



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 5, 2026 – 10:05 AM UTC

PDB ID : 7PGH / pdb_00007pgh
Title : NaVAe1/Sp1CTDp (DDM)
Authors : Lolicato, M.; Arrigoni, C.
Deposited on : 2021-08-14
Resolution : 4.19 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtrriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

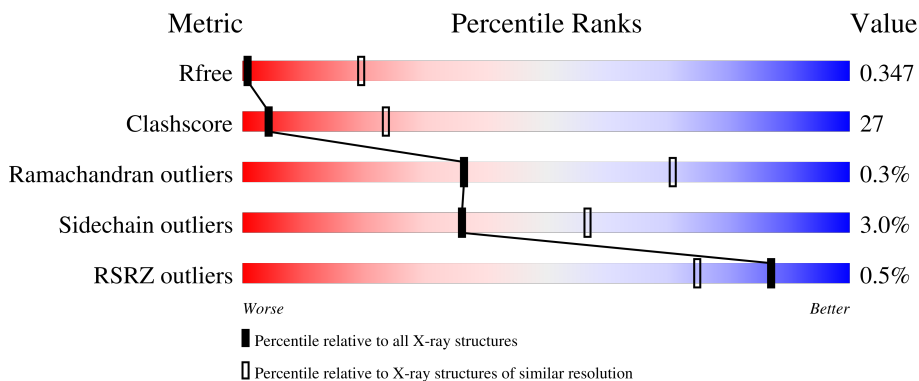
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

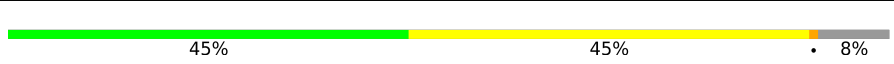




The reported resolution of this entry is 4.19 Å.

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.



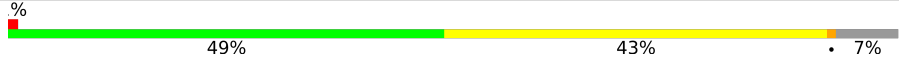


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1004 (4.52-3.88)
Clashscore	190562	1019 (4.50-3.90)
Ramachandran outliers	187476	1020 (4.56-3.84)
Sidechain outliers	187428	1006 (4.56-3.84)
RSRZ outliers	180081	1001 (4.52-3.88)

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	143	
1	B	143	
1	C	143	
1	D	143	
1	E	143	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	143	 <p>% 49% 43% 7%</p>
1	G	143	 <p>% 43% 45% 10%</p>
1	H	143	 <p>% 48% 42% 10%</p>

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 8697 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 Ion transport protein, Voltage-gated sodium channel subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	Se			
1	F	133	1052	701	162	184	5	0	0	0
1	A	131	1036	692	157	182	5	0	0	0
1	B	126	1006	668	157	176	5	0	0	0
1	C	131	1044	696	162	181	5	0	0	0
1	D	127	1016	679	155	177	5	0	0	0
1	E	138	1082	719	172	186	5	0	0	0
1	G	129	1026	687	157	177	5	0	0	0
1	H	128	1020	683	155	177	5	0	0	0

There are 48 discrepancies between the modelled and reference sequences:

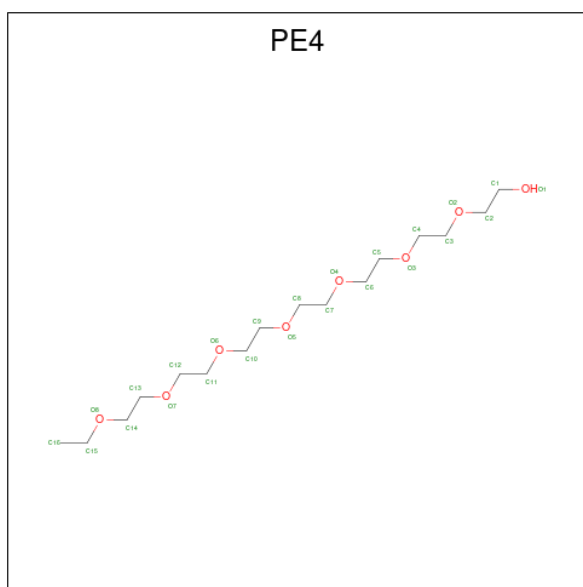
Chain	Residue	Modelled	Actual	Comment	Reference
F	137	GLY	-	expression tag	UNP Q0ABW0
F	138	PRO	-	expression tag	UNP Q0ABW0
F	139	SER	-	expression tag	UNP Q0ABW0
F	140	SER	-	expression tag	UNP Q0ABW0
F	141	PRO	-	expression tag	UNP Q0ABW0
F	142	SER	ALA	conflict	UNP Q0ABW0
A	137	GLY	-	expression tag	UNP Q0ABW0
A	138	PRO	-	expression tag	UNP Q0ABW0
A	139	SER	-	expression tag	UNP Q0ABW0
A	140	SER	-	expression tag	UNP Q0ABW0
A	141	PRO	-	expression tag	UNP Q0ABW0
A	142	SER	ALA	conflict	UNP Q0ABW0
B	137	GLY	-	expression tag	UNP Q0ABW0

Continued on next page...

Continued from previous page...

