYS:H	1:F:31:LYS:CD	2.33	0.41
1:B:536:LYS:HB3	1:B:537:PRO:HD3	2.02	0.41
1:C:509:LEU:HD12	1:C:509:LEU:N	2.34	0.41
1:B:285:LYS:HE3	1:B:294:GLU:HA	2.02	0.41
1:B:536:LYS:HB3	1:B:537:PRO:CD	2.51	0.41
1:D:305:LYS:HB2	1:D:306:LEU:CD2	2.51	0.41
1:D:305:LYS:O	1:D:306:LEU:C	2.63	0.41
1:B:70:LEU:O	1:B:70:LEU:HD23	2.21	0.41
1:A:45:LEU:HD21	1:A:62:ASP:HB3	2.02	0.41
1:A:218:MET:HE2	1:A:297:PRO:HB2	2.03	0.41
1:A:230:TYR:CD2	1:D:247:GLU:HG2	2.52	0.41
1:B:436:ASP:HA	1:B:439:TYR:CE2	2.56	0.41
1:C:78:VAL:HG13	1:C:82:GLY:O	2.21	0.41
1:A:618:ARG:HD2	6:A:1039:HOH:O	2.19	0.41
1:C:171:ALA:O	1:C:175:GLN:HG2	2.21	0.41
1:B:246:GLU:HA	1:B:250:TRP:O	2.21	0.40
1:F:532:MET:O	1:F:533:ARG:HB2	2.21	0.40
1:A:247:GLU:HA	1:A:247:GLU:OE2	2.22	0.40
1:C:267:THR:O	1:C:271:MET:HG3	2.21	0.40
1:A:436:ASP:HA	1:A:439:TYR:CE2	2.56	0.40
1:A:54:GLU:HG3	1:A:57:ARG:HH12	1.85	0.40
1:C:118:TYR:HB2	1:C:119:PRO:HD3	2.02	0.40
1:C:449:MET:HE3	1:C:473:VAL:HG22	2.03	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:1122:HOH:O	6:E:1127:HOH:O[4_466]	1.98	0.22
6:C:1054:HOH:O	6:E:1127:HOH:O[4_466]	2.04	0.16
6:C:1150:HOH:O	6:E:1075:HOH:O[4_466]	2.14	0.06

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	561/622 (90%)	536 (96%)	25 (4%)	0	100	100
1	B	564/622 (91%)	541 (96%)	23 (4%)	0	100	100
1	C	564/622 (91%)	543 (96%)	21 (4%)	0	100	100
1	D	560/622 (90%)	538 (96%)	22 (4%)	0	100	100
1	E	561/622 (90%)	540 (96%)	21 (4%)	0	100	100
1	F	567/622 (91%)	547 (96%)	20 (4%)	0	100	100
All	All	3377/3732 (90%)	3245 (96%)	132 (4%)	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	449/490 (92%)	449 (100%)	0	100	100
1	B	450/490 (92%)	447 (99%)	3 (1%)	76	82
1	C	450/490 (92%)	449 (100%)	1 (0%)	87	92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	D	447/490 (91%)	446 (100%)	1 (0%)	87	92
1	E	448/490 (91%)	446 (100%)	2 (0%)	84	89
1	F	454/490 (93%)	452 (100%)	2 (0%)	84	89
All	All	2698/2940 (92%)	2689 (100%)	9 (0%)	86	91

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	32	THR
1	B	423	LEU
1	B	549	SER
1	C	159	SER
1	D	441	ARG
1	E	219	SER
1	E	477	ARG
1	F	441	ARG
1	F	528	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	251	ASN
1	B	80	GLN
1	B	200	ASN
1	B	490	GLN
1	B	559	ASN
1	B	617	GLN
1	C	34	HIS
1	C	251	ASN
1	C	372	HIS
1	C	559	ASN
1	D	72	GLN
1	D	135	GLN
1	D	214	ASN
1	D	301	HIS
1	D	411	HIS
1	D	559	ASN
1	D	617	GLN
1	E	72	GLN
1	E	222	HIS

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Mol	Chain	Res	Type
1	E	372	HIS
1	F	251	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 ⓘ

Of 28 ligands modelled in this entry, 22 are monoatomic - leaving 6 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	HTL	E	701	3	29,30,30	2.28	11 (37%)	35,45,45	1.80	8 (22%)
2	HTL	F	701	3	29,30,30	2.27	11 (37%)	35,45,45	1.83	9 (25%)
2	HTL	B	701	3	29,30,30	2.23	11 (37%)	35,45,45	1.89	8 (22%)
2	HTL	D	701	3	29,30,30	2.28	11 (37%)	35,45,45	1.85	9 (25%)
2	HTL	A	701	3	29,30,30	2.25	13 (44%)	35,45,45	1.82	10 (28%)
2	HTL	C	701	3	29,30,30	2.25	12 (41%)	35,45,45	1.96	9 (25%)

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	HTL	E	701	3	-	5/19/21/21	0/2/2/2
2	HTL	F	701	3	-	7/19/21/21	0/2/2/2
2	HTL	B	701	3	-	7/19/21/21	0/2/2/2
2	HTL	D	701	3	-	7/19/21/21	0/2/2/2
2	HTL	A	701	3	-	5/19/21/21	0/2/2/2
2	HTL	C	701	3	-	7/19/21/21	0/2/2/2

