Full wwPDB X-ray Structure Validation Report (i)

Nov 9, 2024 – 10:31 am GMT

PDB ID	:	6FVJ
Title	:	TesA a major thioesterase from Mycobacterium tuberculosis
Authors	:	Cambillau, C.; Nguyen, V.S.; Canaan, S.
Deposited on	:	2018-03-03
Resolution	:	2.60 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 (i) 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 (i)) were used in the production of this report:

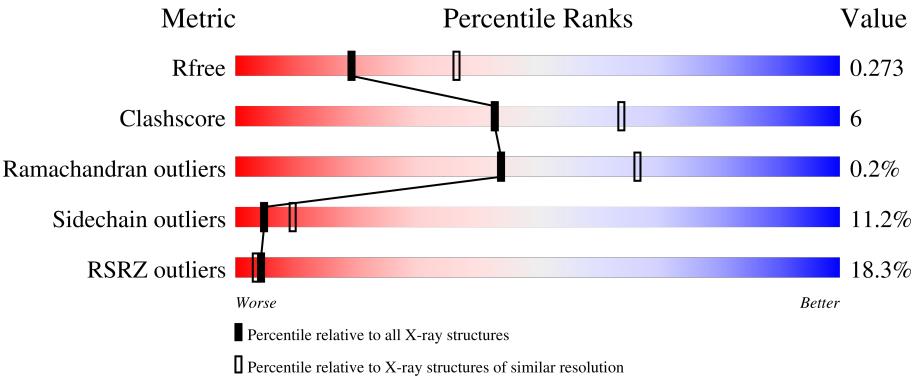
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 2.60 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	3775 (2.60-2.60)
Clashscore	180529	4181 (2.60-2.60)
Ramachandran outliers	177936	4129 (2.60-2.60)
Sidechain outliers	177891	4129 (2.60-2.60)
RSRZ outliers	164620	3775 (2.60-2.60)

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	261	8% 68% 10% • 20%
1	B	261	7% 70% 9% • 19%
1	C	261	9% 64% 11% • 21%
1	D	261	7% 73% 11% • 15%
1	E	261	13% 66% 13% • 18%

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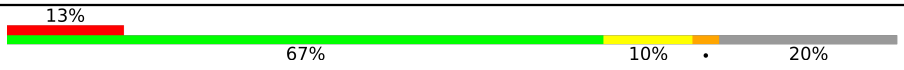
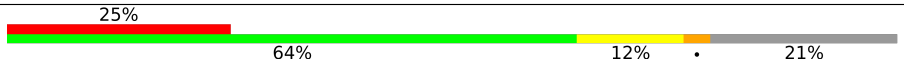
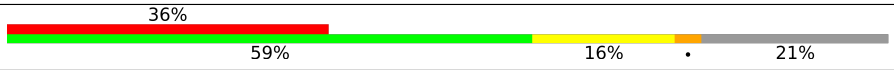
Mol	Chain	Length	Quality of chain
1	F	261	
1	G	261	
1	H	261	

2 Entry composition (i)

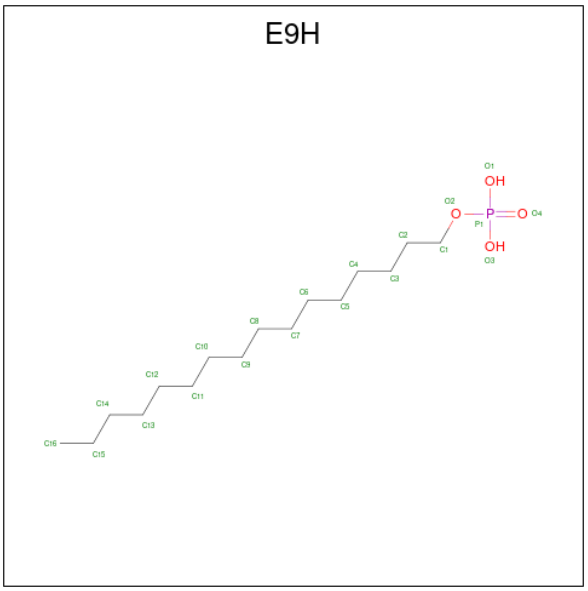
There are 5 unique types of molecules in this entry. The entry contains 13549 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Thioesterase.

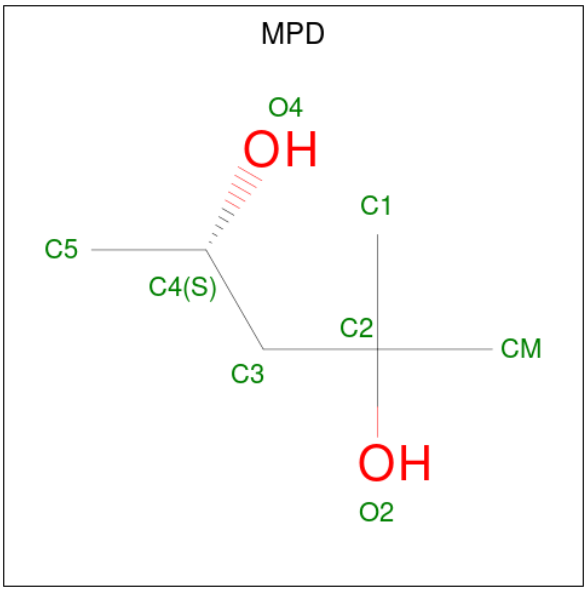
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	209	Total	C	N	O	S	0	0	0
			1598	1029	268	293	8			
1	B	212	Total	C	N	O	S	0	0	0
			1628	1038	278	303	9			
1	C	205	Total	C	N	O	S	0	0	0
			1590	1023	261	297	9			
1	D	223	Total	C	N	O	S	0	0	0
			1696	1085	286	317	8			
1	E	213	Total	C	N	O	S	0	0	0
			1651	1063	274	305	9			
1	F	208	Total	C	N	O	S	0	0	0
			1616	1033	273	301	9			
1	G	206	Total	C	N	O	S	0	0	0
			1577	1015	263	291	8			
1	H	205	Total	C	N	O	S	0	0	0
			1579	1010	267	293	9			

- Molecule 2 is hexadecyl dihydrogen phosphate (three-letter code: E9H) (formula: $C_{16}H_{35}O_4P$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O P 7 3 3 1	0	0
2	B	1	Total C O P 5 2 2 1	0	0
2	C	1	Total C O P 8 4 3 1	0	0
2	D	1	Total C O P 8 4 3 1	0	0
2	E	1	Total C O P 6 2 3 1	0	0
2	F	1	Total C O P 5 1 3 1	0	0
2	G	1	Total C O P 5 1 3 1	0	0
2	H	1	Total C O P 6 2 3 1	0	0

- Molecule 3 is (4S)-2-METHYL-2,4-PENTANEDIOL (three-letter code: MPD) (formula: $C_6H_{14}O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			8	6	2		
3	A	1	Total	C	O	0	0
			8	6	2		
3	B	1	Total	C	O	0	0
			8	6	2		
3	B	1	Total	C	O	0	0
			8	6	2		
3	C	1	Total	C	O	0	0
			8	6	2		
3	C	1	Total	C	O	0	0
			8	6	2		
3	D	1	Total	C	O	0	0
			8	6	2		
3	D	1	Total	C	O	0	0
			8	6	2		
3	E	1	Total	C	O	0	0
			8	6	2		
3	F	1	Total	C	O	0	0
			8	6	2		
3	F	1	Total	C	O	0	0
			8	6	2		
3	G	1	Total	C	O	0	0
			8	6	2		

- Molecule 4 is CALCIUM ION (three-letter code: CA) (formula: Ca).

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

- Molecule 5 is water.

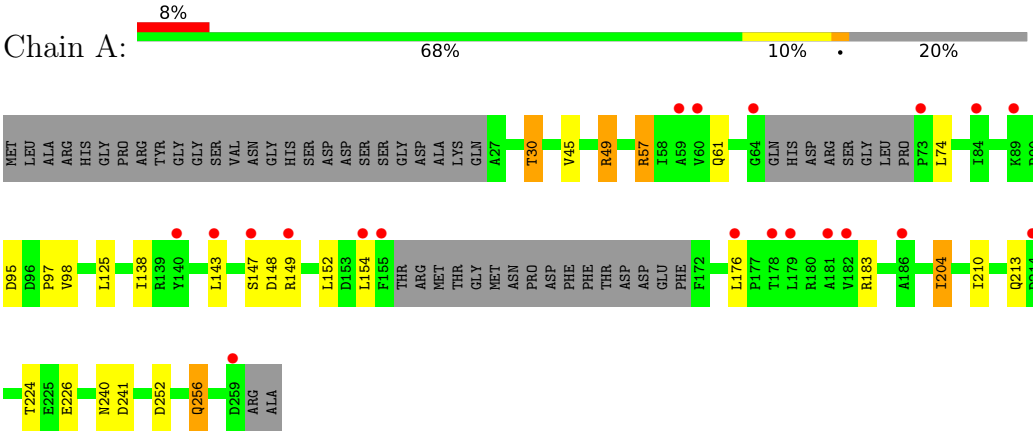
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	69	Total O 69 69	0	0
5	B	72	Total O 72 72	0	0
5	C	72	Total O 72 72	0	0
5	D	83	Total O 83 83	0	0
5	E	49	Total O 49 49	0	0
5	F	49	Total O 49 49	0	0
5	G	36	Total O 36 36	0	0
5	H	36	Total O 36 36	0	0

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.

