

# wwPDB X-ray Structure Validation Summary Report (i)

May 25, 2020 - 09:41 am BST

PDB ID	:	3K13
Title	:	Structure of the pterin-binding domain MeTr of 5-methyltetrahydrofolate-ho
		mocysteine methyltransferase from Bacteroides thetaiotaomicron
Authors	:	Cuff, M.E.; Li, H.; Cobb, G.; Joachimiak, A.; Midwest Center for Structural
		Genomics (MCSG)
Deposited on	:	2009-09-25
Resolution	:	2.00 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 following versions of software and data (see references (1)) were used in the production of this report:

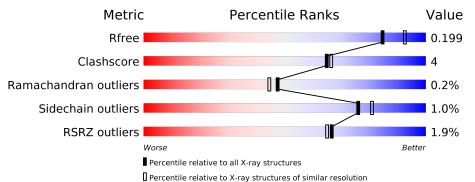
Xtriage (Phenix) EDS buster-report Percentile statistics Refmac CCP4 Ideal geometry (proteins) Ideal geometry (DNA, RNA)	: : : : : : :	<ul> <li>1.8.5 (274361), CSD as541be (2020)</li> <li>1.13</li> <li>2.11</li> <li>1.1.7 (2018)</li> <li>20191225.v01 (using entries in the PDB archive December 25th 2019)</li> <li>5.8.0158</li> <li>7.0.044 (Gargrove)</li> <li>Engh &amp; Huber (2001)</li> <li>Parkinson et al. (1996)</li> </ul>
Validation Pipeline (wwPDB-VP)	:	2.11

# 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 2.00 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	$egin{array}{c} { m Whole \ archive} \ (\#{ m Entries}) \end{array}$	${f Similar\ resolution}\ (\#{ m Entries,\ resolution\ range}({ m \AA}))$
R <sub>free</sub>	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

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 on 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	А	300	2% <b>89%</b>	6%	5%
1	В	300	% • 86%	10%	5%
1	С	300	2% 88%	7%	•••



# 2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 7727 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.

Mol	Chain	Residues		Atoms				ZeroOcc	AltConf	Trace	
1	1 1	286	Total	С	Ν	Ο	$\mathbf{S}$	$\mathrm{Se}$	0	9	0
	л	200	2290	1451	392	435	3	9	0		
1	В	286	Total	С	Ν	Ο	S	Se	0	11	0
	D	200	2299	1454	397	436	3	9	0	11	0
1	C	287	Total	С	Ν	Ο	S	Se	0	8	0
		201	2282	1445	396	429	3	9	0	0	U

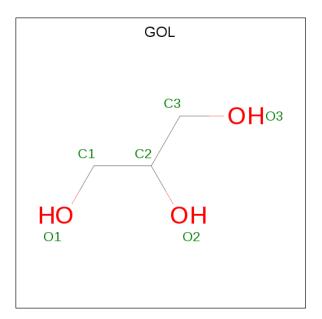
• Molecule 1 is a protein called 5-methyltetrahydrofolate-homocysteine methyltransferase.

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
А	342	SER	-	EXPRESSION TAG	UNP Q8ABD0
А	343	ASN	-	EXPRESSION TAG	UNP Q8ABD0
A	344	ALA	-	EXPRESSION TAG	UNP Q8ABD0
В	342	SER	-	EXPRESSION TAG	UNP Q8ABD0
В	343	ASN	-	EXPRESSION TAG	UNP Q8ABD0
В	344	ALA	-	EXPRESSION TAG	UNP Q8ABD0
С	342	SER	-	EXPRESSION TAG	UNP Q8ABD0
С	343	ASN	-	EXPRESSION TAG	UNP Q8ABD0
С	344	ALA	_	EXPRESSION TAG	UNP Q8ABD0

• Molecule 2 is GLYCEROL (three-letter code: GOL) (formula:  $C_3H_8O_3$ ).

