wwPDB X-ray Structure Validation Summary Report (i)

Oct 5, 2023 – 05:58 AM EDT

PDB ID	:	6MXZ
Title	:	Structure of 53BP1 Tudor domains in complex with small molecule UNC3474
Authors	:	Cui, G.; Botuyan, M.V.; Schuller, D.J.; Mer, G.
Deposited on	:	2018-10-31
Resolution	:	2.50 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 (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	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	FAILED
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

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 2.50 Å.

There are no overall percentile quality scores available for this entry.

MolProbity and EDS failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 22156 atoms, of which 10706 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 TP53-binding protein 1.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	119	Total	C	H	N	O	S	26	24	0
			2165	699	1080	180	202	4			
1	B	120	Total	C	H	N	O	S	14	19	0
			2144	694	1067	179	200	4			
1	C	119	Total	C	H	N	O	S	21	14	0
			2064	667	1022	172	200	3			
1	D	120	Total	C	H	N	O	S	17	15	0
			2070	664	1031	173	199	3			
1	E	120	Total	C	H	N	O	S	33	19	0
			2126	682	1060	180	199	5			
1	F	119	Total	C	H	N	O	S	17	20	0
			2105	677	1044	176	204	4			
1	G	121	Total	C	H	N	O	S	59	29	0
			2299	737	1143	194	221	4			
1	H	119	Total	C	H	N	O	S	9	18	0
			2045	661	1008	173	200	3			
1	I	120	Total	C	H	N	O	S	42	19	0
			2067	664	1026	172	201	4			
1	J	118	Total	C	H	N	O	S	37	5	0
			1896	611	938	161	183	3			

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1481	GLY	-	expression tag	UNP Q12888
A	1482	HIS	-	expression tag	UNP Q12888
A	1483	MET	-	expression tag	UNP Q12888
B	1481	GLY	-	expression tag	UNP Q12888
B	1482	HIS	-	expression tag	UNP Q12888
B	1483	MET	-	expression tag	UNP Q12888
C	1481	GLY	-	expression tag	UNP Q12888
C	1482	HIS	-	expression tag	UNP Q12888
C	1483	MET	-	expression tag	UNP Q12888

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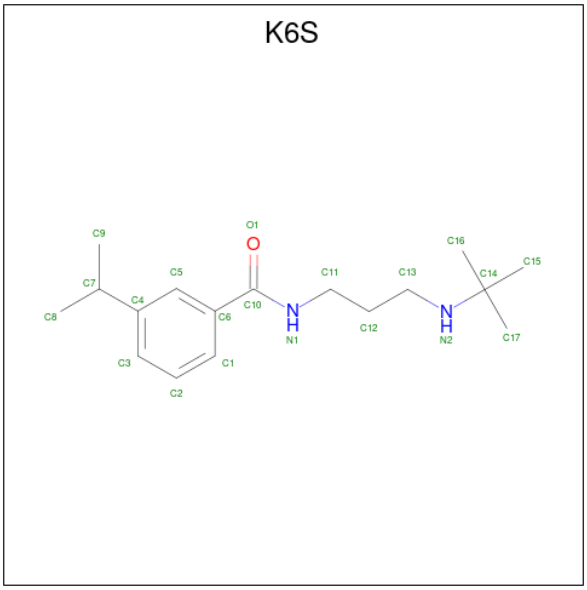
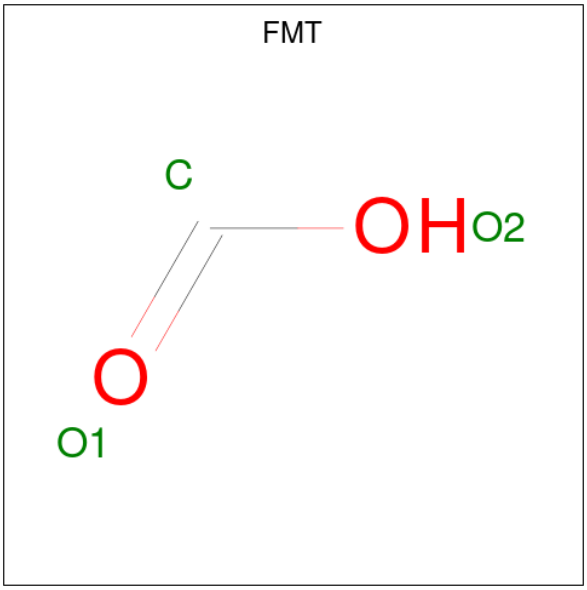
Chain	Residue	Modelled	Actual	Comment	Reference
D	1481	GLY	-	expression tag	UNP Q12888
D	1482	HIS	-	expression tag	UNP Q12888
D	1483	MET	-	expression tag	UNP Q12888
E	1481	GLY	-	expression tag	UNP Q12888
E	1482	HIS	-	expression tag	UNP Q12888
E	1483	MET	-	expression tag	UNP Q12888
F	1481	GLY	-	expression tag	UNP Q12888
F	1482	HIS	-	expression tag	UNP Q12888
F	1483	MET	-	expression tag	UNP Q12888
G	1481	GLY	-	expression tag	UNP Q12888
G	1482	HIS	-	expression tag	UNP Q12888
G	1483	MET	-	expression tag	UNP Q12888
H	1481	GLY	-	expression tag	UNP Q12888
H	1482	HIS	-	expression tag	UNP Q12888
H	1483	MET	-	expression tag	UNP Q12888
I	1481	GLY	-	expression tag	UNP Q12888
I	1482	HIS	-	expression tag	UNP Q12888
I	1483	MET	-	expression tag	UNP Q12888
J	1481	GLY	-	expression tag	UNP Q12888
J	1482	HIS	-	expression tag	UNP Q12888
J	1483	MET	-	expression tag	UNP Q12888

