Full wwPDB X-ray Structure Validation Report ⓘ

May 3, 2025 – 01:45 PM EDT

PDB ID	:	3W67 / pdb_00003w67
Title	:	Crystal structure of mouse alpha-tocopherol transfer protein in complex with alpha-tocopherol and phosphatidylinositol-(3,4)-bisphosphate
Authors	:	Ohto, U.; Satow, Y.
Deposited on	:	2013-02-11
Resolution	:	2.61 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:

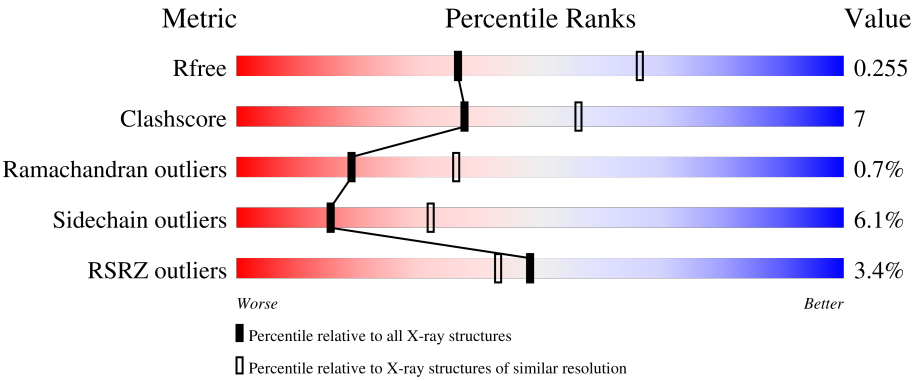
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.61 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	4623 (2.64-2.60)
Clashscore	180529	5071 (2.64-2.60)
Ramachandran outliers	177936	5006 (2.64-2.60)
Sidechain outliers	177891	5006 (2.64-2.60)
RSRZ outliers	164620	4622 (2.64-2.60)

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 <=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	266	79% 14% • 6%
1	B	266	73% 21% • 5%
1	C	266	2% 71% 21% • 6%
1	D	266	11% 76% 17% • 6%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 8568 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 Alpha-tocopherol transfer protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	251	Total	C	N	O	S	0	0	0
			2052	1324	357	364	7			
1	B	253	Total	C	N	O	S	0	0	0
			2064	1333	358	366	7			
1	C	250	Total	C	N	O	S	0	0	0
			2039	1316	354	362	7			
1	D	251	Total	C	N	O	S	0	0	0
			2048	1321	356	364	7			

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	13	GLY	-	expression tag	UNP Q8BWP5
A	14	PRO	-	expression tag	UNP Q8BWP5
A	15	LEU	-	expression tag	UNP Q8BWP5
A	16	GLY	-	expression tag	UNP Q8BWP5
A	17	SER	-	expression tag	UNP Q8BWP5
A	18	PRO	-	expression tag	UNP Q8BWP5
A	19	GLU	-	expression tag	UNP Q8BWP5
A	20	PHE	-	expression tag	UNP Q8BWP5
B	13	GLY	-	expression tag	UNP Q8BWP5
B	14	PRO	-	expression tag	UNP Q8BWP5
B	15	LEU	-	expression tag	UNP Q8BWP5
B	16	GLY	-	expression tag	UNP Q8BWP5
B	17	SER	-	expression tag	UNP Q8BWP5
B	18	PRO	-	expression tag	UNP Q8BWP5
B	19	GLU	-	expression tag	UNP Q8BWP5
B	20	PHE	-	expression tag	UNP Q8BWP5
C	13	GLY	-	expression tag	UNP Q8BWP5
C	14	PRO	-	expression tag	UNP Q8BWP5
C	15	LEU	-	expression tag	UNP Q8BWP5
C	16	GLY	-	expression tag	UNP Q8BWP5
C	17	SER	-	expression tag	UNP Q8BWP5

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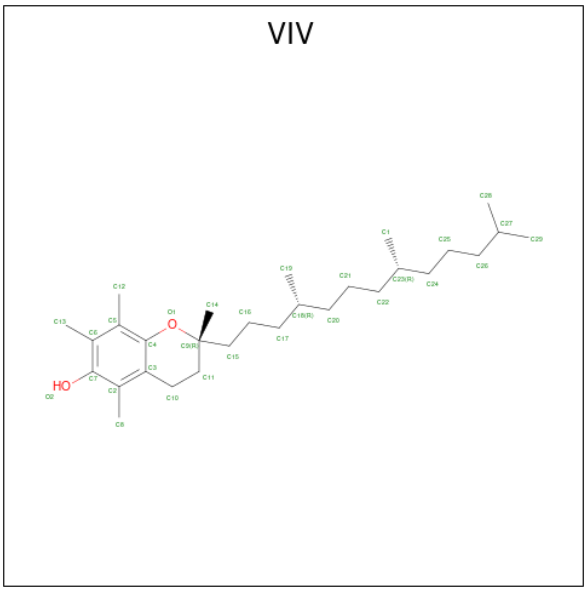
Chain	Residue	Modelled	Actual	Comment	Reference
C	18	PRO	-	expression tag	UNP Q8BWP5
C	19	GLU	-	expression tag	UNP Q8BWP5
C	20	PHE	-	expression tag	UNP Q8BWP5
D	13	GLY	-	expression tag	UNP Q8BWP5
D	14	PRO	-	expression tag	UNP Q8BWP5
D	15	LEU	-	expression tag	UNP Q8BWP5
D	16	GLY	-	expression tag	UNP Q8BWP5
D	17	SER	-	expression tag	UNP Q8BWP5
D	18	PRO	-	expression tag	UNP Q8BWP5
D	19	GLU	-	expression tag	UNP Q8BWP5
D	20	PHE	-	expression tag	UNP Q8BWP5

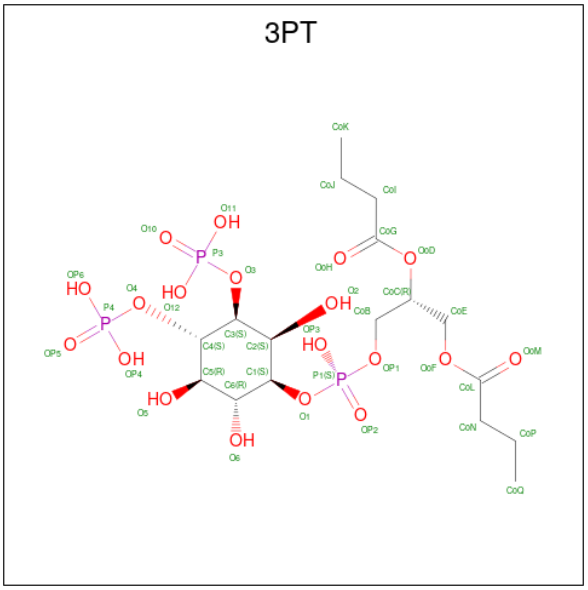
- Molecule 2 is (2R)-2,5,7,8-TETRAMETHYL-2-[(4R,8R)-4,8,12-TRIMETHYLTRIDECYL] CHROMAN-6-OL (CCD ID: VIV) (formula: $C_{29}H_{50}O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 31 29 2	0	0
2	B	1	Total C O 31 29 2	0	0
2	C	1	Total C O 31 29 2	0	0
2	D	1	Total C O 31 29 2	0	0

- Molecule 3 is (2R)-3-{[(S)-hydroxy{[(1S,2R,3R,4S,5S,6S)-2,3,6-trihydroxy-4,5-bis(phos phonooxy)cyclohexyl]oxy}phosphoryl]oxy}propane-1,2-diyl dibutanoate (CCD ID: 3PT)

(formula: $C_{17}H_{33}O_{19}P_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O P 39 17 19 3	0	0
3	B	1	Total C O P 39 17 19 3	0	0
3	C	1	Total C O P 39 17 19 3	0	0
3	D	1	Total C O P 39 17 19 3	0	0

- Molecule 4 is water.

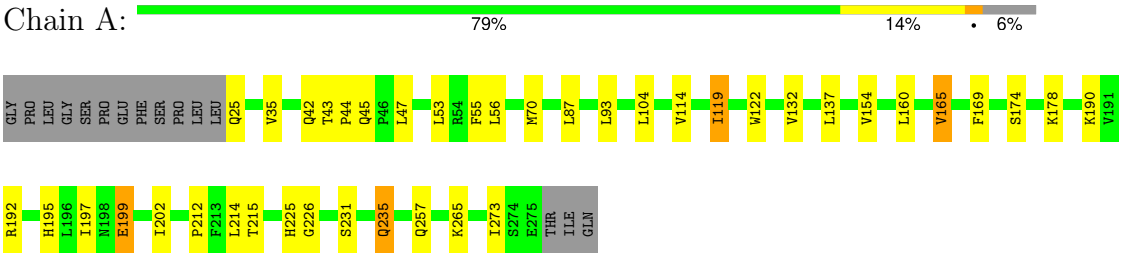
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	42	Total O 42 42	0	0
4	B	42	Total O 42 42	0	0
4	D	1	Total O 1 1	0	0

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.

