



wwPDB X-ray Structure Validation Summary Report

Feb 28, 2014 – 08:44 AM GMT

PDB ID : 3IEI
Title : Crystal structure of human leucine carboxylmethyltransferase-lin complex
with S-adenosyl homocysteine
Authors : Xing, Y.; Jeffry, P.D.
Deposited on : 2009-07-22
Resolution : 1.90 Å(reported)

This is a wwPDB 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/ValidationPDFNotes.html>

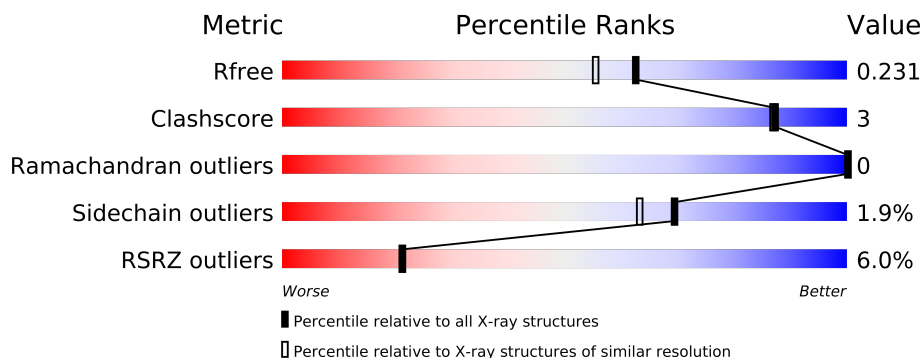
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity	:	4.02b-467
Mogul	:	1.15 2013
Xtriage (Phenix)	:	dev-1323
EDS	:	stable22639
Percentile statistics	:	21963
Refmac	:	5.8.0049
CCP4	:	6.3.0 (Settle)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP)	:	stable22683

1 Overall quality at a glance

The reported resolution of this entry is 1.90 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}	66092	3684 (1.90-1.90)
Clashscore	79885	4465 (1.90-1.90)
Ramachandran outliers	78287	4413 (1.90-1.90)
Sidechain outliers	78261	4414 (1.90-1.90)
RSRZ outliers	66119	3686 (1.90-1.90)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	334	
1	B	334	
1	C	334	
1	D	334	
1	E	334	
1	F	334	
1	G	334	
1	H	334	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
4	MES	H	1904	-	X

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 22201 atoms, of which 0 are hydrogen and 0 are deuterium.

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 Leucine carboxyl methyltransferase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			
1	B	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			
1	C	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			
1	D	310	Total	C	N	O	S	0	1	0
			2511	1584	437	466	24			
1	E	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			
1	F	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			
1	G	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			
1	H	310	Total	C	N	O	S	0	0	0
			2505	1581	436	465	23			

There are 32 discrepancies between the modelled and reference sequences:

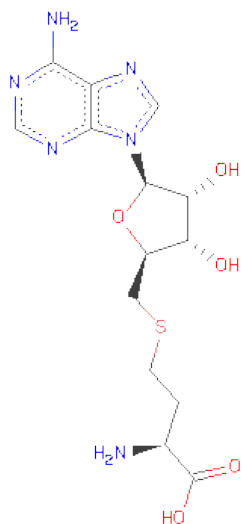
Chain	Residue	Modelled	Actual	Comment	Reference
A	19	MET	CYS	ENGINEERED	UNP Q9UIC8
A	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
A	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
A	115	SER	PRO	ENGINEERED	UNP Q9UIC8
B	19	MET	CYS	ENGINEERED	UNP Q9UIC8
B	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
B	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
B	115	SER	PRO	ENGINEERED	UNP Q9UIC8
C	19	MET	CYS	ENGINEERED	UNP Q9UIC8
C	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
C	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
C	115	SER	PRO	ENGINEERED	UNP Q9UIC8
D	19	MET	CYS	ENGINEERED	UNP Q9UIC8