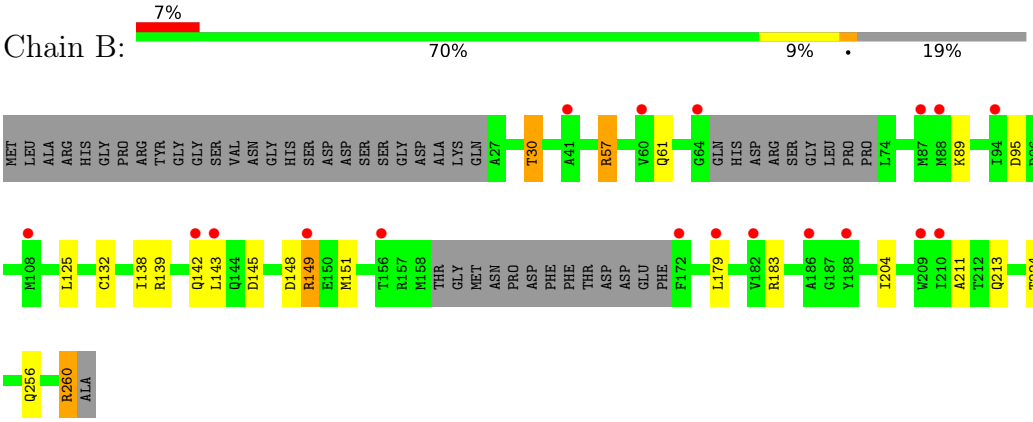
• Molecule 1: Thioesterase

Chain A:



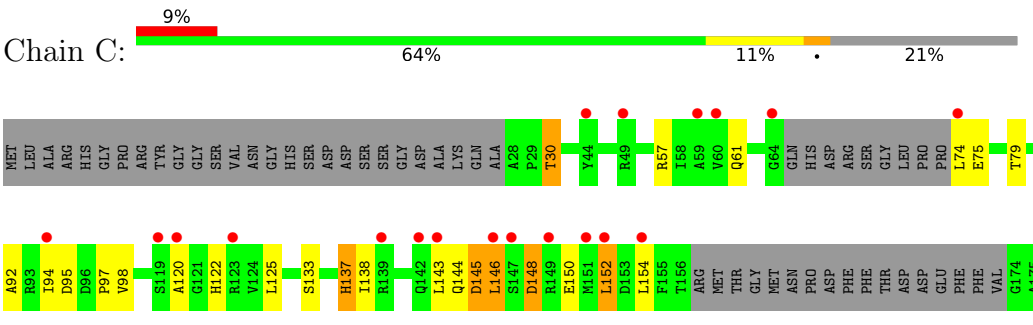
• Molecule 1: Thioesterase

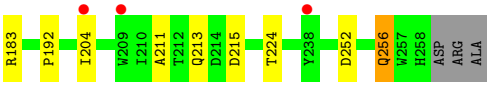
Chain B:



• Molecule 1: Thioesterase

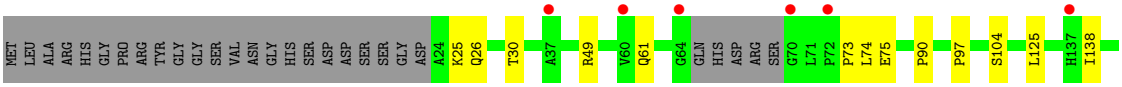
Chain C:

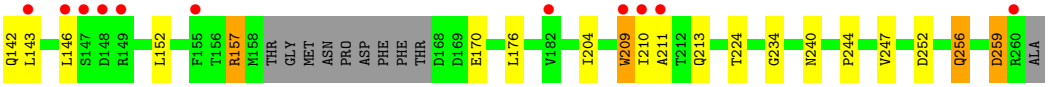




• Molecule 1: Thioesterase

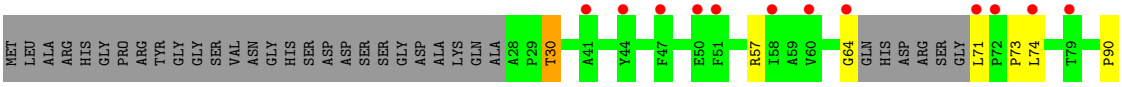
Chain D:

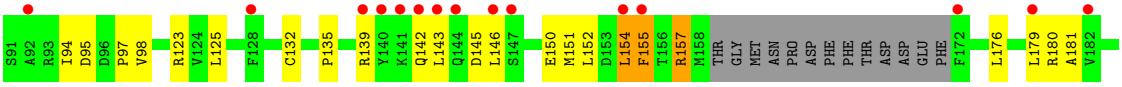


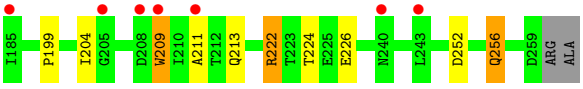


• Molecule 1: Thioesterase

Chain E:

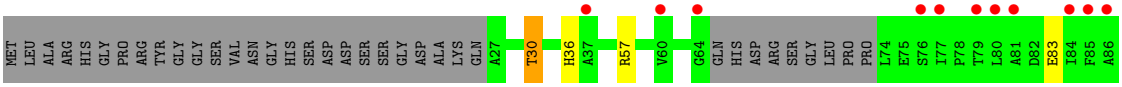


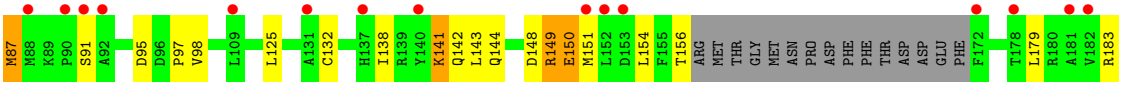


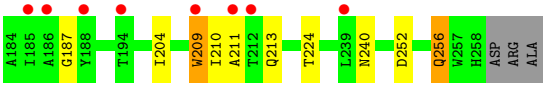


• Molecule 1: Thioesterase

Chain F:

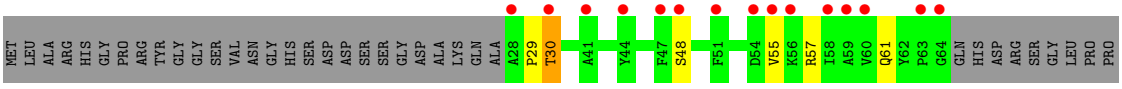


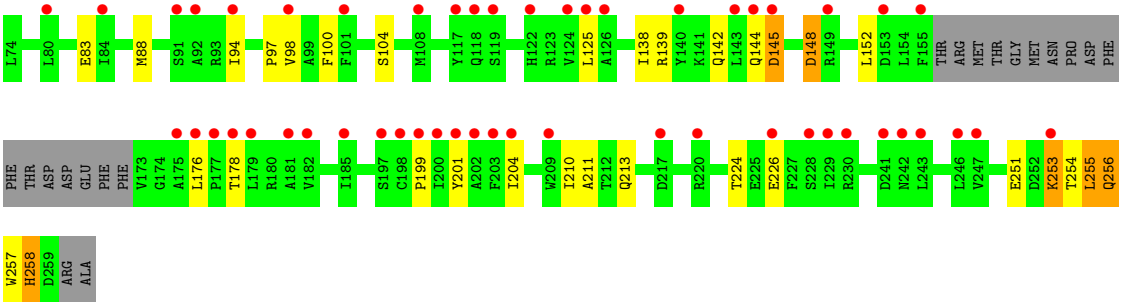




• Molecule 1: Thioesterase

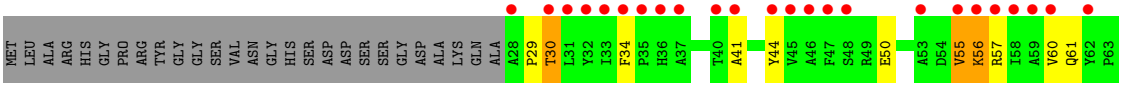
Chain G:

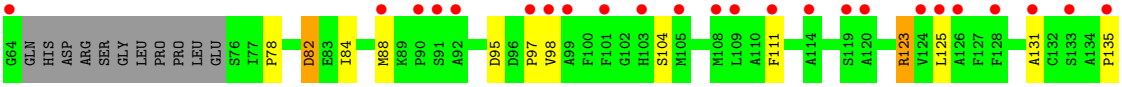


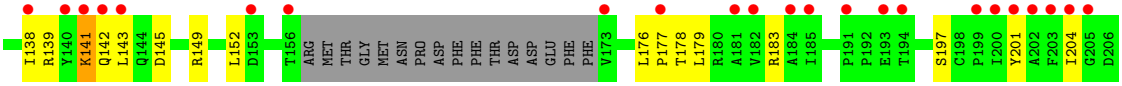


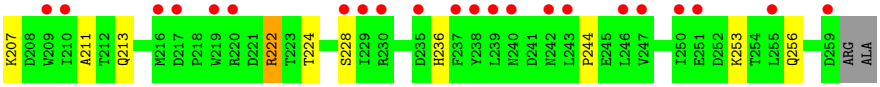
- Molecule 1: Thioesterase

Chain H:









4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	79.07Å 224.58Å 222.21Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	43.83 – 2.60 43.83 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.8 (43.83-2.60) 99.8 (43.83-2.60)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.85 (at 2.61Å)	Xtriage
Refinement program	BUSTER 2.10.3	Depositor
R, R_{free}	0.236 , 0.259 0.250 , 0.273	Depositor DCC
R_{free} test set	3056 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	67.6	Xtriage
Anisotropy	0.017	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 96.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	13549	wwPDB-VP
Average B, all atoms (Å^2)	85.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 31.44 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.1067e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: MPD, CA, E9H

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	0.43	0/1643	0.63	0/2238
1	B	0.44	0/1672	0.64	0/2274
1	C	0.43	0/1634	0.65	0/2223
1	D	0.45	1/1741 (0.1%)	0.64	0/2370
1	E	0.43	0/1698	0.64	0/2311
1	F	0.43	0/1660	0.64	0/2256
1	G	0.41	0/1621	0.65	1/2208 (0.0%)
1	H	0.47	0/1622	0.81	1/2206 (0.0%)
All	All	0.44	1/13291 (0.0%)	0.66	2/18086 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	104	SER	CB-OG	-5.24	1.35	1.42

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	H	104	SER	CA-CB-OG	20.86	167.51	111.20
1	G	104	SER	CA-CB-OG	5.67	126.52	111.20

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	1598	0	1503	16	0
1	B	1628	0	1510	18	0
1	C	1590	0	1504	28	0
1	D	1696	0	1582	15	0
1	E	1651	0	1560	22	0
1	F	1616	0	1524	19	0
1	G	1577	0	1476	22	0
1	H	1579	0	1484	26	0
2	A	7	0	0	0	0
2	B	5	0	0	0	0
2	C	8	0	0	0	0
2	D	8	0	0	0	0
2	E	6	0	0	0	0
2	F	5	0	0	0	0
2	G	5	0	0	0	0
2	H	6	0	0	0	0
3	A	16	0	28	2	0
3	B	16	0	28	1	0
3	C	16	0	28	1	0
3	D	16	0	28	2	0
3	E	8	0	14	2	0
3	F	16	0	28	6	0
3	G	8	0	14	1	0
4	A	1	0	0	0	0
4	C	1	0	0	0	0
5	A	69	0	0	1	0
5	B	72	0	0	2	0
5	C	72	0	0	0	0
5	D	83	0	0	0	0
5	E	49	0	0	0	0
5	F	49	0	0	1	0
5	G	36	0	0	4	0
5	H	36	0	0	0	0
All	All	13549	0	12311	154	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 6.