All (69) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	701	HTL	P1-O11	5.26	1.65	1.59
2	F	701	HTL	P1-O11	5.22	1.65	1.59
2	D	701	HTL	P1-O11	5.22	1.65	1.59
2	A	701	HTL	P1-O11	5.18	1.65	1.59
2	E	701	HTL	P1-O11	5.16	1.65	1.59
2	B	701	HTL	P1-O11	4.91	1.64	1.59
2	E	701	HTL	C1'-C2	4.48	1.54	1.48
2	C	701	HTL	C4'-N4'	4.45	1.45	1.34
2	F	701	HTL	C4'-N4'	4.45	1.45	1.34
2	E	701	HTL	C4'-N4'	4.44	1.45	1.34
2	B	701	HTL	C4'-N4'	4.39	1.45	1.34
2	D	701	HTL	C4'-N4'	4.38	1.45	1.34
2	F	701	HTL	C1'-C2	4.36	1.54	1.48
2	A	701	HTL	C4'-N4'	4.36	1.45	1.34
2	A	701	HTL	C1'-C2	4.18	1.53	1.48
2	D	701	HTL	C1'-C2	4.14	1.53	1.48
2	C	701	HTL	C1'-C2	4.07	1.53	1.48
2	B	701	HTL	C1'-C2	3.99	1.53	1.48
2	B	701	HTL	C4A-C4	3.82	1.57	1.49
2	C	701	HTL	C4A-C4	3.82	1.57	1.49
2	A	701	HTL	C4A-C4	3.80	1.57	1.49
2	F	701	HTL	C4A-C4	3.77	1.57	1.49
2	D	701	HTL	C4A-C4	3.77	1.57	1.49
2	E	701	HTL	C4A-C4	3.65	1.57	1.49
2	B	701	HTL	C35-C5'	3.60	1.57	1.51
2	C	701	HTL	C35-C5'	3.54	1.57	1.51
2	E	701	HTL	C35-C5'	3.52	1.57	1.51
2	D	701	HTL	C35-C5'	3.49	1.57	1.51
2	E	701	HTL	C5-C4	3.49	1.42	1.35
2	F	701	HTL	C35-C5'	3.48	1.57	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	701	HTL	C5-C4	3.47	1.42	1.35
2	A	701	HTL	C35-C5'	3.38	1.57	1.51
2	B	701	HTL	C5-C4	3.27	1.42	1.35
2	E	701	HTL	C35-N3	3.23	1.51	1.47
2	F	701	HTL	C5-C4	3.18	1.41	1.35
2	C	701	HTL	C5-C4	3.18	1.41	1.35
2	A	701	HTL	C5-C4	3.11	1.41	1.35
2	D	701	HTL	C35-N3	3.03	1.50	1.47
2	F	701	HTL	C35-N3	2.96	1.50	1.47
2	B	701	HTL	C35-N3	2.81	1.50	1.47
2	B	701	HTL	C3'-C1'	2.80	1.55	1.50
2	A	701	HTL	C3'-C1'	2.78	1.55	1.50
2	A	701	HTL	C35-N3	2.74	1.50	1.47
2	C	701	HTL	C35-N3	2.72	1.50	1.47
2	C	701	HTL	C3'-C1'	2.70	1.55	1.50
2	D	701	HTL	C3'-C1'	2.70	1.55	1.50
2	F	701	HTL	C3'-C1'	2.68	1.55	1.50
2	E	701	HTL	C3'-C1'	2.29	1.54	1.50
2	D	701	HTL	C5-S1	-2.27	1.69	1.74
2	F	701	HTL	C4-N3	-2.21	1.37	1.40
2	E	701	HTL	C5-S1	-2.20	1.69	1.74
2	A	701	HTL	C4-N3	-2.16	1.37	1.40
2	B	701	HTL	C4-N3	-2.14	1.37	1.40
2	D	701	HTL	O2'-C1'	-2.13	1.18	1.23
2	C	701	HTL	C4-N3	-2.13	1.37	1.40
2	E	701	HTL	O2'-C1'	-2.12	1.18	1.23
2	A	701	HTL	O2'-C1'	-2.12	1.18	1.23
2	C	701	HTL	O2'-C1'	-2.11	1.18	1.23
2	B	701	HTL	O2'-C1'	-2.09	1.18	1.23
2	F	701	HTL	O2'-C1'	-2.09	1.18	1.23
2	E	701	HTL	C2A-C2'	2.09	1.55	1.49
2	D	701	HTL	C2A-C2'	2.07	1.55	1.49
2	A	701	HTL	C5'-C4'	-2.06	1.39	1.42
2	C	701	HTL	C2A-C2'	2.05	1.55	1.49
2	B	701	HTL	C2A-C2'	2.03	1.55	1.49
2	A	701	HTL	C2A-C2'	2.02	1.55	1.49
2	C	701	HTL	C5-S1	-2.01	1.70	1.74
2	F	701	HTL	C2A-C2'	2.01	1.55	1.49
2	A	701	HTL	C5-S1	-2.00	1.70	1.74

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	701	HTL	C4-C5-S1	-5.53	104.84	110.56
2	D	701	HTL	C4-C5-S1	-4.88	105.51	110.56
2	C	701	HTL	O2'-C1'-C2	4.74	123.63	118.80
2	C	701	HTL	C4-C5-S1	-4.70	105.69	110.56
2	F	701	HTL	C4-C5-S1	-4.68	105.71	110.56
2	B	701	HTL	C4-C5-S1	-4.64	105.76	110.56
2	A	701	HTL	C4-C5-S1	-4.56	105.84	110.56
2	D	701	HTL	O2'-C1'-C2	4.13	123.02	118.80
2	B	701	HTL	O2'-C1'-C2	4.11	122.99	118.80
2	F	701	HTL	C5A-C5-S1	3.82	127.49	119.29
2	C	701	HTL	C6'-N1'-C2'	3.64	122.05	116.07
2	E	701	HTL	C6'-N1'-C2'	3.63	122.03	116.07
2	F	701	HTL	O2'-C1'-C2	3.60	122.47	118.80
2	D	701	HTL	C6'-N1'-C2'	3.56	121.92	116.07
2	B	701	HTL	C6'-N1'-C2'	3.54	121.89	116.07
2	C	701	HTL	C5A-C5-S1	3.53	126.87	119.29
2	B	701	HTL	C5A-C5-S1	3.52	126.83	119.29
2	F	701	HTL	C6'-N1'-C2'	3.48	121.79	116.07
2	A	701	HTL	C6'-N1'-C2'	3.47	121.78	116.07
2	A	701	HTL	C5A-C5-S1	3.38	126.53	119.29
2	E	701	HTL	O2'-C1'-C2	3.29	122.15	118.80
2	A	701	HTL	C5'-C6'-N1'	-3.27	118.51	123.83
2	D	701	HTL	C5'-C6'-N1'	-3.24	118.56	123.83
2	A	701	HTL	O2'-C1'-C2	3.23	122.10	118.80
2	C	701	HTL	C3'-C1'-C2	-3.22	114.92	118.17
2	C	701	HTL	C5'-C6'-N1'	-3.19	118.64	123.83
2	F	701	HTL	C5'-C6'-N1'	-3.17	118.68	123.83
2	E	701	HTL	C5'-C6'-N1'	-3.15	118.71	123.83
2	B	701	HTL	C5'-C6'-N1'	-3.14	118.72	123.83
2	E	701	HTL	C5A-C5-S1	2.99	125.71	119.29
2	E	701	HTL	N1'-C2'-N3'	-2.85	120.78	125.53
2	B	701	HTL	C3'-C1'-C2	-2.83	115.32	118.17
2	D	701	HTL	N1'-C2'-N3'	-2.82	120.84	125.53
2	B	701	HTL	N1'-C2'-N3'	-2.78	120.91	125.53
2	C	701	HTL	N1'-C2'-N3'	-2.78	120.91	125.53
2	A	701	HTL	N1'-C2'-N3'	-2.69	121.06	125.53
2	F	701	HTL	N1'-C2'-N3'	-2.67	121.08	125.53
2	D	701	HTL	C5A-C5-S1	2.61	124.90	119.29
2	D	701	HTL	C2A-C2'-N1'	2.59	119.96	117.20
2	B	701	HTL	C2A-C2'-N1'	2.50	119.87	117.20
2	A	701	HTL	C2A-C2'-N1'	2.50	119.86	117.20
2	D	701	HTL	C3'-C1'-C2	-2.28	115.87	118.17
2	F	701	HTL	C2A-C2'-N1'	2.21	119.56	117.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	701	HTL	C6'-C5'-C4'	2.18	118.22	115.55
2	A	701	HTL	C4A-C4-C5	-2.15	122.24	127.75
2	F	701	HTL	C4A-C4-C5	-2.14	122.25	127.75
2	C	701	HTL	C2A-C2'-N1'	2.12	119.46	117.20
2	F	701	HTL	C6'-C5'-C4'	2.10	118.13	115.55
2	A	701	HTL	N4'-C4'-N3'	2.06	119.81	117.03
2	D	701	HTL	C6'-C5'-C4'	2.05	118.07	115.55
2	E	701	HTL	C2A-C2'-N1'	2.03	119.37	117.20
2	E	701	HTL	C6'-C5'-C4'	2.03	118.04	115.55
2	C	701	HTL	C6'-C5'-C4'	2.01	118.02	115.55

There are no chirality outliers.