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
D	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
D	115	SER	PRO	ENGINEERED	UNP Q9UIC8
E	19	MET	CYS	ENGINEERED	UNP Q9UIC8
E	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
E	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
E	115	SER	PRO	ENGINEERED	UNP Q9UIC8
F	19	MET	CYS	ENGINEERED	UNP Q9UIC8
F	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
F	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
F	115	SER	PRO	ENGINEERED	UNP Q9UIC8
G	19	MET	CYS	ENGINEERED	UNP Q9UIC8
G	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
G	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
G	115	SER	PRO	ENGINEERED	UNP Q9UIC8
H	19	MET	CYS	ENGINEERED	UNP Q9UIC8
H	21	GLU	ALA	ENGINEERED	UNP Q9UIC8
H	22	ASN	ASP	ENGINEERED	UNP Q9UIC8
H	115	SER	PRO	ENGINEERED	UNP Q9UIC8

- Molecule 2 is S-ADENOSYL-L-HOMOCYSTEINE (three-letter code: SAH) (formula: $C_{14}H_{20}N_6O_5S$).



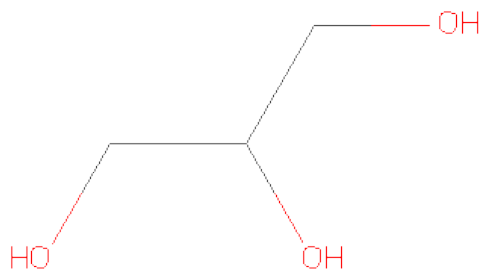
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			26	14	6	5	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
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		
2	E	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	F	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	G	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	H	1	Total	C	N	O	S	0	0
			26	14	6	5	1		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



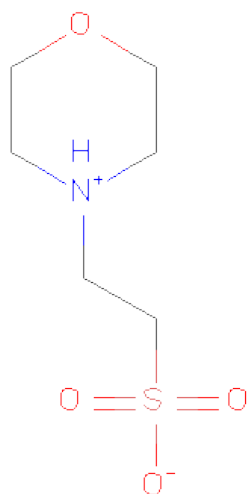
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		
3	B	1	Total	C	O	0	0
			6	3	3		
3	C	1	Total	C	O	0	0
			6	3	3		
3	D	1	Total	C	O	0	0
			6	3	3		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	E	1	Total	C	O	0	0
			6	3	3		
3	F	1	Total	C	O	0	0
			6	3	3		
3	G	1	Total	C	O	0	0
			6	3	3		
3	H	1	Total	C	O	0	0
			6	3	3		

- Molecule 4 is 2-(N-MORPHOLINO)-ETHANESULFONICACID (three-letter code: MES) (formula: C₆H₁₃NO₄S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
4	D	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
4	E	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
4	H	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	239	Total	O	0	0
			239	239		

Continued on next page...

Continued from previous page...

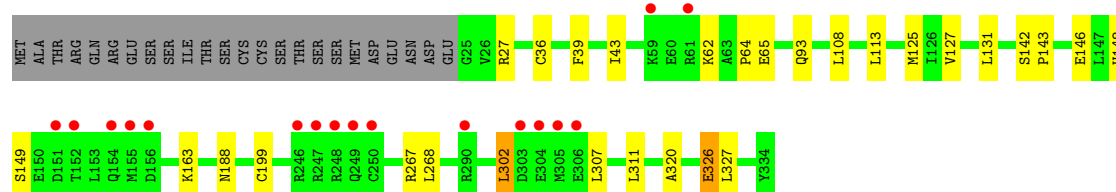
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	197	Total 197	O 197	0	0
5	C	231	Total 231	O 231	0	0
5	D	251	Total 251	O 251	0	0
5	E	283	Total 283	O 283	0	0
5	F	248	Total 248	O 248	0	0
5	G	235	Total 235	O 235	0	0
5	H	167	Total 167	O 167	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

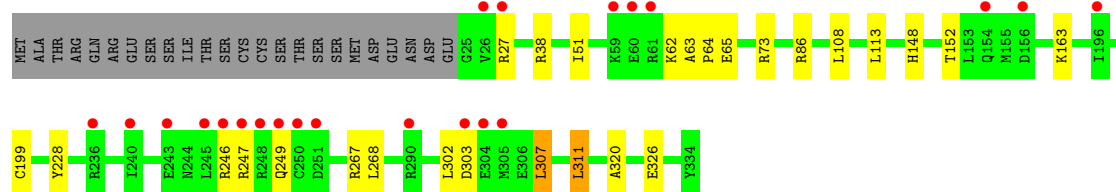
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain A: 



