



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 27, 2017 – 10:43 AM EDT

PDB ID : 5O4M
Title : Fresh crystals of HcgC from *Methanococcus maripaludis* cocrystallized with SAH and pyridinol
Authors : Wagner, T.; Bai, L.; Xu, T.; Hu, X.; Ermler, U.; Shima, S.
Deposited on : unknown
Resolution : 2.10 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

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7.2 (RC1), CSD as538be (2017)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20029824
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20029824

i

X-RAY DIFFRACTION

A.

Metric	Percentile Ranks	Value
Mean	100	1.00
Median	100	1.00
Mode	100	1.00
Standard Deviation	100	1.00
Skewness	100	1.00
Kurtosis	100	1.00
Minimum	100	1.00
Maximum	100	1.00
Range	100	1.00
Interquartile Range	100	1.00
Quartile 1	100	1.00
Quartile 3	100	1.00
Sum	100	1.00
Count	100	1.00
Null Count	100	1.00
Null Percentage	100	1.00
Non-Null Percentage	100	1.00
Missing Value Count	100	1.00
Missing Value Percentage	100	1.00
Valid Value Count	100	1.00
Valid Value Percentage	100	1.00
Invalid Value Count	100	1.00
Invalid Value Percentage	100	1.00
Unique Value Count	100	1.00
Unique Value Percentage	100	1.00
Duplicate Value Count	100	1.00
Duplicate Value Percentage	100	1.00
Frequency	100	1.00
Relative Frequency	100	1.00
Cumulative Frequency	100	1.00
Relative Cumulative Frequency	100	1.00
Empirical Cumulative Distribution Function	100	1.00
Probability Density Function	100	1.00
Log Probability Density Function	100	1.00
Log Cumulative Distribution Function	100	1.00
Log Probability Cumulative Distribution Function	100	1.00
Log Likelihood	100	1.00
Log Likelihood Ratio	100	1.00
Log Likelihood Ratio Test Statistic	100	1.00
Log Likelihood Ratio Test P-Value	100	1.00
Log Likelihood Ratio Test Degrees of Freedom	100	1.00
Log Likelihood Ratio Test Chi-Square	100	1.00
Log Likelihood Ratio Test F-Statistic	100	1.00
Log Likelihood Ratio Test T-Statistic	100	1.00
Log Likelihood Ratio Test Z-Statistic	100	1.00
Log Likelihood Ratio Test W-Statistic	100	1.00
Log Likelihood Ratio Test L-Statistic	100	1.00
Log Likelihood Ratio Test M-Statistic	100	1.00
Log Likelihood Ratio Test N-Statistic	100	1.00
Log Likelihood Ratio Test O-Statistic	100	1.00
Log Likelihood Ratio Test P-Statistic	100	1.00
Log Likelihood Ratio Test Q-Statistic	100	1.00
Log Likelihood Ratio Test R-Statistic	100	1.00
Log Likelihood Ratio Test S-Statistic	100	1.00
Log Likelihood Ratio Test T-Statistic	100	1.00
Log Likelihood Ratio Test U-Statistic	100	1.00
Log Likelihood Ratio Test V-Statistic	100	1.00
Log Likelihood Ratio Test W-Statistic	100	1.00
Log Likelihood Ratio Test X-Statistic	100	1.00
Log Likelihood Ratio Test Y-Statistic	100	1.00
Log Likelihood Ratio Test Z-Statistic	100	1.00
Log Likelihood Ratio Test AA-Statistic	100	1.00
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Log Likelihood Ratio Test BE-Statistic	100	1.00
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Log Likelihood Ratio Test BH-Statistic	100	1.00
Log Likelihood Ratio Test BI-Statistic	100	1.00
Log Likelihood Ratio Test BJ-Statistic	100	1.00
Log Likelihood Ratio Test BK-Statistic	100	1.00
Log Likelihood Ratio Test BL-Statistic	100	1.00
Log Likelihood Ratio Test BM-Statistic	100	1.00
Log Likelihood Ratio Test BN-Statistic	100	1.00
Log Likelihood Ratio Test BO-Statistic	100	1.00
Log Likelihood Ratio Test BP-Statistic	100	1.00
Log Likelihood Ratio Test BQ-Statistic	100	1.00
Log Likelihood Ratio Test BR-Statistic	100	1.00
Log Likelihood Ratio Test BS-Statistic	100	1.00



