



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 18, 2025 – 12:22 pm GMT

PDB ID : 9I24 / pdb_00009i24
Title : Coagulation factor Xa complex with a2-loop peptide
Authors : Huntington, J.A.; Ustok, F.I.
Deposited on : 2025-01-17
Resolution : 1.20 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 : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 2.0
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.46

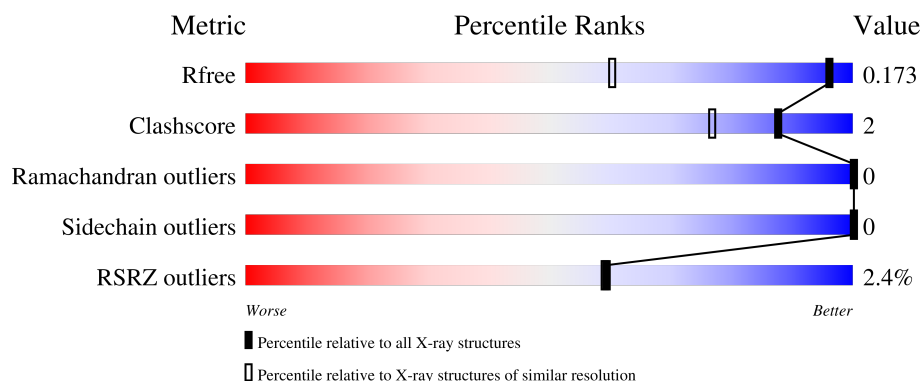
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.20 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1079 (1.20-1.20)
Clashscore	180529	1183 (1.20-1.20)
Ramachandran outliers	177936	1146 (1.20-1.20)
Sidechain outliers	177891	1146 (1.20-1.20)
RSRZ outliers	164620	1078 (1.20-1.20)

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	H	254	<div> <div>0%</div> <div>87% 5% 8%</div> </div>
2	L	55	<div> <div>4%</div> <div>85% 9% 5%</div> </div>
3	C	15	<div> <div>20%</div> <div>27% 73%</div> </div>
4	I	3	<div> <div>67% 33%</div> </div>

2 Entry composition

There are 14 unique types of molecules in this entry. The entry contains 2754 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 Activated factor Xa heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	H	234	Total	C	N	O	S	0	18	0
			1954	1228	341	367	18			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	243	LYS	-	insertion	UNP P00742
H	244	THR	-	insertion	UNP P00742

- Molecule 2 is a protein called Factor X light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	L	52	Total	C	N	O	S	0	4	0
			395	242	66	80	7			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	85	MET	-	initiating methionine	UNP P00742

- Molecule 3 is a protein called Coagulation factor V heavy chain.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	C	4	Total	C	N	O	0	0	0
			24	13	4	7			

- Molecule 4 is a protein called GLU-GLY-ARG-chloromethyl ketone inhibitor (EGRCK).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	I	2	Total	C	N	O	0	0	0
			13	7	2	4			

- Molecule 5 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	H	1	Total	Ca	0	0
			1	1		

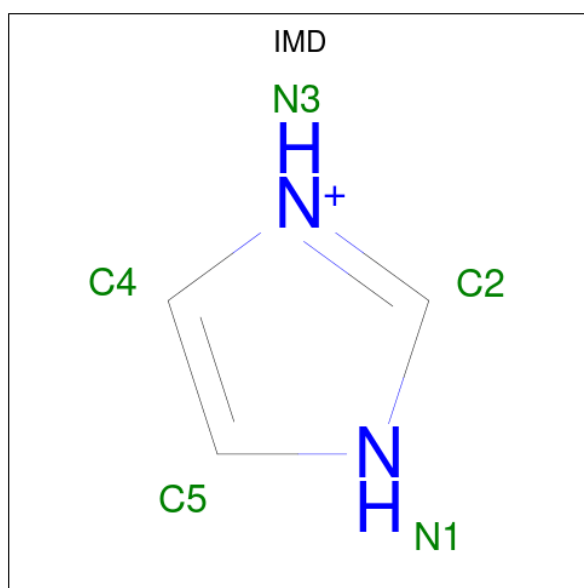
- Molecule 6 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	H	1	Total	Na	0	0
			1	1		

- Molecule 7 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

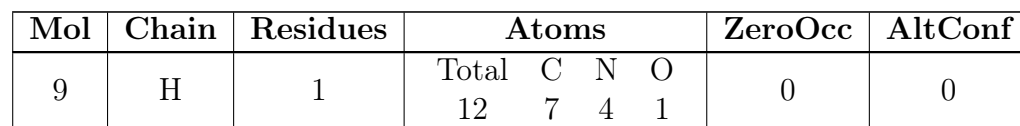
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	H	1	Total	Cl	0	0
			1	1		

- Molecule 8 is IMIDAZOLE (CCD ID: IMD) (formula: C₃H₅N₂).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	H	1	Total	C	N	0	0
			5	3	2		

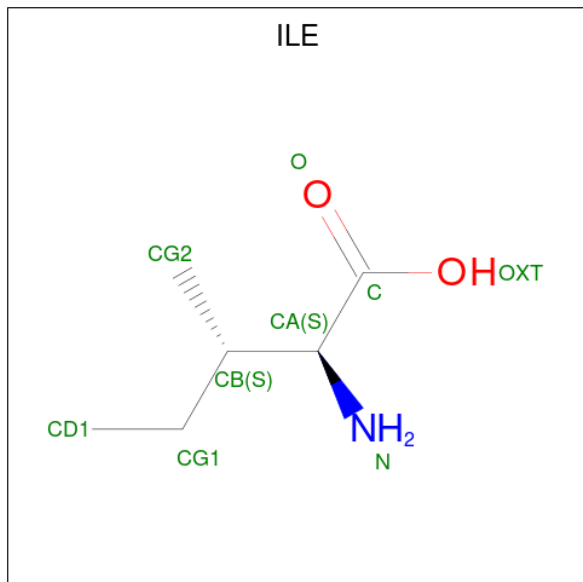
- Molecule 9 is L-alpha-glutamyl-N-{(1S)-4-[[amino(iminio)methyl]amino]-1-[(1S)-2-chloro-1-hydroxyethyl]butyl}glycinamide (CCD ID: 0GJ) (formula: C₁₄H₂₈ClN₆O₅).