- Molecule 2 is N-[3-(tert-butylamino)propyl]-3-(propan-2-yl)benzamide (three-letter code: K6S) (formula: $C_{17}H_{28}N_2O$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	0	1
			96	34	56	4	2		
2	D	1	Total	C	H	N	O	0	1
			96	34	56	4	2		
2	E	1	Total	C	H	N	O	0	1
			96	34	56	4	2		
2	H	1	Total	C	H	N	O	0	1
			96	34	56	4	2		
2	I	1	Total	C	H	N	O	0	1
			96	34	56	4	2		

- Molecule 3 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	B	1	Total	C	H	O	0	0
			4	1	1	2		
3	D	1	Total	C	H	O	0	0
			4	1	1	2		
3	D	1	Total	C	H	O	0	0
			4	1	1	2		
3	F	1	Total	C	H	O	0	0
			4	1	1	2		
3	F	1	Total	C	H	O	0	0
			4	1	1	2		
3	G	1	Total	C	H	O	0	0
			4	1	1	2		
3	H	1	Total	C	H	O	0	0
			4	1	1	2		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	84	Total O 84 84	0	0
4	B	84	Total O 84 84	0	0
4	C	62	Total O 62 62	0	0
4	D	73	Total O 73 73	0	0
4	E	68	Total O 68 68	0	0
4	F	66	Total O 66 66	0	0
4	G	65	Total O 65 65	0	0
4	H	60	Total O 60 60	0	0
4	I	64	Total O 64 64	0	0
4	J	41	Total O 41 41	0	0

MolProbity and EDS failed to run properly - this section is therefore empty.

3 Data and refinement statistics (i)

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	68.67Å 160.71Å 182.65Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	17.60 – 2.50	Depositor
% Data completeness (in resolution range)	97.6 (17.60-2.50)	Depositor
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.89 (at 2.45Å)	Xtriage
Refinement program	PHENIX 1.13_2998	Depositor
R, R_{free}	0.191 , 0.223	Depositor
Wilson B-factor (Å^2)	45.9	Xtriage
Anisotropy	0.028	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	22156	wwPDB-VP
Average B, all atoms (Å^2)	61.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.49% 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.

4 Model quality

4.1 Standard geometry

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles

4.3.1 Protein backbone

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA

MolProbity failed to run properly - this section is therefore empty.

4.4 Non-standard residues in protein, DNA, RNA chains

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

4.5 Carbohydrates

There are no monosaccharides in this entry.