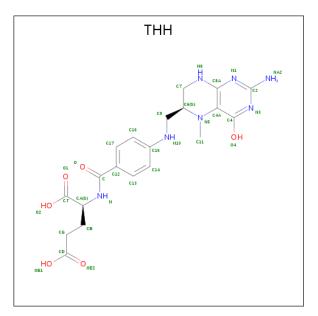




Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	А	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	А	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	А	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	В	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	В	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	В	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	В	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	С	1	Total         C         O           12         6         6	0	1
2	С	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0
2	С	1	$\begin{array}{ccc} \text{Total}  \text{C}  \text{O} \\ 6  3  3 \end{array}$	0	0

• Molecule 3 is N-[4-({[(6S)-2-AMINO-4-HYDROXY-5-METHYL-5,6,7,8-TETRAHYDROP TERIDIN-6-YL]METHYL}AMINO)BENZOYL]-L-GLUTAMIC ACID (three-letter code: THH) (formula: C<sub>20</sub>H<sub>25</sub>N<sub>7</sub>O<sub>6</sub>).





Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	А	1	Total C N O 33 20 7 6	0	0
3	В	1	Total         C         N         O           33         20         7         6	0	0
3	С	1	Total         C         N         O           33         20         7         6	0	0

• Molecule 4 is POTASSIUM ION (three-letter code: K) (formula: K).

M	ol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	:	А	2	Total K 2 2	0	0

• Molecule 5 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	В	2	Total Na 2 2	0	0
5	А	1	Total Na 1 1	0	0
5	С	2	Total Na 2 2	0	0

• Molecule 6 is water.



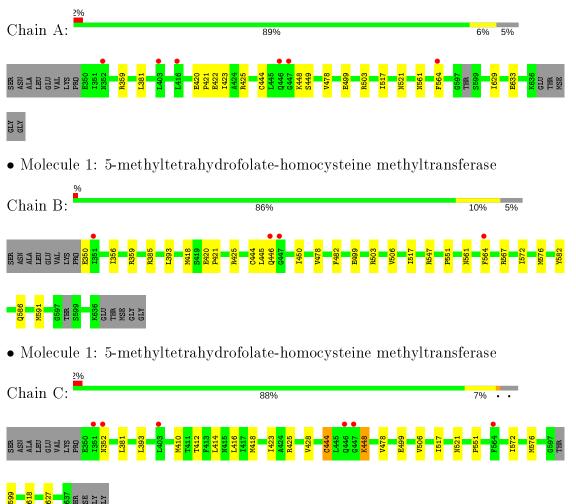
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	А	226	Total O 226 226	0	0
6	В	227	Total O 227 227	0	0
6	С	231	Total O 231 231	0	0



# 3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

 $\bullet$  Molecule 1: 5-methyltetrahydrofolate-homocysteine methyltransferase





# 4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants	137.65Å 79.99Å 127.07Å	Demositer
a, b, c, $\alpha$ , $\beta$ , $\gamma$	$90.00^{\circ}$ $90.12^{\circ}$ $90.00^{\circ}$	Depositor
Resolution (Å)	46.81 - 2.00	Depositor
Resolution (A)	46.81 - 2.00	EDS
% Data completeness	99.4 (46.81-2.00)	Depositor
(in resolution range)	97.9(46.81-2.00)	EDS
R <sub>merge</sub>	0.11	Depositor
$\frac{\mathbf{R}_{sym}}{< I/\sigma(I) > 1}$	(Not available)	Depositor
$< I/\sigma(I) > 1$	$2.23 (at 2.00 \text{\AA})$	Xtriage
Refinement program	REFMAC	Depositor
D D.	0.160 , $0.188$	Depositor
$R, R_{free}$	0.174 , $0.199$	DCC
$R_{free}$ test set	4638 reflections $(5.00\%)$	wwPDB-VP
Wilson B-factor $(Å^2)$	36.0	Xtriage
Anisotropy	0.328	Xtriage
Bulk solvent $k_{sol}(e/Å^3), B_{sol}(Å^2)$	0.37, $38.1$	EDS
L-test for twinning <sup>2</sup>	$<  L  > = 0.50, < L^2 > = 0.33$	Xtriage
	0.014 for $-1/2$ *h $+3/2$ *k, $1/2$ *h $+1/2$ *k, $-l$	
	0.017 for -1/2*h-3/2*k,-1/2*h+1/2*k,-l	
Estimated twinning fraction	0.447 for $1/2$ *h+ $3/2$ *k, $1/2$ *h- $1/2$ *k,-l	Xtriage
	0.419 for $1/2$ *h- $3/2$ *k,- $1/2$ *h- $1/2$ *k,-l	
	0.014 for -h,-k,l	
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	7727	wwPDB-VP
Average B, all atoms $(Å^2)$	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 4.07% of the height of the origin peak. No significant pseudotranslation is detected.