- GLU
-
- The diagram illustrates the chemical structure of Glutamic acid (GLU). The structure is a five-carbon chain. The first carbon (C) is part of a carboxyl group, bonded to a hydroxyl group (HO, OXT) and an oxygen atom (O). The second carbon (C) is bonded to a hydrogen atom (H) and a hydrogen atom (H). The third carbon (C) is bonded to a hydrogen atom (H) and a hydrogen atom (H). The fourth carbon (C) is bonded to a hydrogen atom (H) and a hydrogen atom (H). The fifth carbon (C) is part of a carboxyl group, bonded to a hydroxyl group (HO, OE2) and an oxygen atom (OE1). The atoms are labeled with their element symbols and names: C for carbon, O for oxygen, H for hydrogen, and N for nitrogen. The bonds are shown as lines, with a dashed line indicating a stereochemical bond to the nitrogen atom (NH2, N).

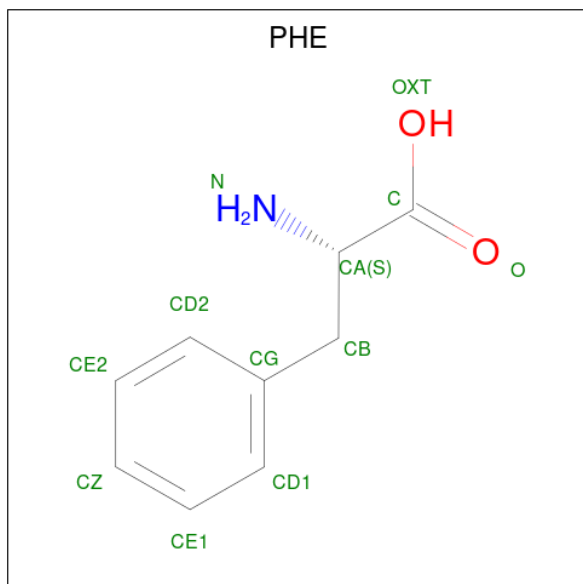
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
10	C	1	Total	C	N	O	0	0
			9	5	1	3		
10	C	1	Total	C	N	O	0	0
			9	5	1	3		

- Molecule 11 is ISOLEUCINE (CCD ID: ILE) (formula: $C_6H_{13}NO_2$) (labeled as "Ligand of Interest" by depositor).



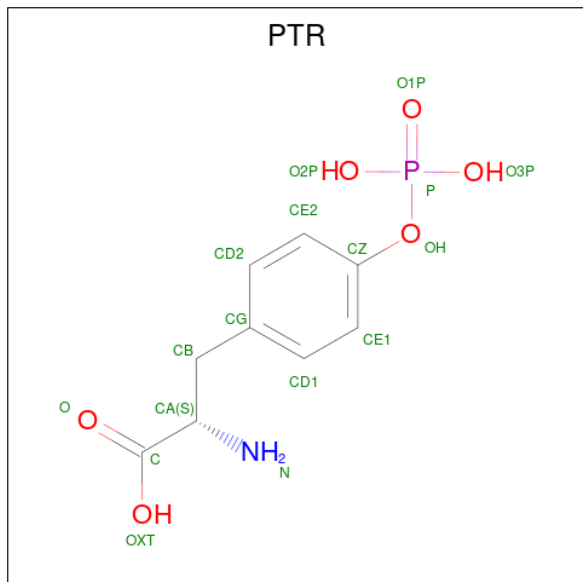
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
11	C	1	Total	C	N	O	0	0
			8	6	1	1		

- Molecule 12 is PHENYLALANINE (CCD ID: PHE) (formula: $C_9H_9NO_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
12	C	1	Total	C	N	O	0	0
			11	9	1	1		

- Molecule 13 is O-PHOSPHOTYROSINE (CCD ID: PTR) (formula: $C_9H_{12}NO_6P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
13	C	1	Total	C	N	O	P	0	0
			16	9	1	5	1		

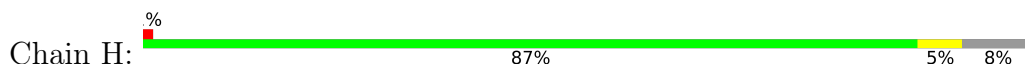
- Molecule 14 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
14	H	218	Total	O	0	0
			218	218		
14	L	68	Total	O	0	0
			68	68		
14	C	4	Total	O	0	0
			4	4		
14	I	5	Total	O	0	0
			5	5		

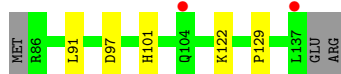
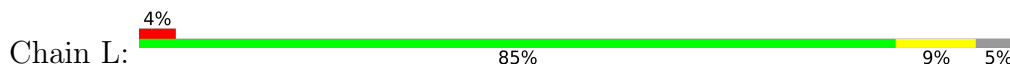
3 Residue-property plots

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.

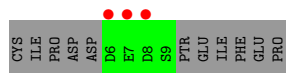
- Molecule 1: Activated factor Xa heavy chain



- Molecule 2: Factor X light chain



- Molecule 3: Coagulation factor V heavy chain



- Molecule 4: GLU-GLY-ARG-chloromethyl ketone inhibitor (EGRCK)



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	48.47Å 72.42Å 82.33Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	54.38 – 1.20 54.38 – 1.20	Depositor EDS
% Data completeness (in resolution range)	97.8 (54.38-1.20) 97.8 (54.38-1.20)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.44 (at 1.20Å)	Xtriage
Refinement program	REFMAC 5.8.0425	Depositor
R, R_{free}	0.141 , 0.172 0.149 , 0.173	Depositor DCC
R_{free} test set	4536 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å ²)	14.8	Xtriage
Anisotropy	0.460	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 42.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.98	EDS
Total number of atoms	2754	wwPDB-VP
Average B, all atoms (Å ²)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.94% 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: NA, CL, 0GJ, IMD, PTR, CA

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	H	0.67	0/1999	1.02	5/2698 (0.2%)
2	L	0.72	0/402	1.08	2/548 (0.4%)
3	C	0.85	0/23	1.85	0/30
4	I	0.66	0/12	1.07	0/14
All	All	0.68	0/2436	1.04	7/3290 (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	H	0	4

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	131(B)	MET	CG-SD-CE	-9.32	80.39	100.90
1	H	189	ASP	CA-CB-CG	7.23	119.83	112.60
1	H	209[A]	VAL	CB-CA-C	-6.07	102.23	111.69
1	H	209[B]	VAL	CB-CA-C	-6.07	102.23	111.69
2	L	129	PRO	N-CA-C	6.04	122.58	114.18
1	H	63	ARG	CG-CD-NE	-5.69	99.48	112.00
2	L	97	ASP	CA-CB-CG	5.14	117.74	112.60

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	H	150[A]	ARG	Sidechain
1	H	165[A]	ARG	Sidechain
1	H	63	ARG	Sidechain
1	H	99	TYR	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	H	1954	0	1838	7	0
2	L	395	0	334	3	0
3	C	24	0	12	0	0
4	I	13	0	11	0	0
5	H	1	0	0	0	0
6	H	1	0	0	0	0
7	H	1	0	0	0	0
8	H	5	0	5	0	0
9	H	12	0	13	0	0
10	C	18	0	11	0	0
11	C	8	0	11	1	0
12	C	11	0	9	0	0
13	C	16	0	7	1	0
14	C	4	0	0	0	0
14	H	218	0	0	3	0
14	I	5	0	0	0	0
14	L	68	0	0	1	0
All	All	2754	0	2251	9	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 2.