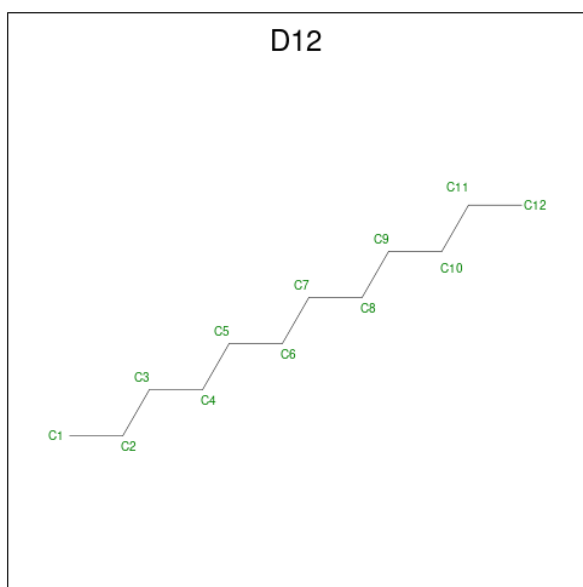
Chain	Residue	Modelled	Actual	Comment	Reference
B	138	PRO	-	expression tag	UNP Q0ABW0
B	139	SER	-	expression tag	UNP Q0ABW0
B	140	SER	-	expression tag	UNP Q0ABW0
B	141	PRO	-	expression tag	UNP Q0ABW0
B	142	SER	ALA	conflict	UNP Q0ABW0
C	137	GLY	-	expression tag	UNP Q0ABW0
C	138	PRO	-	expression tag	UNP Q0ABW0
C	139	SER	-	expression tag	UNP Q0ABW0
C	140	SER	-	expression tag	UNP Q0ABW0
C	141	PRO	-	expression tag	UNP Q0ABW0
C	142	SER	ALA	conflict	UNP Q0ABW0
D	137	GLY	-	expression tag	UNP Q0ABW0
D	138	PRO	-	expression tag	UNP Q0ABW0
D	139	SER	-	expression tag	UNP Q0ABW0
D	140	SER	-	expression tag	UNP Q0ABW0
D	141	PRO	-	expression tag	UNP Q0ABW0
D	142	SER	ALA	conflict	UNP Q0ABW0
E	137	GLY	-	expression tag	UNP Q0ABW0
E	138	PRO	-	expression tag	UNP Q0ABW0
E	139	SER	-	expression tag	UNP Q0ABW0
E	140	SER	-	expression tag	UNP Q0ABW0
E	141	PRO	-	expression tag	UNP Q0ABW0
E	142	SER	ALA	conflict	UNP Q0ABW0
G	137	GLY	-	expression tag	UNP Q0ABW0
G	138	PRO	-	expression tag	UNP Q0ABW0
G	139	SER	-	expression tag	UNP Q0ABW0
G	140	SER	-	expression tag	UNP Q0ABW0
G	141	PRO	-	expression tag	UNP Q0ABW0
G	142	SER	ALA	conflict	UNP Q0ABW0
H	137	GLY	-	expression tag	UNP Q0ABW0
H	138	PRO	-	expression tag	UNP Q0ABW0
H	139	SER	-	expression tag	UNP Q0ABW0
H	140	SER	-	expression tag	UNP Q0ABW0
H	141	PRO	-	expression tag	UNP Q0ABW0
H	142	SER	ALA	conflict	UNP Q0ABW0

- Molecule 2 is 2-{2-[2-(2-{2-[2-(2-ETHOXY-ETHOXY)-ETHOXY]-ETHOXY}-ETHOXY)-ETHOXY]-ETHOXY}-ETHANOL (CCD ID: PE4) (formula: C₁₆H₃₄O₈).



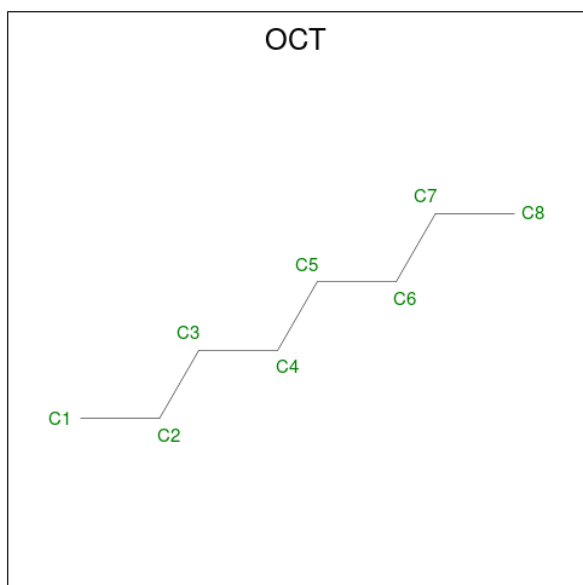
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	F	1	Total C O 24 16 8	0	0
2	F	1	Total C O 24 16 8	0	0
2	F	1	Total C O 24 16 8	0	0
2	F	1	Total C O 24 16 8	0	0
2	A	1	Total C O 24 16 8	0	0
2	A	1	Total C O 24 16 8	0	0
2	A	1	Total C O 24 16 8	0	0
2	G	1	Total C O 24 16 8	0	0
2	H	1	Total C O 24 16 8	0	0

- Molecule 3 is DODECANE (CCD ID: D12) (formula: C₁₂H₂₆).



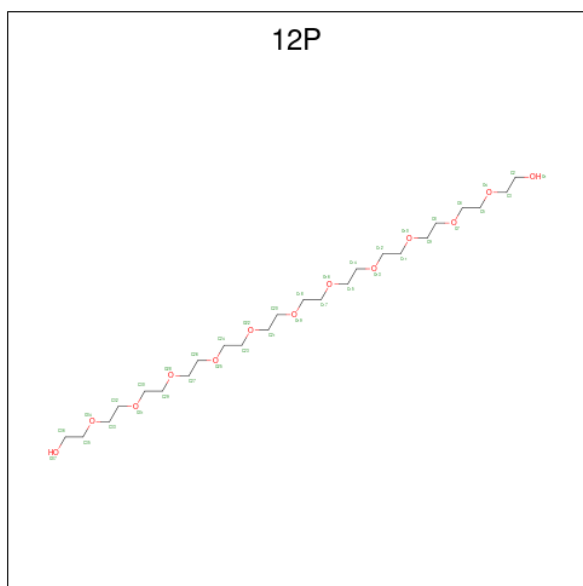
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C 12 12	0	0
3	B	1	Total C 12 12	0	0
3	G	1	Total C 12 12	0	0
3	H	1	Total C 12 12	0	0

- Molecule 4 is N-OCTANE (CCD ID: OCT) (formula: C₈H₁₈).



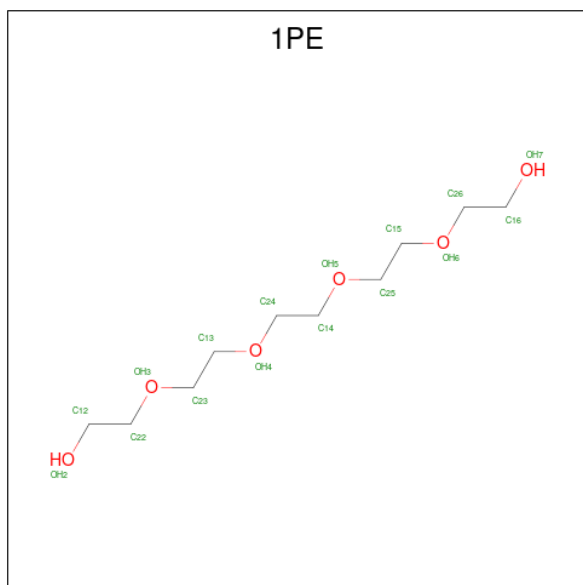
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	1	Total C 8 8	0	0

- Molecule 5 is DODECAETHYLENE GLYCOL (CCD ID: 12P) (formula: $C_{24}H_{50}O_{13}$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	1	Total C O 37 24 13	0	0
5	C	1	Total C O 37 24 13	0	0
5	H	1	Total C O 37 24 13	0	0

- Molecule 6 is PENTAETHYLENE GLYCOL (CCD ID: 1PE) (formula: $C_{10}H_{22}O_6$).