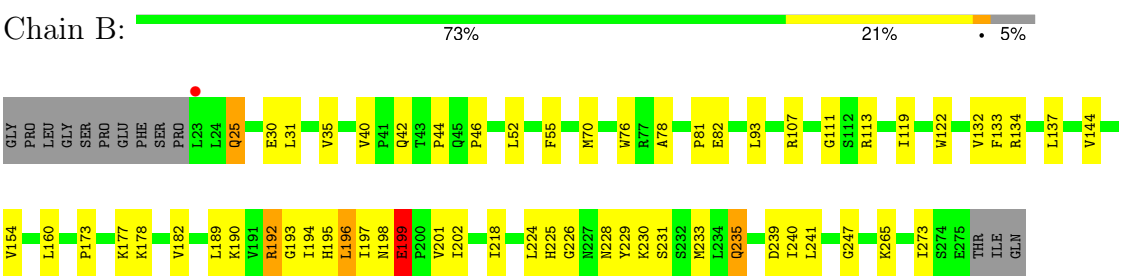
• Molecule 1: Alpha-tocopherol transfer protein

Chain A:



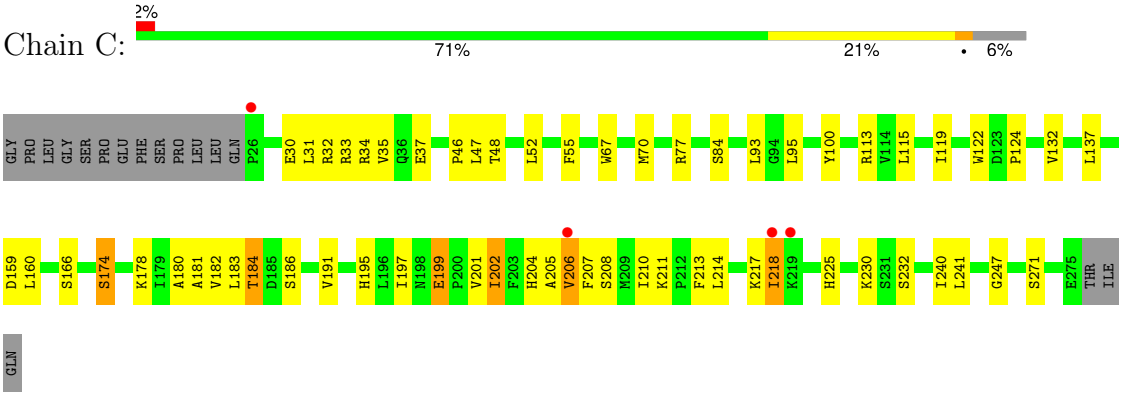
• Molecule 1: Alpha-tocopherol transfer protein

Chain B:



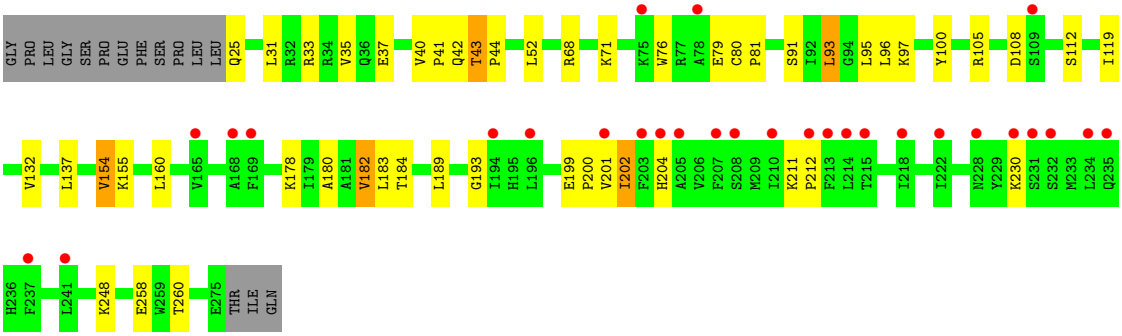
• Molecule 1: Alpha-tocopherol transfer protein

Chain C:



• Molecule 1: Alpha-tocopherol transfer protein

Chain D:


GLY PRO LEU GLY SER PRO GLU PHE SER PRO LEU LEU Q25 L31 R32 R33 R34 V35 Q36 E37 V40 P41 Q42 T43 P44 L52 R68 K71 K75 W76 R77 A78 E79 C80 P81 S91 I92 L93 G94 L95 L96 K97 Y100 R105 D108 S109 S112 I119
V132 L137 V154 K155 L160 V165 A168 F169 K178 I179 A180 A181 V182 L183 T184 L189 G193 I194 H195 L196 E199 P200 V201 I202 P203 H204 A205 V206 F207 S208 M209 I210 K211 P212 F213 L214 T215 I218 I222 N228 Y229 K230 S231 S232 M233 L234 Q235
H236 F237 L241 K248 E258 W259 T260 E275 THR ILE GLN

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	58.28Å 69.67Å 87.18Å 100.24° 109.72° 100.46°	Depositor
Resolution (Å)	28.41 – 2.61 28.41 – 2.61	Depositor EDS
% Data completeness (in resolution range)	95.5 (28.41-2.61) 95.4 (28.41-2.61)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.08	Depositor
$< I/\sigma(I) >$ [1]	1.98 (at 2.61Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, R_{free}	0.211 , 0.260 0.208 , 0.255	Depositor DCC
R_{free} test set	1851 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	62.4	Xtriage
Anisotropy	0.160	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 53.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	8568	wwPDB-VP
Average B, all atoms (Å^2)	78.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.00% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: VIV, 3PT

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	0.72	0/2104	0.96	0/2848
1	B	0.66	0/2116	0.96	3/2866 (0.1%)
1	C	0.66	0/2091	0.94	1/2831 (0.0%)
1	D	0.53	0/2100	0.85	1/2844 (0.0%)
All	All	0.65	0/8411	0.93	5/11389 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	199	GLU	CA-C-N	-6.06	113.73	119.85
1	B	199	GLU	C-N-CA	-6.06	113.73	119.85
1	B	240	ILE	N-CA-C	5.65	118.32	112.90
1	C	240	ILE	N-CA-C	5.12	118.07	113.10
1	D	154	VAL	N-CA-C	5.03	115.61	108.42

There are no chirality outliers.

There are no planarity outliers.

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	A	2052	0	2063	22	0
1	B	2064	0	2074	36	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2039	0	2045	34	0
1	D	2048	0	2052	26	0
2	A	31	0	50	0	0
2	B	31	0	49	0	0
2	C	31	0	49	2	0
2	D	31	0	49	2	0
3	A	39	0	28	1	0
3	B	39	0	28	1	0
3	C	39	0	28	2	0
3	D	39	0	28	0	0
4	A	42	0	0	1	0
4	B	42	0	0	0	0
4	D	1	0	0	0	0
All	All	8568	0	8543	118	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 7.

All (118) 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:93:LEU:HD13	1:D:97:LYS:HE2	1.56	0.88
1:B:119:ILE:HG13	1:B:160:LEU:HD23	1.58	0.85
1:C:183:LEU:HD22	1:C:191:VAL:HG21	1.59	0.83
1:C:32:ARG:NH2	1:C:47:LEU:O	2.14	0.79
1:D:43:THR:HB	1:D:44:PRO:HA	1.66	0.76
1:A:195:HIS:ND1	1:A:225:HIS:HE1	1.85	0.75
1:B:133:PHE:CZ	1:B:182:VAL:HG21	2.26	0.71
1:A:119:ILE:HG13	1:A:160:LEU:HD23	1.72	0.69
1:D:33:ARG:O	1:D:37:GLU:HG2	1.93	0.68
1:C:210:ILE:HG22	1:C:214:LEU:HG	1.74	0.68
1:C:195:HIS:ND1	1:C:225:HIS:HE1	1.96	0.63
1:C:207:PHE:CE2	1:C:211:LYS:HG2	2.34	0.62
1:A:212:PRO:O	1:B:177:LYS:HD2	1.99	0.62
1:D:155:LYS:HD3	1:D:193:GLY:HA3	1.81	0.62
1:B:133:PHE:HZ	1:B:182:VAL:HG21	1.64	0.62
1:A:199:GLU:OE1	1:A:226:GLY:N	2.34	0.61
1:D:93:LEU:CD1	1:D:97:LYS:HE2	2.30	0.60
1:A:87:LEU:HD12	1:A:273:ILE:HG13	1.83	0.59
1:B:201:VAL:HG21	1:D:204:HIS:HB3	1.87	0.57
1:A:195:HIS:ND1	1:A:225:HIS:CE1	2.72	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:35:VAL:HG13	1:B:40:VAL:HB	1.87	0.56
1:D:35:VAL:HG13	1:D:40:VAL:HB	1.86	0.56
1:D:119:ILE:HG13	1:D:160:LEU:HD23	1.88	0.56
1:C:197:ILE:HG22	1:C:225:HIS:HB2	1.88	0.56
1:C:180:ALA:O	1:C:184:THR:OG1	2.21	0.55
1:C:241:LEU:O	1:C:247:GLY:HA3	2.06	0.55
1:C:33:ARG:O	1:C:37:GLU:HG2	2.06	0.55
1:C:181:ALA:O	1:C:186:SER:HB2	2.07	0.54
1:A:212:PRO:HG2	1:B:173:PRO:HB2	1.87	0.54
1:B:201:VAL:HG11	1:D:204:HIS:HB2	1.88	0.54
1:B:55:PHE:CD2	1:B:70:MET:HE2	2.42	0.54
1:B:76:TRP:CZ2	1:B:182:VAL:HG22	2.43	0.54
1:B:231:SER:O	1:B:235:GLN:NE2	2.40	0.54
1:D:95:LEU:HD21	1:D:132:VAL:HG22	1.89	0.54
1:B:195:HIS:ND1	1:B:225:HIS:HE1	2.05	0.54
1:D:108:ASP:OD2	1:D:155:LYS:NZ	2.41	0.53
1:A:190:LYS:HD3	1:A:192:ARG:NH1	2.23	0.53
1:A:35:VAL:CG1	1:A:47:LEU:HD13	2.39	0.53
1:A:174:SER:O	1:A:178:LYS:HG3	2.10	0.52
1:C:199:GLU:H	1:C:199:GLU:CD	2.17	0.52
1:D:68:ARG:HA	1:D:71:LYS:HE3	1.91	0.52
1:A:165:VAL:HG12	1:A:169:PHE:CE1	2.45	0.51
1:A:231:SER:O	1:A:235:GLN:NE2	2.44	0.50
1:C:46:PRO:HB2	1:C:48:THR:HG23	1.93	0.50
1:B:76:TRP:CE2	1:B:182:VAL:HG22	2.47	0.50
2:C:301:VIV:HC11	2:C:301:VIV:H262	1.93	0.50
1:D:182:VAL:HG12	1:D:183:LEU:HG	1.94	0.50
1:D:154:VAL:HG13	1:D:189:LEU:HD22	1.94	0.49
1:C:218:ILE:HD11	3:C:302:3PT:H32	1.95	0.49
1:C:33:ARG:NH1	1:C:33:ARG:HB3	2.27	0.48
1:B:133:PHE:HZ	1:B:182:VAL:CG2	2.26	0.48
1:B:241:LEU:O	1:B:247:GLY:HA3	2.14	0.48
1:A:165:VAL:HG12	1:A:169:PHE:HE1	1.79	0.48
1:B:196:LEU:HG	1:B:224:LEU:HD22	1.96	0.47
1:A:45:GLN:HG3	4:A:410:HOH:O	2.14	0.47
1:D:43:THR:HB	1:D:44:PRO:CA	2.41	0.47
1:C:77:ARG:HG2	1:C:84:SER:HB2	1.96	0.47
1:C:31:LEU:HD23	1:C:52:LEU:HB3	1.96	0.47
1:C:159:ASP:HA	1:C:197:ILE:HG13	1.96	0.47
1:D:108:ASP:OD1	1:D:112:SER:N	2.46	0.47
1:B:190:LYS:HE2	3:B:302:3PT:OP5	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:174:SER:O	1:C:178:LYS:HG3	2.15	0.47
1:D:200:PRO:O	1:D:202:ILE:N	2.47	0.47
1:B:133:PHE:CE2	1:B:182:VAL:HG21	2.50	0.47
1:B:199:GLU:H	1:B:199:GLU:CD	2.22	0.47
1:C:204:HIS:O	1:C:208:SER:N	2.40	0.47
1:C:122:TRP:CE2	1:C:132:VAL:HG21	2.50	0.46
1:D:76:TRP:CZ2	1:D:182:VAL:HG23	2.51	0.46
1:B:78:ALA:O	1:B:81:PRO:HD3	2.16	0.46
1:A:104:LEU:HD12	1:A:114:VAL:HB	1.98	0.45
1:B:199:GLU:OE1	1:B:226:GLY:N	2.47	0.45
1:B:229:TYR:O	1:B:230:LYS:C	2.58	0.45
1:C:205:ALA:C	1:C:207:PHE:N	2.74	0.45
1:C:122:TRP:O	1:C:124:PRO:HD3	2.17	0.45
1:C:202:ILE:HD13	1:C:202:ILE:HA	1.82	0.45
1:C:119:ILE:HG13	1:C:160:LEU:HD23	1.98	0.45
1:C:55:PHE:CD2	1:C:70:MET:HE2	2.52	0.45
1:B:107:ARG:HD3	1:B:111:GLY:O	2.17	0.45
2:C:301:VIV:H191	2:C:301:VIV:H211	1.92	0.45
1:D:211:LYS:HB2	1:D:212:PRO:HD3	1.98	0.45
1:B:44:PRO:HB2	1:B:273:ILE:HA	1.98	0.44
1:B:76:TRP:CZ2	1:B:182:VAL:CG2	3.01	0.44
1:B:178:LYS:O	1:B:182:VAL:HG23	2.18	0.44
1:C:31:LEU:O	1:C:35:VAL:HG23	2.18	0.44
1:D:80:CYS:SG	1:D:178:LYS:HG2	2.58	0.44
1:B:190:LYS:HD3	1:B:192:ARG:NH1	2.33	0.43
1:C:122:TRP:CD2	1:C:132:VAL:HG21	2.52	0.43
1:B:197:ILE:O	1:B:198:ASN:HB2	2.19	0.43
1:A:197:ILE:HG22	1:A:225:HIS:HB2	2.01	0.42
1:A:214:LEU:HD23	3:A:302:3PT:H12	2.01	0.42
1:D:105:ARG:NH2	1:D:258:GLU:OE1	2.45	0.42
1:C:183:LEU:O	3:C:302:3PT:H18	2.19	0.42
1:D:79:GLU:C	1:D:81:PRO:HD3	2.44	0.42
1:C:34:ARG:HH11	1:C:67:TRP:CD1	2.38	0.42
1:B:154:VAL:HG13	1:B:189:LEU:HD22	2.01	0.42
1:D:100:TYR:CZ	1:D:132:VAL:HG13	2.55	0.42
1:D:96:LEU:HB3	1:D:260:THR:OG1	2.20	0.42
2:D:301:VIV:H202	2:D:301:VIV:H161	1.84	0.42
1:A:35:VAL:HG13	1:A:47:LEU:HD13	2.02	0.41
1:B:122:TRP:CE2	1:B:132:VAL:HG21	2.54	0.41
1:D:180:ALA:O	1:D:184:THR:OG1	2.28	0.41
1:B:265:LYS:HB2	1:B:265:LYS:HE2	1.87	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:25:GLN:HE21	1:B:25:GLN:HB2	1.62	0.41
1:D:31:LEU:HD23	1:D:52:LEU:HB3	2.02	0.41
1:A:122:TRP:CD2	1:A:132:VAL:HG21	2.55	0.41
1:C:205:ALA:O	1:C:206:VAL:C	2.64	0.41
1:A:55:PHE:CE1	1:A:70:MET:HA	2.56	0.41
1:B:193:GLY:O	1:B:194:ILE:HD13	2.21	0.41
1:A:43:THR:HB	1:A:44:PRO:HA	2.03	0.41
2:D:301:VIV:H251	2:D:301:VIV:HC11	1.86	0.41
1:A:53:LEU:HD23	1:A:56:LEU:HD12	2.02	0.40
1:B:31:LEU:HD23	1:B:52:LEU:HB3	2.04	0.40
1:C:100:TYR:CZ	1:C:132:VAL:HG13	2.56	0.40
1:B:44:PRO:O	1:B:46:PRO:HD3	2.21	0.40
1:C:35:VAL:CG1	1:C:47:LEU:HD13	2.52	0.40
1:C:95:LEU:HD21	1:C:132:VAL:HG22	2.03	0.40
1:B:82:GLU:O	1:B:134:ARG:NH2	2.54	0.40
1:C:35:VAL:HG11	1:C:47:LEU:HD13	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	249/266 (94%)	240 (96%)	9 (4%)	0	100	100
1	B	251/266 (94%)	244 (97%)	6 (2%)	1 (0%)	30	50
1	C	248/266 (93%)	235 (95%)	10 (4%)	3 (1%)	11	22
1	D	249/266 (94%)	229 (92%)	17 (7%)	3 (1%)	11	22
All	All	997/1064 (94%)	948 (95%)	42 (4%)	7 (1%)	19	36