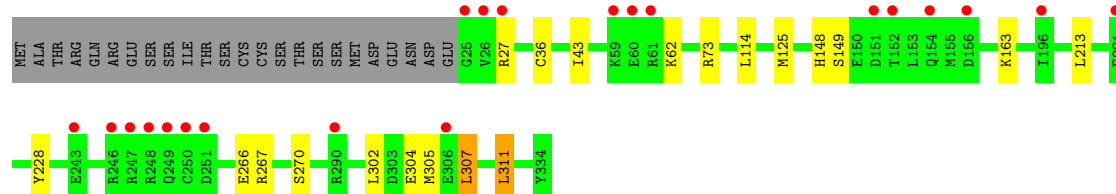
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain B: 



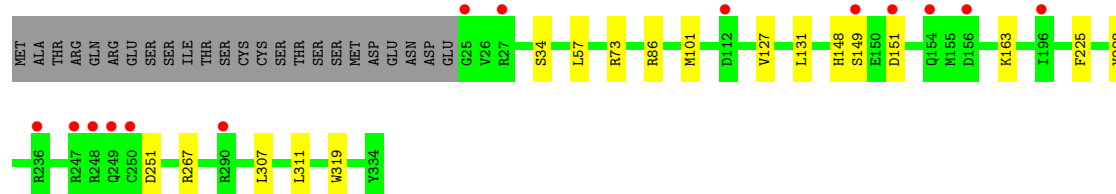
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain C: 



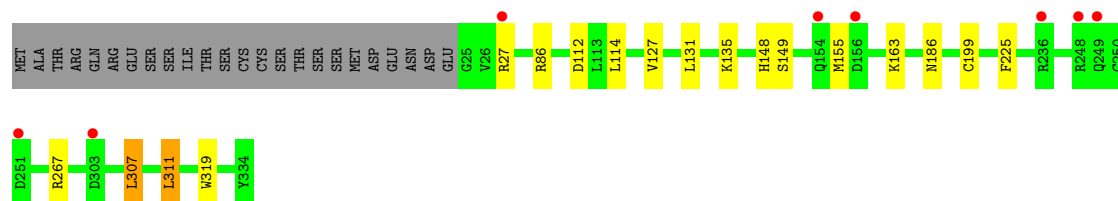
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain D: 



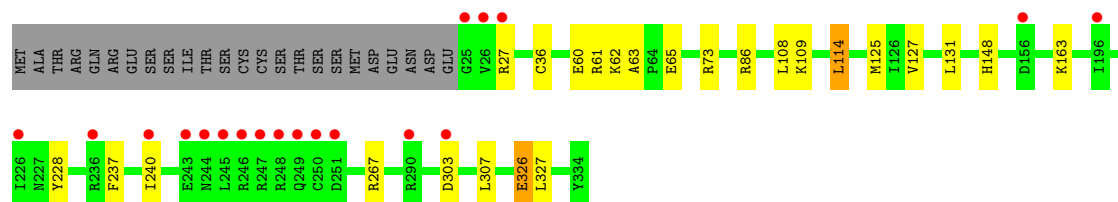
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain E:



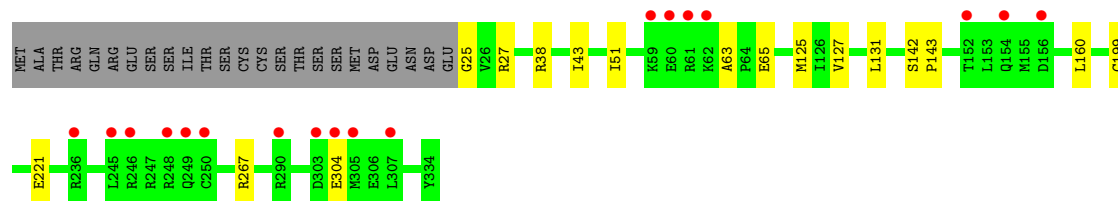
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain F:



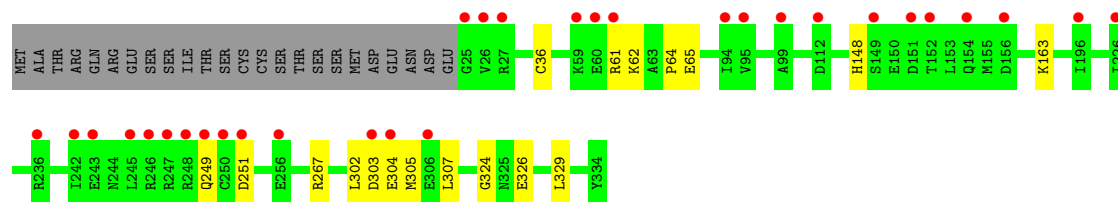
- Molecule 1: Leucine carboxyl methyltransferase 1