All (9) 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:H:107[B]:ARG:NH2	14:H:401:HOH:O	2.07	0.87
1:H:244:THR:HG23	13:C:305:PTR:O2P	1.95	0.67
1:H:232:THR:HG23	14:H:432:HOH:O	1.94	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:124(A):GLU:OE1	2:L:101[B]:HIS:NE2	2.39	0.53
2:L:122[A]:LYS:CD	14:L:224:HOH:O	2.63	0.47
1:H:87[B]:VAL:CG2	11:C:302:ILE:HG23	2.46	0.46
1:H:107[B]:ARG:CZ	14:H:401:HOH:O	2.54	0.46
1:H:74[B]:GLU:HG3	1:H:153:THR:HG21	1.98	0.45
2:L:91[B]:LEU:HD13	2:L:91[B]:LEU:HA	1.67	0.41

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	H	250/254 (98%)	244 (98%)	6 (2%)	0	100	100
2	L	54/55 (98%)	50 (93%)	4 (7%)	0	100	100
3	C	2/15 (13%)	1 (50%)	1 (50%)	0	100	100
All	All	306/324 (94%)	295 (96%)	11 (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	H	201/216 (93%)	201 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	L	40/47 (85%)	40 (100%)	0	100	100
3	C	2/14 (14%)	2 (100%)	0	100	100
4	I	1/2 (50%)	1 (100%)	0	100	100
All	All	244/279 (88%)	244 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
13	PTR	C	305	3,10	15,16,17	0.66	0	19,22,24	1.33	2 (10%)

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
13	PTR	C	305	3,10	-	0/10/11/13	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	C	305	PTR	O2P-P-OH	3.76	117.01	105.24
13	C	305	PTR	CB-CA-C	2.85	116.80	111.47

There are no chirality outliers.

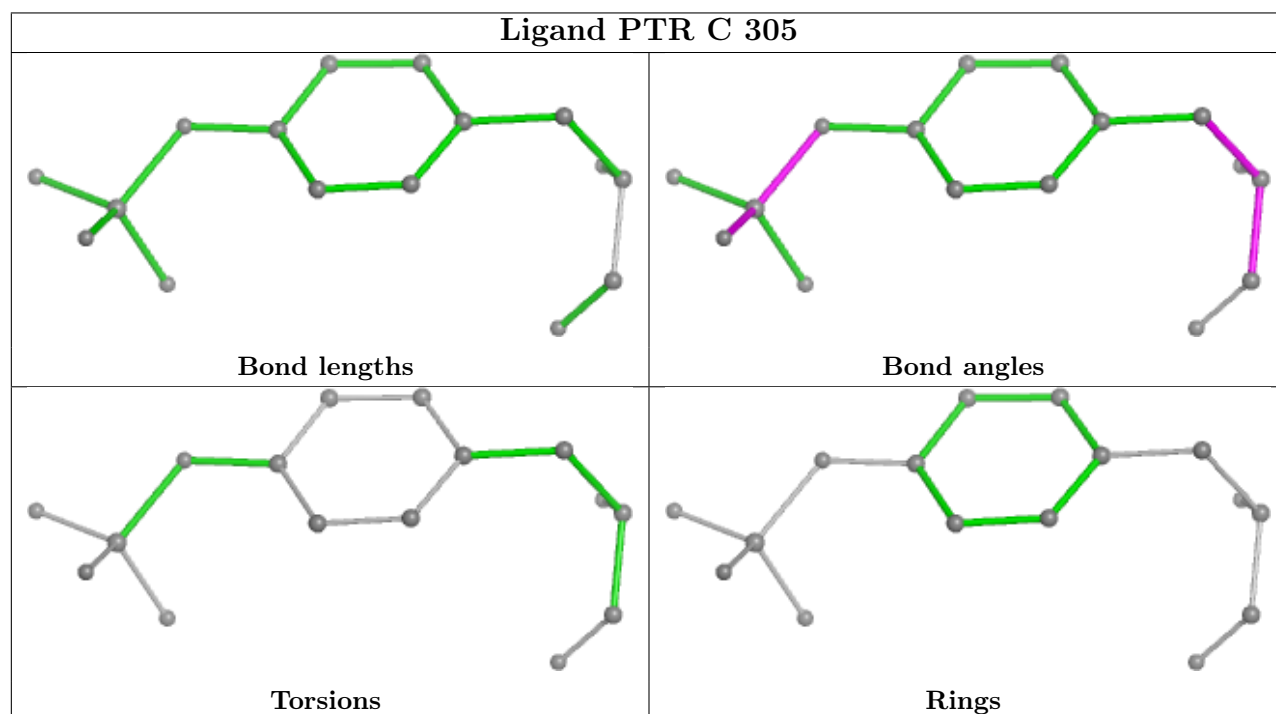
There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
13	C	305	PTR	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.



5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 3 are monoatomic - leaving 7 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	$\# Z > 2$
12	PHE	C	303	11,10	10,11,12	0.43	0	10,13,15	0.47	0
10	GLU	C	304	12	7,8,9	1.13	0	4,9,11	2.14	2 (50%)
10	GLU	C	301	11,13	7,8,9	0.69	0	4,9,11	1.22	0
9	OGJ	H	305	1,4	10,11,25	0.47	0	8,13,31	0.26	0
13	PTR	C	305	3,10	15,16,17	0.66	0	19,22,24	1.33	2 (10%)
11	ILE	C	302	10,12	6,7,8	0.78	0	5,8,10	1.50	1 (20%)
8	IMD	H	304	-	3,5,5	0.21	0	4,5,5	0.78	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
12	PHE	C	303	11,10	-	0/5/6/8	0/1/1/1
10	GLU	C	304	12	-	2/6/7/9	-
10	GLU	C	301	11,13	-	2/6/7/9	-
9	OGJ	H	305	1,4	-	3/11/11/31	-
13	PTR	C	305	3,10	-	0/10/11/13	0/1/1/1
11	ILE	C	302	10,12	-	1/7/8/10	-
8	IMD	H	304	-	-	-	0/1/1/1

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	C	305	PTR	O2P-P-OH	3.76	117.01	105.24
10	C	304	GLU	OE2-CD-CG	3.26	124.50	114.03
13	C	305	PTR	CB-CA-C	2.85	116.80	111.47
11	C	302	ILE	CB-CA-C	-2.80	108.54	112.83
10	C	304	GLU	OE1-CD-CG	-2.54	114.93	123.08

There are no chirality outliers.