<sup>&</sup>lt;sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



<sup>&</sup>lt;sup>1</sup>Intensities estimated from amplitudes.

# 5 Model quality (i)

## 5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, K, THH, NA

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		Bor	nd lengths	Bond angles		
	Moi Chain		# Z  > 5	RMSZ	# Z  > 5	
1	А	0.79	1/2344~(0.0%)	0.73	1/3152~(0.0%)	
1	В	0.79	1/2356~(0.0%)	0.69	1/3169~(0.0%)	
1	С	0.76	1/2333~(0.0%)	0.71	0/3138	
All	All	0.78	3/7033~(0.0%)	0.71	$2/9459 \ (0.0\%)$	

All (3) bond length outliers are listed below:

Mol	Chain	$\mathbf{Res}$	Type	Atoms	Z	$\operatorname{Observed}(\operatorname{\AA})$	Ideal(Å)
1	В	444	CYS	CB-SG	-14.58	1.57	1.82
1	А	444	CYS	CB-SG	-13.85	1.58	1.82
1	С	444	CYS	CB-SG	-8.89	1.67	1.82

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$\mathbf{Observed}(^{o})$	$\mathbf{Ideal}(^{o})$
1	А	359	ARG	NE-CZ-NH2	5.17	122.89	120.30
1	В	359	ARG	NE-CZ-NH2	5.04	122.82	120.30

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts (i)

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



Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	А	2290	0	2305	13	0
1	В	2299	0	2300	32	0
1	С	2282	0	2293	18	0
2	А	18	0	24	0	0
2	В	24	0	32	0	0
2	С	24	0	32	3	0
3	А	33	0	22	0	0
3	В	33	0	22	0	0
3	С	33	0	22	0	0
4	А	2	0	0	0	0
5	А	1	0	0	0	0
5	В	2	0	0	0	0
5	С	2	0	0	0	0
6	А	226	0	0	3	0
6	В	227	0	0	4	0
6	С	231	0	0	2	0
All	All	7727	0	7052	58	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 4.

The worst 5 of 58 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:B:564[B]:PHE:CE1	1:B:567[B]:ARG:CZ	1.83	1.62
1:B:564[B]:PHE:CE1	1:B:567[B]:ARG:NH1	1.72	1.52
1:B:564[B]:PHE:CE1	1:B:567[B]:ARG:NH2	1.88	1.41
1:B:564[B]:PHE:CZ	1:B:567[B]:ARG:NH1	1.97	1.32
1:B:564[B]:PHE:HE1	1:B:567[B]:ARG:NH2	1.23	1.19

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	Percen	tiles
1	А	291/300~(97%)	285~(98%)	5(2%)	1 (0%)	41	37
1	В	293/300~(98%)	288 (98%)	5(2%)	0	100	100
1	С	291/300~(97%)	284~(98%)	6 (2%)	1 (0%)	41	37
All	All	875/900 (97%)	857 (98%)	16 (2%)	2(0%)	47	44

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	А	521	ASN
1	С	521	ASN

#### 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	Analysed Rotameric Outliers		Percentiles		
1	А	248/241~(103%)	247~(100%)	1 (0%)	91 93		
1	В	247/241~(102%)	245~(99%)	2(1%)	81 86		
1	С	245/241~(102%)	241 (98%)	4 (2%)	62 67		
All	All	740/723~(102%)	733~(99%)	7 (1%)	76 83		

5 of 7 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	С	444	CYS
1	С	618	LEU
1	С	448	LYS
1	В	350	GLU
1	С	599	SER