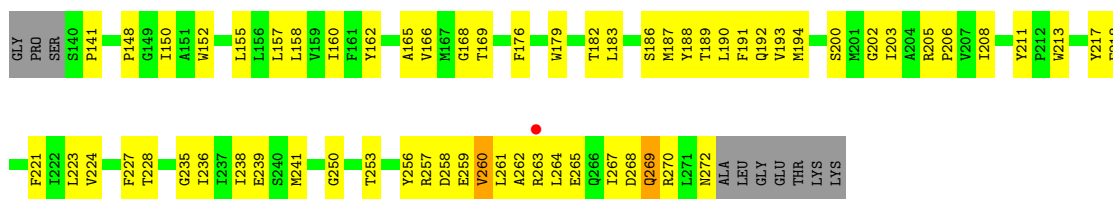
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	D	1	Total	C O	0	0
			16	10 6		
6	H	1	Total	C O	0	0
			16	10 6		

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.

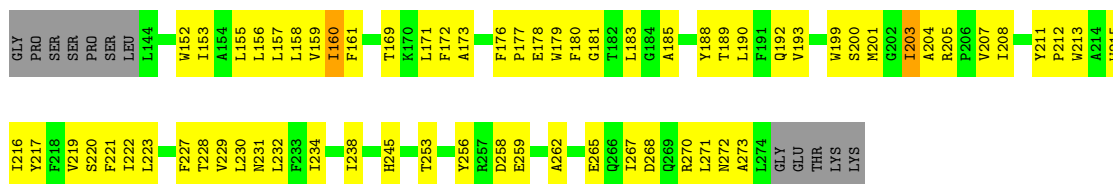
- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit

Chain F: 



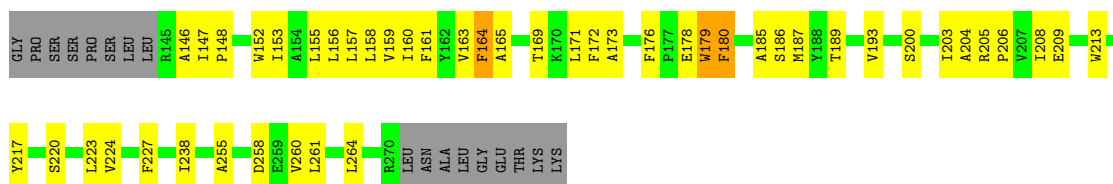
- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit

Chain A: 



- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit

Chain B: 



- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit

Chain C: 

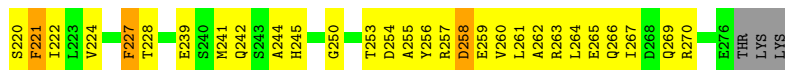




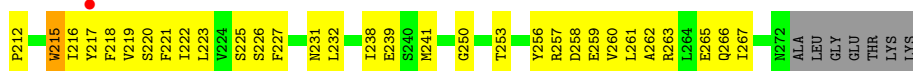
- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit



- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit



- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit



- Molecule 1: Ion transport protein, Voltage-gated sodium channel subunit



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	123.47Å 134.70Å 155.54Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	14.99 – 4.19 14.99 – 4.19	Depositor EDS
% Data completeness (in resolution range)	99.0 (14.99-4.19) 96.5 (14.99-4.19)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.99 (at 4.14Å)	Xtrriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.318 , 0.337 0.324 , 0.347	Depositor DCC
R_{free} test set	891 reflections (4.50%)	wwPDB-VP
Wilson B-factor (Å ²)	267.0	Xtrriage
Anisotropy	0.157	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.15 , 178.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	8697	wwPDB-VP
Average B, all atoms (Å ²)	317.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.14% 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: OCT, 1PE, PE4, 12P, D12

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	0.33	0/1061	0.71	1/1441 (0.1%)
1	B	0.29	0/1030	0.64	1/1395 (0.1%)
1	C	0.33	0/1069	0.69	0/1450
1	D	0.36	0/1041	0.73	1/1412 (0.1%)
1	E	0.36	0/1107	0.88	3/1501 (0.2%)
1	F	0.32	0/1077	0.74	1/1462 (0.1%)
1	G	0.37	0/1051	0.79	1/1426 (0.1%)
1	H	0.38	0/1045	0.67	0/1418
All	All	0.34	0/8481	0.73	8/11505 (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	B	0	1
1	G	0	1
All	All	0	2

There are no bond length outliers.

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	141	PRO	N-CA-CB	8.83	112.52	103.25
1	E	140	SER	CA-C-N	8.77	130.81	119.84
1	E	140	SER	C-N-CA	8.77	130.81	119.84
1	D	179	TRP	CA-CB-CG	6.72	126.37	113.60
1	F	141	PRO	N-CA-CB	6.67	110.25	103.25

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	179	TRP	Peptide
1	G	266	GLN	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1036	0	1014	72	0
1	B	1006	0	977	53	0
1	C	1044	0	1030	56	0
1	D	1016	0	1001	72	0
1	E	1082	0	1055	77	0
1	F	1052	0	1025	72	0
1	G	1026	0	1012	73	0
1	H	1020	0	1006	54	0
2	A	72	0	102	3	0
2	F	96	0	136	2	0
2	G	24	0	34	4	0
2	H	24	0	34	0	0
3	A	12	0	26	0	0
3	B	12	0	26	1	0
3	G	12	0	26	0	0
3	H	12	0	26	0	0
4	C	8	0	18	0	0
5	C	74	0	100	1	0
5	H	37	0	50	0	0
6	D	16	0	22	0	0
6	H	16	0	22	0	0
All	All	8697	0	8742	471	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 27.

The worst 5 of 471 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:G:145:ARG:HH22	1:H:238:ILE:HD12	1.22	1.00
1:E:260:VAL:HG22	1:E:263:ARG:HH11	1.37	0.89
1:E:256:TYR:O	1:E:259:GLU:HG3	1.74	0.87
1:A:172:PHE:HD2	1:A:176:PHE:HE2	1.20	0.87
1:F:155:LEU:HD12	1:D:230:LEU:HD11	1.57	0.87

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	129/143 (90%)	107 (83%)	22 (17%)	0	100	100
1	B	124/143 (87%)	105 (85%)	18 (14%)	1 (1%)	16	52
1	C	129/143 (90%)	113 (88%)	16 (12%)	0	100	100
1	D	125/143 (87%)	107 (86%)	18 (14%)	0	100	100
1	E	136/143 (95%)	96 (71%)	39 (29%)	1 (1%)	18	54
1	F	131/143 (92%)	105 (80%)	25 (19%)	1 (1%)	16	52
1	G	127/143 (89%)	111 (87%)	16 (13%)	0	100	100
1	H	126/143 (88%)	107 (85%)	19 (15%)	0	100	100
All	All	1027/1144 (90%)	851 (83%)	173 (17%)	3 (0%)	36	71

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	141	PRO
1	F	269	GLN
1	B	147	ILE