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	239	ASP
1	C	217	LYS
1	D	201	VAL
1	C	206	VAL
1	D	248	LYS
1	D	41	PRO
1	C	201	VAL

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	223/236 (94%)	210 (94%)	13 (6%)	17	34
1	B	224/236 (95%)	209 (93%)	15 (7%)	13	27
1	C	221/236 (94%)	205 (93%)	16 (7%)	12	24
1	D	222/236 (94%)	212 (96%)	10 (4%)	23	45
All	All	890/944 (94%)	836 (94%)	54 (6%)	15	32

All (54) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	25	GLN
1	A	42	GLN
1	A	93	LEU
1	A	119	ILE
1	A	137	LEU
1	A	154	VAL
1	A	165	VAL
1	A	199	GLU
1	A	202	ILE
1	A	215	THR
1	A	235	GLN
1	A	257	GLN
1	A	265	LYS
1	B	25	GLN
1	B	30	GLU

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Mol	Chain	Res	Type
1	B	42	GLN
1	B	93	LEU
1	B	113	ARG
1	B	137	LEU
1	B	144	VAL
1	B	192	ARG
1	B	196	LEU
1	B	199	GLU
1	B	202	ILE
1	B	218	ILE
1	B	228	ASN
1	B	233	MET
1	B	235	GLN
1	C	30	GLU
1	C	93	LEU
1	C	113	ARG
1	C	115	LEU
1	C	137	LEU
1	C	166	SER
1	C	174	SER
1	C	182	VAL
1	C	184	THR
1	C	199	GLU
1	C	202	ILE
1	C	213	PHE
1	C	218	ILE
1	C	230	LYS
1	C	232	SER
1	C	271	SER
1	D	25	GLN
1	D	42	GLN
1	D	43	THR
1	D	91	SER
1	D	93	LEU
1	D	137	LEU
1	D	182	VAL
1	D	199	GLU
1	D	202	ILE
1	D	230	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	25	GLN
1	A	36	GLN
1	A	145	GLN
1	A	164	GLN
1	A	225	HIS
1	A	235	GLN
1	B	25	GLN
1	B	45	GLN
1	B	145	GLN
1	B	152	ASN
1	B	225	HIS
1	B	235	GLN
1	C	145	GLN
1	C	225	HIS
1	C	235	GLN
1	C	257	GLN
1	D	150	GLN
1	D	198	ASN
1	D	236	HIS
1	D	257	GLN

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

8 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	3PT	B	302	-	39,39,39	2.10	7 (17%)	54,57,57	1.42	8 (14%)
3	3PT	A	302	-	39,39,39	1.95	9 (23%)	54,57,57	1.77	8 (14%)
3	3PT	D	302	-	39,39,39	1.92	6 (15%)	54,57,57	1.52	6 (11%)
2	VIV	C	301	-	32,32,32	1.05	2 (6%)	43,45,45	1.73	8 (18%)
3	3PT	C	302	-	39,39,39	1.89	7 (17%)	54,57,57	1.55	6 (11%)
2	VIV	B	301	-	32,32,32	1.00	2 (6%)	43,45,45	1.38	8 (18%)
2	VIV	A	301	-	32,32,32	0.96	2 (6%)	43,45,45	1.23	4 (9%)
2	VIV	D	301	-	32,32,32	0.95	2 (6%)	43,45,45	1.37	6 (13%)

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	3PT	B	302	-	-	10/36/60/60	0/1/1/1
3	3PT	A	302	-	-	10/36/60/60	0/1/1/1
3	3PT	D	302	-	-	10/36/60/60	0/1/1/1
2	VIV	C	301	-	-	8/19/30/30	0/2/2/2
3	3PT	C	302	-	-	11/36/60/60	0/1/1/1
2	VIV	B	301	-	-	3/19/30/30	0/2/2/2
2	VIV	A	301	-	-	6/19/30/30	0/2/2/2
2	VIV	D	301	-	-	9/19/30/30	0/2/2/2

All (37) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	302	3PT	O0H-C0G	8.71	1.48	1.22
3	A	302	3PT	O0H-C0G	7.83	1.45	1.22
3	C	302	3PT	O0H-C0G	7.44	1.44	1.22
3	D	302	3PT	O0H-C0G	7.07	1.43	1.22
3	B	302	3PT	O0D-C0G	5.52	1.49	1.34
3	C	302	3PT	O0D-C0G	4.38	1.46	1.34
3	A	302	3PT	P3-O10	4.33	1.64	1.50
3	D	302	3PT	O0D-C0G	4.25	1.46	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	302	3PT	P3-O10	4.06	1.63	1.50
3	C	302	3PT	P3-O10	3.63	1.61	1.50
3	B	302	3PT	P3-O10	3.54	1.61	1.50
3	A	302	3PT	O0D-C0G	3.45	1.44	1.34
3	D	302	3PT	P3-O3	3.06	1.64	1.59
2	C	301	VIV	C21-C22	-3.03	1.39	1.52
3	B	302	3PT	P1-OP3	2.98	1.69	1.55
3	B	302	3PT	C0I-C0G	2.98	1.59	1.50
3	D	302	3PT	P4-O4	2.98	1.64	1.59
2	C	301	VIV	C21-C20	-2.95	1.39	1.52
3	A	302	3PT	C0I-C0G	2.93	1.59	1.50
3	A	302	3PT	P3-O3	2.88	1.64	1.59
2	B	301	VIV	C21-C22	-2.83	1.40	1.52
2	A	301	VIV	C21-C22	-2.79	1.40	1.52
2	B	301	VIV	C21-C20	-2.76	1.40	1.52
2	D	301	VIV	C21-C22	-2.76	1.40	1.52
2	D	301	VIV	C21-C20	-2.67	1.41	1.52
3	A	302	3PT	P1-OP3	2.65	1.67	1.55
3	C	302	3PT	P3-O3	2.54	1.64	1.59
2	A	301	VIV	C21-C20	-2.52	1.41	1.52
3	B	302	3PT	P1-OP1	2.35	1.68	1.59
3	C	302	3PT	P4-OP4	2.35	1.63	1.54
3	A	302	3PT	P3-O12	2.18	1.62	1.54
3	D	302	3PT	P3-O12	2.15	1.62	1.54
3	C	302	3PT	P4-O4	2.15	1.63	1.59
3	A	302	3PT	P3-O11	-2.13	1.46	1.54
3	C	302	3PT	P1-OP3	2.13	1.65	1.55
3	B	302	3PT	P3-O12	2.11	1.62	1.54
3	A	302	3PT	O0D-C0C	-2.02	1.41	1.46