All (8) torsion outliers are listed below:

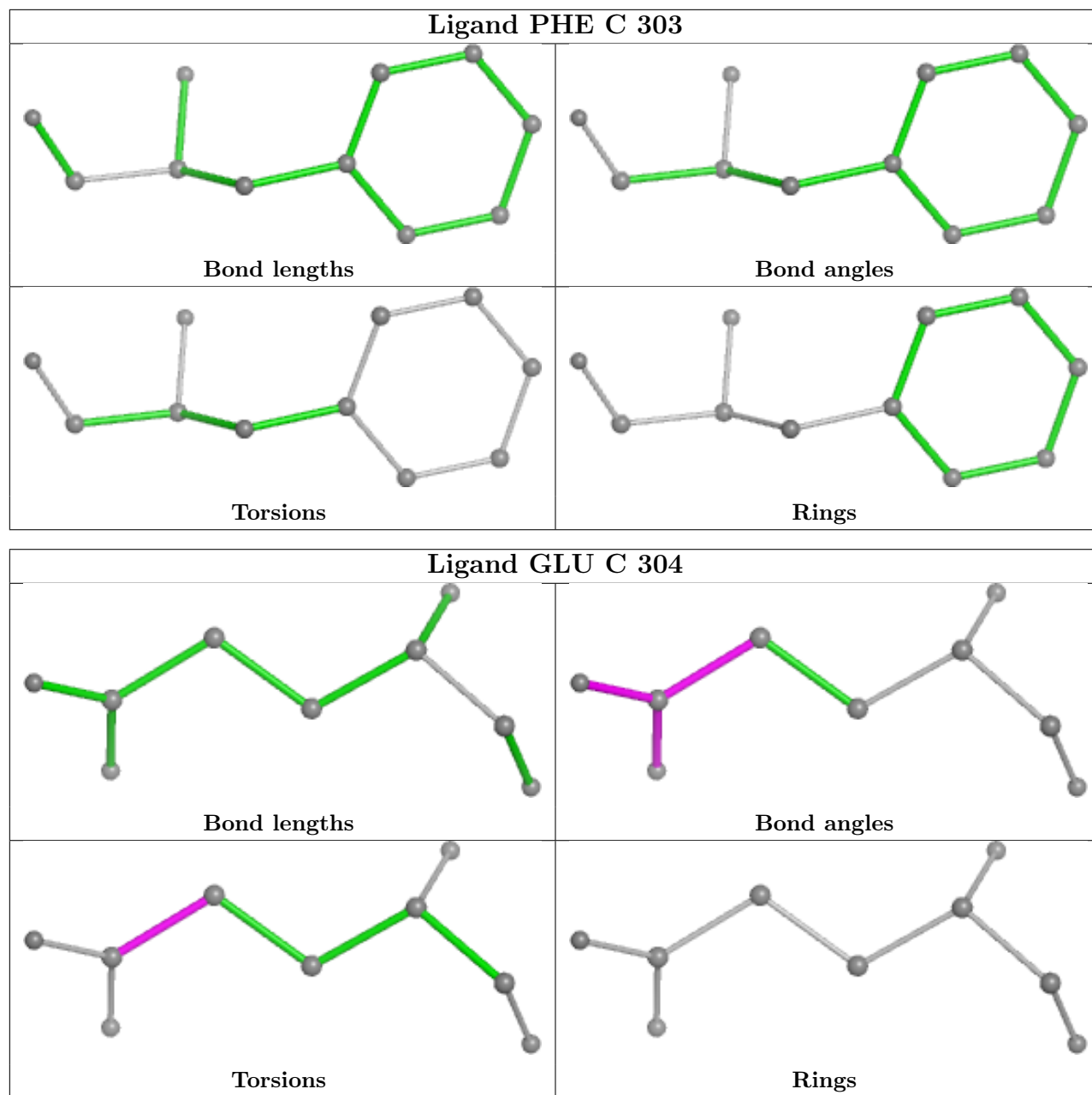
Mol	Chain	Res	Type	Atoms
9	H	305	0GJ	O2-C2-CA2-CB1
9	H	305	0GJ	C3-C2-CA2-N2
9	H	305	0GJ	C3-C2-CA2-CB1
11	C	302	ILE	C-CA-CB-CG1
10	C	301	GLU	OE2-CD-CG-CB
10	C	304	GLU	OE2-CD-CG-CB
10	C	301	GLU	OE1-CD-CG-CB
10	C	304	GLU	OE1-CD-CG-CB

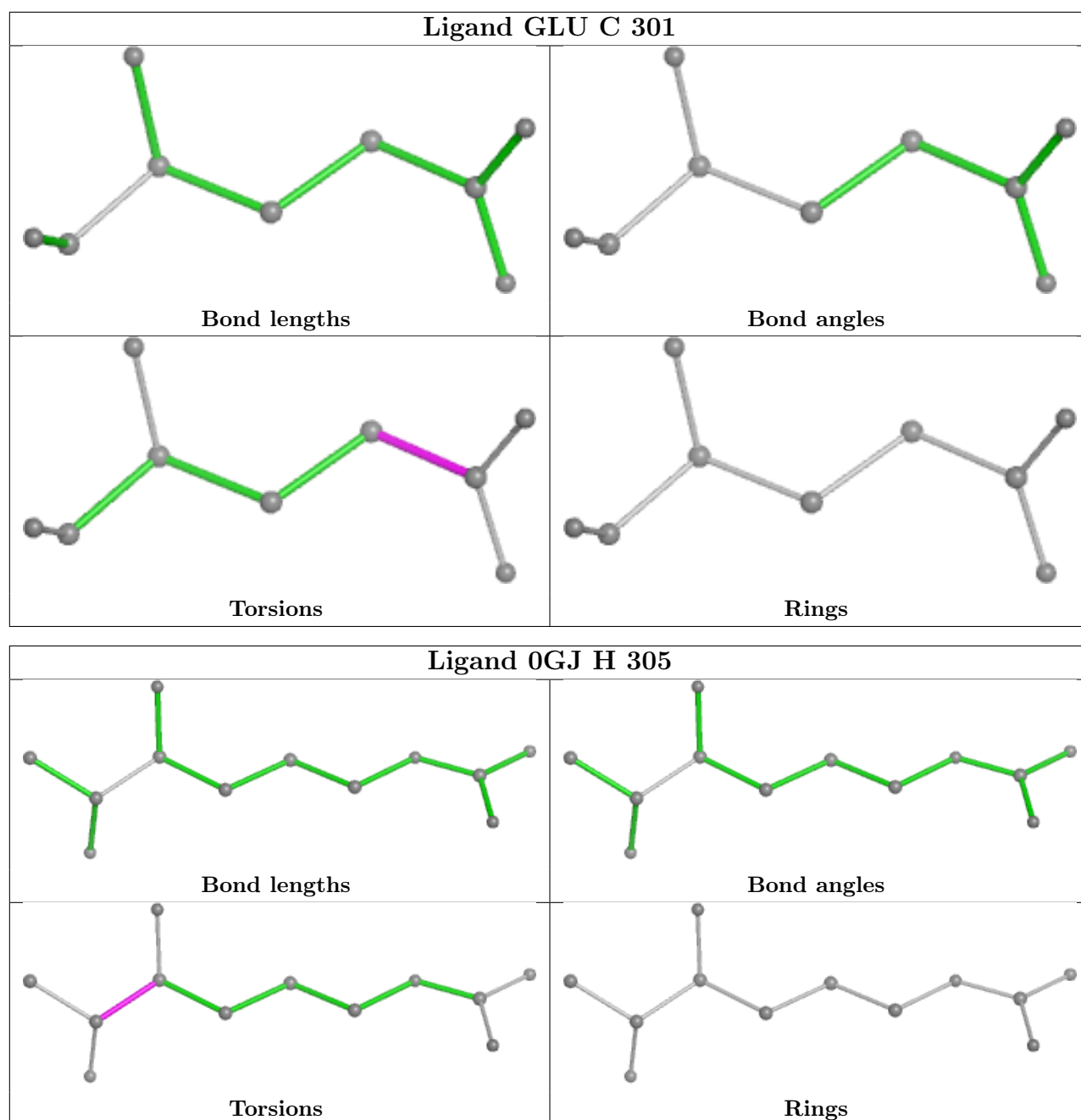
There are no ring outliers.