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



#### 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 carbohydrates in this entry.

#### 5.6 Ligand geometry (i)

Of 21 ligands modelled in this entry, 7 are monoatomic - leaving 14 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	Turne	Chain	Res	Link	Bo	ond leng	ths	В	ond ang	les
	Type	Cham	nes		Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	GOL	С	642	-	$5,\!5,\!5$	0.45	0	5, 5, 5	0.36	0
2	GOL	А	646	-	$5,\!5,\!5$	0.52	0	5, 5, 5	0.41	0
3	THH	А	642	4	$26,\!35,\!35$	1.40	<mark>5 (19%)</mark>	$26,\!49,\!49$	1.51	<mark>4 (15%)</mark>
2	GOL	А	643	-	$5,\!5,\!5$	0.37	0	5, 5, 5	0.43	0
3	THH	В	643	5	$26,\!35,\!35$	1.40	6 (23%)	$26,\!49,\!49$	1.25	4 (15%)
2	GOL	С	1[B]	-	$5,\!5,\!5$	0.39	0	5, 5, 5	0.15	0
2	GOL	С	1[A]	-	$5,\!5,\!5$	0.48	0	5, 5, 5	0.40	0
2	GOL	В	642	-	$5,\!5,\!5$	0.38	0	5, 5, 5	0.43	0
2	GOL	В	1	-	$5,\!5,\!5$	0.40	0	5, 5, 5	0.32	0
2	GOL	В	646	-	$5,\!5,\!5$	0.45	0	5, 5, 5	0.15	0
2	GOL	В	645	-	$5,\!5,\!5$	0.49	0	5, 5, 5	0.32	0
2	GOL	А	1	-	$5,\!5,\!5$	0.48	0	5, 5, 5	0.38	0
3	THH	С	643	5	$26,\!35,\!35$	1.52	4 (15%)	$26,\!49,\!49$	1.34	4 (15%)
2	GOL	С	645	-	$5,\!5,\!5$	0.45	0	5, 5, 5	0.34	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



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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	С	642	-	-	0/4/4/4	-
2	GOL	А	646	-	-	$\frac{4}{4}/4}{4}$	-
3	THH	А	642	4	-	2/16/35/35	0/3/3/3
2	GOL	А	643	-	-	2/4/4/4	-
3	THH	В	643	5	-	2/16/35/35	0/3/3/3
2	GOL	С	1[B]	-	-	2/4/4/4	-
2	GOL	С	1[A]	-	-	2/4/4/4	-
2	GOL	В	642	-	-	2/4/4/4	-
2	GOL	В	1	-	-	0/4/4/4	-
2	GOL	В	646	-	-	0/4/4/4	-
2	GOL	В	645	-	-	$\frac{4}{4}/4$	-
2	GOL	А	1	-	-	2/4/4/4	-
3	THH	С	643	5	-	$\frac{3}{16}/35/35$	0/3/3/3
2	GOL	С	645	-	-	2/4/4/4	-

Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

The worst 5 of 15 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$\operatorname{Observed}(\operatorname{\AA})$	Ideal(Å)
3	С	643	THH	C7-C6	4.61	1.57	1.52
3	В	643	THH	C7-C6	3.37	1.56	1.52
3	А	642	THH	C7-N8	3.36	1.50	1.44
3	В	643	THH	C7-N8	3.33	1.50	1.44
3	С	643	THH	C7-N8	3.12	1.50	1.44

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$\mathbf{Observed}(^{o})$	$Ideal(^{o})$
3	А	642	THH	N3-C2-N1	-4.22	118.79	125.42
3	С	643	THH	N3-C2-N1	-3.58	119.81	125.42
3	А	642	THH	NA2-C2-N1	3.38	122.51	117.25
3	В	643	THH	N3-C2-N1	-2.92	120.84	125.42
3	С	643	THH	C2-N1-C8A	2.88	120.99	114.54

There are no chirality outliers.