All (38) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	701	HTL	O2'-C1'-C2-S1
2	A	701	HTL	C3'-C1'-C2-S1
2	B	701	HTL	O2'-C1'-C2-S1
2	B	701	HTL	C3'-C1'-C2-S1
2	B	701	HTL	P1-O11-P2-O22
2	B	701	HTL	P1-O11-P2-O23
2	C	701	HTL	O2'-C1'-C2-S1
2	C	701	HTL	C3'-C1'-C2-S1
2	D	701	HTL	O2'-C1'-C2-S1
2	D	701	HTL	C3'-C1'-C2-S1
2	D	701	HTL	P1-O11-P2-O22
2	D	701	HTL	P1-O11-P2-O23
2	E	701	HTL	O2'-C1'-C2-S1
2	E	701	HTL	C3'-C1'-C2-S1
2	E	701	HTL	P1-O11-P2-O22
2	F	701	HTL	O2'-C1'-C2-S1
2	F	701	HTL	C3'-C1'-C2-S1
2	F	701	HTL	C5B-O5G-P1-O12
2	F	701	HTL	P1-O11-P2-O23
2	E	701	HTL	N3-C35-C5'-C4'
2	B	701	HTL	N3-C35-C5'-C4'
2	C	701	HTL	N3-C35-C5'-C4'
2	D	701	HTL	N3-C35-C5'-C4'
2	D	701	HTL	N3-C35-C5'-C6'
2	E	701	HTL	N3-C35-C5'-C6'
2	F	701	HTL	N3-C35-C5'-C4'
2	F	701	HTL	N3-C35-C5'-C6'

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Mol	Chain	Res	Type	Atoms
2	A	701	HTL	C5B-O5G-P1-O12
2	B	701	HTL	C5B-O5G-P1-O12
2	C	701	HTL	C5B-O5G-P1-O12
2	F	701	HTL	P1-O11-P2-O21
2	A	701	HTL	N3-C35-C5'-C4'
2	B	701	HTL	N3-C35-C5'-C6'
2	C	701	HTL	N3-C35-C5'-C6'
2	D	701	HTL	P1-O11-P2-O21
2	A	701	HTL	P1-O11-P2-O22
2	C	701	HTL	P1-O11-P2-O22
2	C	701	HTL	S1-C5-C5A-C5B

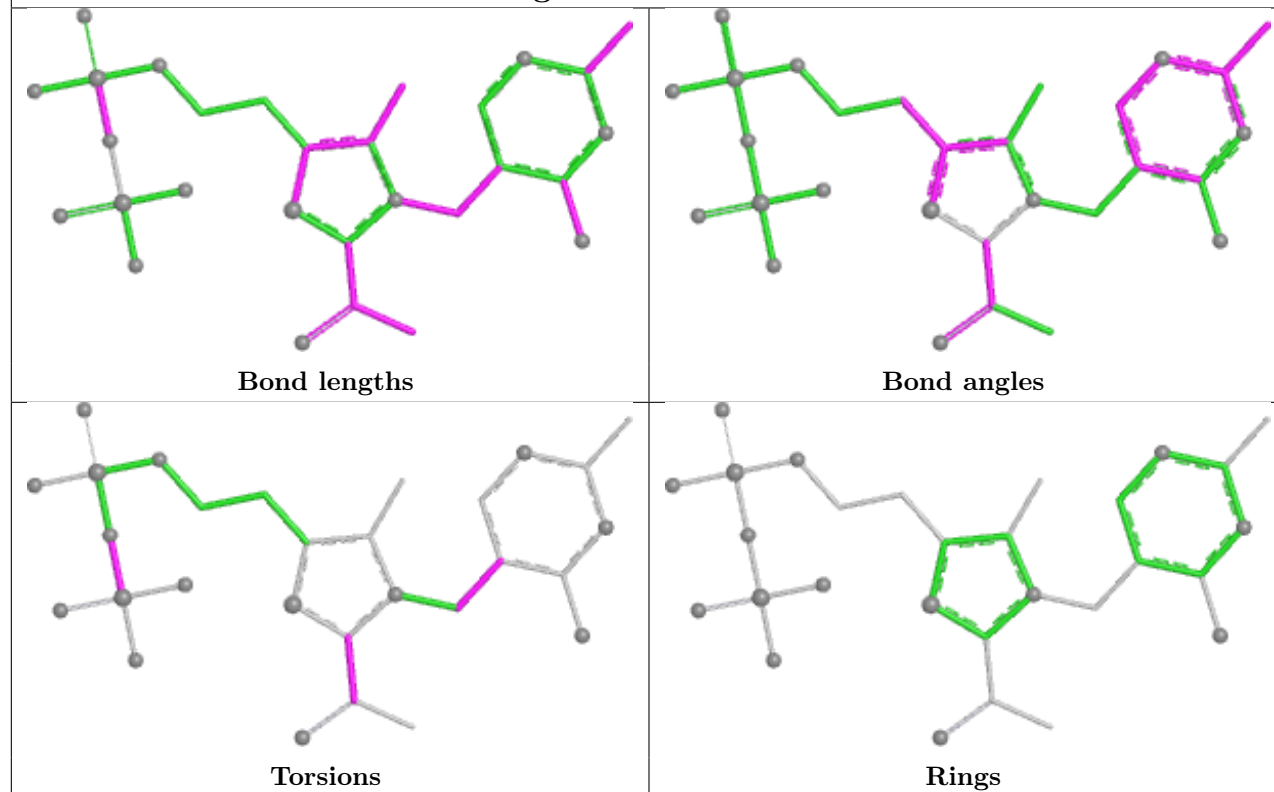
There are no ring outliers.