(#Entries, resolution range(Å))

Quality of chain

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	9KH	D	302	-	-	-	X
4	MPD	A	303	-	-	-	X
4	MPD	B	303	-	-	-	X
4	MPD	C	303	-	-	-	X
5	DMS	D	304	-	-	-	X

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 9032 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 HcgC.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	263	Total	C	N	O	S	0	0	0
			2078	1332	336	403	7			
1	B	263	Total	C	N	O	S	0	0	0
			2081	1334	336	403	8			
1	C	263	Total	C	N	O	S	0	0	0
			2078	1332	336	403	7			
1	D	261	Total	C	N	O	S	0	0	0
			2065	1323	334	401	7			

There are 56 discrepancies between the modelled and reference sequences:

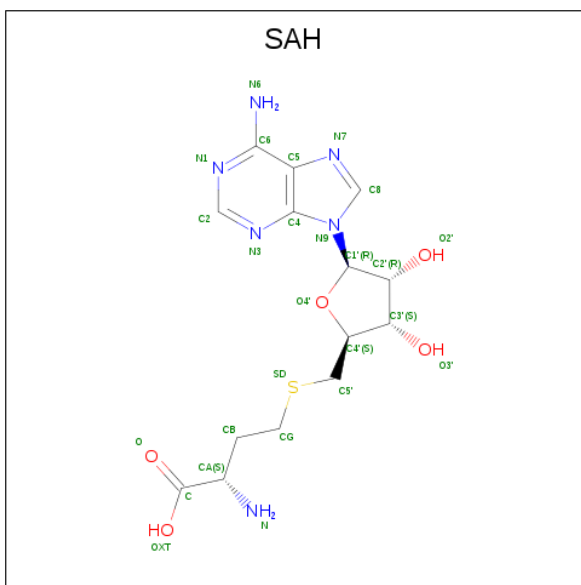
Chain	Residue	Modelled	Actual	Comment	Reference
A	261	ASP	-	expression tag	UNP Q6LX54
A	262	LYS	-	expression tag	UNP Q6LX54
A	263	LEU	-	expression tag	UNP Q6LX54
A	264	ALA	-	expression tag	UNP Q6LX54
A	265	ALA	-	expression tag	UNP Q6LX54
A	266	ALA	-	expression tag	UNP Q6LX54
A	267	LEU	-	expression tag	UNP Q6LX54
A	268	GLU	-	expression tag	UNP Q6LX54
A	269	HIS	-	expression tag	UNP Q6LX54
A	270	HIS	-	expression tag	UNP Q6LX54
A	271	HIS	-	expression tag	UNP Q6LX54
A	272	HIS	-	expression tag	UNP Q6LX54
A	273	HIS	-	expression tag	UNP Q6LX54
A	274	HIS	-	expression tag	UNP Q6LX54
B	261	ASP	-	expression tag	UNP Q6LX54
B	262	LYS	-	expression tag	UNP Q6LX54
B	263	LEU	-	expression tag	UNP Q6LX54
B	264	ALA	-	expression tag	UNP Q6LX54
B	265	ALA	-	expression tag	UNP Q6LX54
B	266	ALA	-	expression tag	UNP Q6LX54
B	267	LEU	-	expression tag	UNP Q6LX54