All (154) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:145:ASP:OD2	1:C:148:ASP:CB	1.74	1.35
1:C:145:ASP:OD2	1:C:148:ASP:HB2	1.09	1.26
1:H:50:GLU:OE2	1:H:244:PRO:HA	1.62	1.00
1:H:149:ARG:NH1	1:H:183:ARG:HB2	1.77	0.97
1:G:55:VAL:HA	5:G:401:HOH:O	1.64	0.95
1:C:146:LEU:HD21	1:C:176:LEU:HD21	1.48	0.95
1:H:149:ARG:HH12	1:H:183:ARG:HB2	1.37	0.90
1:F:138:ILE:HG23	3:F:302:MPD:H13	1.54	0.90
1:E:64:GLY:HA3	1:E:73:PRO:HD3	1.51	0.89
1:C:152:LEU:HD22	1:C:179:LEU:HD21	1.53	0.89
1:E:199:PRO:HB3	1:E:226:GLU:HG2	1.58	0.84
1:C:145:ASP:CG	1:C:148:ASP:HB2	1.98	0.84
1:C:74:LEU:HB2	1:C:79:THR:HG21	1.61	0.82
1:D:26:GLN:NE2	1:D:259:ASP:HA	1.94	0.82
1:C:146:LEU:HD23	1:C:176:LEU:HD11	1.64	0.78
1:C:145:ASP:OD2	1:C:148:ASP:HB3	1.80	0.78
1:G:255:LEU:HD12	1:G:258:HIS:HE1	1.49	0.76
1:A:149:ARG:HH22	1:A:183:ARG:HB2	1.54	0.73
1:E:150:GLU:HB3	1:E:179:LEU:HD22	1.71	0.73
1:F:36:HIS:HD2	5:F:403:HOH:O	1.72	0.72
1:H:149:ARG:HH12	1:H:183:ARG:CB	2.05	0.69
1:E:64:GLY:CA	1:E:73:PRO:HD3	2.22	0.68
1:G:125:LEU:HD22	1:G:256:GLN:HE22	1.58	0.67
1:G:258:HIS:H	1:G:258:HIS:CD2	2.10	0.67
1:B:256:GLN:O	1:B:260:ARG:HG3	1.95	0.67
1:H:135:PRO:HB2	1:H:222:ARG:NH1	2.09	0.66
1:A:226:GLU:HB3	1:E:226:GLU:HB2	1.79	0.65
1:G:145:ASP:HB3	1:G:148:ASP:HB2	1.78	0.64
1:E:209:TRP:HE3	1:E:209:TRP:H	1.45	0.64
1:A:240:ASN:HB3	1:D:49:ARG:HD2	1.80	0.63
1:C:133:SER:H	3:C:303:MPD:H13	1.64	0.63
1:E:71:LEU:HD21	1:E:181:ALA:CB	2.28	0.63
1:F:209:TRP:HE3	1:F:209:TRP:H	1.45	0.63
1:H:29:PRO:HG2	1:H:55:VAL:HG13	1.81	0.62
1:H:201:TYR:CE1	1:H:253:LYS:HD2	2.35	0.62
1:H:149:ARG:NH1	1:H:183:ARG:HE	1.98	0.61
1:C:152:LEU:CD2	1:C:179:LEU:HD21	2.29	0.61
1:A:204:ILE:HG12	5:A:501:HOH:O	2.01	0.60
1:H:34:PHE:CZ	1:H:84:ILE:HG21	2.36	0.60
1:A:256:GLN:HE22	1:E:256:GLN:HE22	1.50	0.60
1:F:138:ILE:HG23	3:F:302:MPD:C1	2.30	0.59
1:D:209:TRP:HE3	1:D:209:TRP:H	1.46	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:143:LEU:HA	1:B:183:ARG:HG3	1.85	0.59
1:C:146:LEU:CD2	1:C:176:LEU:HD21	2.30	0.58
1:E:132:CYS:HA	3:E:302:MPD:HM3	1.85	0.58
1:C:148:ASP:C	1:C:150:GLU:H	2.05	0.58
1:H:135:PRO:HB2	1:H:222:ARG:HH11	1.68	0.57
1:F:210:ILE:HG22	3:F:302:MPD:H32	1.86	0.57
1:D:210:ILE:HG22	3:D:302:MPD:H12	1.85	0.57
1:H:149:ARG:NH1	1:H:183:ARG:NE	2.53	0.56
1:G:88:MET:HE1	1:G:100:PHE:HE1	1.69	0.56
1:D:240:ASN:HD21	3:D:303:MPD:H32	1.70	0.56
1:C:152:LEU:HD13	1:C:179:LEU:HD11	1.88	0.56
1:G:201:TYR:CZ	1:G:253:LYS:HG3	2.41	0.55
1:E:64:GLY:HA3	1:E:73:PRO:CD	2.29	0.55
1:D:26:GLN:HE22	1:D:259:ASP:HA	1.68	0.54
1:G:254:THR:HB	1:G:255:LEU:HD23	1.90	0.54
1:H:149:ARG:HD2	1:H:179:LEU:HG	1.88	0.54
1:C:137:HIS:CE1	1:C:192:PRO:HG3	2.42	0.54
1:A:240:ASN:HD21	3:A:403:MPD:H32	1.73	0.54
1:H:149:ARG:HH12	1:H:183:ARG:CG	2.21	0.54
1:A:210:ILE:HG22	3:A:402:MPD:HM1	1.91	0.53
1:E:155:PHE:O	1:E:155:PHE:HD1	1.92	0.53
1:G:125:LEU:HD13	1:G:254:THR:O	2.09	0.53
1:G:48:SER:OG	1:G:57:ARG:HD2	2.08	0.52
1:B:252:ASP:O	1:B:256:GLN:HB2	2.09	0.52
1:C:92:ALA:HB1	1:C:122:HIS:CE1	2.44	0.52
1:F:138:ILE:O	1:F:141:LYS:HG2	2.10	0.52
1:A:61:GLN:HB3	1:C:61:GLN:HB3	1.91	0.52
1:E:143:LEU:H	1:E:143:LEU:HD12	1.74	0.52
1:E:135:PRO:HD2	1:E:222:ARG:HD3	1.93	0.51
1:H:176:LEU:N	1:H:177:PRO:HD2	2.26	0.51
1:A:241:ASP:O	1:B:89:LYS:HD3	2.10	0.51
1:H:30:THR:HG23	1:H:98:VAL:HG12	1.93	0.50
1:G:29:PRO:HG2	5:G:401:HOH:O	2.10	0.50
1:A:45:VAL:HG11	1:D:244:PRO:HB3	1.94	0.49
1:G:29:PRO:HD2	5:G:401:HOH:O	2.12	0.49
1:G:210:ILE:HG22	3:G:302:MPD:HM1	1.95	0.49
1:B:204:ILE:HD11	1:B:211:ALA:O	2.13	0.49
1:B:149:ARG:HD2	1:B:179:LEU:HB3	1.95	0.49
1:H:197:SER:HA	1:H:224:THR:CG2	2.43	0.48
1:F:210:ILE:O	3:F:302:MPD:H11	2.12	0.48
1:G:255:LEU:HD12	1:G:258:HIS:CE1	2.38	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:57:ARG:H	1:C:91:SER:HB2	1.79	0.48
1:H:34:PHE:HZ	1:H:84:ILE:HG21	1.78	0.48
1:F:149:ARG:HH12	1:F:183:ARG:HB2	1.79	0.47
1:H:123:ARG:HA	1:H:123:ARG:HE	1.78	0.47
1:E:90:PRO:HB3	1:G:57:ARG:NH2	2.30	0.47
1:B:30:THR:HG22	5:B:534:HOH:O	2.14	0.46
1:B:132:CYS:HA	3:B:402:MPD:H13	1.97	0.46
1:C:89:LYS:HE2	1:C:120:ALA:HB1	1.97	0.46
1:F:149:ARG:NH1	1:F:183:ARG:HB2	2.31	0.46
1:E:157:ARG:HA	1:E:157:ARG:HD3	1.68	0.46
1:F:132:CYS:HA	3:F:302:MPD:H4	1.96	0.46
1:C:74:LEU:HD21	1:D:234:GLY:HA2	1.97	0.46
1:G:204:ILE:HD11	1:G:211:ALA:O	2.16	0.46
1:B:30:THR:HG23	1:B:98:VAL:HG12	1.98	0.45
1:C:145:ASP:OD2	1:C:148:ASP:CG	2.51	0.45
1:B:57:ARG:CZ	1:D:90:PRO:HB3	2.45	0.45
1:D:204:ILE:HD11	1:D:211:ALA:O	2.16	0.45
1:F:83:GLU:O	1:F:87:MET:HG2	2.16	0.45
1:H:131:ALA:O	1:H:236:HIS:HE1	1.98	0.45
1:C:204:ILE:HD11	1:C:211:ALA:O	2.16	0.45
1:F:144:GLN:HG3	1:F:187:GLY:HA3	1.99	0.45
1:A:30:THR:HG23	1:A:98:VAL:HG12	1.99	0.45
1:B:149:ARG:HD3	1:B:179:LEU:HD22	1.97	0.45
1:H:41:ALA:HB2	1:H:61:GLN:NE2	2.32	0.45
1:D:157:ARG:HD3	1:D:157:ARG:HA	1.33	0.45
1:G:29:PRO:CD	5:G:401:HOH:O	2.65	0.45
1:B:149:ARG:HH21	1:B:183:ARG:HB2	1.81	0.45
1:E:139:ARG:H	3:E:302:MPD:H51	1.82	0.45
1:G:253:LYS:O	1:G:253:LYS:HD3	2.17	0.45
1:H:84:ILE:O	1:H:88:MET:HB2	2.17	0.45
1:B:149:ARG:CB	1:B:149:ARG:HH11	2.30	0.44
1:G:97:PRO:HB2	1:G:125:LEU:HD11	1.98	0.44
1:G:199:PRO:HB3	1:G:226:GLU:HB3	2.00	0.44
1:B:61:GLN:HB3	1:D:61:GLN:HB3	1.97	0.44
1:H:97:PRO:HB2	1:H:125:LEU:HD11	1.98	0.44
1:A:49:ARG:HH21	1:D:247:VAL:HG12	1.81	0.44
1:F:204:ILE:HD11	1:F:211:ALA:O	2.17	0.44
1:A:97:PRO:HB2	1:A:125:LEU:HD11	2.00	0.44
1:B:256:GLN:HG3	1:B:260:ARG:NH2	2.33	0.44
1:C:146:LEU:HD12	1:C:183:ARG:HH22	1.83	0.44
1:G:30:THR:HG23	1:G:98:VAL:HG12	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:30:THR:HG23	1:F:98:VAL:HG12	1.99	0.43
1:E:204:ILE:HD11	1:E:211:ALA:O	2.18	0.43
1:E:252:ASP:O	1:E:256:GLN:HB2	2.17	0.43
1:H:56:LYS:HE3	1:H:56:LYS:HB2	1.79	0.43
1:G:201:TYR:OH	1:G:253:LYS:HD2	2.18	0.43
1:E:30:THR:HG23	1:E:98:VAL:HG12	2.00	0.43
1:E:154:LEU:HD13	1:E:179:LEU:HD11	2.01	0.43
1:H:204:ILE:HD11	1:H:211:ALA:O	2.19	0.43
1:A:252:ASP:O	1:A:256:GLN:HB2	2.19	0.42
1:B:149:ARG:HH11	1:B:149:ARG:HB2	1.84	0.42
1:E:176:LEU:HD21	1:E:180:ARG:HE	1.83	0.42
1:C:30:THR:HG23	1:C:98:VAL:HG12	2.01	0.42
1:B:97:PRO:HB2	1:B:125:LEU:HD11	2.01	0.42
1:C:137:HIS:NE2	1:C:192:PRO:HG3	2.35	0.42
1:F:150:GLU:O	1:F:154:LEU:N	2.53	0.42
1:H:111:PHE:CZ	1:H:222:ARG:HD3	2.55	0.42
1:C:148:ASP:C	1:C:150:GLU:N	2.73	0.41
1:H:78:PRO:O	1:H:82:ASP:OD1	2.38	0.41
1:C:92:ALA:HB1	1:C:122:HIS:HE1	1.85	0.41
1:F:240:ASN:HD21	3:F:303:MPD:H32	1.86	0.41
1:F:252:ASP:O	1:F:256:GLN:HB2	2.20	0.41
1:F:149:ARG:NH1	1:F:179:LEU:O	2.54	0.41
1:A:217:ASP:HB3	1:A:220:ARG:NH1	2.36	0.41
1:B:151:MET:HB3	5:B:501:HOH:O	2.21	0.41
1:C:97:PRO:HB2	1:C:125:LEU:HD11	2.01	0.41
1:C:252:ASP:O	1:C:256:GLN:HB2	2.20	0.41
1:F:97:PRO:HB2	1:F:125:LEU:HD11	2.01	0.41
1:E:97:PRO:HB2	1:E:125:LEU:HD11	2.01	0.41
1:D:97:PRO:HB2	1:D:125:LEU:HD11	2.02	0.40
1:D:252:ASP:O	1:D:256:GLN:HB2	2.21	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	203/261 (78%)	194 (96%)	9 (4%)	0	100 100
1	B	206/261 (79%)	199 (97%)	7 (3%)	0	100 100
1	C	199/261 (76%)	190 (96%)	8 (4%)	1 (0%)	25 47
1	D	217/261 (83%)	199 (92%)	16 (7%)	2 (1%)	14 31
1	E	207/261 (79%)	198 (96%)	9 (4%)	0	100 100
1	F	202/261 (77%)	190 (94%)	12 (6%)	0	100 100
1	G	200/261 (77%)	191 (96%)	9 (4%)	0	100 100
1	H	199/261 (76%)	186 (94%)	12 (6%)	1 (0%)	25 47
All	All	1633/2088 (78%)	1547 (95%)	82 (5%)	4 (0%)	44 66

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	138	ILE
1	H	141	LYS
1	D	170	GLU
1	D	73	PRO