3 monomers are involved in 4 short contacts:

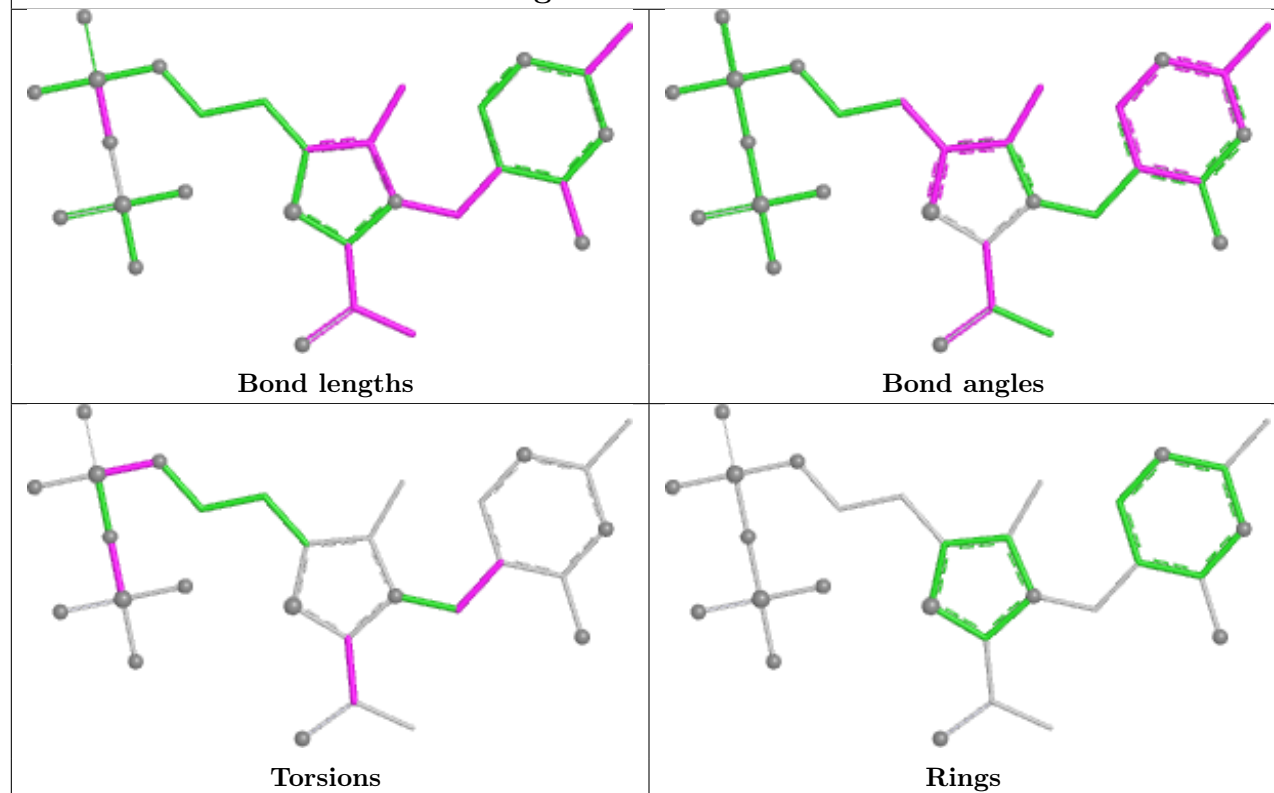
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	701	HTL	2	0
2	B	701	HTL	1	0
2	C	701	HTL	1	0

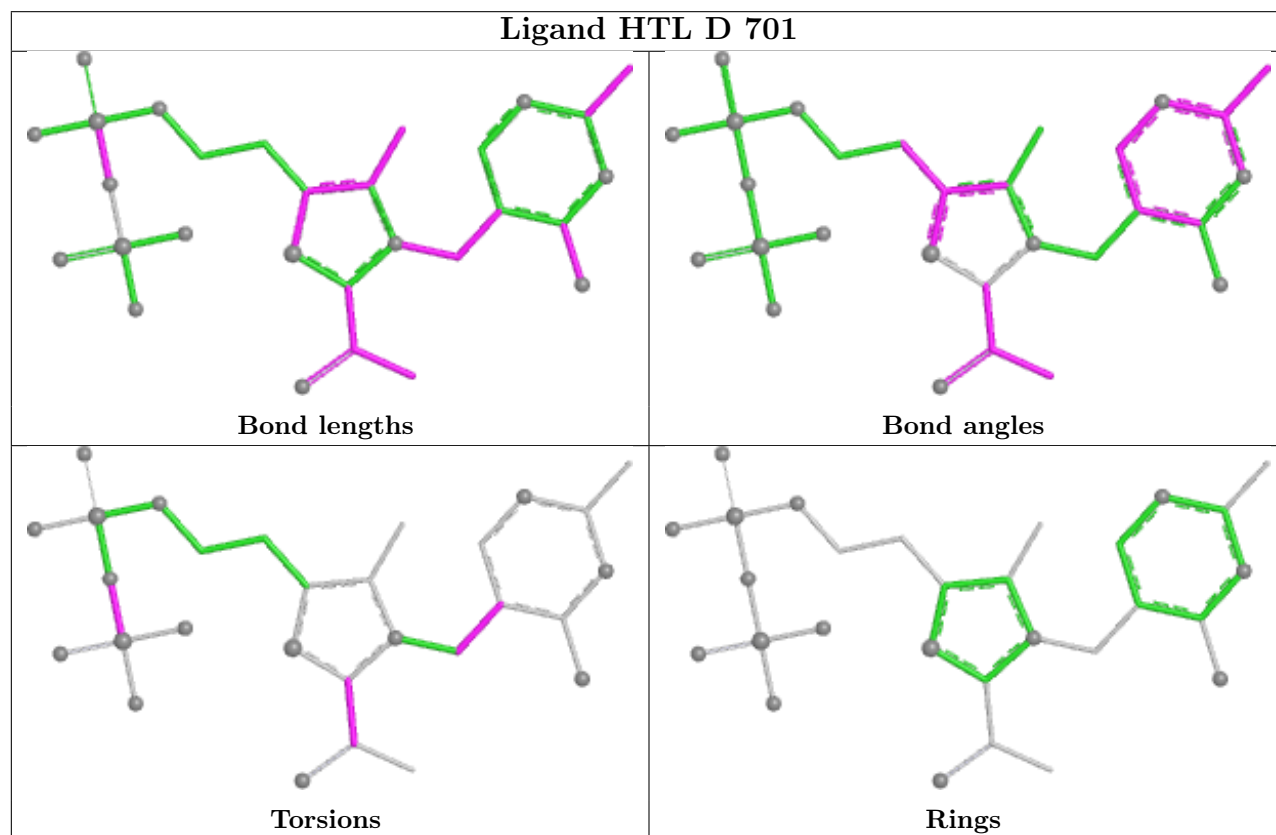
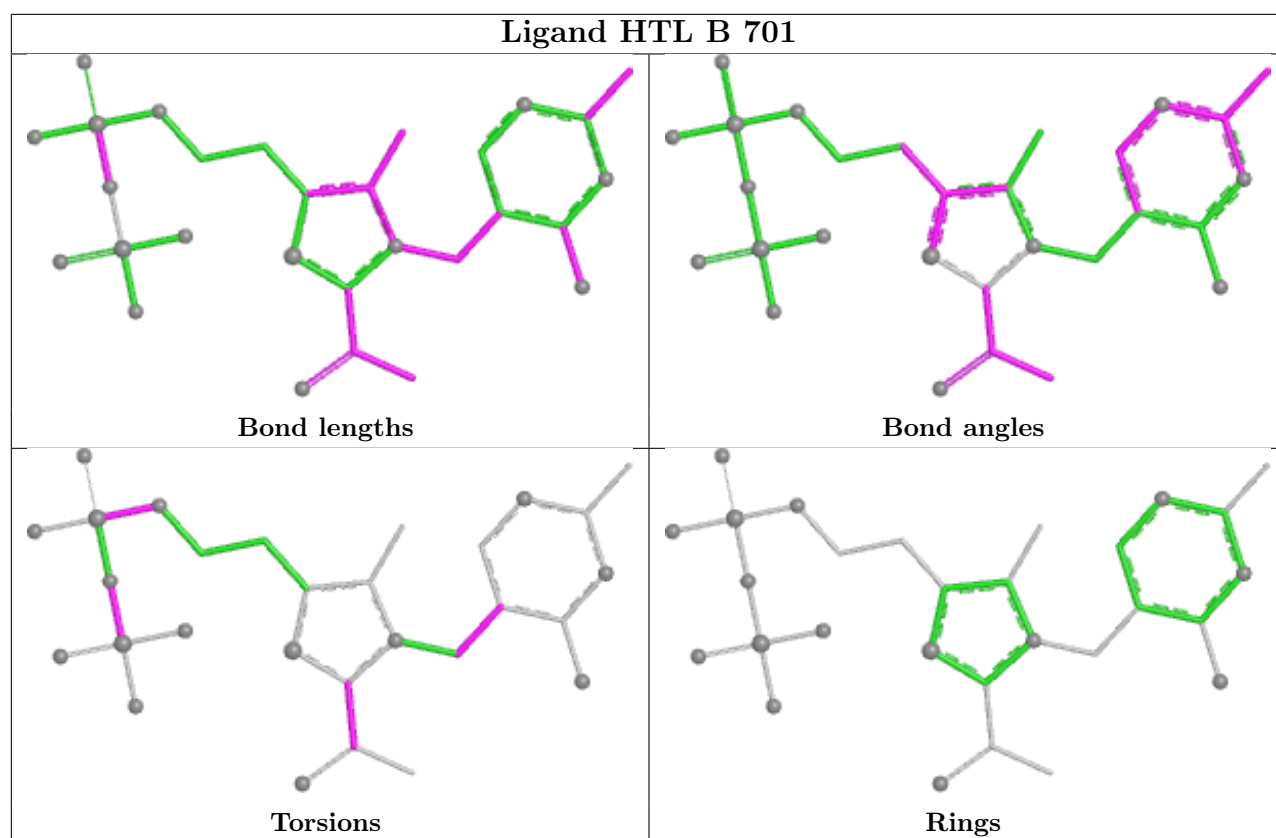
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