Chain G:



- Molecule 1: Leucine carboxyl methyltransferase 1

Chain H:



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	106.04Å 81.13Å 82.82Å 105.41° 93.97° 104.29°	Depositor
Resolution (Å)	29.97 – 1.90 29.97 – 1.90	Depositor EDS
% Data completeness (in resolution range)	95.3 (29.97-1.90) 95.3 (29.97-1.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.06	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.39 (at 1.91Å)	Xtriage
Refinement program	REFMAC 5.5.0072	Depositor
R, R_{free}	0.184 , 0.232 0.185 , 0.231	Depositor DCC
R_{free} test set	9650 reflections (5.31%)	DCC
Wilson B-factor (Å ²)	22.9	Xtriage
Anisotropy	0.036	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.41 , 42.5	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	0 of 191552 reflections	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	22201	wwPDB-VP
Average B, all atoms (Å ²)	28.0	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 41.77 % 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 2.2491e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, SAH, MES

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	0.44	0/2552	0.56	0/3435
1	B	0.43	0/2552	0.54	0/3435
1	C	0.46	0/2552	0.56	0/3435
1	D	0.45	0/2558	0.56	0/3443
1	E	0.46	0/2552	0.57	0/3435
1	F	0.46	0/2552	0.56	0/3435
1	G	0.44	0/2552	0.56	0/3435
1	H	0.41	0/2552	0.53	0/3435
All	All	0.44	0/20422	0.56	0/27488

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2505	0	2503	17	0
1	B	2505	0	2503	12	0
1	C	2505	0	2503	14	0
1	D	2511	0	2507	9	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	2505	0	2503	14	0
1	F	2505	0	2503	16	0
1	G	2505	0	2503	10	0
1	H	2505	0	2503	9	0
2	A	26	0	19	0	0
2	B	26	0	19	0	0
2	C	26	0	19	1	0
2	D	26	0	19	1	0
2	E	26	0	19	1	0
2	F	26	0	19	0	0
2	G	26	0	19	0	0
2	H	26	0	19	0	0
3	A	6	0	8	0	0
3	B	6	0	8	0	0
3	C	6	0	8	0	0
3	D	6	0	8	0	0
3	E	6	0	8	0	0
3	F	6	0	8	0	0
3	G	6	0	8	0	0
3	H	6	0	8	0	0
4	B	12	0	12	0	0
4	D	12	0	12	1	0
4	E	12	0	12	0	0
4	H	12	0	12	0	0
5	A	239	0	0	2	0
5	B	197	0	0	2	0
5	C	231	0	0	2	0
5	D	251	0	0	2	0
5	E	283	0	0	4	0
5	F	248	0	0	3	0
5	G	235	0	0	1	0
5	H	167	0	0	0	0
All	All	22201	0	20292	102	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 3.

The worst 5 of 102 close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:93:GLN:HE22	1:A:188:ASN:H	1.05	0.92
1:A:36:CYS:SG	1:A:62:LYS:NZ	2.59	0.75
1:F:114:LEU:HD13	5:F:448:HOH:O	1.94	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:131:LEU:HB3	1:E:155:MET:HE3	1.78	0.66
1:A:311:LEU:HD23	5:A:821:HOH:O	1.95	0.64

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone ⓘ

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	308/334 (92%)	305 (99%)	3 (1%)	0	100	100
1	B	308/334 (92%)	303 (98%)	5 (2%)	0	100	100
1	C	308/334 (92%)	305 (99%)	3 (1%)	0	100	100
1	D	309/334 (92%)	302 (98%)	7 (2%)	0	100	100
1	E	308/334 (92%)	302 (98%)	6 (2%)	0	100	100
1	F	308/334 (92%)	303 (98%)	5 (2%)	0	100	100
1	G	308/334 (92%)	302 (98%)	6 (2%)	0	100	100
1	H	308/334 (92%)	300 (97%)	8 (3%)	0	100	100
All	All	2465/2672 (92%)	2422 (98%)	43 (2%)	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	276/299 (92%)	271 (98%)	5 (2%)	71	66
1	B	276/299 (92%)	267 (97%)	9 (3%)	50	37