5 of 27 torsion outliers are listed below:



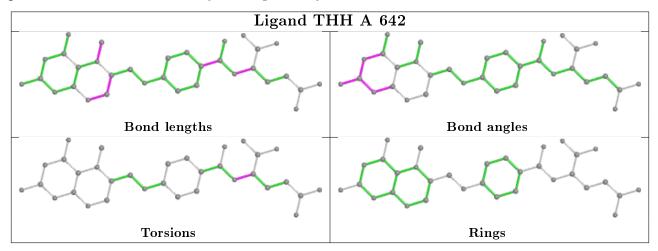
Mol	Chain	Res	Type	Atoms
2	А	643	GOL	O1-C1-C2-O2
2	А	643	GOL	O1-C1-C2-C3
2	С	1[B]	GOL	O1-C1-C2-C3
2	С	1[A]	GOL	C1-C2-C3-O3
2	С	1[A]	GOL	O2-C2-C3-O3

There are no ring outliers.

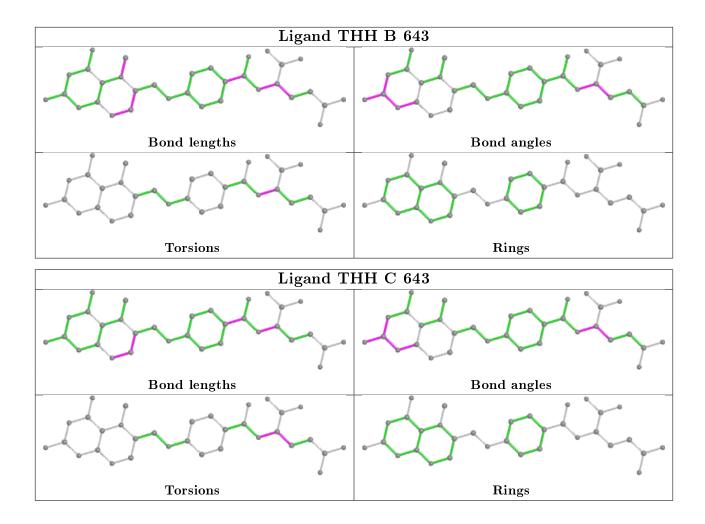
2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	С	1[A]	GOL	2	0
2	С	645	GOL	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.







### 5.7 Other polymers (i)

There are no such residues in this entry.

### 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.



# 6 Fit of model and data (i)

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

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median,  $95^{th}$  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 $>$	$\# RSRZ {>}2$	$OWAB(Å^2)$	$\mathbf{Q}{<}0.9$
1	А	278/300~(92%)	0.10	6 (2%) 62 60	20, 27, 40, 65	0
1	В	278/300 (92%)	0.12	4 (1%) 75 74	21, 28, 40, 65	0
1	С	279/300 (93%)	0.17	6 (2%) 62 60	21, 27, 39, 57	0
All	All	835/900 (92%)	0.13	16 (1%) 66 65	20, 27, 40, 65	0

The worst 5 of 16 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	А	446	GLN	4.2
1	А	352	ASN	3.4
1	В	447	GLY	3.0
1	С	446	GLN	2.9
1	В	564[A]	PHE	2.6

### 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 carbohydrates 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.

