



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 3, 2024 – 09:48 pm GMT

PDB ID : 5F32
Title : Crystal structure of human KDM4A in complex with compound 40
Authors : Le Bihan, Y.-V.; Dempster, S.; Westwood, I.M.; van Montfort, R.L.M.
Deposited on : 2015-12-02
Resolution : 2.05 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 ⓘ 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 ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

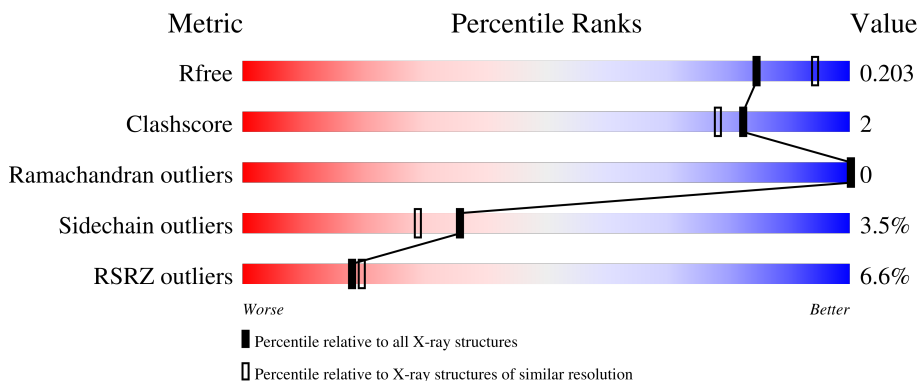
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.05 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}	130704	1692 (2.04-2.04)
Clashscore	141614	1773 (2.04-2.04)
Ramachandran outliers	138981	1752 (2.04-2.04)
Sidechain outliers	138945	1752 (2.04-2.04)
RSRZ outliers	127900	1672 (2.04-2.04)

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 $\leq 5\%$. 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	360	 8% 88% 7% 5%
1	B	360	 5% 88% 8% .
1	C	360	 9% 91% 5% .
1	D	360	 4% 89% 7% .

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	GOL	B	406	-	-	X	-
6	GOL	D	408	-	-	-	X

2 Entry composition i

There are 7 unique types of molecules in this entry. The entry contains 11989 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 Lysine-specific demethylase 4A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	342	2719	1772	448	484	15	0	4	0
1	B	344	2775	1810	456	493	16	0	5	0
1	C	350	2789	1817	456	501	15	0	2	0
1	D	348	2800	1821	462	502	15	0	3	0

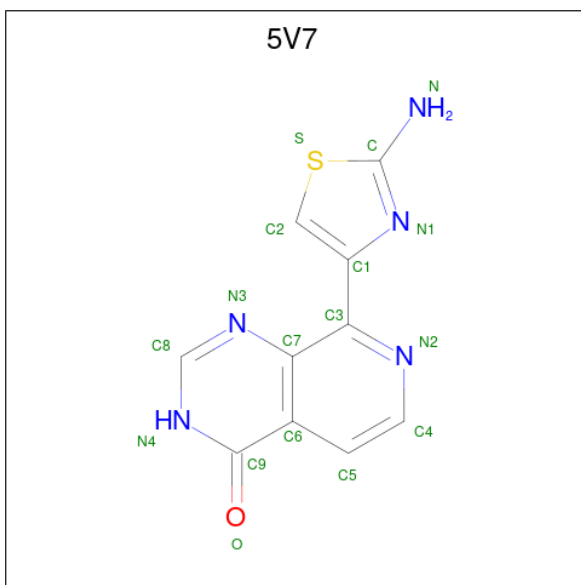
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	SER	-	expression tag	UNP O75164
B	0	SER	-	expression tag	UNP O75164
C	0	SER	-	expression tag	UNP O75164
D	0	SER	-	expression tag	UNP O75164