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	276/299 (92%)	273 (99%)	3 (1%)	84	82
1	D	277/299 (93%)	272 (98%)	5 (2%)	71	66
1	E	276/299 (92%)	270 (98%)	6 (2%)	64	57
1	F	276/299 (92%)	271 (98%)	5 (2%)	71	66
1	G	276/299 (92%)	273 (99%)	3 (1%)	84	82
1	H	276/299 (92%)	270 (98%)	6 (2%)	64	57
All	All	2209/2392 (92%)	2167 (98%)	42 (2%)	69	63

5 of 42 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	251	ASP
1	E	114	LEU
1	H	267	ARG
1	D	267	ARG
1	D	311	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 21 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	310	GLN
1	D	75	HIS
1	F	75	HIS
1	C	148	HIS
1	F	148	HIS

5.3.3 RNA ⓘ

There are no RNA chains in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry

20 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	GOL	A	1912	-	5,5,5	0.40	0	5,5,5	0.30	0
2	SAH	A	601	-	28,28,28	1.15	2 (7%)	40,40,40	1.98	10 (25%)
4	MES	B	1903	-	12,12,12	1.85	1 (8%)	16,16,16	2.11	2 (12%)
3	GOL	B	1913	-	5,5,5	0.33	0	5,5,5	0.27	0
2	SAH	B	601	-	28,28,28	1.22	3 (10%)	40,40,40	1.88	9 (22%)
3	GOL	C	1914	-	5,5,5	0.36	0	5,5,5	0.20	0
2	SAH	C	601	-	28,28,28	1.16	2 (7%)	40,40,40	1.96	11 (27%)
4	MES	D	1902	-	12,12,12	1.95	1 (8%)	16,16,16	2.31	5 (31%)
3	GOL	D	1915	-	5,5,5	0.34	0	5,5,5	0.40	0
2	SAH	D	601	-	28,28,28	1.21	2 (7%)	40,40,40	2.03	9 (22%)
4	MES	E	1901	-	12,12,12	1.83	1 (8%)	16,16,16	2.14	3 (18%)
3	GOL	E	1916	-	5,5,5	0.36	0	5,5,5	0.12	0
2	SAH	E	601	-	28,28,28	1.17	3 (10%)	40,40,40	2.00	12 (30%)
3	GOL	F	1917	-	5,5,5	0.36	0	5,5,5	0.79	0
2	SAH	F	601	-	28,28,28	1.13	2 (7%)	40,40,40	1.99	10 (25%)
3	GOL	G	1911	-	5,5,5	0.37	0	5,5,5	0.42	0
2	SAH	G	601	-	28,28,28	1.14	3 (10%)	40,40,40	2.00	9 (22%)
4	MES	H	1904	-	12,12,12	1.93	1 (8%)	16,16,16	2.28	6 (37%)
3	GOL	H	1918	-	5,5,5	0.35	0	5,5,5	0.29	0
2	SAH	H	601	-	28,28,28	1.13	2 (7%)	40,40,40	2.02	9 (22%)

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	GOL	A	1912	-	-	0/4/4/4	0/0/0/0
2	SAH	A	601	-	-	0/15/31/31	0/1/3/3

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	MES	B	1903	-	-	0/6/14/14	0/1/1/1
3	GOL	B	1913	-	-	0/4/4/4	0/0/0/0
2	SAH	B	601	-	-	0/15/31/31	0/1/3/3
3	GOL	C	1914	-	-	0/4/4/4	0/0/0/0
2	SAH	C	601	-	-	0/15/31/31	0/1/3/3
4	MES	D	1902	-	-	0/6/14/14	0/1/1/1
3	GOL	D	1915	-	-	0/4/4/4	0/0/0/0
2	SAH	D	601	-	-	0/15/31/31	0/1/3/3
4	MES	E	1901	-	-	0/6/14/14	0/1/1/1
3	GOL	E	1916	-	-	0/4/4/4	0/0/0/0
2	SAH	E	601	-	-	0/15/31/31	0/1/3/3
3	GOL	F	1917	-	-	0/4/4/4	0/0/0/0
2	SAH	F	601	-	-	0/15/31/31	0/1/3/3
3	GOL	G	1911	-	-	0/4/4/4	0/0/0/0
2	SAH	G	601	-	-	0/15/31/31	0/1/3/3
4	MES	H	1904	-	-	0/6/14/14	1/1/1/1
3	GOL	H	1918	-	-	0/4/4/4	0/0/0/0
2	SAH	H	601	-	-	0/15/31/31	0/1/3/3