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	160/216 (74%)	142 (89%)	18 (11%)	4 9
1	B	162/216 (75%)	148 (91%)	14 (9%)	8 18
1	C	164/216 (76%)	144 (88%)	20 (12%)	4 8
1	D	169/216 (78%)	153 (90%)	16 (10%)	7 14
1	E	169/216 (78%)	150 (89%)	19 (11%)	5 9
1	F	165/216 (76%)	148 (90%)	17 (10%)	6 12
1	G	158/216 (73%)	137 (87%)	21 (13%)	3 6

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	H	160/216 (74%)	138 (86%)	22 (14%)	3 5
All	All	1307/1728 (76%)	1160 (89%)	147 (11%)	5 9

All (147) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	30	THR
1	A	49	ARG
1	A	57	ARG
1	A	74	LEU
1	A	91	SER
1	A	95	ASP
1	A	138	ILE
1	A	143	LEU
1	A	147	SER
1	A	148	ASP
1	A	152	LEU
1	A	154	LEU
1	A	176	LEU
1	A	204	ILE
1	A	213	GLN
1	A	220	ARG
1	A	224	THR
1	A	256	GLN
1	B	30	THR
1	B	57	ARG
1	B	95	ASP
1	B	105	MET
1	B	138	ILE
1	B	139	ARG
1	B	142	GLN
1	B	145	ASP
1	B	148	ASP
1	B	149	ARG
1	B	213	GLN
1	B	224	THR
1	B	245	GLU
1	B	260	ARG
1	C	30	THR
1	C	57	ARG
1	C	75	GLU
1	C	88	MET

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Mol	Chain	Res	Type
1	C	94	ILE
1	C	95	ASP
1	C	137	HIS
1	C	143	LEU
1	C	144	GLN
1	C	145	ASP
1	C	146	LEU
1	C	148	ASP
1	C	152	LEU
1	C	154	LEU
1	C	176	LEU
1	C	179	LEU
1	C	213	GLN
1	C	215	ASP
1	C	224	THR
1	C	256	GLN
1	D	25	LYS
1	D	30	THR
1	D	74	LEU
1	D	75	GLU
1	D	138	ILE
1	D	142	GLN
1	D	143	LEU
1	D	146	LEU
1	D	152	LEU
1	D	157	ARG
1	D	176	LEU
1	D	209	TRP
1	D	213	GLN
1	D	224	THR
1	D	256	GLN
1	D	259	ASP
1	E	30	THR
1	E	57	ARG
1	E	74	LEU
1	E	94	ILE
1	E	95	ASP
1	E	123	ARG
1	E	142	GLN
1	E	145	ASP
1	E	146	LEU
1	E	151	MET

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Mol	Chain	Res	Type
1	E	152	LEU
1	E	154	LEU
1	E	155	PHE
1	E	157	ARG
1	E	209	TRP
1	E	213	GLN
1	E	222	ARG
1	E	224	THR
1	E	256	GLN
1	F	30	THR
1	F	57	ARG
1	F	87	MET
1	F	91	SER
1	F	95	ASP
1	F	141	LYS
1	F	142	GLN
1	F	143	LEU
1	F	148	ASP
1	F	149	ARG
1	F	150	GLU
1	F	151	MET
1	F	156	THR
1	F	209	TRP
1	F	213	GLN
1	F	224	THR
1	F	256	GLN
1	G	30	THR
1	G	61	GLN
1	G	83	GLU
1	G	94	ILE
1	G	138	ILE
1	G	139	ARG
1	G	142	GLN
1	G	144	GLN
1	G	145	ASP
1	G	148	ASP
1	G	152	LEU
1	G	176	LEU
1	G	178	THR
1	G	213	GLN
1	G	224	THR
1	G	251	GLU

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Mol	Chain	Res	Type
1	G	253	LYS
1	G	255	LEU
1	G	256	GLN
1	G	257	TRP
1	G	258	HIS
1	H	30	THR
1	H	44	TYR
1	H	55	VAL
1	H	56	LYS
1	H	57	ARG
1	H	60	VAL
1	H	82	ASP
1	H	95	ASP
1	H	123	ARG
1	H	138	ILE
1	H	139	ARG
1	H	141	LYS
1	H	142	GLN
1	H	143	LEU
1	H	145	ASP
1	H	152	LEU
1	H	178	THR
1	H	207	LYS
1	H	213	GLN
1	H	222	ARG
1	H	228	SER
1	H	256	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	142	GLN
1	D	26	GLN
1	D	142	GLN
1	D	240	ASN
1	E	256	GLN
1	G	256	GLN
1	G	258	HIS
1	H	61	GLN
1	H	142	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 22 ligands modelled in this entry, 2 are monoatomic - leaving 20 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	$\#\|Z\| > 2$
3	MPD	C	303	-	7,7,7	0.60	0	9,10,10	0.40	0
3	MPD	G	302	-	7,7,7	0.50	0	9,10,10	0.35	0
3	MPD	B	403	-	7,7,7	0.71	0	9,10,10	0.52	0
2	E9H	A	401	1	3,6,20	0.56	0	2,6,22	0.33	0
2	E9H	H	301	1	2,5,20	0.83	0	1,5,22	0.34	0
2	E9H	F	301	1	1,4,20	0.21	0	0,4,22	-	-
3	MPD	F	303	-	7,7,7	0.52	0	9,10,10	0.38	0
2	E9H	G	301	1	1,4,20	0.20	0	0,4,22	-	-
2	E9H	C	301	1	4,7,20	0.43	0	3,7,22	0.31	0
2	E9H	B	401	1	2,4,20	0.68	0	1,3,22	0.27	0
3	MPD	D	303	-	7,7,7	0.60	0	9,10,10	0.34	0
3	MPD	A	402	-	7,7,7	0.46	0	9,10,10	0.41	0
3	MPD	C	304	-	7,7,7	0.84	0	9,10,10	0.61	0
3	MPD	E	302	-	7,7,7	0.64	0	9,10,10	0.58	0
3	MPD	D	302	-	7,7,7	0.41	0	9,10,10	0.29	0
3	MPD	B	402	-	7,7,7	0.64	0	9,10,10	0.37	0
2	E9H	D	301	1	4,7,20	0.47	0	3,7,22	0.35	0
2	E9H	E	301	1	2,5,20	0.78	0	1,5,22	0.34	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	MPD	F	302	-	7,7,7	0.47	0	9,10,10	0.49	0
3	MPD	A	403	-	7,7,7	0.63	0	9,10,10	0.30	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	MPD	C	303	-	-	0/5/5/5	-
3	MPD	G	302	-	-	3/5/5/5	-
3	MPD	B	403	-	-	1/5/5/5	-
2	E9H	A	401	1	-	1/2/4/18	-
2	E9H	H	301	1	-	0/1/3/18	-
2	E9H	F	301	1	-	0/0/2/18	-
3	MPD	F	303	-	-	0/5/5/5	-
2	E9H	G	301	1	-	0/0/2/18	-
2	E9H	C	301	1	-	1/3/5/18	-
2	E9H	B	401	1	-	0/0/2/18	-
3	MPD	D	303	-	-	1/5/5/5	-
3	MPD	A	402	-	-	3/5/5/5	-
3	MPD	C	304	-	-	4/5/5/5	-
3	MPD	E	302	-	-	2/5/5/5	-
3	MPD	D	302	-	-	0/5/5/5	-
3	MPD	B	402	-	-	0/5/5/5	-
2	E9H	D	301	1	-	2/3/5/18	-
2	E9H	E	301	1	-	0/1/3/18	-
3	MPD	F	302	-	-	3/5/5/5	-
3	MPD	A	403	-	-	0/5/5/5	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	301	E9H	O2-C1-C2-C3
3	C	304	MPD	C1-C2-C3-C4
3	C	304	MPD	C2-C3-C4-O4

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Mol	Chain	Res	Type	Atoms
3	G	302	MPD	C2-C3-C4-O4
2	C	301	E9H	O2-C1-C2-C3
2	D	301	E9H	C1-C2-C3-C4
2	A	401	E9H	O2-C1-C2-C3
3	A	402	MPD	O2-C2-C3-C4
3	C	304	MPD	O2-C2-C3-C4
3	F	302	MPD	O2-C2-C3-C4
3	A	402	MPD	C2-C3-C4-C5
3	E	302	MPD	C2-C3-C4-C5
3	G	302	MPD	C2-C3-C4-C5
3	A	402	MPD	C2-C3-C4-O4
3	C	304	MPD	CM-C2-C3-C4
3	F	302	MPD	C1-C2-C3-C4
3	F	302	MPD	CM-C2-C3-C4
3	D	303	MPD	O2-C2-C3-C4
3	E	302	MPD	O2-C2-C3-C4
3	G	302	MPD	O2-C2-C3-C4
3	B	403	MPD	C2-C3-C4-C5

There are no ring outliers.