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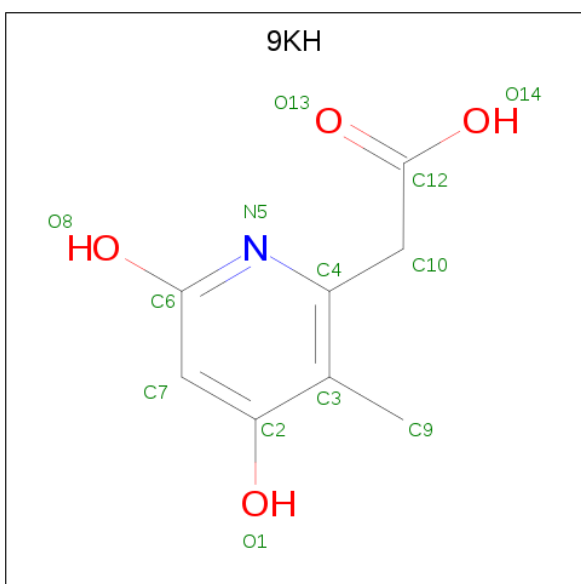
Chain	Residue	Modelled	Actual	Comment	Reference
B	268	GLU	-	expression tag	UNP Q6LX54
B	269	HIS	-	expression tag	UNP Q6LX54
B	270	HIS	-	expression tag	UNP Q6LX54
B	271	HIS	-	expression tag	UNP Q6LX54
B	272	HIS	-	expression tag	UNP Q6LX54
B	273	HIS	-	expression tag	UNP Q6LX54
B	274	HIS	-	expression tag	UNP Q6LX54
C	261	ASP	-	expression tag	UNP Q6LX54
C	262	LYS	-	expression tag	UNP Q6LX54
C	263	LEU	-	expression tag	UNP Q6LX54
C	264	ALA	-	expression tag	UNP Q6LX54
C	265	ALA	-	expression tag	UNP Q6LX54
C	266	ALA	-	expression tag	UNP Q6LX54
C	267	LEU	-	expression tag	UNP Q6LX54
C	268	GLU	-	expression tag	UNP Q6LX54
C	269	HIS	-	expression tag	UNP Q6LX54
C	270	HIS	-	expression tag	UNP Q6LX54
C	271	HIS	-	expression tag	UNP Q6LX54
C	272	HIS	-	expression tag	UNP Q6LX54
C	273	HIS	-	expression tag	UNP Q6LX54
C	274	HIS	-	expression tag	UNP Q6LX54
D	261	ASP	-	expression tag	UNP Q6LX54
D	262	LYS	-	expression tag	UNP Q6LX54
D	263	LEU	-	expression tag	UNP Q6LX54
D	264	ALA	-	expression tag	UNP Q6LX54
D	265	ALA	-	expression tag	UNP Q6LX54
D	266	ALA	-	expression tag	UNP Q6LX54
D	267	LEU	-	expression tag	UNP Q6LX54
D	268	GLU	-	expression tag	UNP Q6LX54
D	269	HIS	-	expression tag	UNP Q6LX54
D	270	HIS	-	expression tag	UNP Q6LX54
D	271	HIS	-	expression tag	UNP Q6LX54
D	272	HIS	-	expression tag	UNP Q6LX54
D	273	HIS	-	expression tag	UNP Q6LX54
D	274	HIS	-	expression tag	UNP Q6LX54

- Molecule 2 is S-ADENOSYL-L-HOMOCYSTEINE (three-letter code: SAH) (formula: C₁₄H₂₀N₆O₅S).



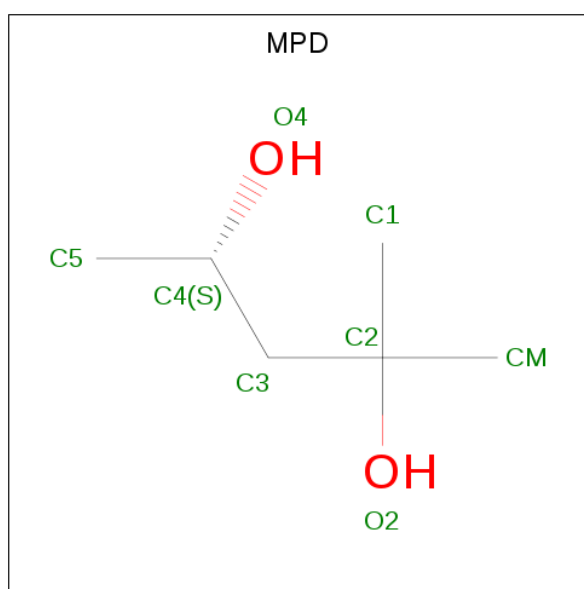
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	B	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	C	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	D	1	Total	C	N	O	S	0	0
			26	14	6	5	1		

- Molecule 3 is 6-carboxy methyl-4-hydroxy-2-pyridinol (three-letter code: 9KH) (formula: $C_8H_9NO_4$).