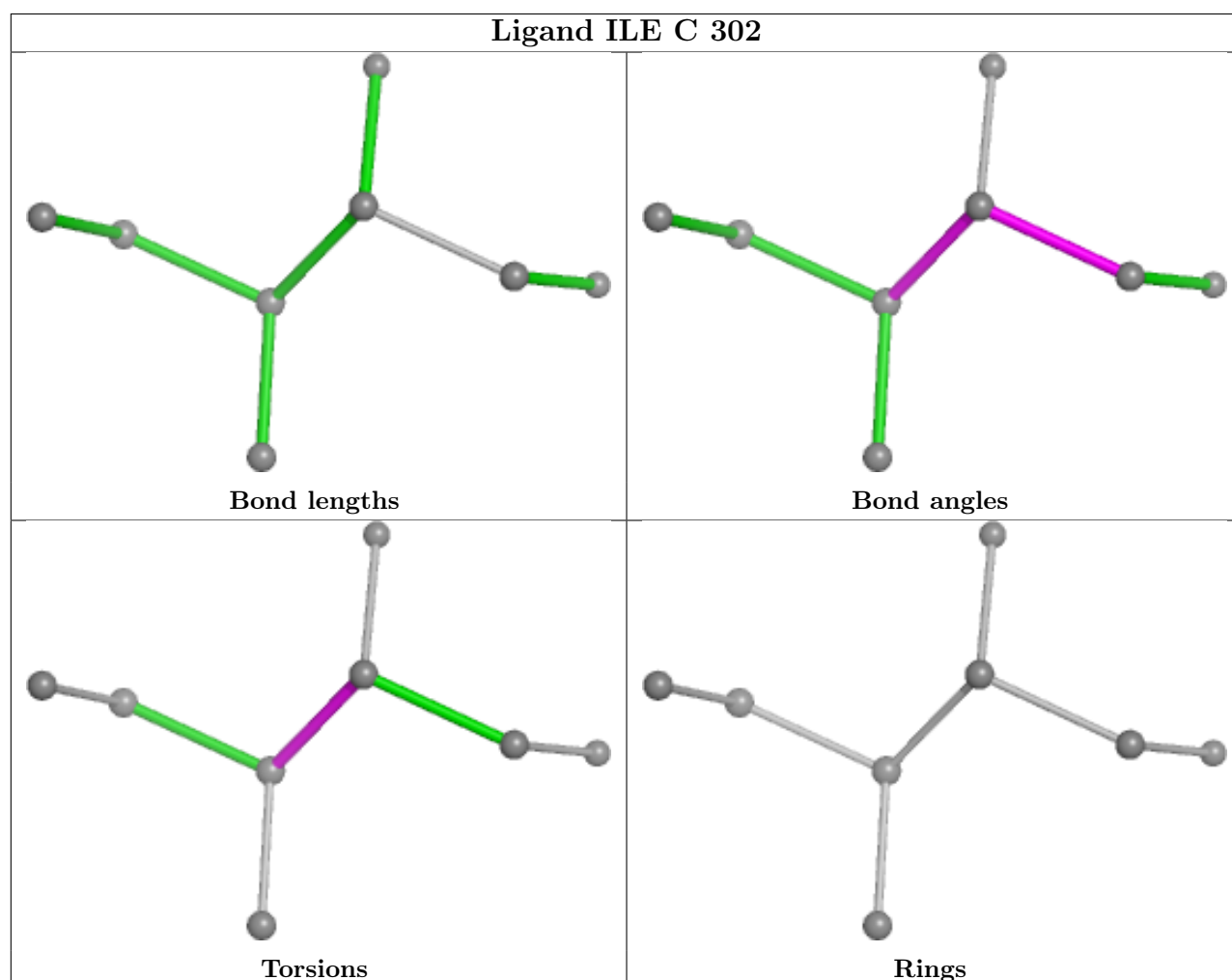
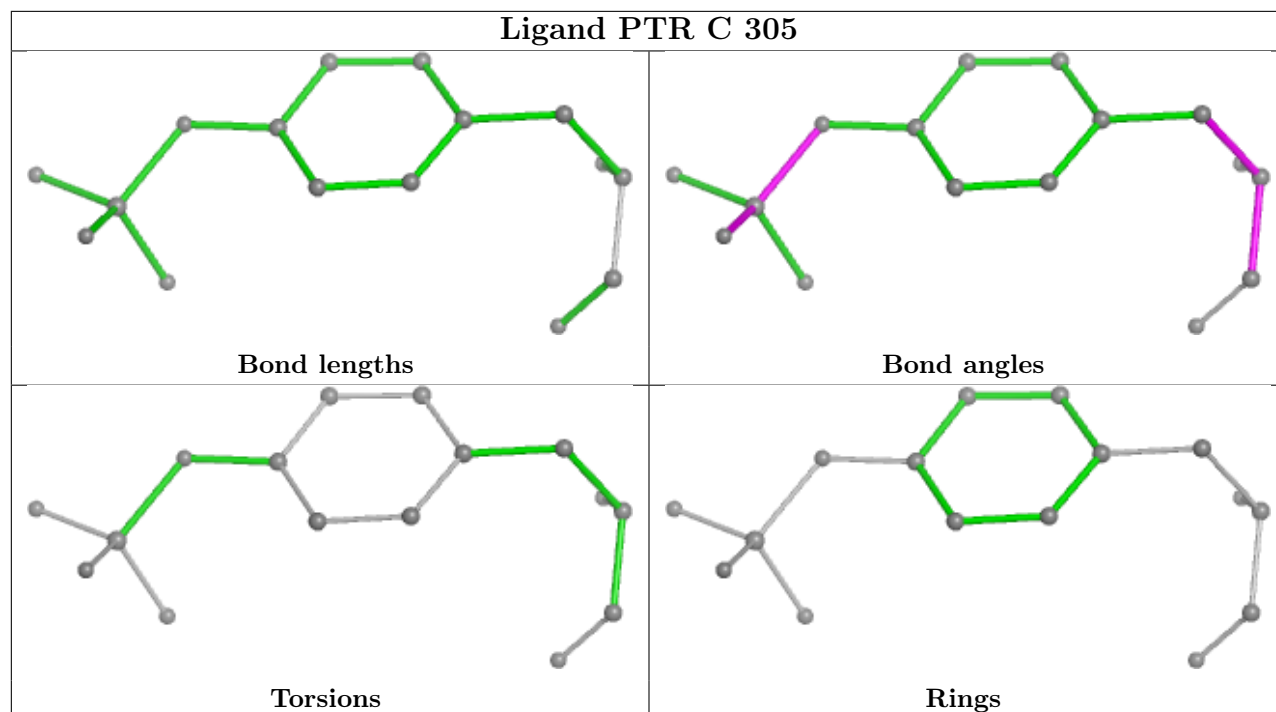
2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
13	C	305	PTR	1	0
11	C	302	ILE	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