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	106/115 (92%)	103 (97%)	3 (3%)	38	59
1	B	102/115 (89%)	99 (97%)	3 (3%)	37	58
1	C	107/115 (93%)	104 (97%)	3 (3%)	38	59
1	D	105/115 (91%)	97 (92%)	8 (8%)	12	33
1	E	107/115 (93%)	103 (96%)	4 (4%)	30	51
1	F	107/115 (93%)	106 (99%)	1 (1%)	70	75
1	G	105/115 (91%)	103 (98%)	2 (2%)	50	66
1	H	105/115 (91%)	104 (99%)	1 (1%)	68	75
All	All	844/920 (92%)	819 (97%)	25 (3%)	36	57

5 of 25 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	222	ILE
1	D	267	ILE
1	H	245	HIS
1	D	246	HIS
1	E	221	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 12 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	269	GLN
1	G	246	HIS
1	H	245	HIS
1	H	174	GLN
1	D	246	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

19 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	D12	G	301	-	11,11,11	0.30	0	10,10,10	0.85	0
6	1PE	H	303	-	15,15,15	0.55	0	14,14,14	0.21	0
5	12P	C	302	-	36,36,36	0.56	0	35,35,35	0.20	0
2	PE4	H	302	-	23,23,23	0.57	0	22,22,22	0.20	0
4	OCT	C	301	-	7,7,7	0.31	0	6,6,6	0.72	0
5	12P	H	304	-	36,36,36	0.56	0	35,35,35	0.19	0
2	PE4	F	301	-	23,23,23	0.57	0	22,22,22	0.23	0
2	PE4	G	302	-	23,23,23	0.57	0	22,22,22	0.21	0
2	PE4	A	302	-	23,23,23	0.57	0	22,22,22	0.22	0
6	1PE	D	301	-	15,15,15	0.55	0	14,14,14	0.21	0
2	PE4	F	304	-	23,23,23	0.57	0	22,22,22	0.18	0
2	PE4	F	303	-	23,23,23	0.57	0	22,22,22	0.20	0
2	PE4	A	304	-	23,23,23	0.57	0	22,22,22	0.19	0
3	D12	H	301	-	11,11,11	0.29	0	10,10,10	0.86	0
5	12P	C	303	-	36,36,36	0.56	0	35,35,35	0.20	0
3	D12	B	301	-	11,11,11	0.30	0	10,10,10	0.82	0
2	PE4	A	303	-	23,23,23	0.57	0	22,22,22	0.19	0
2	PE4	F	302	-	23,23,23	0.57	0	22,22,22	0.19	0
3	D12	A	301	-	11,11,11	0.30	0	10,10,10	0.82	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
3	D12	G	301	-	-	1/9/9/9	-
6	1PE	H	303	-	-	7/13/13/13	-
5	12P	C	302	-	-	18/34/34/34	-
2	PE4	H	302	-	-	10/21/21/21	-
4	OCT	C	301	-	-	1/5/5/5	-
5	12P	H	304	-	-	19/34/34/34	-
2	PE4	F	301	-	-	11/21/21/21	-
2	PE4	G	302	-	-	15/21/21/21	-
2	PE4	A	302	-	-	9/21/21/21	-
6	1PE	D	301	-	-	7/13/13/13	-
2	PE4	F	304	-	-	14/21/21/21	-
2	PE4	F	303	-	-	11/21/21/21	-
2	PE4	A	304	-	-	8/21/21/21	-
3	D12	H	301	-	-	2/9/9/9	-
5	12P	C	303	-	-	13/34/34/34	-
3	D12	B	301	-	-	3/9/9/9	-
2	PE4	A	303	-	-	9/21/21/21	-
2	PE4	F	302	-	-	10/21/21/21	-
3	D12	A	301	-	-	0/9/9/9	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 168 torsion outliers are listed below:

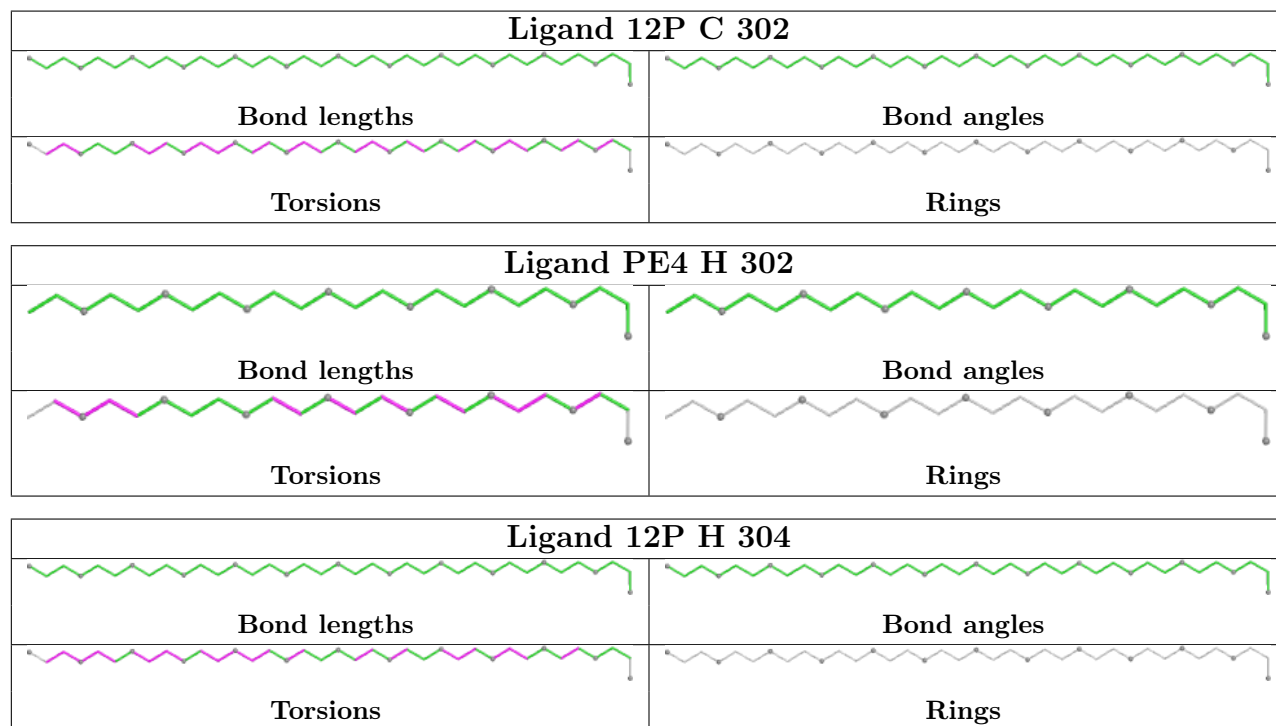
Mol	Chain	Res	Type	Atoms
2	A	304	PE4	O6-C10-C9-O5
2	H	302	PE4	O6-C10-C9-O5
5	H	304	12P	O7-C8-C9-O10
5	C	303	12P	O4-C5-C6-O7
5	H	304	12P	O25-C26-C27-O28