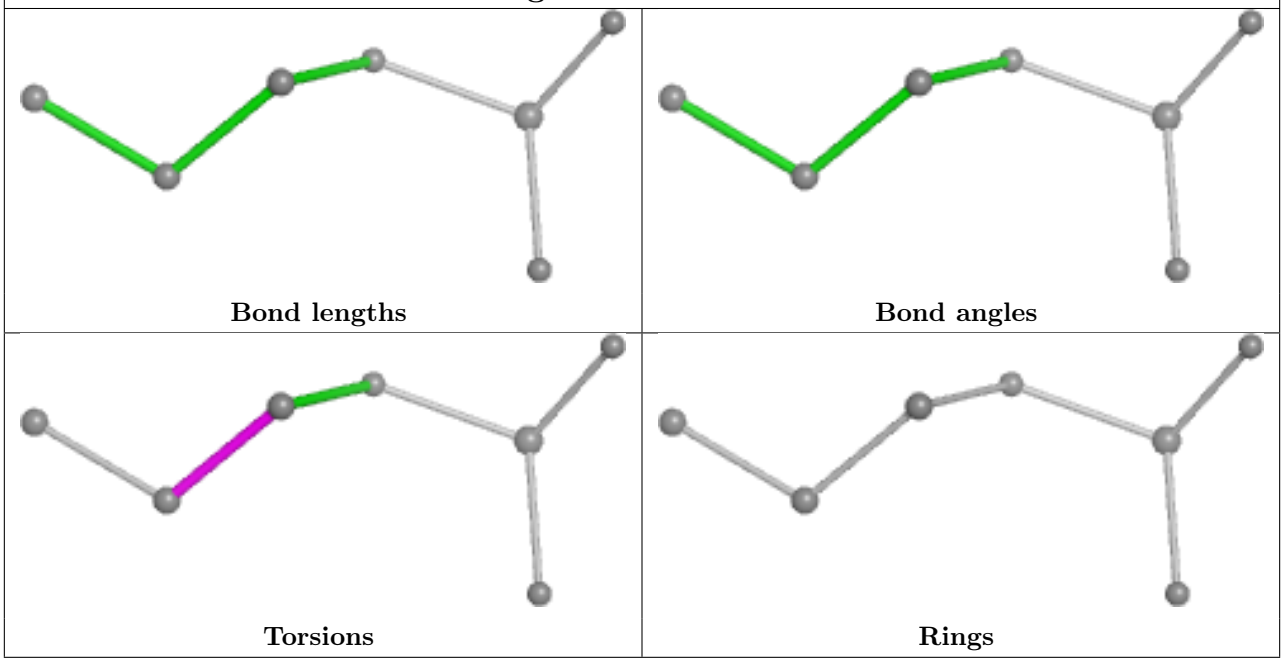
10 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	303	MPD	1	0
3	G	302	MPD	1	0
3	F	303	MPD	1	0
3	D	303	MPD	1	0
3	A	402	MPD	1	0
3	E	302	MPD	2	0
3	D	302	MPD	1	0
3	B	402	MPD	1	0
3	F	302	MPD	5	0
3	A	403	MPD	1	0

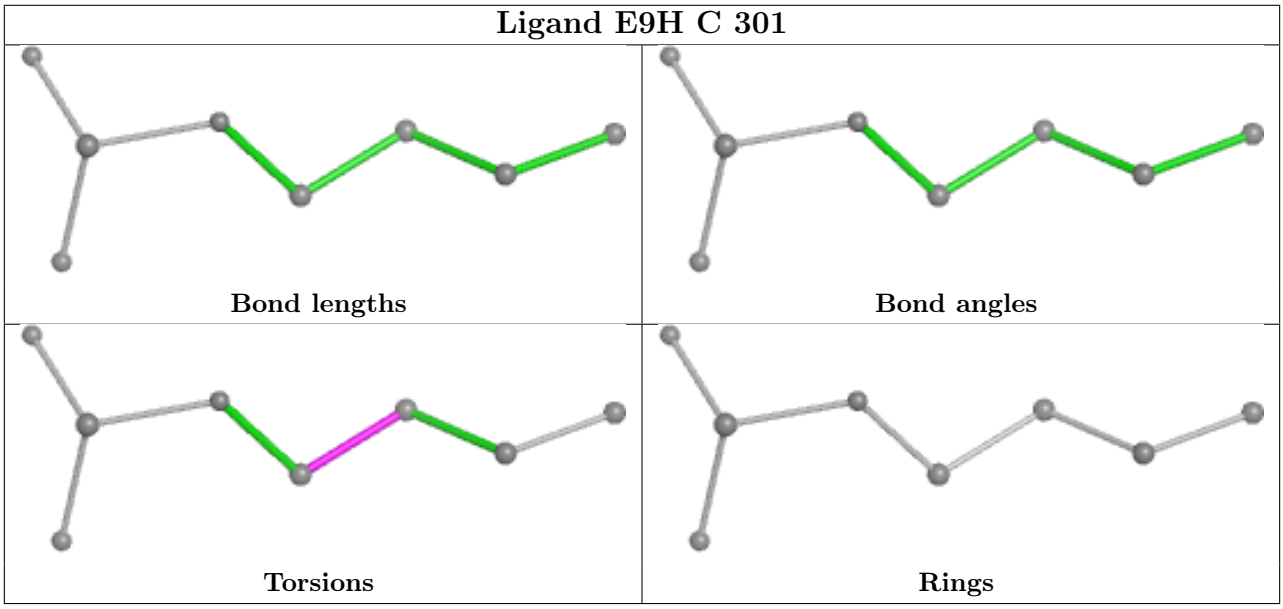
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

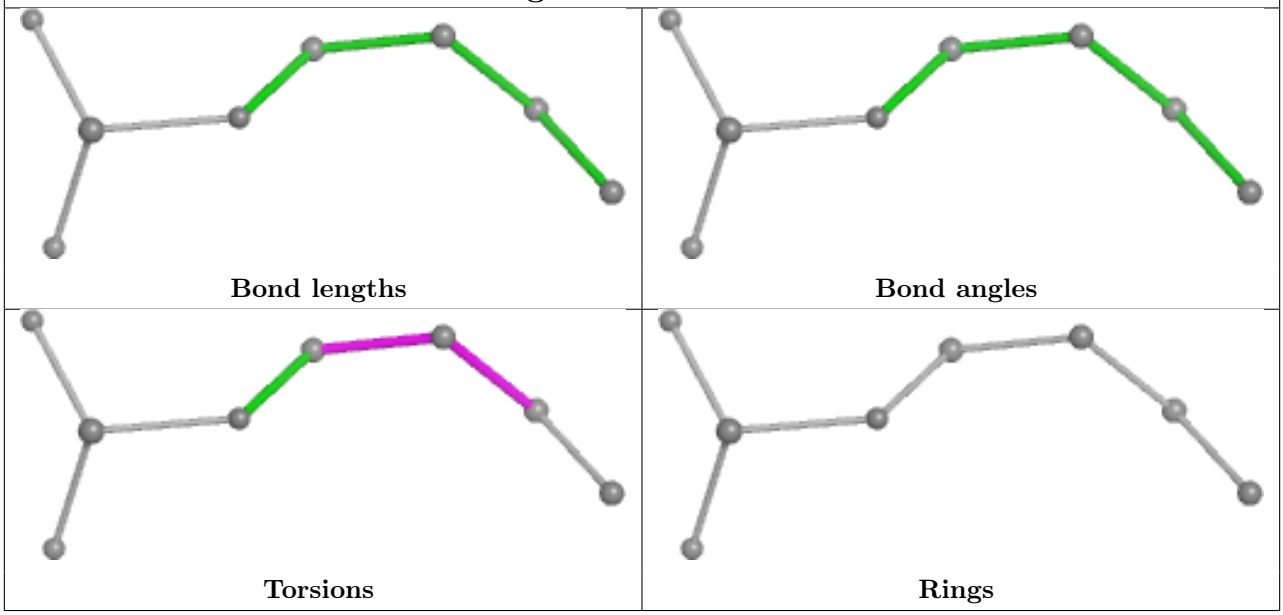
Ligand E9H A 401



Ligand E9H C 301



Ligand E9H D 301



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	209/261 (80%)	0.65	22 (10%) 13 11	41, 65, 157, 216	0
1	B	212/261 (81%)	0.52	18 (8%) 18 15	41, 60, 160, 195	0
1	C	205/261 (78%)	0.65	24 (11%) 10 8	43, 67, 149, 190	0
1	D	223/261 (85%)	0.49	17 (7%) 21 17	37, 55, 149, 193	0
1	E	213/261 (81%)	0.94	34 (15%) 6 4	45, 84, 145, 155	0
1	F	208/261 (79%)	1.11	34 (16%) 5 4	55, 83, 136, 149	0
1	G	206/261 (78%)	1.73	66 (32%) 1 1	72, 110, 163, 247	0
1	H	205/261 (78%)	2.02	93 (45%) 1 1	80, 107, 144, 165	0
All	All	1681/2088 (80%)	1.01	308 (18%) 4 3	37, 80, 149, 247	0