4.6 Ligand geometry

17 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	$\#\|Z\| > 2$
2	K6S	A	1701[B]	-	20,20,20	0.17	0	26,27,27	0.25	0
3	FMT	D	1702	-	2,2,2	0.62	0	1,1,1	0.59	0
3	FMT	D	1703	-	2,2,2	0.62	0	1,1,1	0.61	0
3	FMT	G	1701	-	2,2,2	0.62	0	1,1,1	0.61	0
2	K6S	H	1701[B]	-	20,20,20	0.19	0	26,27,27	0.24	0
2	K6S	I	1701[A]	-	20,20,20	0.18	0	26,27,27	0.22	0
3	FMT	F	1702	-	2,2,2	0.63	0	1,1,1	0.60	0
2	K6S	E	1701[B]	-	20,20,20	0.18	0	26,27,27	0.21	0
2	K6S	A	1701[A]	-	20,20,20	0.18	0	26,27,27	0.21	0
3	FMT	H	1702	-	2,2,2	0.62	0	1,1,1	0.61	0
3	FMT	B	1701	-	2,2,2	0.62	0	1,1,1	0.61	0
2	K6S	D	1701[A]	-	20,20,20	0.20	0	26,27,27	0.26	0
2	K6S	I	1701[B]	-	20,20,20	0.18	0	26,27,27	0.23	0
2	K6S	D	1701[B]	-	20,20,20	0.19	0	26,27,27	0.18	0
2	K6S	H	1701[A]	-	20,20,20	0.18	0	26,27,27	0.18	0
3	FMT	F	1701	-	2,2,2	0.61	0	1,1,1	0.60	0
2	K6S	E	1701[A]	-	20,20,20	0.18	0	26,27,27	0.19	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
2	K6S	A	1701[B]	-	-	1/17/17/17	0/1/1/1
2	K6S	H	1701[B]	-	-	0/17/17/17	0/1/1/1
2	K6S	I	1701[A]	-	-	0/17/17/17	0/1/1/1
2	K6S	E	1701[B]	-	-	1/17/17/17	0/1/1/1
2	K6S	A	1701[A]	-	-	0/17/17/17	0/1/1/1
2	K6S	D	1701[A]	-	-	0/17/17/17	0/1/1/1
2	K6S	I	1701[B]	-	-	0/17/17/17	0/1/1/1
2	K6S	D	1701[B]	-	-	0/17/17/17	0/1/1/1
2	K6S	H	1701[A]	-	-	0/17/17/17	0/1/1/1
2	K6S	E	1701[A]	-	-	0/17/17/17	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

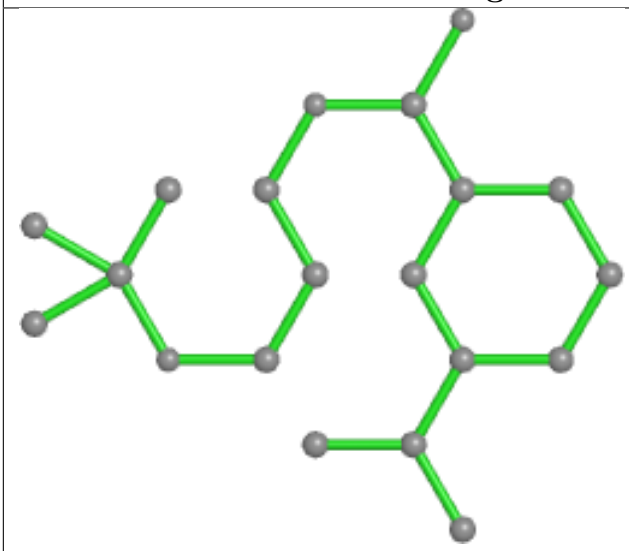
Mol	Chain	Res	Type	Atoms
2	E	1701[B]	K6S	C12-C13-N2-C14
2	A	1701[B]	K6S	C12-C13-N2-C14

There are no ring outliers.