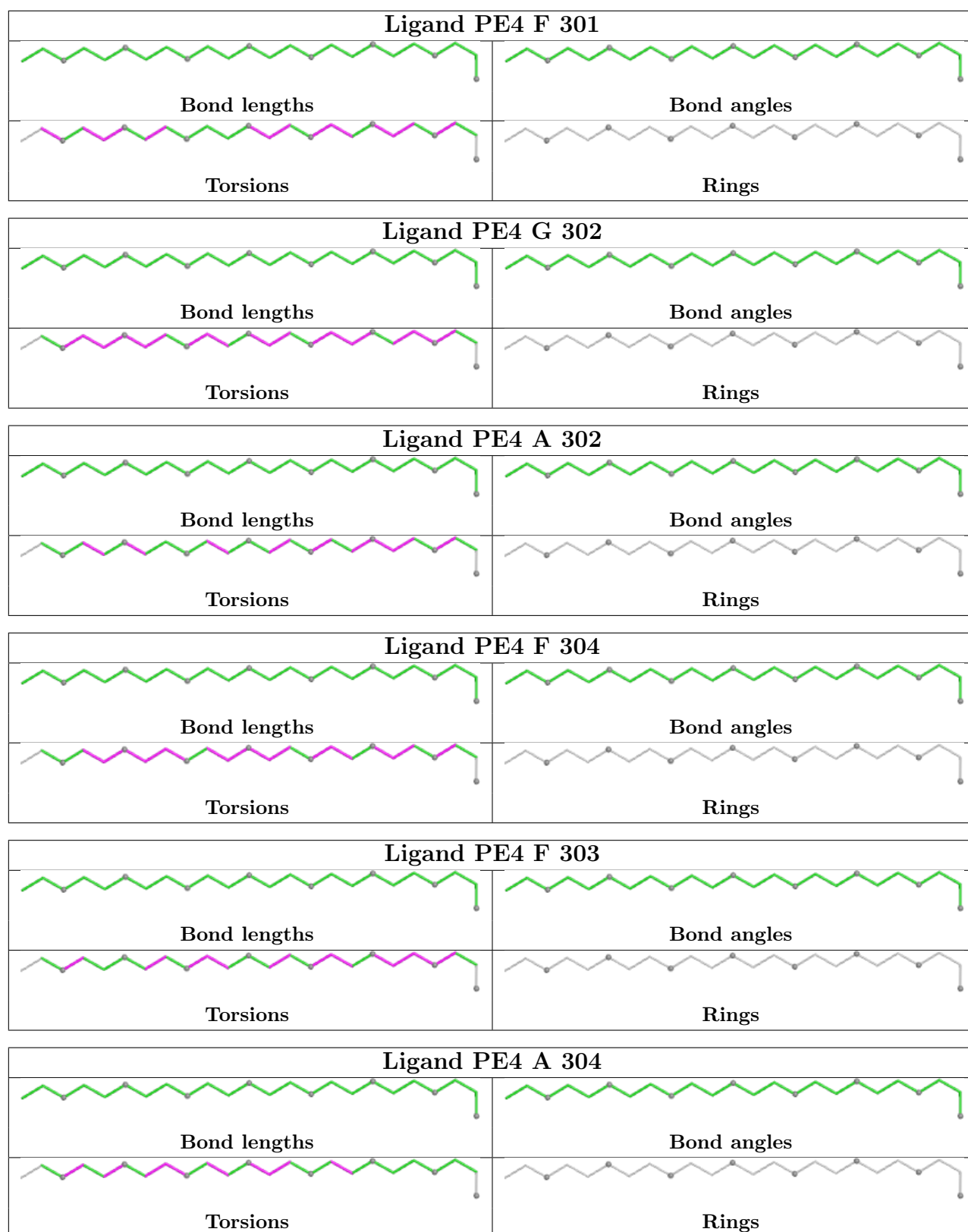
There are no ring outliers.

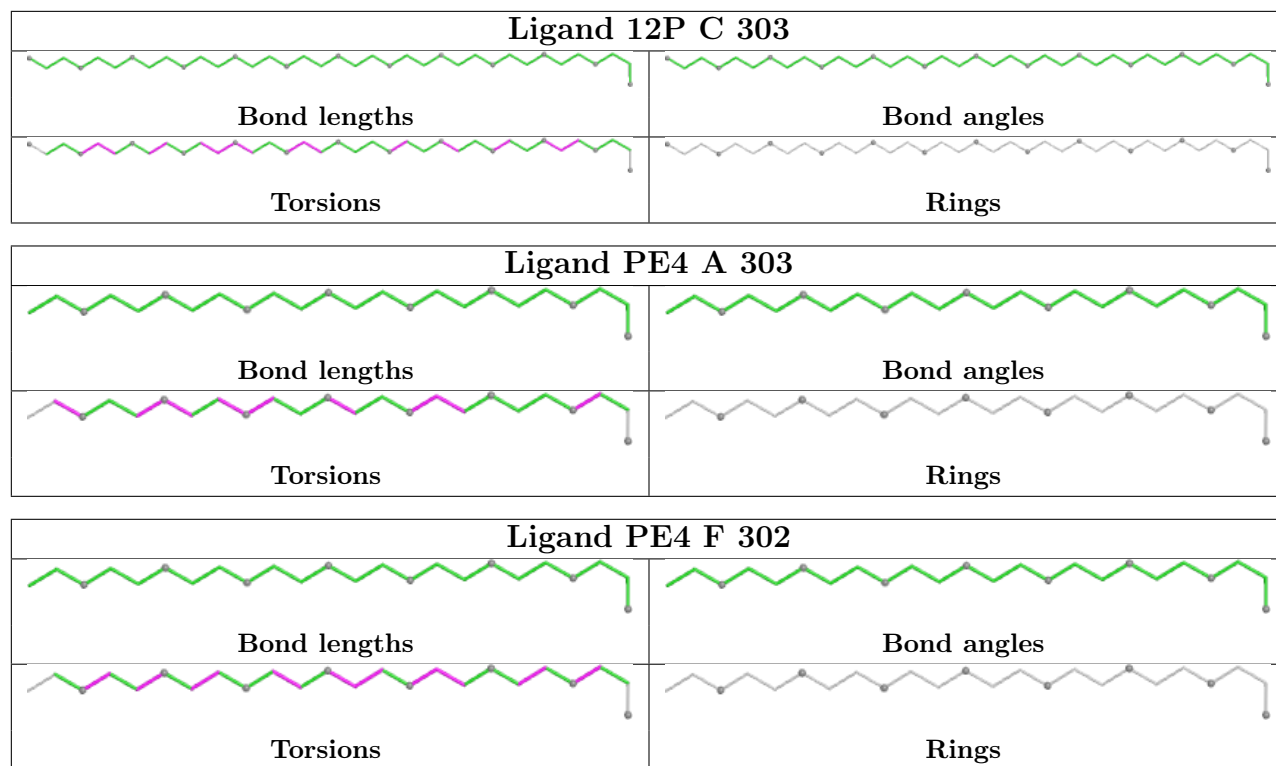
6 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	302	PE4	4	0
2	F	303	PE4	2	0
2	A	304	PE4	2	0
5	C	303	12P	1	0
3	B	301	D12	1	0
2	A	303	PE4	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.