All (54) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	302	3PT	O0D-C0G-O0H	-8.57	103.66	123.70
3	C	302	3PT	O0D-C0G-O0H	-6.86	107.66	123.70
3	D	302	3PT	O0D-C0G-O0H	-6.22	109.17	123.70
3	B	302	3PT	O0D-C0G-O0H	-5.18	111.60	123.70
2	C	301	VIV	O1-C9-C11	-4.78	105.94	108.78
3	A	302	3PT	C0B-C0C-C0E	-4.24	101.91	111.78
2	C	301	VIV	C15-C16-C17	-4.21	104.58	112.68
2	C	301	VIV	O1-C9-C14	4.15	115.56	105.47
3	C	302	3PT	C6-C1-C2	4.12	116.57	110.86

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	302	3PT	C3-C2-C1	3.91	117.03	109.11
2	C	301	VIV	O1-C4-C3	-3.87	118.44	122.36
3	B	302	3PT	C0B-C0C-C0E	-3.68	103.20	111.78
3	D	302	3PT	O0H-C0G-C0I	-3.62	109.61	123.78
3	C	302	3PT	O0H-C0G-C0I	-3.59	109.73	123.78
3	D	302	3PT	C6-C1-C2	3.58	115.83	110.86
3	B	302	3PT	O0H-C0G-C0I	-3.51	110.06	123.78
2	B	301	VIV	C21-C22-C23	3.38	127.19	115.97
2	C	301	VIV	O1-C4-C5	3.31	118.94	115.41
3	A	302	3PT	O0F-C0E-C0C	3.16	117.51	108.40
2	B	301	VIV	C10-C11-C9	3.11	113.66	111.36
2	A	301	VIV	C22-C21-C20	3.02	126.80	113.28
3	A	302	3PT	C6-C1-C2	3.00	115.02	110.86
2	D	301	VIV	C10-C11-C9	2.98	113.56	111.36
2	D	301	VIV	O1-C9-C11	2.96	110.53	108.78
2	D	301	VIV	C22-C21-C20	2.93	126.43	113.28
2	A	301	VIV	C21-C22-C23	2.88	125.55	115.97
3	A	302	3PT	O0F-C0L-C0N	2.88	120.61	111.83
2	D	301	VIV	C21-C22-C23	2.76	125.15	115.97
2	C	301	VIV	C22-C21-C20	2.76	125.63	113.28
3	A	302	3PT	C0E-O0F-C0L	-2.66	107.39	117.12
2	C	301	VIV	C10-C11-C9	2.64	113.31	111.36
2	D	301	VIV	C7-C2-C3	2.62	121.76	118.59
2	B	301	VIV	O1-C9-C14	2.60	111.79	105.47
2	B	301	VIV	C15-C16-C17	-2.55	107.77	112.68
2	B	301	VIV	C22-C21-C20	2.53	124.60	113.28
3	D	302	3PT	O0F-C0L-C0N	2.52	119.51	111.83
3	C	302	3PT	C3-C2-C1	2.51	114.20	109.11
2	C	301	VIV	C21-C22-C23	2.51	124.29	115.97
3	B	302	3PT	O0D-C0G-C0I	2.50	116.90	111.48
2	B	301	VIV	C7-C2-C3	2.47	121.57	118.59
2	B	301	VIV	O1-C9-C11	2.46	110.24	108.78
3	D	302	3PT	C0B-C0C-C0E	-2.38	106.23	111.78
2	D	301	VIV	O1-C4-C5	2.38	117.94	115.41
3	B	302	3PT	O11-P3-O12	2.28	116.34	107.80
2	B	301	VIV	O1-C4-C5	2.21	117.77	115.41
3	A	302	3PT	O0F-C0L-O0M	-2.21	118.11	123.63
3	C	302	3PT	O11-P3-O3	2.15	114.22	105.85
3	B	302	3PT	O12-P3-O10	-2.14	102.49	110.83
2	A	301	VIV	C12-C5-C4	-2.13	117.91	121.24
2	A	301	VIV	C7-C2-C3	2.11	121.14	118.59
3	A	302	3PT	C0C-O0D-C0G	-2.10	112.77	117.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	302	3PT	O0F-C0L-C0N	2.09	118.22	111.83
3	C	302	3PT	O0F-C0L-C0N	2.08	118.18	111.83
3	B	302	3PT	C6-C1-C2	2.01	113.65	110.86

There are no chirality outliers.

All (67) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	302	3PT	O0H-C0G-O0D-C0C
3	A	302	3PT	C0I-C0G-O0D-C0C
3	A	302	3PT	C0B-OP1-P1-OP3
3	A	302	3PT	C0B-OP1-P1-O1
3	B	302	3PT	O0H-C0G-O0D-C0C
3	B	302	3PT	C0I-C0G-O0D-C0C
3	B	302	3PT	OP1-C0B-C0C-O0D
3	C	302	3PT	O0H-C0G-O0D-C0C
3	C	302	3PT	C0I-C0G-O0D-C0C
3	C	302	3PT	C0B-OP1-P1-O1
3	D	302	3PT	O0H-C0G-O0D-C0C
3	D	302	3PT	C0I-C0G-O0D-C0C
2	A	301	VIV	C20-C21-C22-C23
2	B	301	VIV	C20-C21-C22-C23
2	C	301	VIV	C20-C21-C22-C23
2	D	301	VIV	C20-C21-C22-C23
3	A	302	3PT	O0M-C0L-O0F-C0E
3	A	302	3PT	C0N-C0L-O0F-C0E
2	C	301	VIV	C23-C24-C25-C26
3	D	302	3PT	C0N-C0L-O0F-C0E
3	D	302	3PT	O0M-C0L-O0F-C0E
2	D	301	VIV	C23-C24-C25-C26
2	D	301	VIV	C24-C25-C26-C27
3	C	302	3PT	C0G-C0I-C0J-C0K
3	D	302	3PT	C0G-C0I-C0J-C0K
2	B	301	VIV	C24-C25-C26-C27
2	C	301	VIV	C21-C22-C23-C24
2	C	301	VIV	C16-C15-C9-O1
2	C	301	VIV	C16-C15-C9-C14
2	D	301	VIV	C16-C15-C9-O1
2	D	301	VIV	C16-C15-C9-C14
2	D	301	VIV	C18-C20-C21-C22
2	C	301	VIV	C21-C22-C23-C1
2	A	301	VIV	C18-C20-C21-C22

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Mol	Chain	Res	Type	Atoms
3	B	302	3PT	OP1-C0B-C0C-C0E
2	C	301	VIV	C18-C20-C21-C22
3	C	302	3PT	C2-C3-O3-P3
3	C	302	3PT	C0L-C0N-C0P-C0Q
2	C	301	VIV	C16-C15-C9-C11
2	D	301	VIV	C16-C15-C9-C11
3	C	302	3PT	O0D-C0C-C0E-O0F
3	B	302	3PT	C0B-C0C-C0E-O0F
3	C	302	3PT	C0B-C0C-C0E-O0F
2	B	301	VIV	C18-C20-C21-C22
3	C	302	3PT	C4-C3-O3-P3
3	B	302	3PT	C0B-OP1-P1-OP2
3	C	302	3PT	C0B-OP1-P1-OP2
3	D	302	3PT	C0C-C0B-OP1-P1
3	D	302	3PT	OP1-C0B-C0C-O0D
3	A	302	3PT	O0D-C0C-C0E-O0F
3	D	302	3PT	C2-C3-O3-P3
3	A	302	3PT	C4-O4-P4-OP4
3	B	302	3PT	C3-O3-P3-O12
2	D	301	VIV	C21-C22-C23-C1
3	B	302	3PT	O0M-C0L-O0F-C0E
2	A	301	VIV	C16-C17-C18-C19
2	A	301	VIV	C21-C22-C23-C1
3	B	302	3PT	C0N-C0L-O0F-C0E
3	D	302	3PT	O0D-C0C-C0E-O0F
2	A	301	VIV	C21-C22-C23-C24
2	D	301	VIV	C21-C22-C23-C24
3	A	302	3PT	C1-O1-P1-OP2
3	C	302	3PT	C1-O1-P1-OP2
2	A	301	VIV	C23-C24-C25-C26
3	B	302	3PT	O0D-C0G-C0I-C0J
3	A	302	3PT	C4-O4-P4-OP5
3	D	302	3PT	O0H-C0G-C0I-C0J

There are no ring outliers.