All (308) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	204	ILE	6.6
1	B	149	ARG	5.8
1	G	181	ALA	5.7
1	G	47	PHE	5.7
1	H	41	ALA	5.6
1	H	44	TYR	5.6
1	H	181	ALA	5.5
1	F	182	VAL	5.3
1	G	98	VAL	5.2
1	G	153	ASP	4.9
1	H	239	LEU	4.9
1	D	209	TRP	4.9
1	D	210	ILE	4.7
1	G	149	ARG	4.6
1	H	182	VAL	4.6
1	B	142	GLN	4.6

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Mol	Chain	Res	Type	RSRZ
1	G	44	TYR	4.5
1	G	182	VAL	4.5
1	G	155	PHE	4.4
1	H	125	LEU	4.2
1	H	47	PHE	4.2
1	G	178	THR	4.2
1	F	181	ALA	4.2
1	A	186	ALA	4.1
1	H	33	ILE	4.1
1	F	137	HIS	4.1
1	H	60	VAL	4.1
1	H	126	ALA	4.0
1	H	120	ALA	3.9
1	E	182	VAL	3.9
1	E	154	LEU	3.9
1	H	246	LEU	3.9
1	H	124	VAL	3.9
1	H	58	ILE	3.9
1	H	238	TYR	3.8
1	C	143	LEU	3.8
1	H	108	MET	3.8
1	D	72	PRO	3.8
1	F	77	ILE	3.8
1	G	175	ALA	3.7
1	H	45	VAL	3.7
1	H	250	ILE	3.7
1	H	200	ILE	3.7
1	B	186	ALA	3.6
1	H	184	ALA	3.6
1	H	199	PRO	3.6
1	G	229	ILE	3.6
1	G	41	ALA	3.6
1	G	55	VAL	3.6
1	B	179	LEU	3.5
1	G	28	ALA	3.5
1	F	86	ALA	3.5
1	H	59	ALA	3.5
1	H	99	ALA	3.5
1	H	203	PHE	3.5
1	G	179	LEU	3.5
1	G	92	ALA	3.5
1	C	91	SER	3.5

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Mol	Chain	Res	Type	RSRZ
1	F	91	SER	3.5
1	F	209	TRP	3.5
1	H	119	SER	3.5
1	F	153	ASP	3.4
1	F	85	PHE	3.4
1	F	188	TYR	3.4
1	G	80	LEU	3.4
1	G	203	PHE	3.4
1	H	101	PHE	3.4
1	C	120	ALA	3.3
1	B	182	VAL	3.3
1	G	246	LEU	3.3
1	G	201	TYR	3.3
1	G	119	SER	3.3
1	H	193	GLU	3.3
1	C	74	LEU	3.3
1	C	139	ARG	3.3
1	F	212	THR	3.3
1	H	88	MET	3.3
1	H	205	GLY	3.3
1	E	79	THR	3.2
1	C	64	GLY	3.2
1	H	242	ASN	3.2
1	D	147	SER	3.2
1	H	131	ALA	3.2
1	G	209	TRP	3.2
1	A	149	ARG	3.2
1	E	41	ALA	3.2
1	E	146	LEU	3.2
1	E	147	SER	3.1
1	E	179	LEU	3.1
1	G	91	SER	3.1
1	F	37	ALA	3.1
1	F	131	ALA	3.1
1	H	55	VAL	3.1
1	F	81	ALA	3.1
1	H	209	TRP	3.1
1	G	117	TYR	3.1
1	H	229	ILE	3.1
1	E	47	PHE	3.1
1	E	64	GLY	3.1
1	F	92	ALA	3.1

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Mol	Chain	Res	Type	RSRZ
1	C	119	SER	3.1
1	F	60	VAL	3.0
1	H	28	ALA	3.0
1	H	173	VAL	3.0
1	H	133	SER	3.0
1	H	243	LEU	3.0
1	G	108	MET	3.0
1	H	48	SER	3.0
1	E	140	TYR	3.0
1	H	201	TYR	3.0
1	F	90	PRO	3.0
1	H	185	ILE	2.9
1	A	214	ASP	2.9
1	G	59	ALA	2.9
1	H	247	VAL	2.9
1	H	237	PHE	2.9
1	F	80	LEU	2.9
1	G	200	ILE	2.9
1	G	199	PRO	2.9
1	B	88	MET	2.9
1	B	94	ILE	2.9
1	D	70	GLY	2.9
1	G	64	GLY	2.9
1	H	31	LEU	2.9
1	G	124	VAL	2.8
1	H	34	PHE	2.8
1	E	143	LEU	2.8
1	G	143	LEU	2.8
1	A	140	TYR	2.8
1	C	44	TYR	2.8
1	A	143	LEU	2.8
1	C	149	ARG	2.8
1	H	220	ARG	2.8
1	H	202	ALA	2.8
1	G	30	THR	2.8
1	G	126	ALA	2.8
1	H	46	ALA	2.8
1	H	92	ALA	2.8
1	H	219	TRP	2.8
1	B	60	VAL	2.7
1	G	60	VAL	2.7
1	H	142	GLN	2.7

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Mol	Chain	Res	Type	RSRZ
1	G	125	LEU	2.7
1	F	185	ILE	2.7
1	H	251	GLU	2.7
1	A	182	VAL	2.7
1	G	185	ILE	2.7
1	H	153	ASP	2.7
1	D	60	VAL	2.7
1	A	73	PRO	2.7
1	A	181	ALA	2.7
1	C	146	LEU	2.7
1	C	147	SER	2.7
1	A	94	ILE	2.7
1	E	208	ASP	2.7
1	H	109	LEU	2.7
1	G	228	SER	2.7
1	C	238	TYR	2.6
1	G	242	ASN	2.6
1	F	211	ALA	2.6
1	H	255	LEU	2.6
1	H	30	THR	2.6
1	H	194	THR	2.6
1	E	58	ILE	2.6
1	E	44	TYR	2.6
1	F	152	LEU	2.6
1	D	260	ARG	2.6
1	B	156	THR	2.6
1	F	84	ILE	2.6
1	H	32	TYR	2.6
1	G	54	ASP	2.6
1	A	60	VAL	2.6
1	G	177	PRO	2.6
1	E	211	ALA	2.6
1	H	57	ARG	2.6
1	H	141	LYS	2.6
1	E	142	GLN	2.6
1	H	103	HIS	2.6
1	G	176	LEU	2.5
1	D	149	ARG	2.5
1	E	92	ALA	2.5
1	E	205	GLY	2.5
1	G	48	SER	2.5
1	H	143	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	H	191	PRO	2.5
1	G	122	HIS	2.5
1	G	58	ILE	2.5
1	D	143	LEU	2.5
1	A	59	ALA	2.5
1	H	36	HIS	2.5
1	H	37	ALA	2.5
1	H	210	ILE	2.5
1	E	71	LEU	2.5
1	A	155	PHE	2.5
1	F	88	MET	2.5
1	H	240	ASN	2.5
1	F	109	LEU	2.4
1	C	49	ARG	2.4
1	H	35	PRO	2.4
1	H	40	THR	2.4
1	H	228	SER	2.4
1	G	198	CYS	2.4
1	A	154	LEU	2.4
1	G	247	VAL	2.4
1	E	128	PHE	2.4
1	C	59	ALA	2.4
1	G	94	ILE	2.4
1	H	62	TYR	2.4
1	G	145	ASP	2.4
1	G	241	ASP	2.4
1	C	152	LEU	2.3
1	E	243	LEU	2.3
1	G	144	GLN	2.3
1	H	111	PHE	2.3
1	A	92	ALA	2.3
1	C	154	LEU	2.3
1	C	151	MET	2.3
1	F	172	PHE	2.3
1	H	128	PHE	2.3
1	B	64	GLY	2.3
1	F	79	THR	2.3
1	G	230	ARG	2.3
1	G	63	PRO	2.3
1	H	98	VAL	2.3
1	D	155	PHE	2.3
1	B	143	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
1	G	243	LEU	2.3
1	H	56	LYS	2.3
1	E	50	GLU	2.3
1	G	51	PHE	2.3
1	H	230	ARG	2.2
1	H	177	PRO	2.2
1	B	87	MET	2.2
1	G	253	LYS	2.2
1	G	220	ARG	2.2
1	H	156	THR	2.2
1	D	137	HIS	2.2
1	C	60	VAL	2.2
1	B	172	PHE	2.2
1	G	101	PHE	2.2
1	B	108	MET	2.2
1	C	179	LEU	2.2
1	E	209	TRP	2.2
1	F	64	GLY	2.2
1	E	139	ARG	2.2
1	A	147	SER	2.2
1	F	178	THR	2.2
1	E	144	GLN	2.2
1	B	209	TRP	2.2
1	C	123	ARG	2.2
1	F	194	THR	2.2
1	H	140	TYR	2.2
1	H	217	ASP	2.2
1	D	211	ALA	2.2
1	E	74	LEU	2.2
1	F	186	ALA	2.2
1	F	239	LEU	2.2
1	E	72	PRO	2.1
1	E	240	ASN	2.1
1	G	140	TYR	2.1
1	B	210	ILE	2.1
1	E	141	LYS	2.1
1	G	56	LYS	2.1
1	H	53	ALA	2.1
1	H	64	GLY	2.1
1	C	209	TRP	2.1
1	B	188	TYR	2.1
1	E	51	PHE	2.1