5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	126/143 (88%)	-0.16	0 100 100	182, 314, 418, 477	0
1	B	121/143 (84%)	-0.37	0 100 100	186, 305, 423, 499	0
1	C	126/143 (88%)	-0.37	0 100 100	173, 316, 411, 583	0
1	D	122/143 (85%)	-0.28	2 (1%) 70 54	194, 293, 422, 518	0
1	E	133/143 (93%)	-0.28	0 100 100	172, 302, 433, 499	0
1	F	128/143 (89%)	-0.32	1 (0%) 82 68	259, 364, 492, 591	0
1	G	124/143 (86%)	-0.29	1 (0%) 82 68	186, 294, 389, 498	0
1	H	123/143 (86%)	-0.24	1 (0%) 82 68	153, 295, 393, 473	0
All	All	1003/1144 (87%)	-0.29	5 (0%) 87 75	153, 311, 439, 591	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	175	SER	3.4
1	F	263	ARG	2.8
1	G	217	TYR	2.5
1	D	177	PRO	2.2
1	H	200	SER	2.1

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands

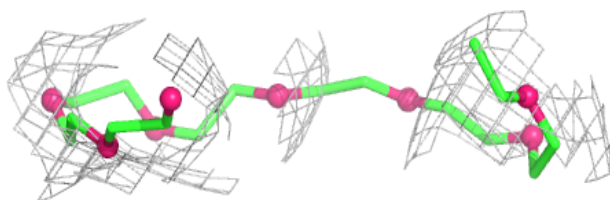
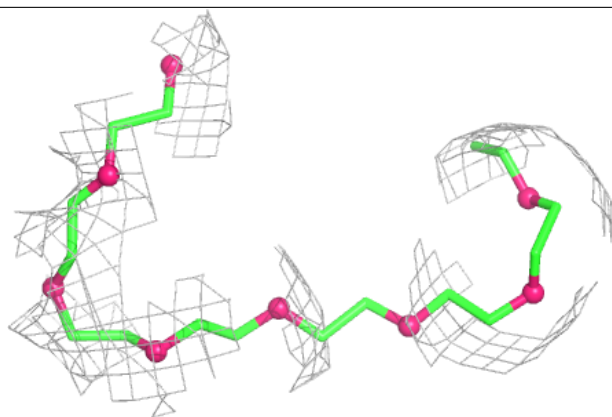
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	D12	A	301	12/12	0.61	0.11	103,209,259,264	0
2	PE4	F	302	24/24	0.66	0.07	185,338,423,442	0
2	PE4	F	304	24/24	0.68	0.06	157,293,362,389	0
2	PE4	A	303	24/24	0.70	0.07	186,329,376,392	0
4	OCT	C	301	8/8	0.71	0.09	195,242,266,269	0
3	D12	G	301	12/12	0.72	0.10	188,241,328,338	0
6	1PE	D	301	16/16	0.72	0.05	211,262,303,303	0
3	D12	H	301	12/12	0.80	0.05	160,229,289,291	0
3	D12	B	301	12/12	0.80	0.10	78,188,208,225	0
2	PE4	F	303	24/24	0.80	0.06	186,287,317,338	0
5	12P	C	303	37/37	0.82	0.06	163,281,351,360	0
2	PE4	A	304	24/24	0.85	0.06	181,249,293,315	0
6	1PE	H	303	16/16	0.85	0.06	210,257,302,319	0
2	PE4	H	302	24/24	0.87	0.04	229,281,314,317	0
2	PE4	F	301	24/24	0.88	0.05	171,269,334,339	0
2	PE4	G	302	24/24	0.88	0.07	224,261,328,338	0
5	12P	C	302	37/37	0.88	0.05	199,299,367,379	0
5	12P	H	304	37/37	0.89	0.05	211,269,397,440	0
2	PE4	A	302	24/24	0.93	0.05	165,266,304,323	0

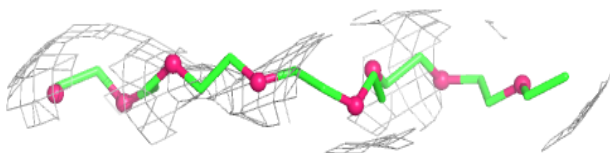
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around PE4 F 302:

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

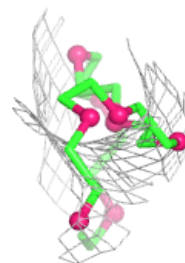
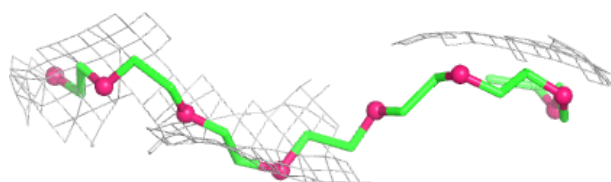
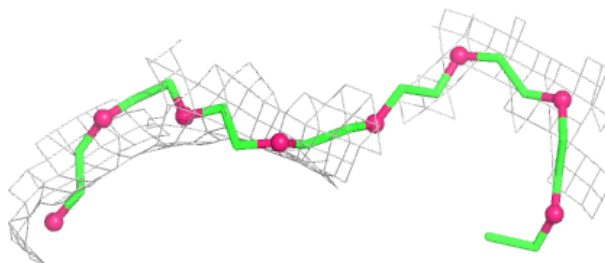
**Electron density around PE4 F 304:**

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

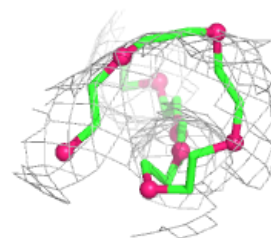
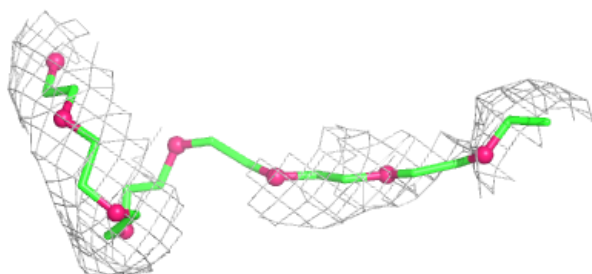
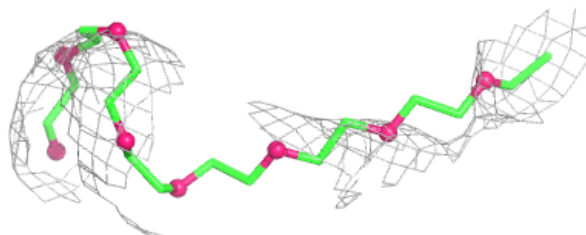