5 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	302	3PT	1	0
3	A	302	3PT	1	0
2	C	301	VIV	2	0
3	C	302	3PT	2	0

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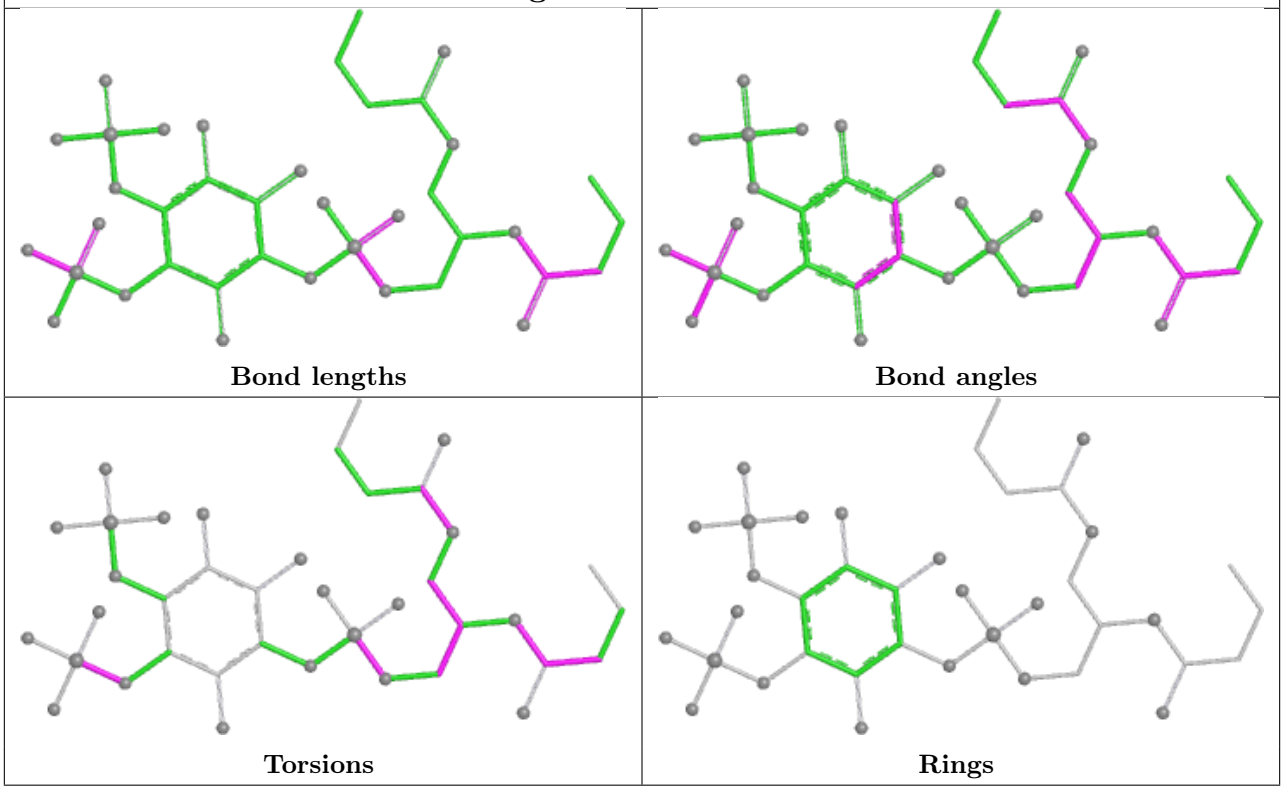
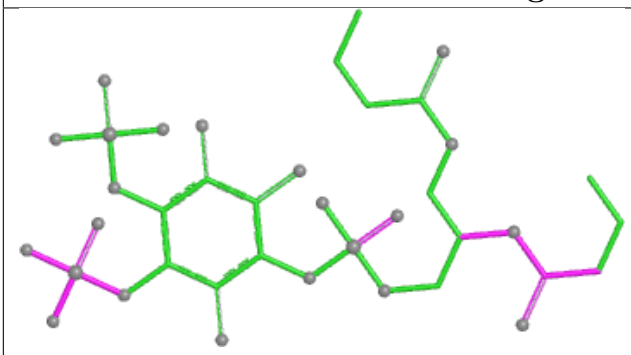
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	301	VIV	2	0

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 then 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.