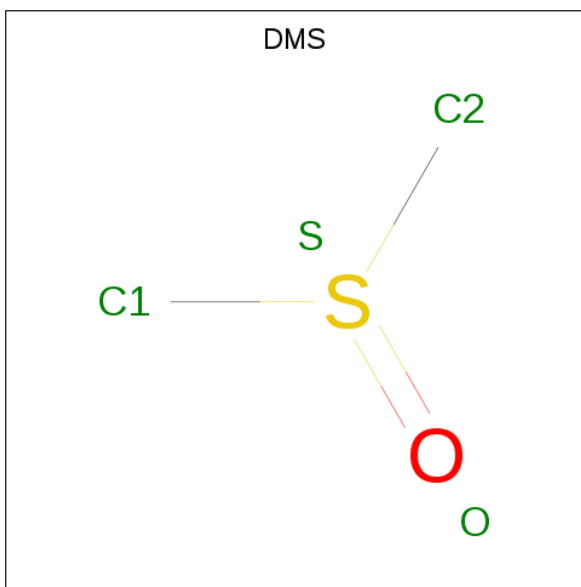
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			13	8	1	4		
3	B	1	Total	C	N	O	0	0
			13	8	1	4		
3	C	1	Total	C	N	O	0	0
			13	8	1	4		
3	D	1	Total	C	N	O	0	0
			13	8	1	4		

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



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			8	6	2		
4	B	1	Total	C	O	0	0
			8	6	2		
4	B	1	Total	C	O	0	0
			8	6	2		
4	C	1	Total	C	O	0	0
			8	6	2		
4	D	1	Total	C	O	0	0
			8	6	2		

- Molecule 5 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C_2H_6OS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	O	S	0	0
			4	2	1	1		
5	A	1	Total	C	O	S	0	0
			4	2	1	1		
5	D	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	192	Total	O	0	0
			192	192		
6	B	133	Total	O	0	0
			133	133		
6	C	81	Total	O	0	0
			81	81		
6	D	116	Total	O	0	0
			116	116		

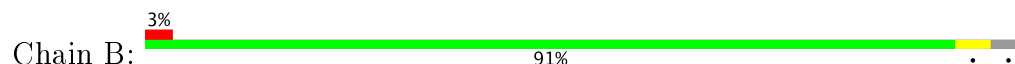
3 Residue-property plots [i](#)

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.

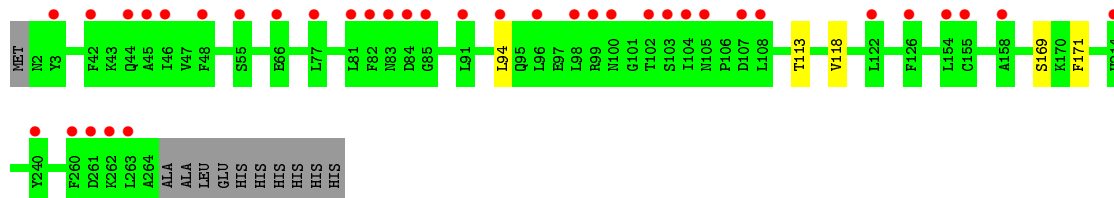
• Molecule 1: HcgC



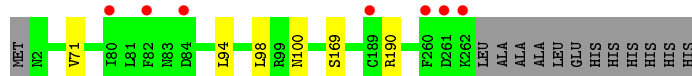
• Molecule 1: HcgC



• Molecule 1: HcgC



• Molecule 1: HcgC



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	71.88Å 83.54Å 99.99Å 90.00° 109.54° 90.00°	Depositor
Resolution (Å)	46.68 – 2.10 46.68 – 2.10	Depositor EDS
% Data completeness (in resolution range)	97.8 (46.68-2.10) 97.7 (46.68-2.10)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.91 (at 2.10Å)	Xtriage
Refinement program	BUSTER 2.10.1	Depositor
R, R_{free}	0.202 , 0.234 0.209 , 0.233	Depositor DCC
R_{free} test set	3141 reflections (5.19%)	DCC
Wilson B-factor (Å ²)	37.0	Xtriage
Anisotropy	0.268	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 46.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.026 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	9032	wwPDB-VP
Average B, all atoms (Å ²)	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.86% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SAH, MPD, 9KH, DMS

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	0.54	0/2108	0.69	0/2838
1	B	0.49	0/2111	0.66	0/2841
1	C	0.44	0/2108	0.67	0/2838
1	D	0.47	0/2095	0.67	0/2820
All	All	0.49	0/8422	0.67	0/11337

There are no bond length outliers.