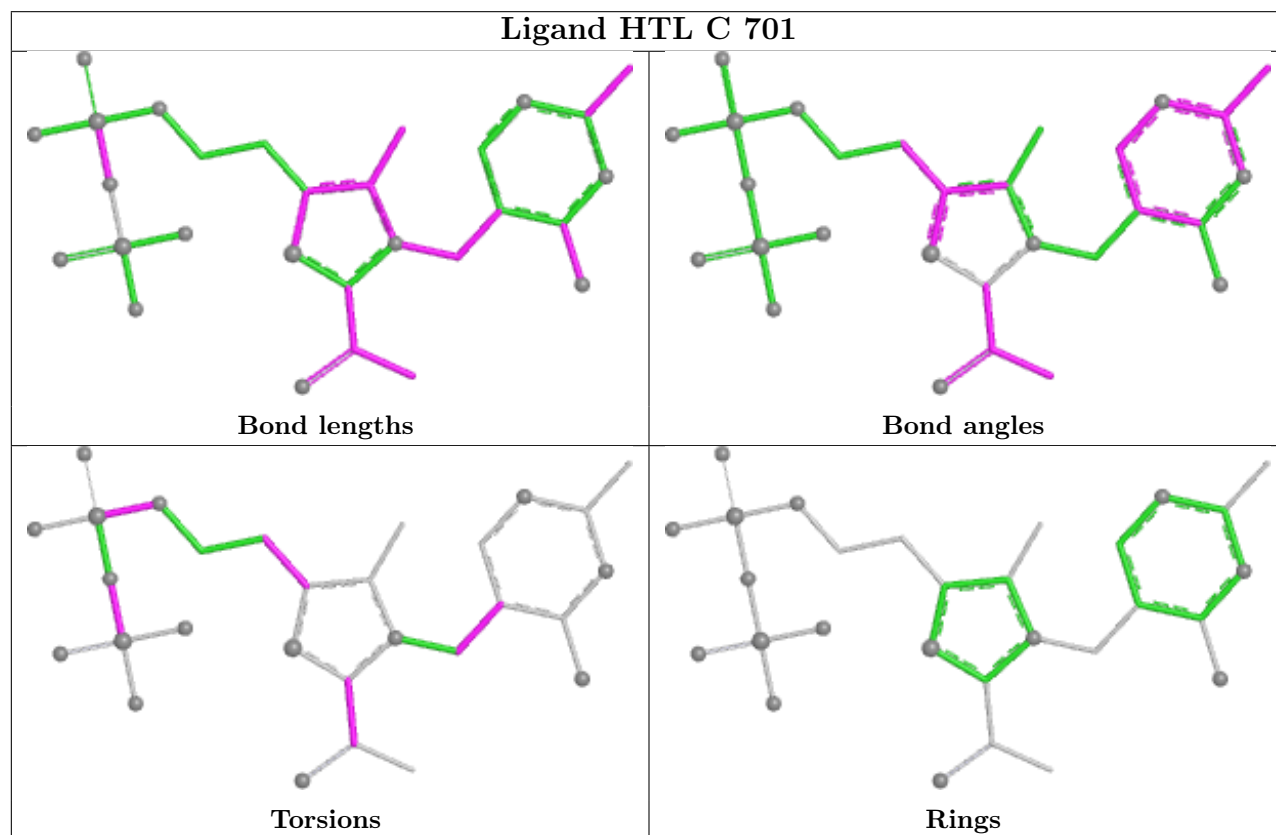
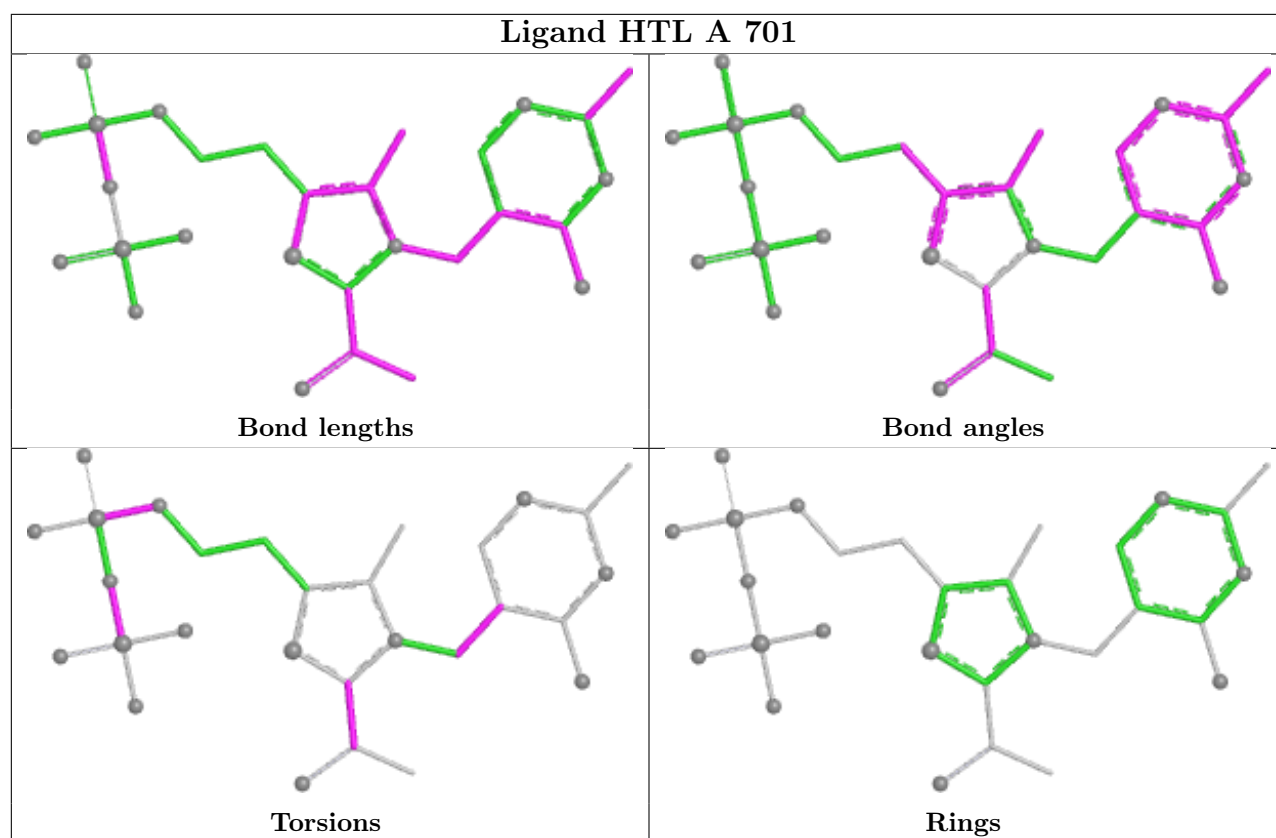
Ligand HTL E 701