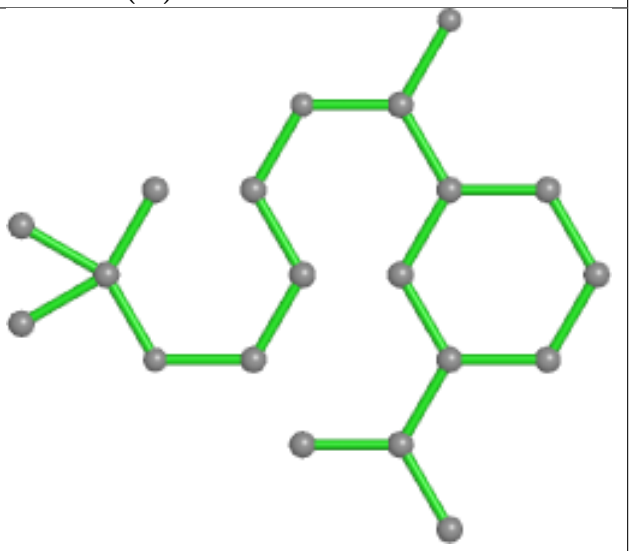
No monomer is involved in short contacts.

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.

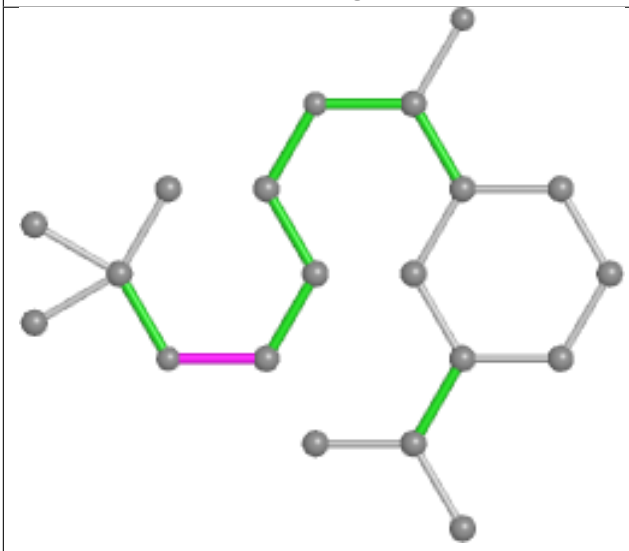
Ligand K6S A 1701 (B)