There are no bond angle outliers.

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	A	2078	0	2142	4	0
1	B	2081	0	2149	6	0
1	C	2078	0	2142	3	0
1	D	2065	0	2126	2	0
2	A	26	0	19	0	0
2	B	26	0	19	0	0
2	C	26	0	19	0	0
2	D	26	0	19	0	0
3	A	13	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	13	0	0	0	0
3	C	13	0	0	0	0
3	D	13	0	0	0	0
4	A	8	0	14	0	0
4	B	16	0	28	0	0
4	C	8	0	14	0	0
4	D	8	0	14	0	0
5	A	8	0	12	0	0
5	D	4	0	6	0	0
6	A	192	0	0	0	0
6	B	133	0	0	0	0
6	C	81	0	0	0	0
6	D	116	0	0	0	0
All	All	9032	0	8723	11	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 1.

The worst 5 of 11 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:1:MET:CE	1:B:10:LYS:HD3	2.37	0.53
1:A:169:SER:HA	1:C:171:PHE:CZ	2.46	0.51
1:D:71:VAL:HG11	1:D:94:LEU:HD22	1.95	0.49
1:A:171:PHE:CZ	1:C:169:SER:HA	2.50	0.47
1:B:113:THR:HG21	1:B:118:VAL:HG23	2.00	0.44

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	261/274 (95%)	260 (100%)	1 (0%)	0	100	100
1	B	261/274 (95%)	259 (99%)	2 (1%)	0	100	100
1	C	261/274 (95%)	259 (99%)	2 (1%)	0	100	100
1	D	259/274 (94%)	257 (99%)	2 (1%)	0	100	100
All	All	1042/1096 (95%)	1035 (99%)	7 (1%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	240/249 (96%)	239 (100%)	1 (0%)	93	95
1	B	241/249 (97%)	237 (98%)	4 (2%)	66	72
1	C	240/249 (96%)	239 (100%)	1 (0%)	93	95
1	D	239/249 (96%)	236 (99%)	3 (1%)	73	80
All	All	960/996 (96%)	951 (99%)	9 (1%)	82	87

5 of 9 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	214	HIS
1	D	190	ARG
1	D	98	LEU
1	B	53	SER
1	C	94	LEU

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

5.3.3 RNA ⓘ

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](#)

16 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	SAH	A	301	-	20,28,28	1.40	3 (15%)	20,40,40	1.98	3 (15%)
3	9KH	A	302	-	10,13,13	1.10	1 (10%)	12,18,18	2.45	6 (50%)
4	MPD	A	303	-	7,7,7	0.51	0	9,10,10	0.43	0
5	DMS	A	304	-	3,3,3	0.63	0	3,3,3	0.77	0
5	DMS	A	305	-	3,3,3	0.35	0	3,3,3	0.51	0
2	SAH	B	301	-	20,28,28	1.26	2 (10%)	20,40,40	1.77	3 (15%)
3	9KH	B	302	-	10,13,13	1.24	1 (10%)	12,18,18	2.21	4 (33%)
4	MPD	B	303	-	7,7,7	0.38	0	9,10,10	0.39	0
4	MPD	B	304	-	7,7,7	0.59	0	9,10,10	0.78	0
2	SAH	C	301	-	20,28,28	1.33	4 (20%)	20,40,40	1.93	4 (20%)
3	9KH	C	302	-	10,13,13	0.81	0	12,18,18	2.49	5 (41%)
4	MPD	C	303	-	7,7,7	0.33	0	9,10,10	0.68	0
2	SAH	D	301	-	20,28,28	1.10	1 (5%)	20,40,40	2.34	5 (25%)
3	9KH	D	302	-	10,13,13	0.97	1 (10%)	12,18,18	1.92	3 (25%)
4	MPD	D	303	-	7,7,7	0.33	0	9,10,10	0.25	0
5	DMS	D	304	-	3,3,3	0.44	0	3,3,3	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 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	SAH	A	301	-	-	0/7/31/31	0/3/3/3
3	9KH	A	302	-	-	0/2/4/4	0/1/1/1
4	MPD	A	303	-	-	0/5/5/5	0/0/0/0
5	DMS	A	304	-	-	0/0/0/0	0/0/0/0
5	DMS	A	305	-	-	0/0/0/0	0/0/0/0
2	SAH	B	301	-	-	0/7/31/31	0/3/3/3
3	9KH	B	302	-	-	0/2/4/4	0/1/1/1
4	MPD	B	303	-	-	0/5/5/5	0/0/0/0
4	MPD	B	304	-	-	0/5/5/5	0/0/0/0
2	SAH	C	301	-	-	0/7/31/31	0/3/3/3
3	9KH	C	302	-	-	0/2/4/4	0/1/1/1
4	MPD	C	303	-	-	0/5/5/5	0/0/0/0
2	SAH	D	301	-	-	0/7/31/31	0/3/3/3
3	9KH	D	302	-	-	0/2/4/4	0/1/1/1
4	MPD	D	303	-	-	0/5/5/5	0/0/0/0
5	DMS	D	304	-	-	0/0/0/0	0/0/0/0