Electron density around PE4 A 303:

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

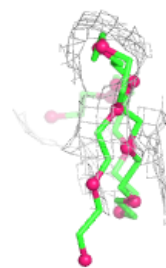
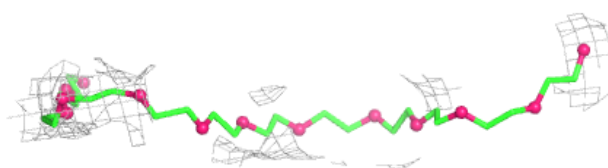
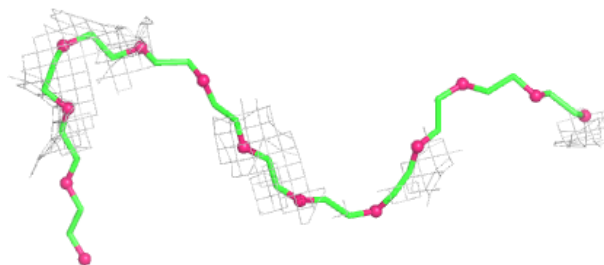
**Electron density around PE4 F 303:**

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

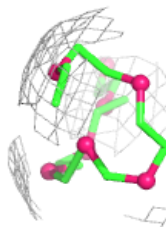
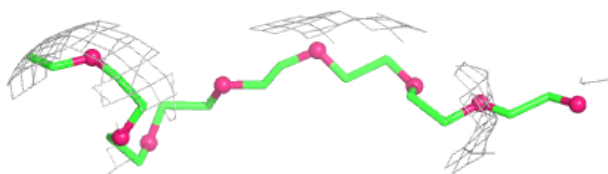
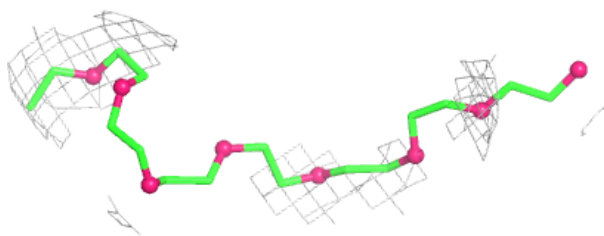


Electron density around 12P C 303:

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

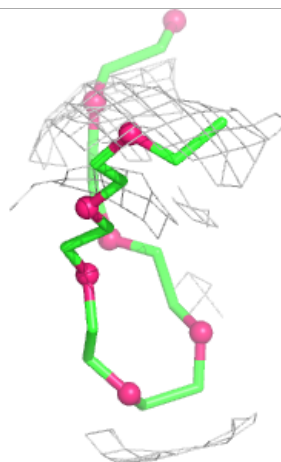
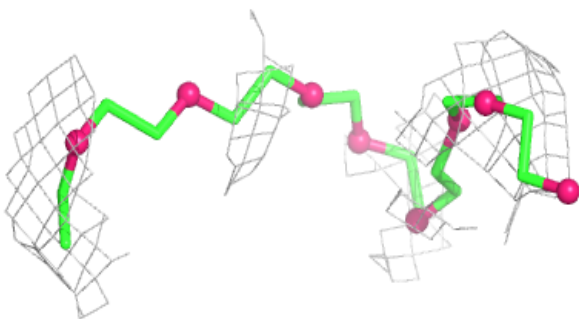
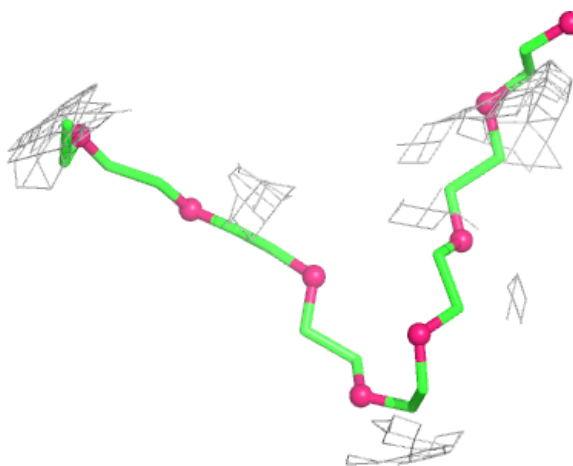
**Electron density around PE4 A 304:**

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



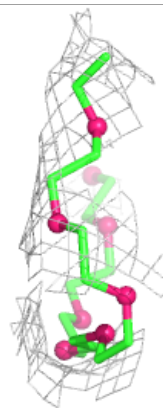
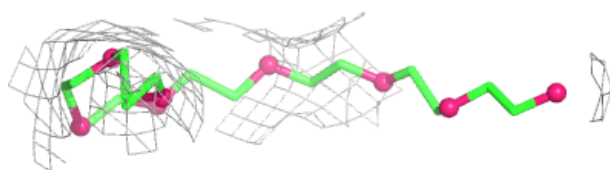
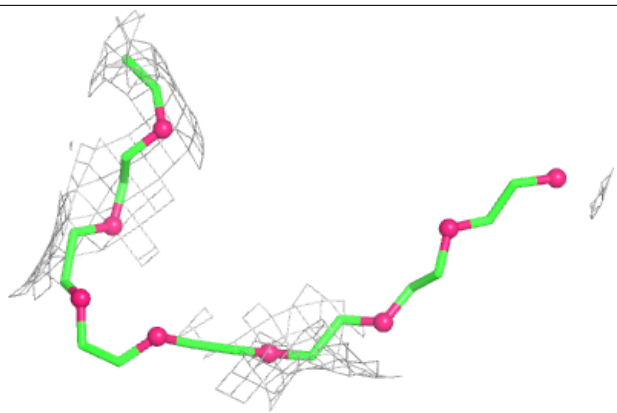
Electron density around PE4 H 302:

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

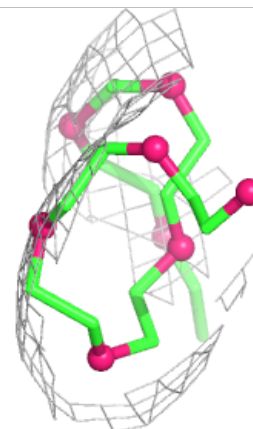
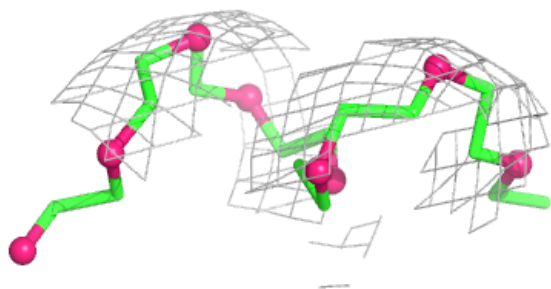
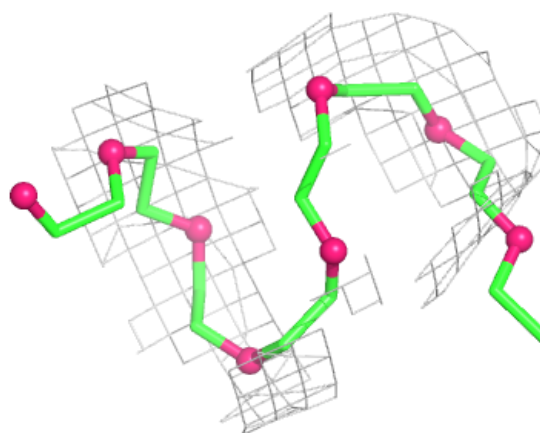