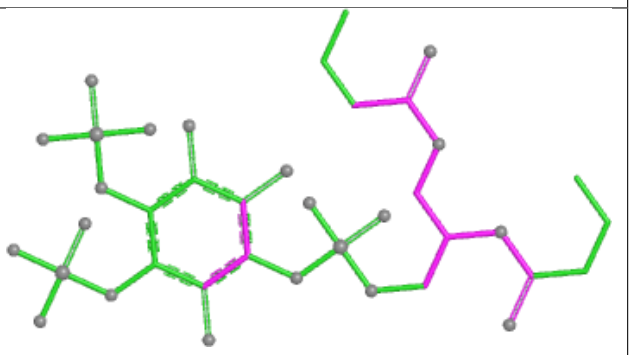
Ligand 3PT B 302



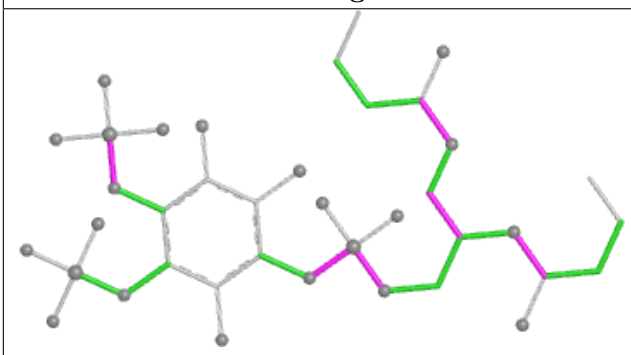
Ligand 3PT A 302



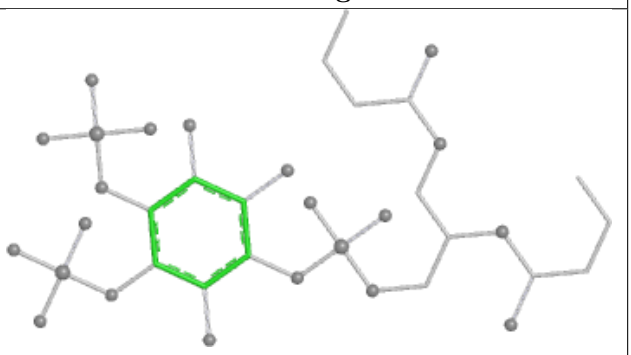
Bond lengths



Bond angles

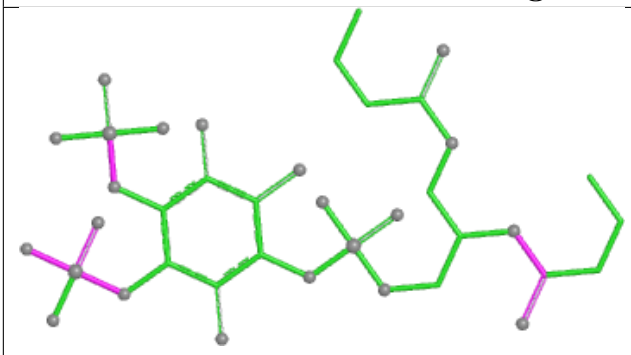


Torsions

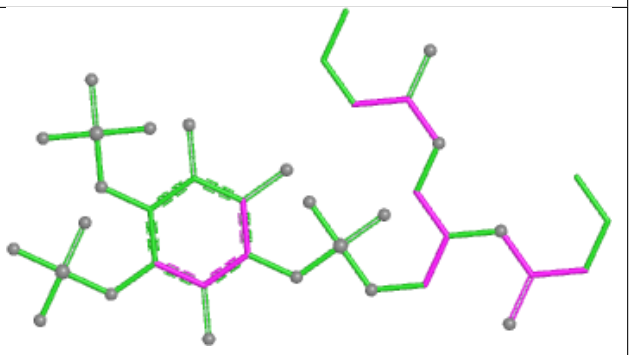


Rings

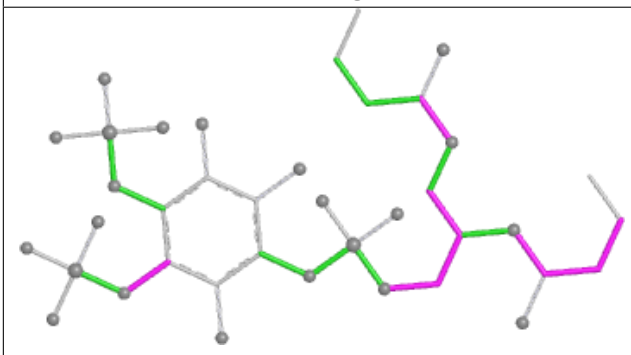
Ligand 3PT D 302



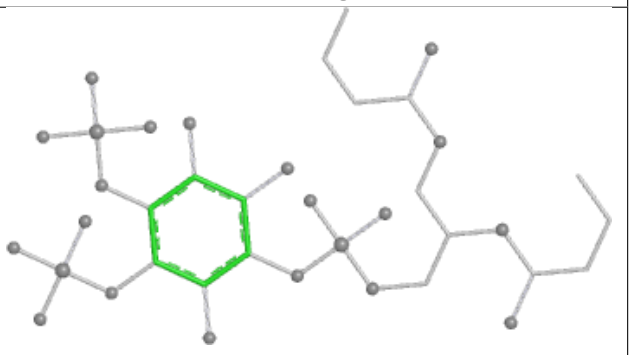
Bond lengths



Bond angles

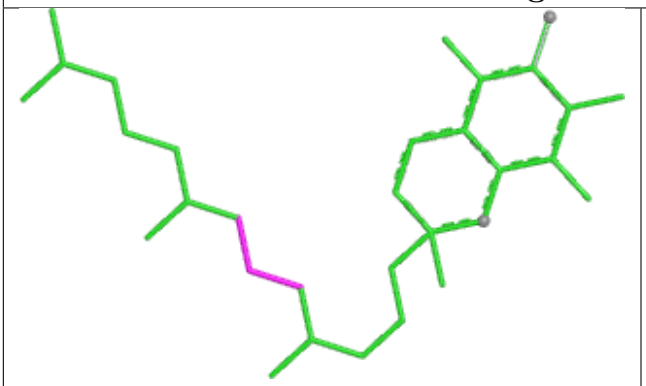


Torsions

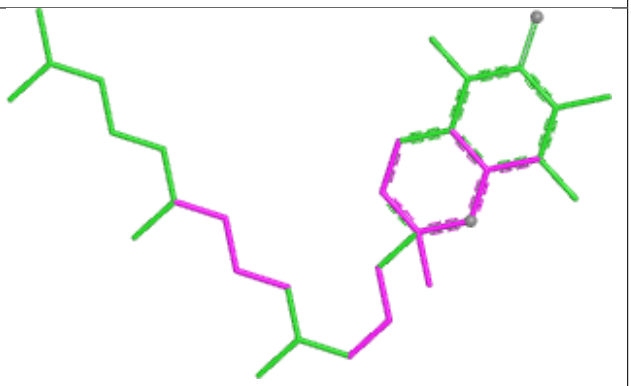


Rings

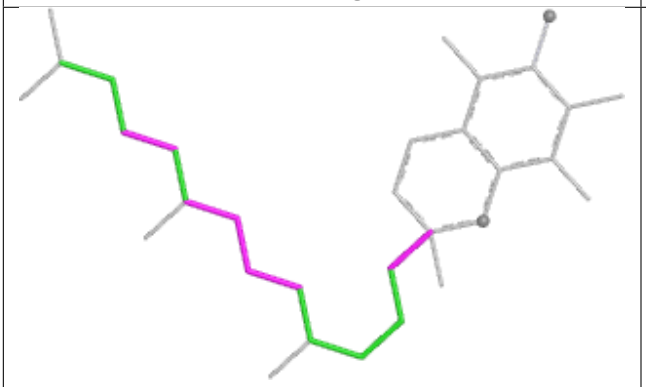
Ligand VIV C 301



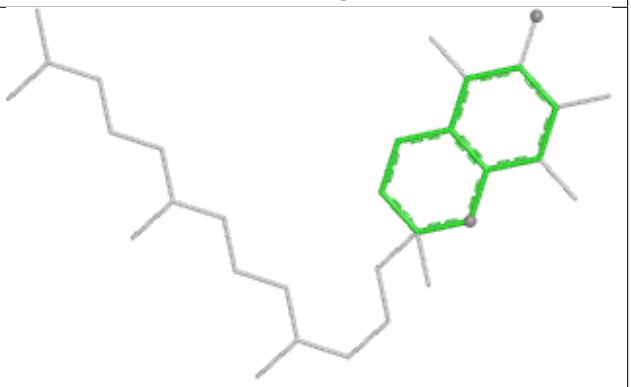
Bond lengths



Bond angles

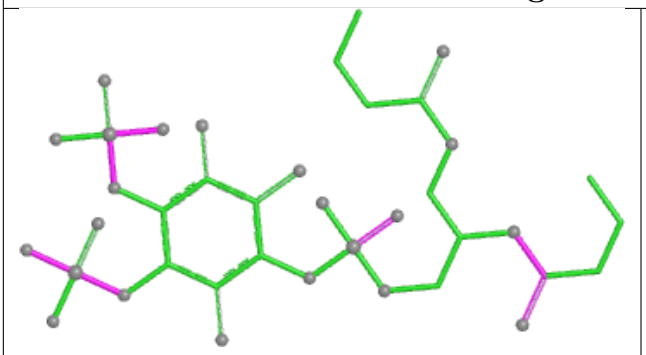


Torsions

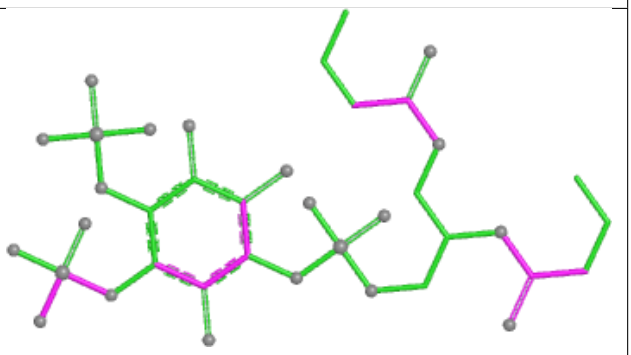


Rings

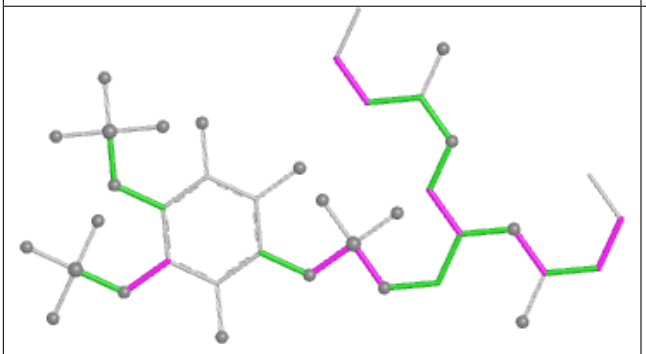
Ligand 3PT C 302



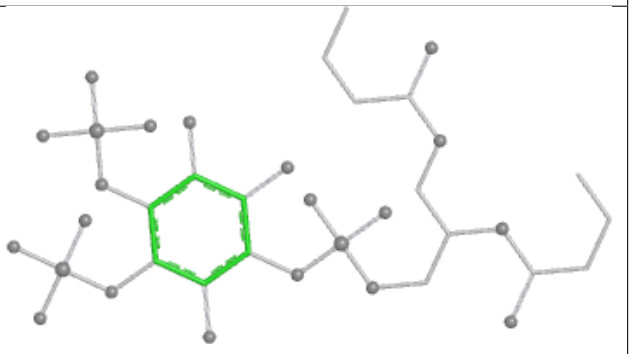
Bond lengths



Bond angles

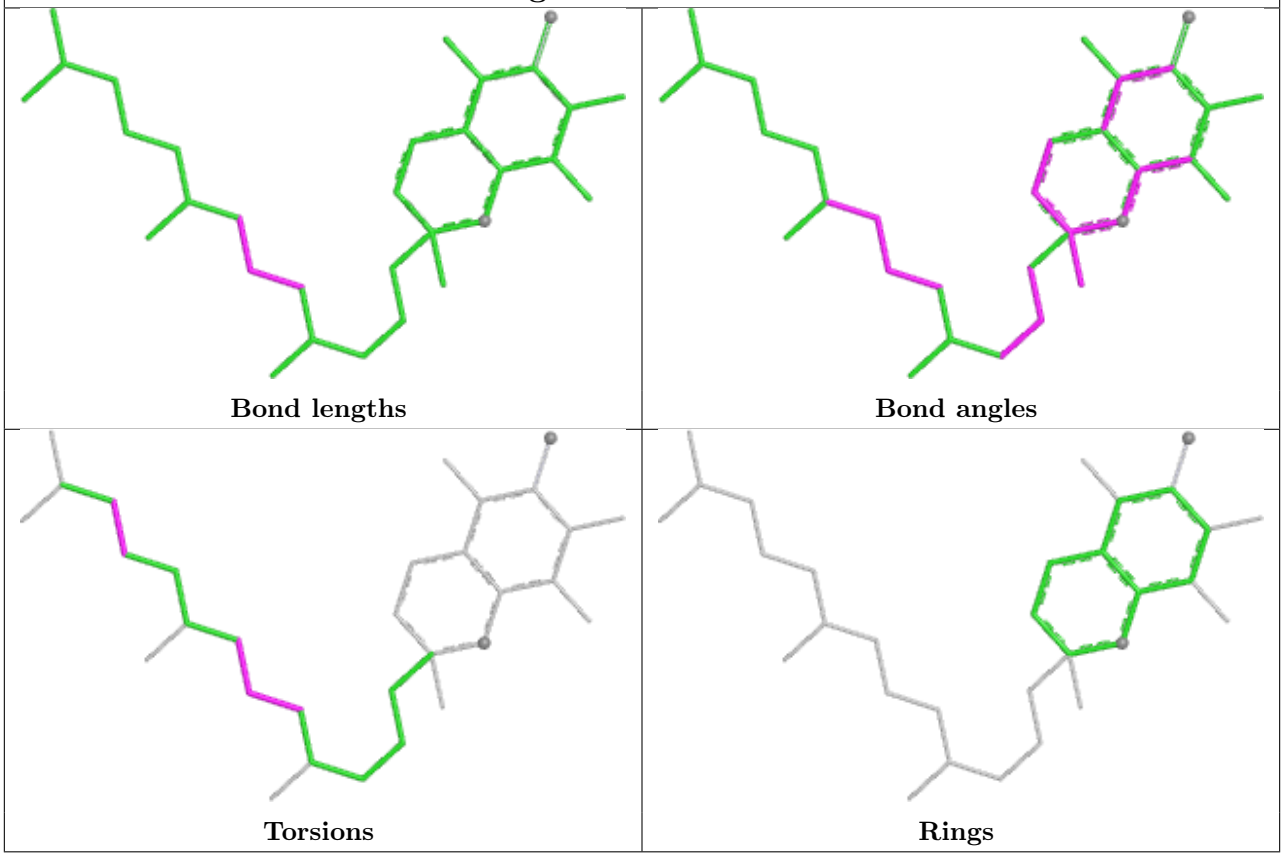


Torsions

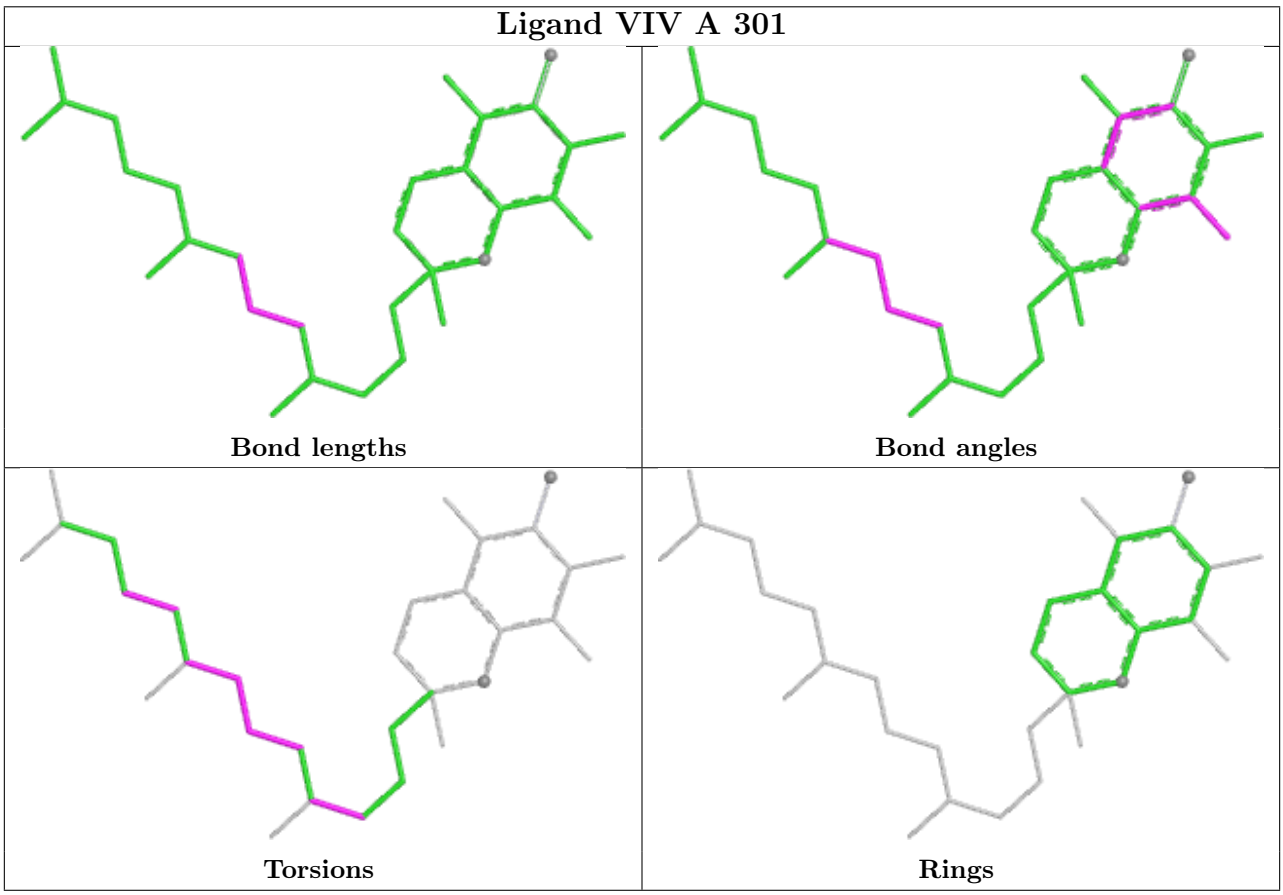


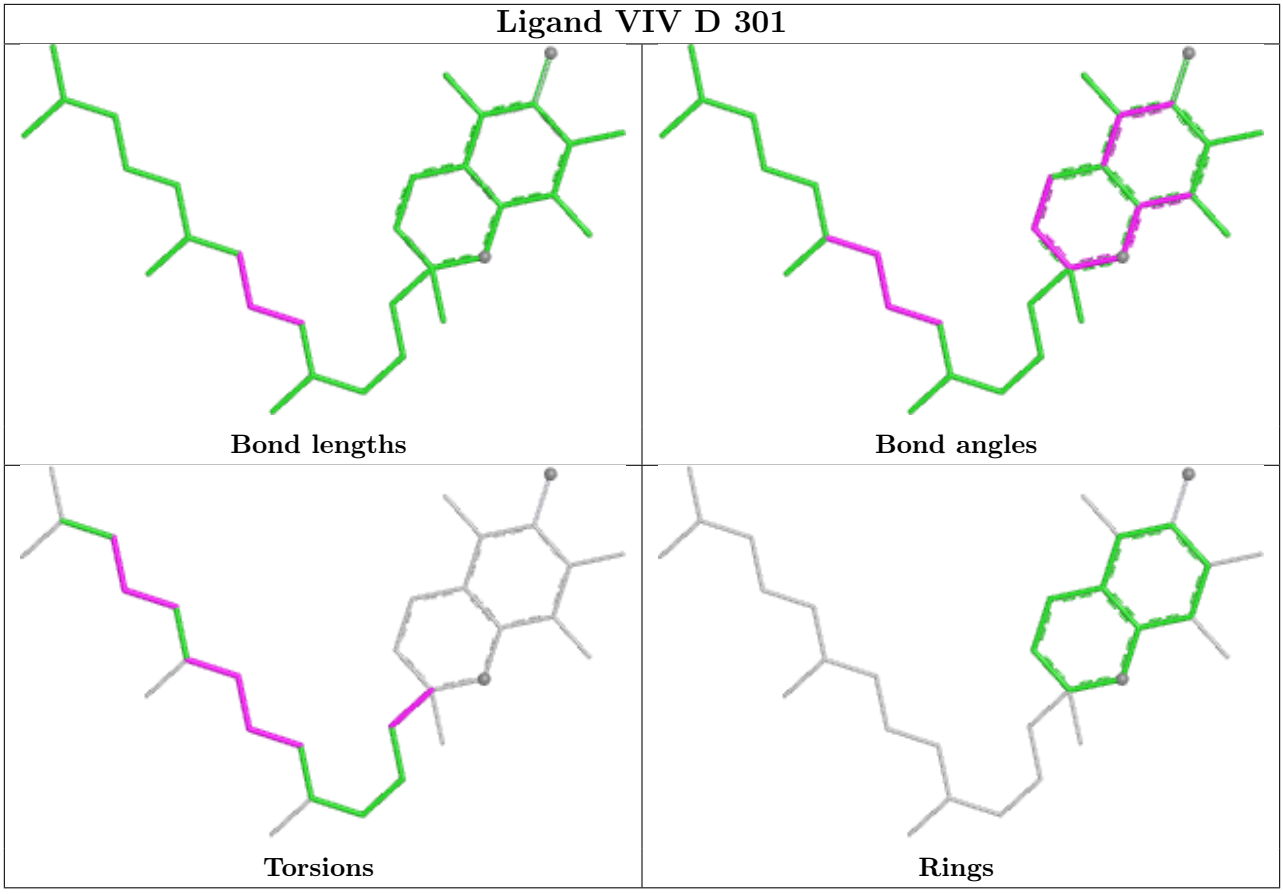
Rings

Ligand VIV B 301



Ligand VIV A 301





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

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, 95^{th} 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	251/266 (94%)	-0.66	0 100 100	28, 51, 82, 113	0
1	B	253/266 (95%)	-0.63	1 (0%) 89 86	26, 55, 83, 114	0
1	C	250/266 (93%)	-0.42	4 (1%) 70 66	33, 62, 108, 124	0
1	D	251/266 (94%)	0.75	29 (11%) 11 9	65, 124, 244, 281	0
All	All	1005/1064 (94%)	-0.24	34 (3%) 48 43	26, 62, 175, 281	0

All (34) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	165	VAL	4.6
1	C	218	ILE	4.2
1	D	201	VAL	3.4
1	D	234	LEU	3.4
1	D	207	PHE	3.2
1	D	213	PHE	3.1
1	D	212	PRO	3.1
1	D	205	ALA	3.1