There are no such residues in this entry.

5.8 Polymer linkage issues

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	H	234/254 (92%)	-0.06	2 (0%) 81 83	8, 17, 30, 46	18 (7%)
2	L	52/55 (94%)	0.17	2 (3%) 44 45	8, 18, 42, 43	4 (7%)
3	C	4/15 (26%)	2.04	3 (75%) 0 0	28, 38, 48, 55	0
4	I	2/3 (66%)	-0.19	0 100 100	16, 16, 16, 25	0
All	All	292/327 (89%)	0.01	7 (2%) 59 59	8, 17, 34, 55	22 (7%)

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	L	137	LEU	5.0
1	H	244	THR	3.5
3	C	7	GLU	2.6
3	C	6	ASP	2.5
1	H	242	MET	2.4
3	C	8	ASP	2.3
2	L	104	GLN	2.1

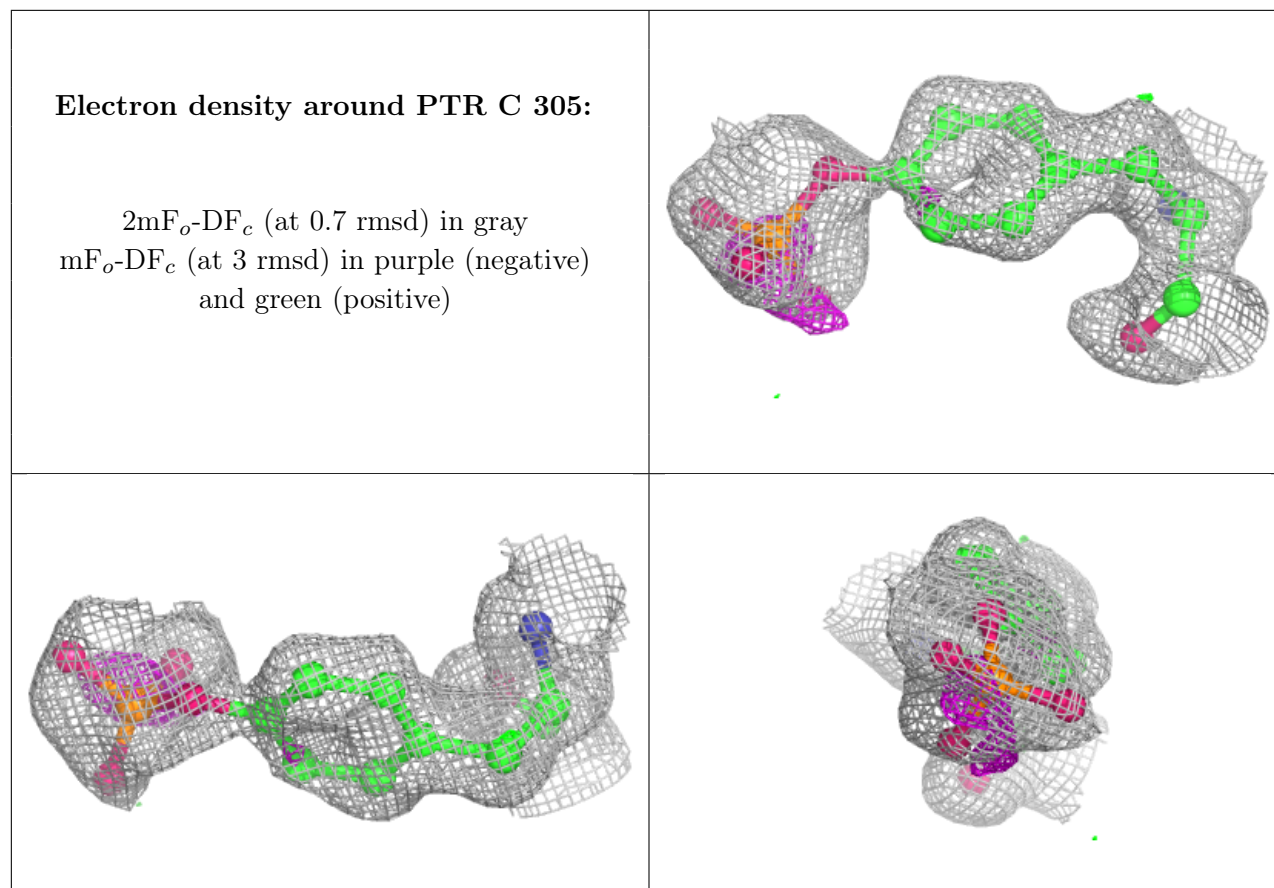
6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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
13	PTR	C	305	16/17	0.91	0.10	21,32,56,57	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.