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Mol	Chain	Res	Type	RSRZ
1	H	259	ASP	2.1
1	A	176	LEU	2.1
1	A	64	GLY	2.1
1	G	226	GLU	2.1
1	H	216	MET	2.1
1	A	84	ILE	2.1
1	G	118	GLN	2.1
1	H	138	ILE	2.1
1	F	140	TYR	2.1
1	H	235	ASP	2.1
1	A	179	LEU	2.1
1	B	41	ALA	2.1
1	D	37	ALA	2.1
1	A	89	LYS	2.1
1	C	94	ILE	2.1
1	E	185	ILE	2.1
1	D	182	VAL	2.1
1	E	155	PHE	2.1
1	D	146	LEU	2.1
1	G	202	ALA	2.1
1	H	114	ALA	2.1
1	D	64	GLY	2.1
1	F	151	MET	2.0
1	H	105	MET	2.0
1	C	204	ILE	2.0
1	G	204	ILE	2.0
1	C	142	GLN	2.0
1	F	76	SER	2.0
1	G	197	SER	2.0
1	H	91	SER	2.0
1	A	259	ASP	2.0
1	H	90	PRO	2.0
1	H	97	PRO	2.0
1	H	135	PRO	2.0
1	A	178	THR	2.0
1	G	84	ILE	2.0
1	E	60	VAL	2.0
1	E	172	PHE	2.0
1	D	148	ASP	2.0
1	G	217	ASP	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)

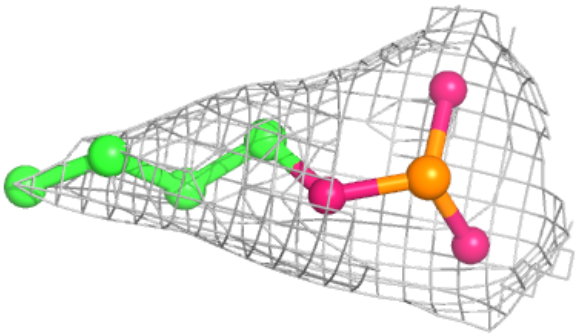
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

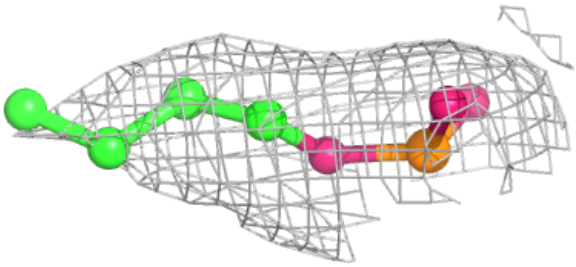
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	MPD	C	304	8/8	0.78	0.17	83,85,85,86	0
3	MPD	D	302	8/8	0.82	0.26	86,87,88,89	0
3	MPD	F	303	8/8	0.83	0.14	89,90,91,91	0
3	MPD	F	302	8/8	0.84	0.17	107,108,108,109	0
3	MPD	B	402	8/8	0.86	0.16	73,75,77,78	0
3	MPD	G	302	8/8	0.86	0.17	84,85,88,88	0
2	E9H	H	301	6/21	0.87	0.15	95,96,100,100	0
3	MPD	D	303	8/8	0.88	0.14	80,82,83,83	0
3	MPD	C	303	8/8	0.89	0.19	69,70,72,72	0
4	CA	C	302	1/1	0.89	0.09	125,125,125,125	0
3	MPD	E	302	8/8	0.90	0.15	94,96,97,97	0
3	MPD	A	403	8/8	0.91	0.14	71,73,74,75	0
3	MPD	A	402	8/8	0.91	0.20	85,85,86,88	0
3	MPD	B	403	8/8	0.91	0.13	84,84,85,85	0
2	E9H	F	301	5/21	0.92	0.11	67,69,70,70	0
4	CA	A	404	1/1	0.94	0.10	72,72,72,72	0
2	E9H	B	401	5/21	0.94	0.11	52,54,56,57	0
2	E9H	G	301	5/21	0.95	0.09	81,81,81,81	0
2	E9H	C	301	8/21	0.95	0.10	56,59,66,67	0
2	E9H	E	301	6/21	0.97	0.10	63,63,68,69	0
2	E9H	A	401	7/21	0.97	0.09	50,52,55,55	0
2	E9H	D	301	8/21	0.97	0.09	44,51,57,58	0

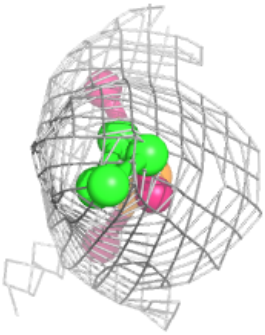
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around E9H 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)

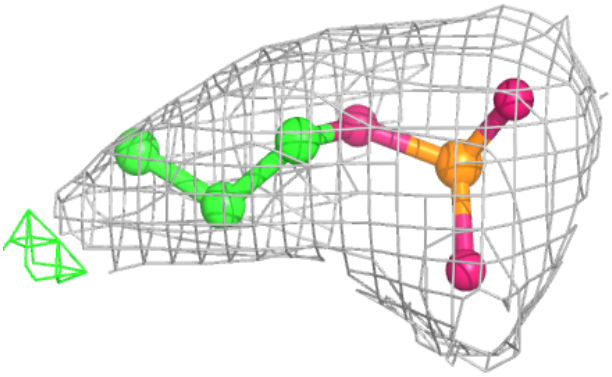


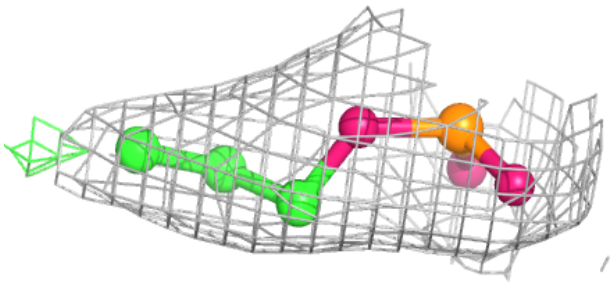


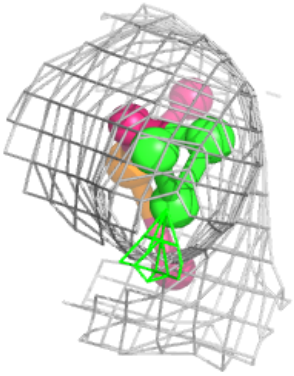


Electron density around E9H A 401:

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

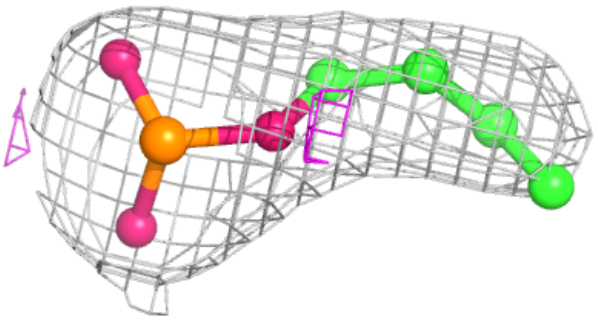


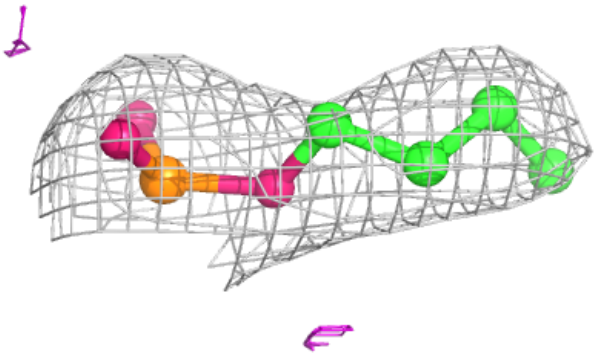


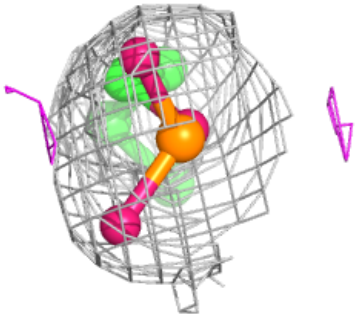


Electron density around E9H D 301:

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







6.5 Other polymers

There are no such residues in this entry.