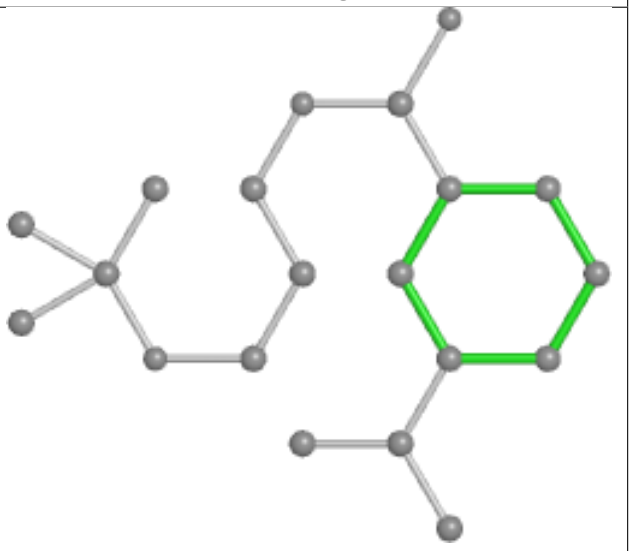
Bond lengths



Bond angles

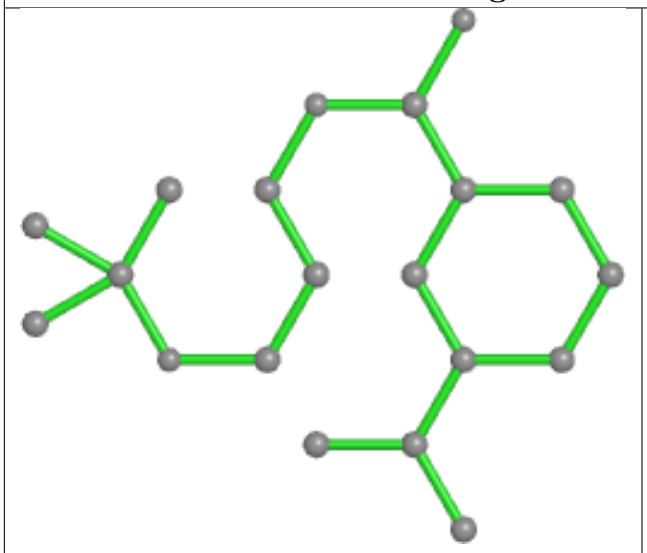


Torsions

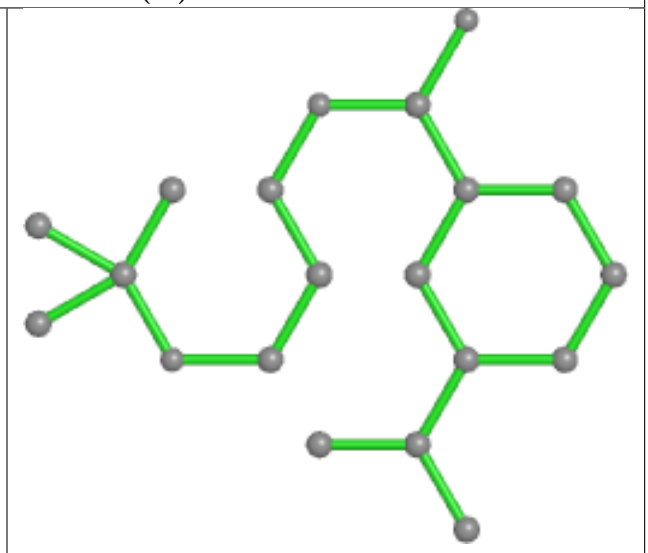


Rings

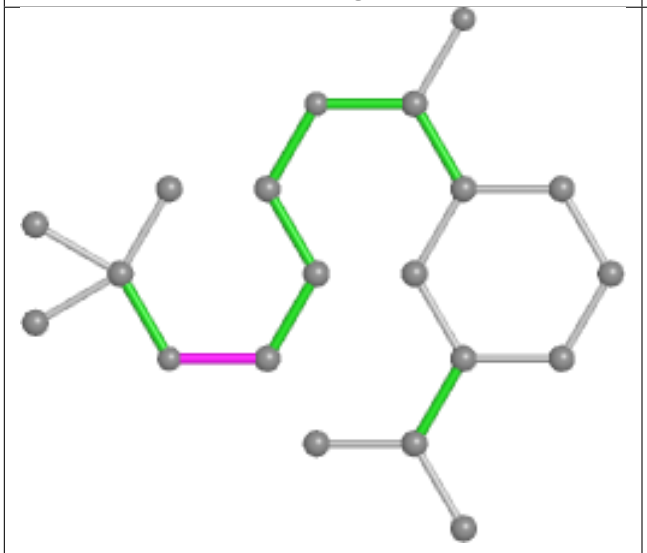
Ligand K6S E 1701 (B)



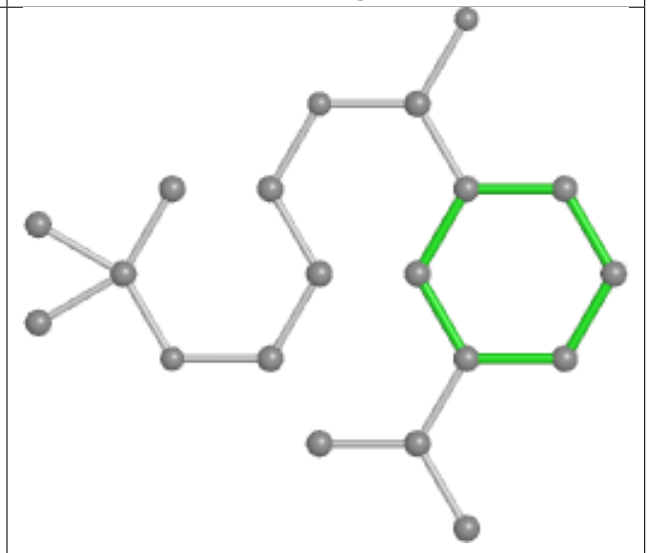
Bond lengths



Bond angles



Torsions



Rings

4.7 Other polymers (i)

There are no such residues in this entry.

4.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

5 Fit of model and data

5.1 Protein, DNA and RNA chains

EDS failed to run properly - this section is therefore empty.

5.2 Non-standard residues in protein, DNA, RNA chains

EDS failed to run properly - this section is therefore empty.

5.3 Carbohydrates

EDS failed to run properly - this section is therefore empty.

5.4 Ligands

EDS failed to run properly - this section is therefore empty.

5.5 Other polymers

EDS failed to run properly - this section is therefore empty.