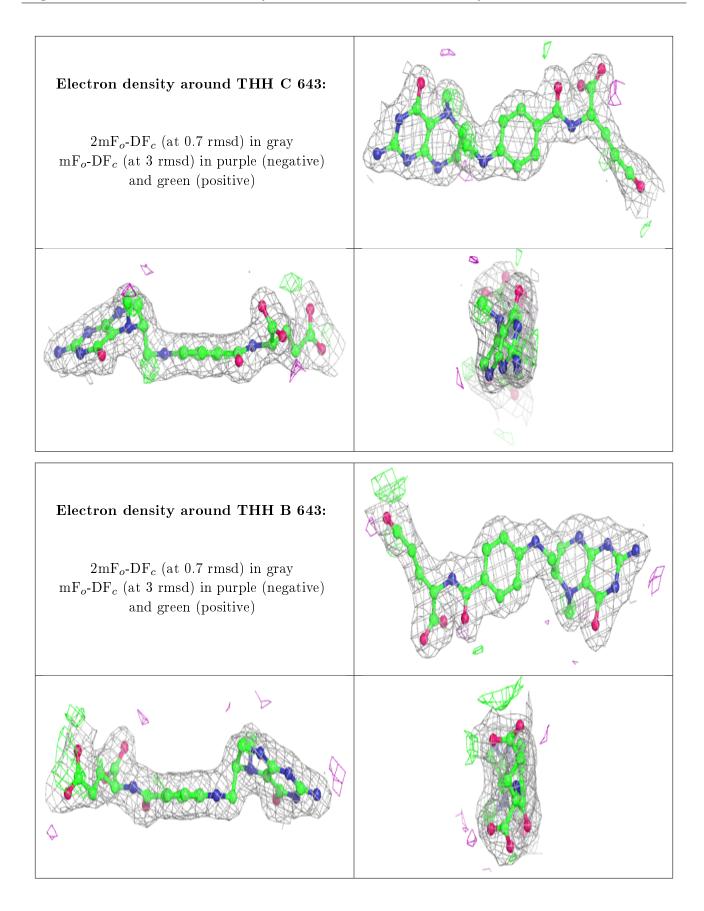


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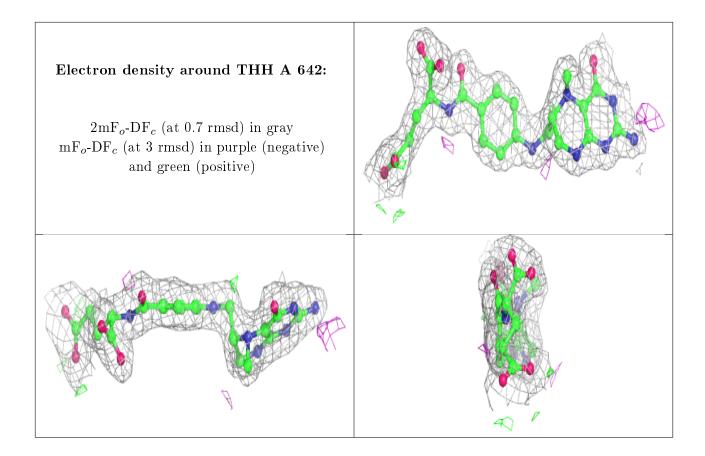
Mol	Type	Chain	Res	Atoms	RSCC	$\mathbf{RSR}$	$\mathbf{B} ext{-factors}(\mathbf{A}^2)$	$Q{<}0.9$
5	NA	В	644	1/1	0.59	0.25	$62,\!62,\!62,\!62$	0
2	GOL	В	645	6/6	0.59	0.20	$67,\!72,\!73,\!73$	0
2	GOL	А	646	6/6	0.67	0.15	72,74,75,76	0
2	GOL	С	645	6/6	0.70	0.15	$67,\!69,\!70,\!72$	0
5	NA	С	646	1/1	0.76	0.09	$50,\!50,\!50,\!50$	0
2	GOL	А	1	6/6	0.80	0.19	76,77,77,77	0
2	GOL	В	646	6/6	0.83	0.18	$66,\!69,\!69,\!71$	0
4	Κ	А	644	1/1	0.83	0.11	88,88,88,88	0
2	GOL	В	1	6/6	0.85	0.15	$76,\!77,\!78,\!78$	0
4	Κ	А	645	1/1	0.87	0.09	86,86,86,86	0
2	GOL	В	642	6/6	0.88	0.24	54,60,62,62	0
5	NA	С	644	1/1	0.89	0.12	$59,\!59,\!59,\!59$	0
2	GOL	С	642	6/6	0.90	0.33	52,61,62,62	0
2	GOL	А	643	6/6	0.90	0.26	57,64,66,66	0
5	NA	В	647	1/1	0.92	0.09	$50,\!50,\!50,\!50$	0
5	NA	А	647	1/1	0.93	0.12	48,48,48,48	0
3	THH	С	643	33/33	0.93	0.12	$28,\!33,\!49,\!56$	0
2	GOL	С	1[A]	6/6	0.93	0.16	$50,\!52,\!52,\!54$	6
2	GOL	С	1[B]	6/6	0.93	0.16	$53,\!54,\!55,\!55$	6
3	THH	В	643	33/33	0.95	0.12	$27,\!32,\!48,\!54$	0
3	THH	А	642	33/33	0.95	0.12	$27,\!34,\!47,\!54$	0

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









### 6.5 Other polymers (i)

There are no such residues in this entry.