Ligand HTL F 701







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	567/622 (91%)	-0.06	18 (3%)	50	49	19, 29, 47, 70	0
1	B	570/622 (91%)	0.05	16 (2%)	55	54	20, 31, 53, 78	0
1	C	570/622 (91%)	-0.03	20 (3%)	47	46	18, 29, 50, 87	0
1	D	566/622 (90%)	-0.05	15 (2%)	56	55	19, 30, 52, 71	0
1	E	567/622 (91%)	-0.10	11 (1%)	66	66	18, 27, 46, 74	0
1	F	573/622 (92%)	-0.08	15 (2%)	57	56	20, 29, 46, 74	0
All	All	3413/3732 (91%)	-0.05	95 (2%)	55	54	18, 29, 50, 87	0

All (95) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	234	ILE	5.6
1	E	224	VAL	5.5
1	F	244	LEU	5.4
1	D	306	LEU	5.4
1	B	245	PHE	5.3
1	D	33	LEU	5.1
1	E	32	THR	4.9
1	C	479	SER	4.8
1	A	244	LEU	4.5
1	C	82	GLY	4.5
1	F	33	LEU	4.4
1	C	308	ALA	4.4
1	E	316	THR	4.2
1	F	32	THR	3.9
1	A	504	GLY	3.9
1	B	537	PRO	3.9
1	C	244	LEU	3.8
1	F	248	LEU	3.8
1	A	33	LEU	3.8

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Mol	Chain	Res	Type	RSRZ
1	E	248	LEU	3.7
1	A	224	VAL	3.7
1	B	34	HIS	3.7
1	B	317	GLY	3.6
1	D	317	GLY	3.5
1	A	519	MET	3.4
1	B	224	VAL	3.4
1	C	245	PHE	3.4
1	B	33	LEU	3.3
1	F	619	LEU	3.2
1	E	245	PHE	3.1
1	B	32	THR	3.0
1	E	68	ASP	3.0
1	A	619	LEU	3.0
1	F	249	GLY	2.9
1	D	246	GLU	2.8
1	D	247	GLU	2.8
1	B	309	PRO	2.8
1	F	31	LYS	2.8
1	D	248	LEU	2.8
1	A	230	TYR	2.8
1	B	504	GLY	2.7
1	C	579	GLU	2.7
1	C	523	GLU	2.6
1	C	524	SER	2.6
1	C	526	ASP	2.6
1	A	243	THR	2.6
1	F	246	GLU	2.6
1	F	30	PRO	2.6
1	D	45	LEU	2.6
1	E	33	LEU	2.6
1	A	307	GLU	2.5
1	F	224	VAL	2.5
1	F	234	ILE	2.5
1	F	34	HIS	2.5
1	B	525	LEU	2.5
1	B	526	ASP	2.5
1	E	287	GLY	2.4
1	C	224	VAL	2.4
1	F	38	ARG	2.4
1	A	231	LEU	2.4
1	E	306	LEU	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	536	LYS	2.4
1	A	203	SER	2.4
1	A	579	GLU	2.3
1	D	285	LYS	2.3
1	C	243	THR	2.3
1	C	33	LEU	2.3
1	F	295	LEU	2.3
1	C	248	LEU	2.3
1	C	619	LEU	2.3
1	D	37	PRO	2.2
1	D	232	ALA	2.2
1	F	617	GLN	2.2
1	C	230	TYR	2.2
1	B	318	GLY	2.2
1	B	232	ALA	2.2
1	D	72	GLN	2.2
1	B	619	LEU	2.2
1	D	38	ARG	2.2
1	A	245	PHE	2.1
1	E	307	GLU	2.1
1	E	230	TYR	2.1
1	A	220	ILE	2.1
1	C	242	GLY	2.1
1	A	207	ALA	2.1
1	D	34	HIS	2.1
1	B	246	GLU	2.1
1	C	442	CYS	2.1
1	A	505	ARG	2.1
1	C	34	HIS	2.1
1	C	228	SER	2.1
1	D	35	GLU	2.0
1	A	223	ASN	2.0
1	C	231	LEU	2.0
1	A	320	LYS	2.0

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

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

6.3 Carbohydrates ⓘ

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.