1	C	26	PRO	2.9
1	D	196	LEU	2.9
1	C	206	VAL	2.9
1	D	203	PHE	2.9
1	B	23	LEU	2.9
1	D	228	ASN	2.7
1	D	215	THR	2.7
1	D	204	HIS	2.7
1	D	222	ILE	2.7
1	D	241	LEU	2.6
1	D	210	ILE	2.5
1	D	208	SER	2.5
1	D	109	SER	2.5

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Mol	Chain	Res	Type	RSRZ
1	D	169	PHE	2.5
1	D	75	LYS	2.4
1	D	218	ILE	2.4
1	D	214	LEU	2.4
1	D	168	ALA	2.4
1	D	194	ILE	2.3
1	D	237	PHE	2.3
1	D	231	SER	2.3
1	D	230	LYS	2.1
1	D	232	SER	2.1
1	D	235	GLN	2.1
1	D	78	ALA	2.1
1	C	219	LYS	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} 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.

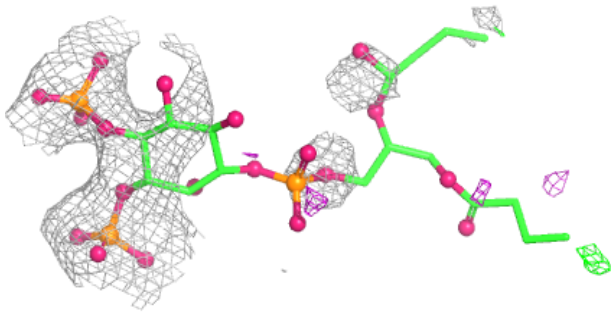
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	3PT	D	302	39/39	0.60	0.16	163,167,172,173	0
3	3PT	C	302	39/39	0.72	0.15	120,132,142,142	0
3	3PT	A	302	39/39	0.90	0.10	37,61,78,78	0
2	VIV	D	301	31/31	0.91	0.12	75,78,84,85	0
3	3PT	B	302	39/39	0.94	0.09	37,56,73,74	0
2	VIV	A	301	31/31	0.94	0.09	38,47,53,55	0
2	VIV	B	301	31/31	0.94	0.08	41,51,54,55	0
2	VIV	C	301	31/31	0.95	0.09	45,50,60,61	0

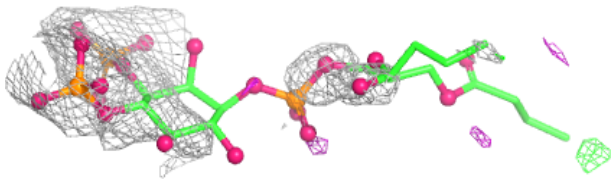
The following is a graphical depiction of the model fit to experimental electron density of all

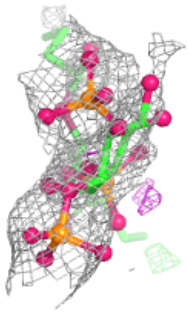
instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around 3PT D 302:

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

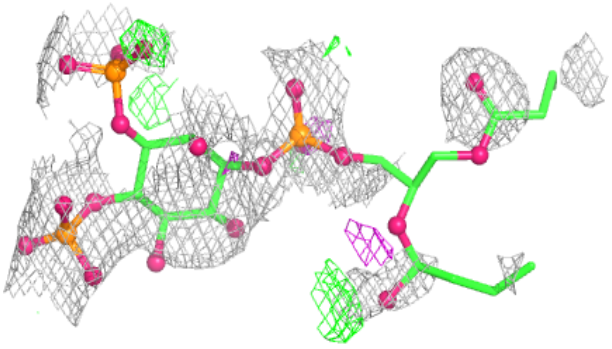


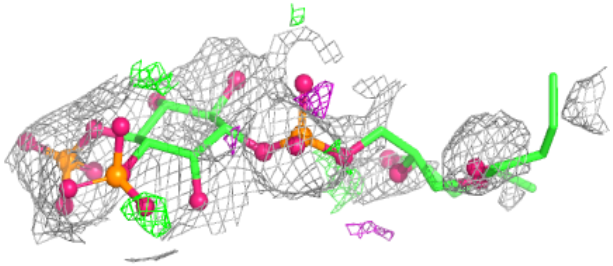


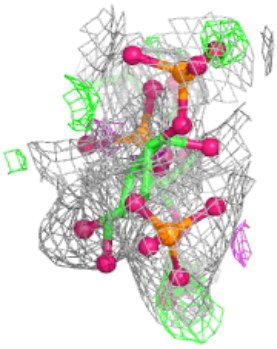


Electron density around 3PT C 302:

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

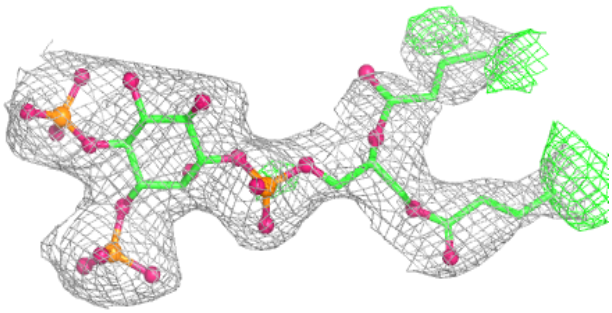


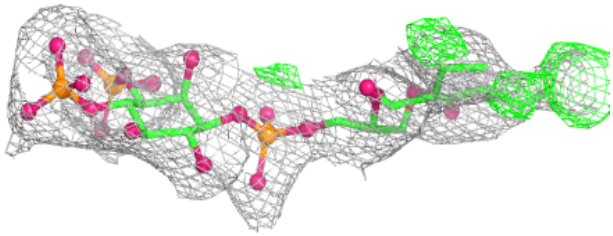


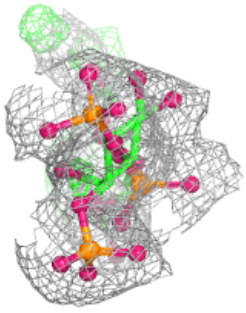


Electron density around 3PT A 302:

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

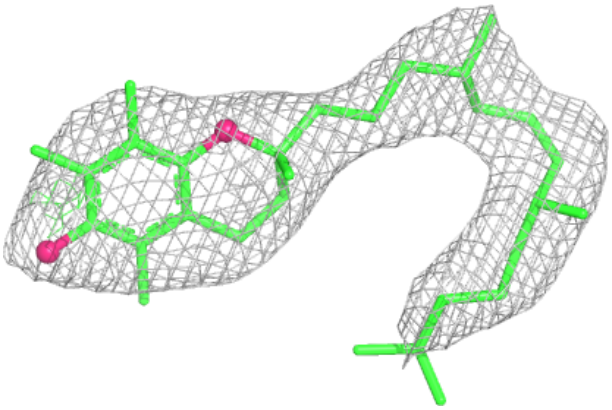


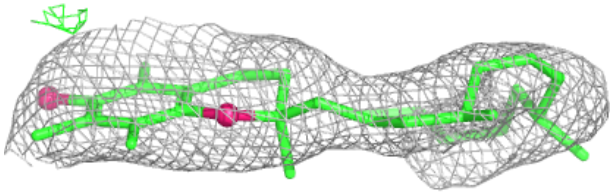


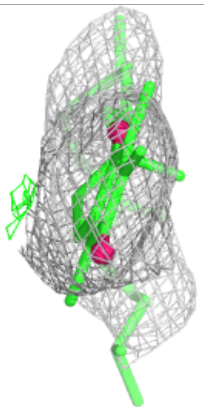


Electron density around VIV D 301:

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

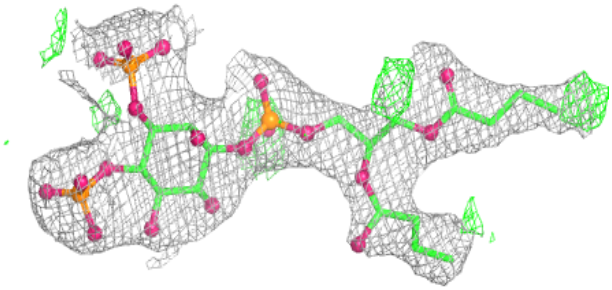


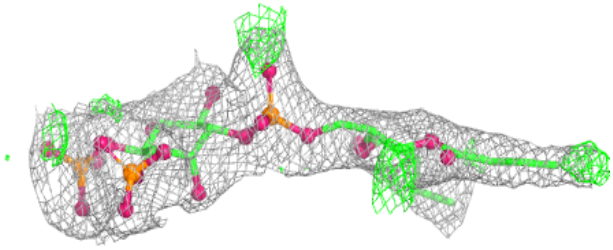


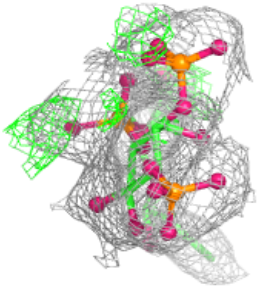


Electron density around 3PT B 302:

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

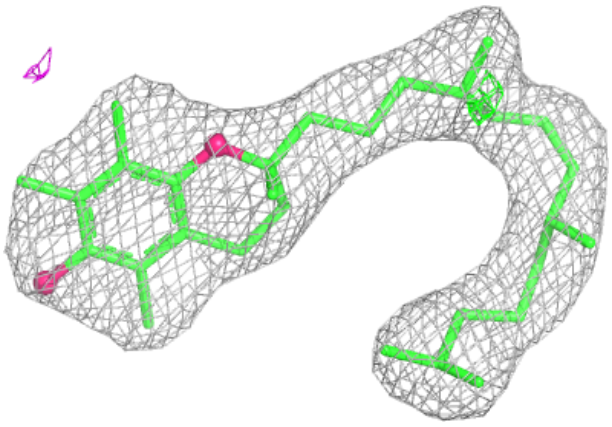


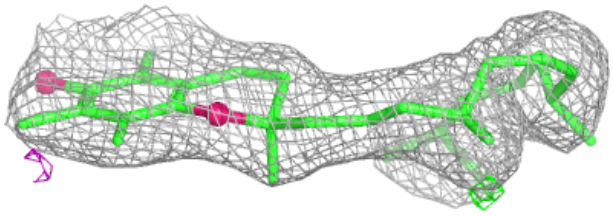


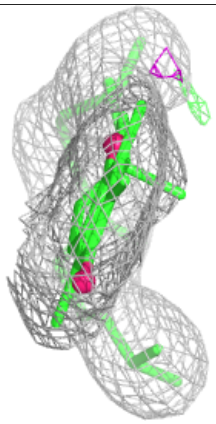


Electron density around VIV A 301:

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

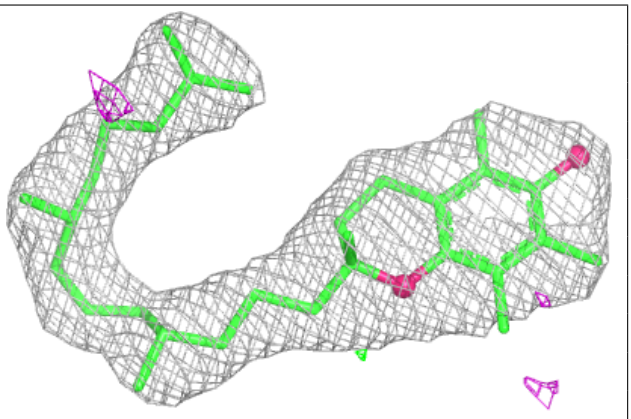


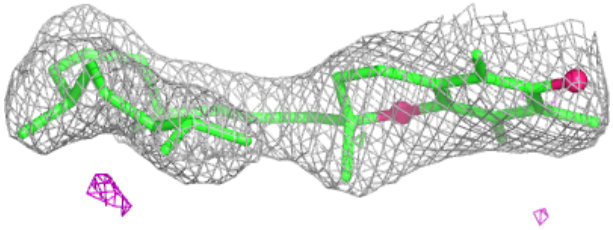


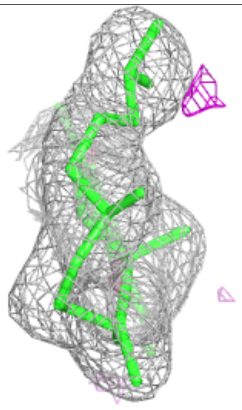


Electron density around VIV B 301:

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

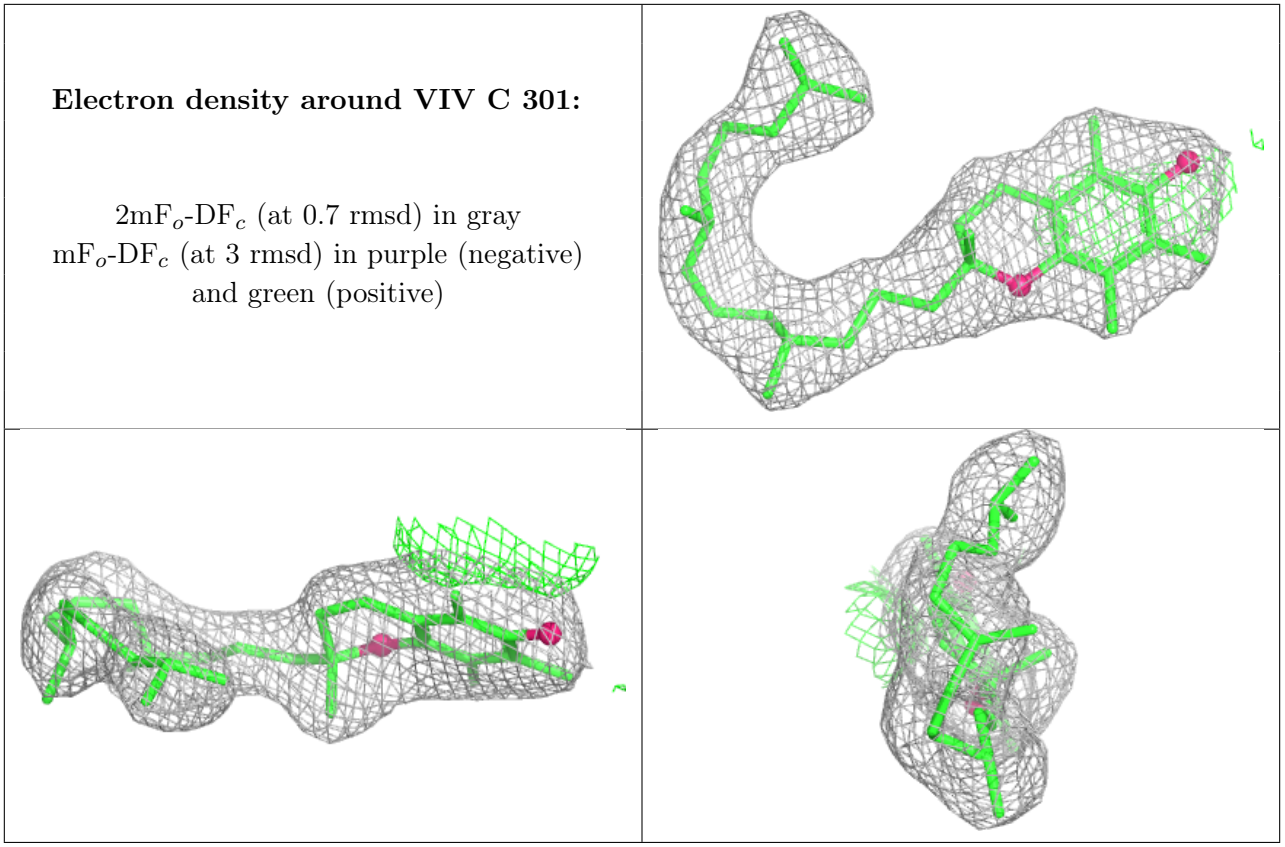






Electron density around VIV C 301:

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



6.5 Other polymers (i)

There are no such residues in this entry.