Electron density around PE4 F 301:

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

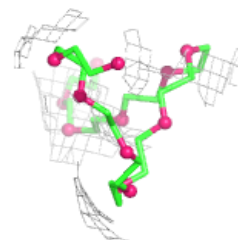
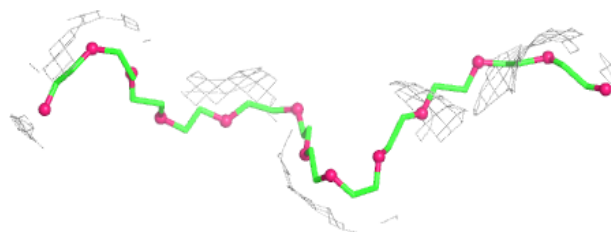
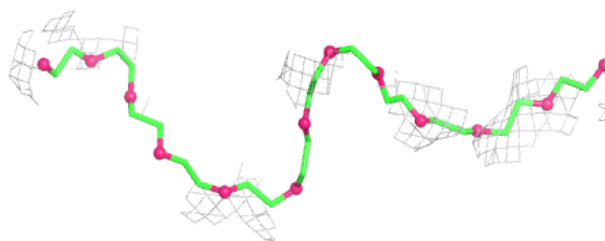
**Electron density around PE4 G 302:**

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

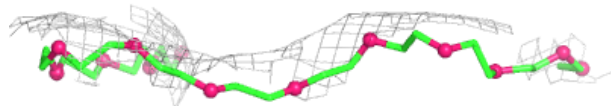
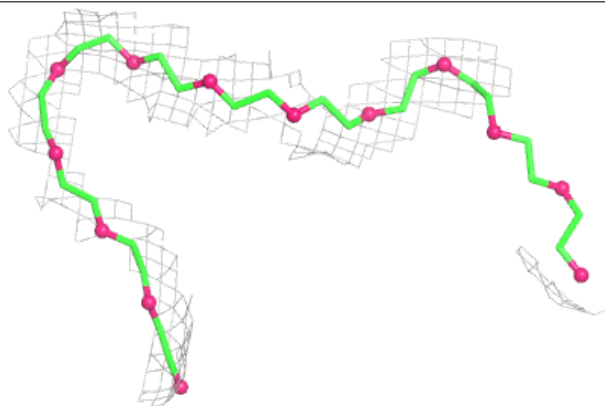


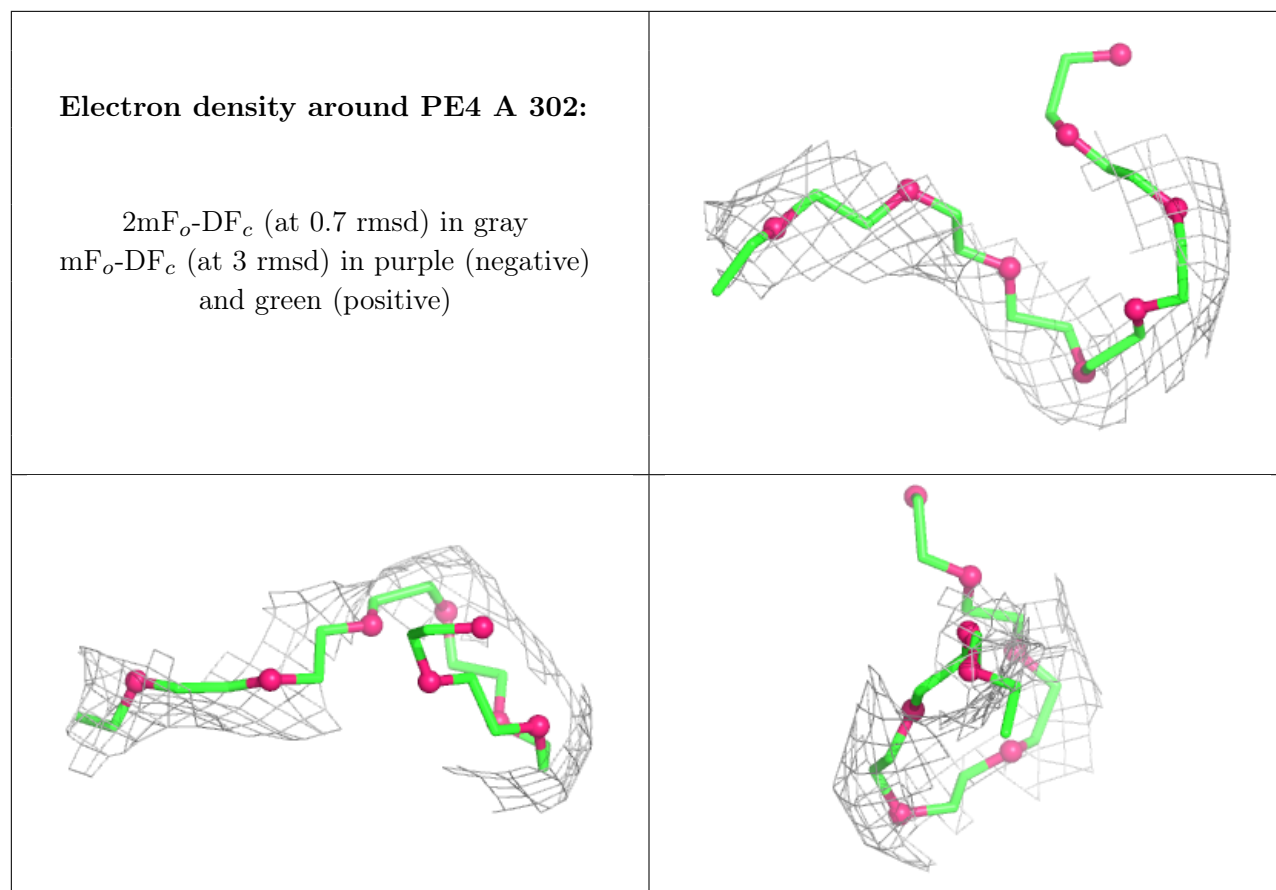
Electron density around 12P C 302:

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

**Electron density around 12P H 304:**

$2mF_o-DF_c$ (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.