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	301	SAH	C5'-SD	-2.17	1.75	1.81
2	B	301	SAH	C5'-SD	-2.02	1.75	1.81
3	D	302	9KH	C3-C4	2.03	1.41	1.39
3	A	302	9KH	C3-C4	2.13	1.41	1.39
2	C	301	SAH	C2-N3	2.15	1.35	1.32

The worst 5 of 33 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	301	SAH	N3-C2-N1	-8.69	121.29	128.86
2	A	301	SAH	N3-C2-N1	-6.96	122.80	128.86
2	C	301	SAH	N3-C2-N1	-6.57	123.14	128.86
3	C	302	9KH	C3-C4-N5	-5.79	118.41	123.97
2	B	301	SAH	N3-C2-N1	-5.77	123.83	128.86

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	263/274 (95%)	-0.09	4 (1%) 74 77	25, 40, 76, 127	0
1	B	263/274 (95%)	0.09	9 (3%) 46 53	30, 47, 86, 139	0
1	C	263/274 (95%)	0.64	37 (14%) 3 4	33, 63, 118, 175	0
1	D	261/274 (95%)	0.08	7 (2%) 55 61	33, 54, 79, 129	0
All	All	1050/1096 (95%)	0.18	57 (5%) 26 33	25, 50, 96, 175	0

The worst 5 of 57 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	98	LEU	9.9
1	C	82	PHE	5.4
1	C	96	LEU	4.8
1	C	262	LYS	4.5
1	C	84	ASP	4.3

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors

of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
4	MPD	A	303	8/8	0.92	0.25	6.63	97,98,101,102	0
5	DMS	D	304	4/4	0.96	0.17	3.53	59,60,61,65	0
4	MPD	B	303	8/8	0.90	0.21	3.44	52,63,67,71	0
4	MPD	C	303	8/8	0.86	0.35	2.29	122,124,125,127	0
3	9KH	D	302	13/13	0.88	0.16	2.06	49,53,55,56	0
5	DMS	A	304	4/4	0.97	0.17	1.48	52,55,56,58	0
4	MPD	D	303	8/8	0.81	0.21	1.21	82,82,85,88	0
3	9KH	C	302	13/13	0.93	0.11	-0.10	38,44,50,52	0
2	SAH	A	301	26/26	0.96	0.11	-0.11	30,35,38,40	0
3	9KH	B	302	13/13	0.96	0.10	-0.31	28,40,45,45	0
2	SAH	C	301	26/26	0.95	0.12	-0.49	49,57,62,64	0
3	9KH	A	302	13/13	0.94	0.11	-0.81	25,32,40,41	0
2	SAH	B	301	26/26	0.95	0.09	-0.89	36,40,46,47	0
2	SAH	D	301	26/26	0.95	0.09	-1.18	46,51,57,59	0
5	DMS	A	305	4/4	0.89	0.17	-	84,86,87,87	0
4	MPD	B	304	8/8	0.61	0.28	-	174,175,175,175	0

6.5 Other polymers [i](#)

There are no such residues in this entry.