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.

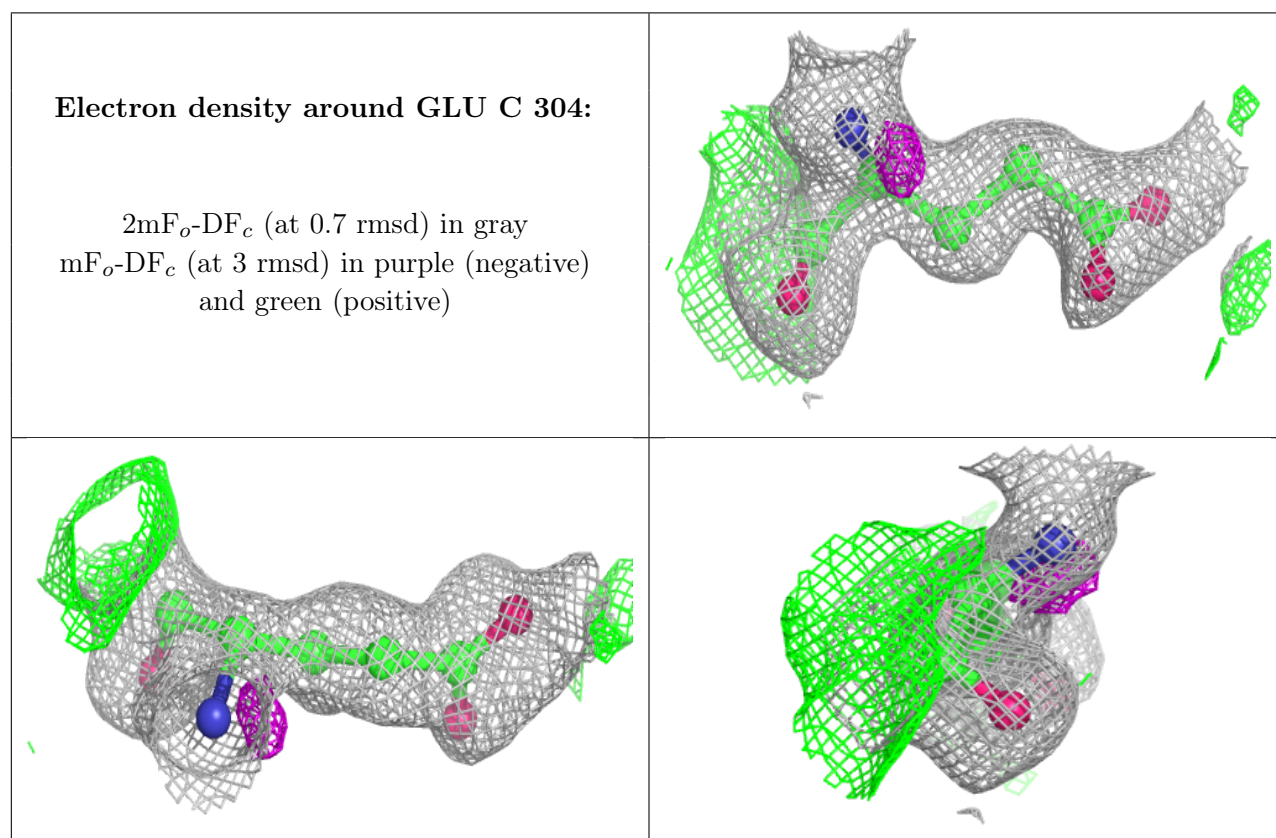
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
8	IMD	H	304	5/5	0.81	0.13	28,29,31,32	0
10	GLU	C	304	9/10	0.85	0.12	25,29,44,47	0
13	PTR	C	305	16/17	0.91	0.10	21,32,56,57	0
10	GLU	C	301	9/10	0.94	0.08	19,22,34,36	0
11	ILE	C	302	8/9	0.95	0.09	19,21,29,31	0
12	PHE	C	303	11/12	0.97	0.06	17,22,28,29	0
9	OGJ	H	305	12/26	0.98	0.04	12,12,14,15	0

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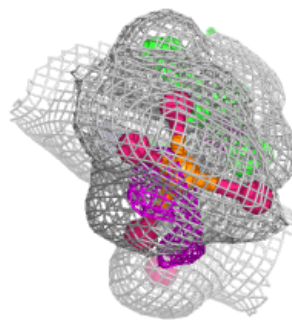
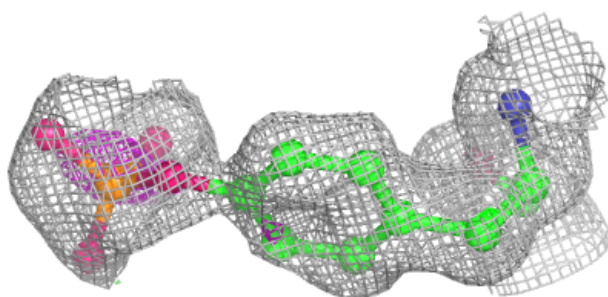
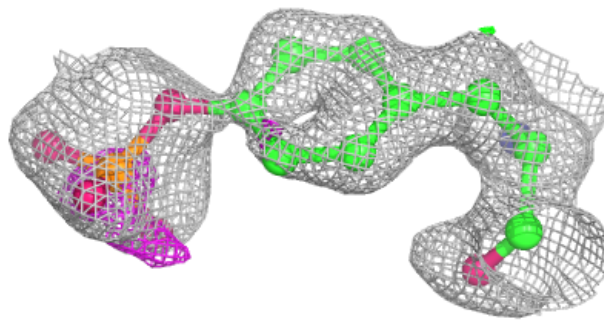
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
7	CL	H	303	1/1	0.99	0.04	20,20,20,20	1
5	CA	H	301	1/1	0.99	0.04	21,21,21,21	1
6	NA	H	302	1/1	1.00	0.08	23,23,23,23	0

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.