The worst 5 of 23 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	1902	MES	C8-S	-5.97	1.67	1.78
4	H	1904	MES	C8-S	-5.89	1.67	1.78
4	B	1903	MES	C8-S	-5.71	1.68	1.78
4	E	1901	MES	C8-S	-5.53	1.68	1.78
2	B	601	SAH	C4-N9	-3.65	1.32	1.37

The worst 5 of 95 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	SAH	N3-C2-N1	-7.31	122.59	128.71
2	D	601	SAH	N3-C2-N1	-7.10	122.77	128.71
2	A	601	SAH	N3-C2-N1	-7.08	122.79	128.71
2	G	601	SAH	N3-C2-N1	-7.08	122.79	128.71
2	B	601	SAH	N3-C2-N1	-7.00	122.85	128.71

There are no chirality outliers.

There are no torsion outliers.

All (1) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	H	1904	MES	C2-C3-C5-C6-N4-O1

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	310/334 (92%)	0.14	17 (5%) 24 24	15, 24, 44, 54	0
1	B	310/334 (92%)	0.38	22 (7%) 16 15	17, 27, 48, 64	0
1	C	310/334 (92%)	0.25	21 (6%) 17 17	16, 25, 44, 60	0
1	D	310/334 (92%)	0.09	14 (4%) 32 32	17, 24, 43, 53	0
1	E	310/334 (92%)	0.05	8 (2%) 53 55	15, 23, 41, 50	0
1	F	310/334 (92%)	0.20	19 (6%) 21 20	15, 23, 41, 60	0
1	G	310/334 (92%)	0.16	18 (5%) 22 22	15, 25, 45, 56	0
1	H	310/334 (92%)	0.53	31 (10%) 8 7	21, 30, 52, 60	0
All	All	2480/2672 (92%)	0.22	150 (6%) 21 21	15, 25, 46, 64	0

The worst 5 of 150 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	247	ARG	7.0
1	F	25	GLY	6.6
1	H	248	ARG	6.3
1	H	249	GLN	6.0
1	B	250	CYS	5.9

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

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

6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

6.4 Ligands ⓘ

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	RSR	LLDF	B-factors(Å ²)	Q<0.9
4	MES	H	1904	12/12	0.14	2.21	31,37,40,41	0
4	MES	D	1902	12/12	0.14	1.72	35,40,43,44	0
3	GOL	G	1911	6/6	0.17	1.62	30,35,37,38	0
3	GOL	F	1917	6/6	0.15	1.47	24,29,31,32	0
3	GOL	A	1912	6/6	0.18	1.14	25,32,32,33	0
4	MES	B	1903	12/12	0.13	1.07	29,34,38,40	0
4	MES	E	1901	12/12	0.12	0.64	32,37,42,42	0
3	GOL	B	1913	6/6	0.14	0.46	30,32,34,35	0
3	GOL	C	1914	6/6	0.11	0.42	25,27,27,28	0
3	GOL	H	1918	6/6	0.12	-0.15	33,36,37,38	0
2	SAH	D	601	26/26	0.11	-0.31	17,20,21,21	0
2	SAH	A	601	26/26	0.10	-0.36	18,20,21,21	0
2	SAH	E	601	26/26	0.11	-0.37	15,19,20,20	0
2	SAH	F	601	26/26	0.11	-0.43	18,19,20,21	0
2	SAH	C	601	26/26	0.10	-0.44	17,19,21,22	0
2	SAH	B	601	26/26	0.10	-0.47	20,22,23,23	0
2	SAH	G	601	26/26	0.10	-0.57	18,19,21,21	0
2	SAH	H	601	26/26	0.11	-0.68	21,23,24,24	0
3	GOL	D	1915	6/6	0.09	-0.83	22,24,25,27	0
3	GOL	E	1916	6/6	0.08	-1.53	23,25,25,26	0

6.5 Other polymers ⓘ

There are no such residues in this entry.