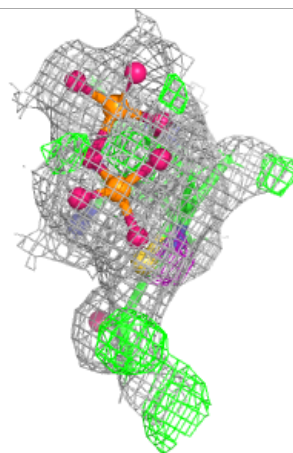
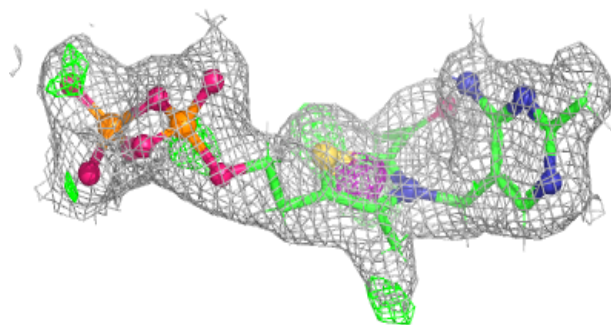
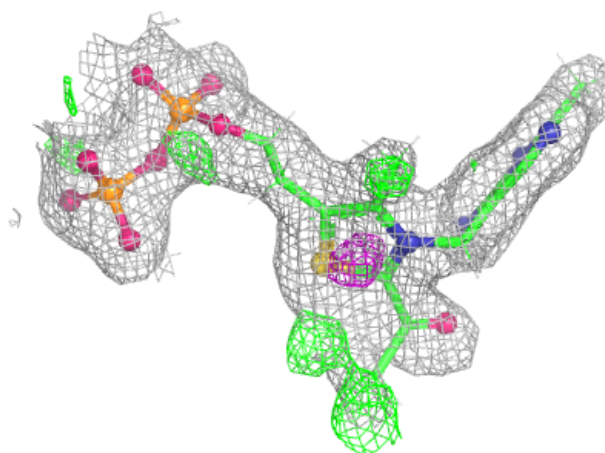
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	CA	F	706	1/1	0.75	0.14	65,65,65,65	0
4	CA	D	706	1/1	0.78	0.19	72,72,72,72	0
4	CA	D	705	1/1	0.93	0.34	48,48,48,48	0
2	HTL	D	701	29/29	0.94	0.10	22,31,49,58	0
2	HTL	F	701	29/29	0.94	0.10	18,28,45,55	0
4	CA	A	703	1/1	0.94	0.07	53,53,53,53	0
2	HTL	A	701	29/29	0.94	0.11	22,30,50,51	0
2	HTL	B	701	29/29	0.94	0.10	20,27,40,46	0
2	HTL	C	701	29/29	0.94	0.10	18,26,48,51	0
5	NA	E	704	1/1	0.94	0.05	31,31,31,31	0
4	CA	F	705	1/1	0.95	0.10	40,40,40,40	0
2	HTL	E	701	29/29	0.95	0.10	20,28,45,47	0
4	CA	A	704	1/1	0.95	0.07	38,38,38,38	0
4	CA	A	705	1/1	0.96	0.23	56,56,56,56	0
5	NA	A	706	1/1	0.97	0.05	25,25,25,25	0
3	MG	F	702	1/1	0.97	0.07	17,17,17,17	0
4	CA	F	704	1/1	0.98	0.09	41,41,41,41	0
3	MG	E	702	1/1	0.98	0.08	17,17,17,17	0
4	CA	D	704	1/1	0.98	0.04	39,39,39,39	0
4	CA	E	703	1/1	0.98	0.07	30,30,30,30	0
5	NA	B	703	1/1	0.98	0.07	24,24,24,24	0
5	NA	C	703	1/1	0.98	0.04	23,23,23,23	0
4	CA	F	703	1/1	0.98	0.07	36,36,36,36	0
3	MG	D	702	1/1	0.99	0.07	21,21,21,21	0
3	MG	A	702	1/1	0.99	0.11	21,21,21,21	0
4	CA	D	703	1/1	0.99	0.10	47,47,47,47	0
3	MG	B	702	1/1	0.99	0.13	19,19,19,19	0
3	MG	C	702	1/1	0.99	0.11	17,17,17,17	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.

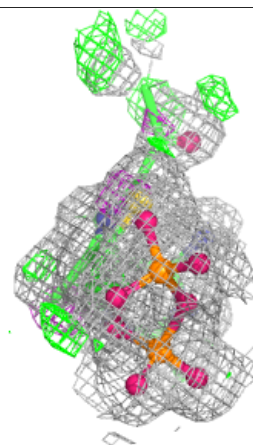
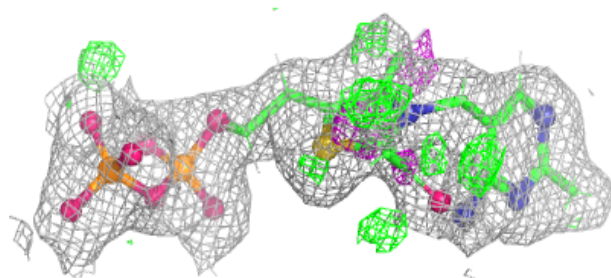
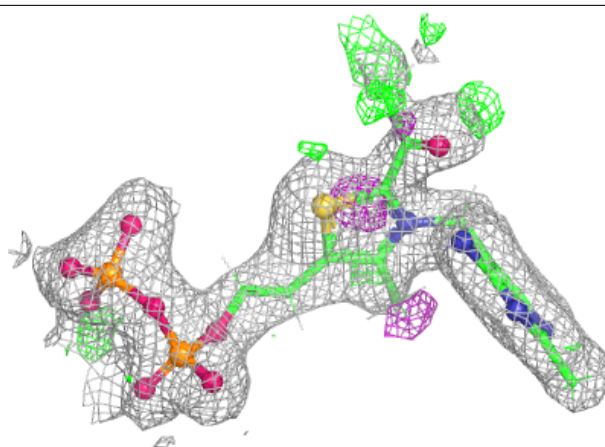
Electron density around HTL D 701:

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



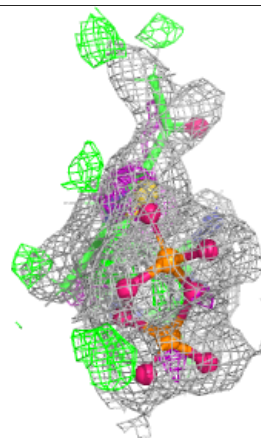
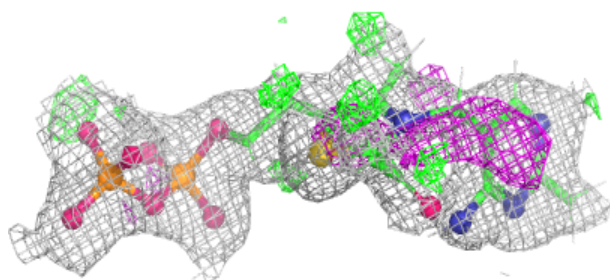
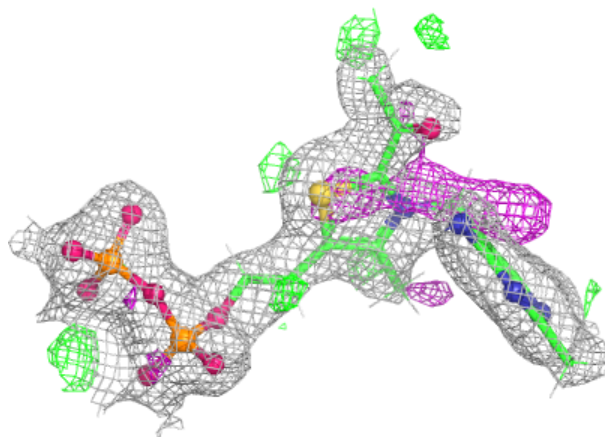
Electron density around HTL F 701:

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



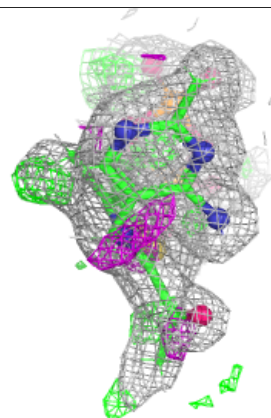
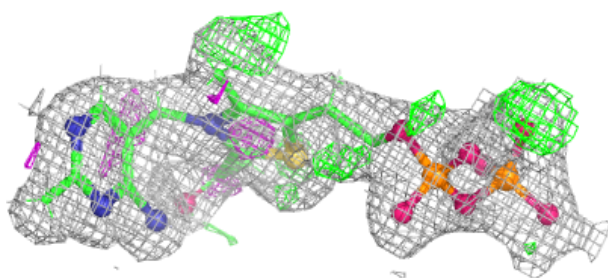
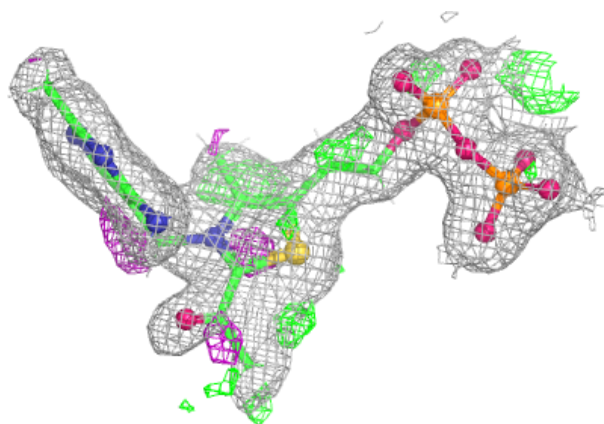
Electron density around HTL A 701:

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



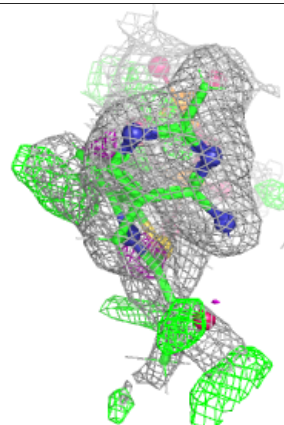
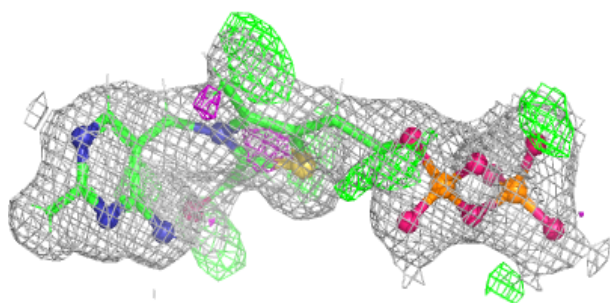
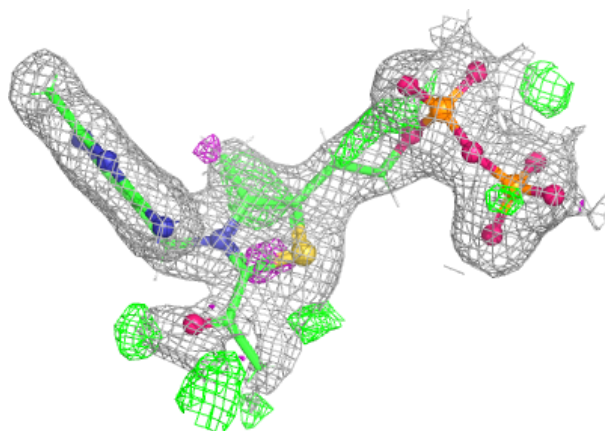
Electron density around HTL B 701:

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

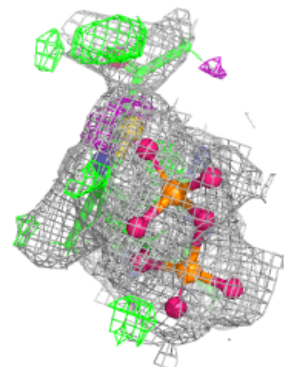
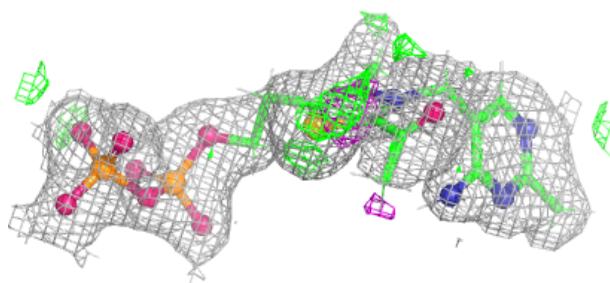
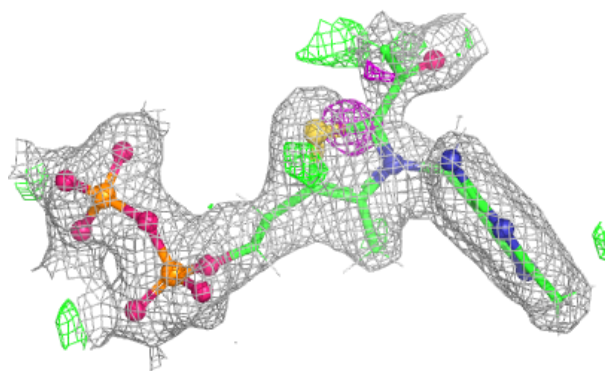


Electron density around HTL C 701:

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

**Electron density around HTL E 701:**

$2mF_o-DF_c$ (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.