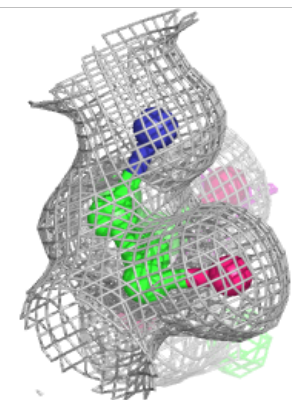
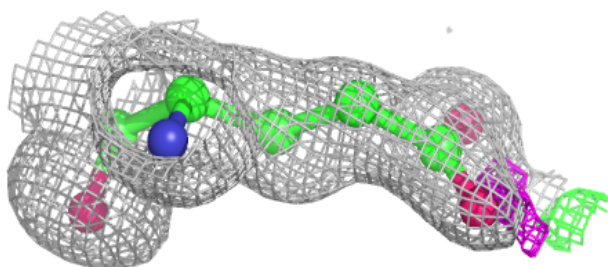
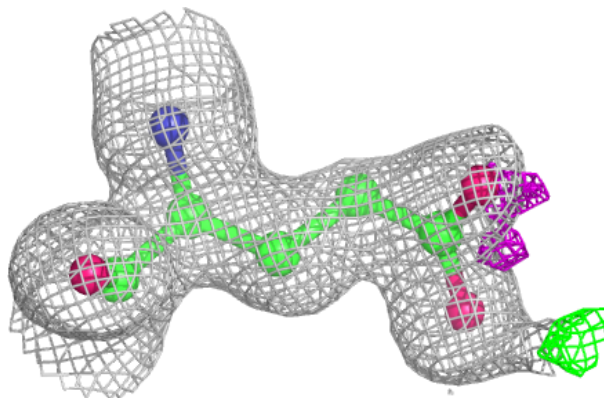


Electron density around PTR C 305:

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

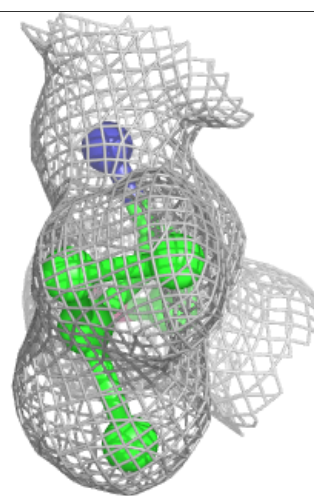
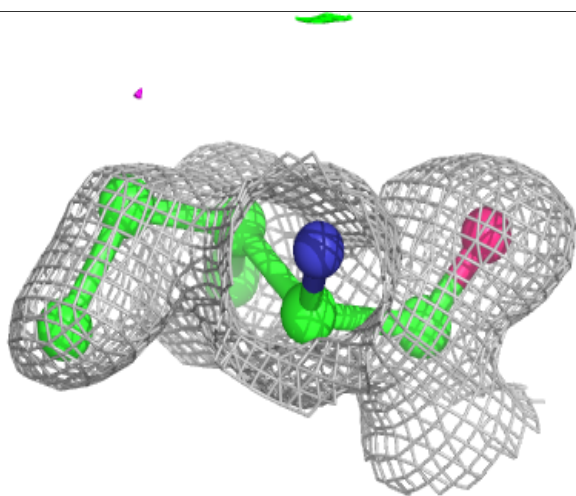
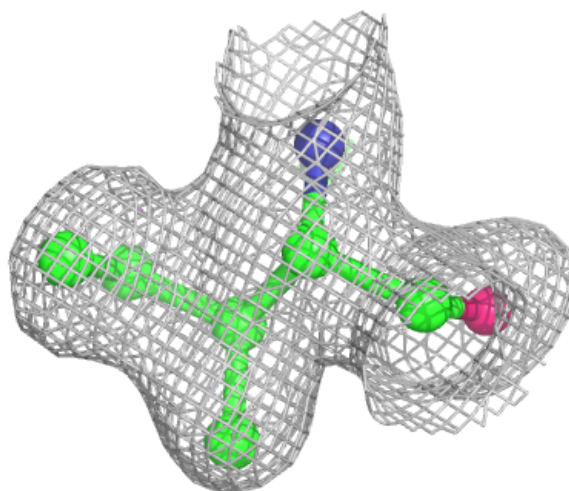
**Electron density around GLU C 301:**

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



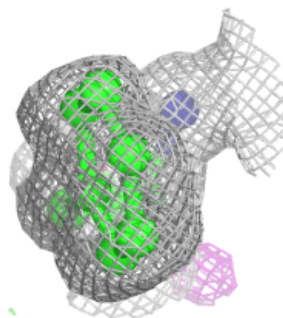
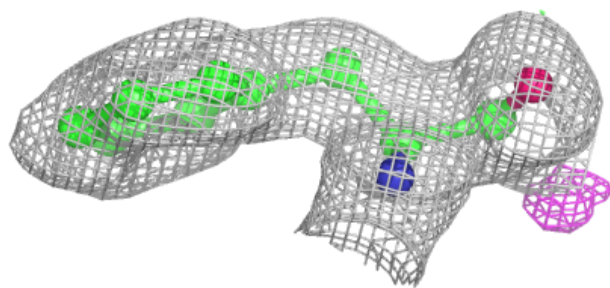
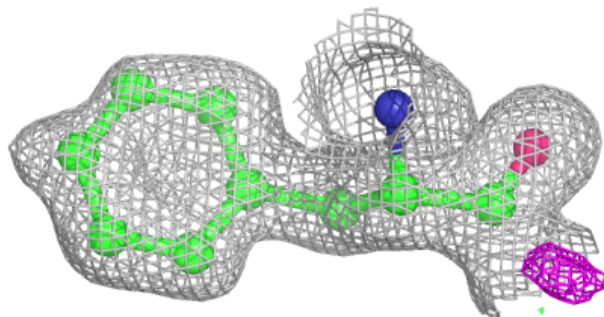
Electron density around ILE C 302:

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

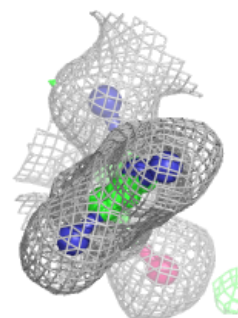
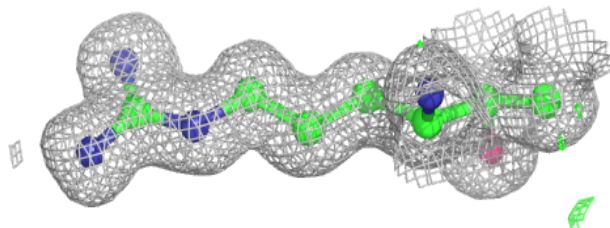
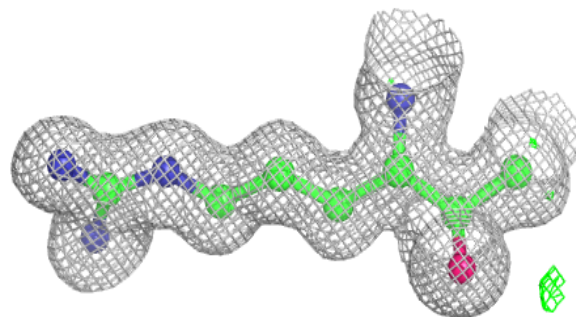


Electron density around PHE C 303:

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

**Electron density around OGJ H 305:**

$2mF_o-DF_c$ (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.