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

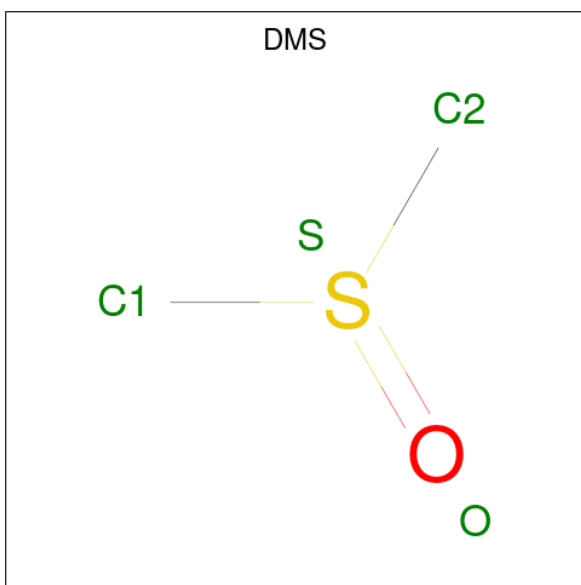
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total 2	Zn 2	0	0
2	B	2	Total 2	Zn 2	0	0
2	C	2	Total 2	Zn 2	0	0
2	D	2	Total 2	Zn 2	0	0

- Molecule 3 is 8-(2-azanyl-1,3-thiazol-4-yl)-3 {H}-pyrido[3,4-d]pyrimidin-4-one (three-letter code: 5V7) (formula: C₁₀H₇N₅OS).



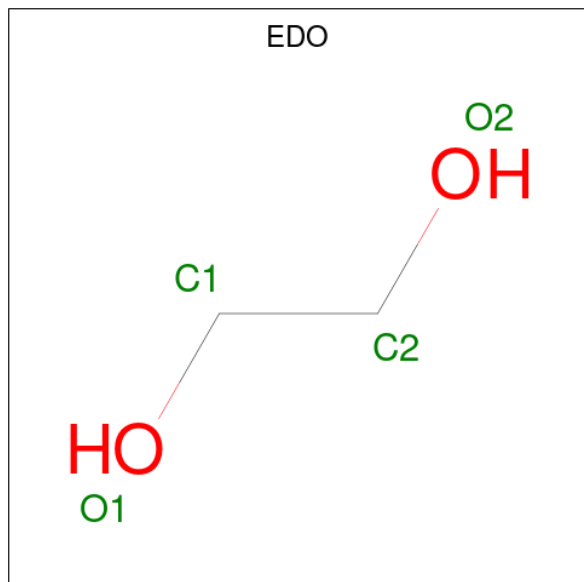
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
3	A	1	Total	C	N	O	S	0	0
			17	10	5	1	1		
3	B	1	Total	C	N	O	S	0	0
			17	10	5	1	1		
3	C	1	Total	C	N	O	S	0	0
			17	10	5	1	1		
3	D	1	Total	C	N	O	S	0	0
			17	10	5	1	1		

- Molecule 4 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C₂H₆OS).



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

- Molecule 5 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



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

- Molecule 6 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



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

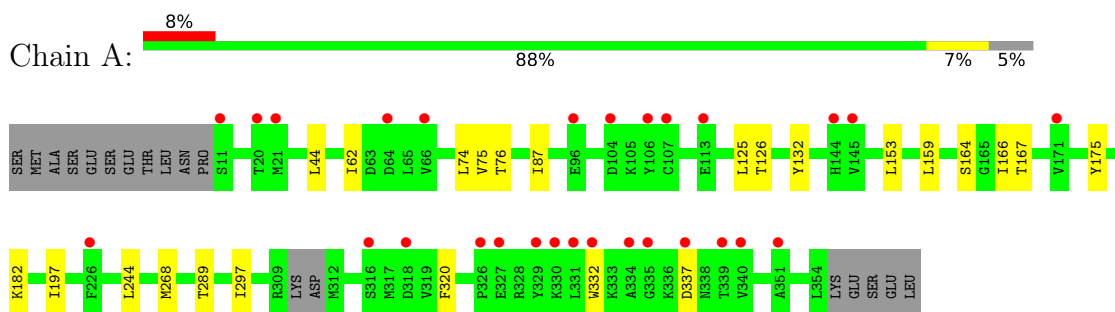
- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	138	Total O 138 138	0	0
7	B	184	Total O 184 184	0	0
7	C	211	Total O 211 211	0	0
7	D	232	Total O 233 233	0	1

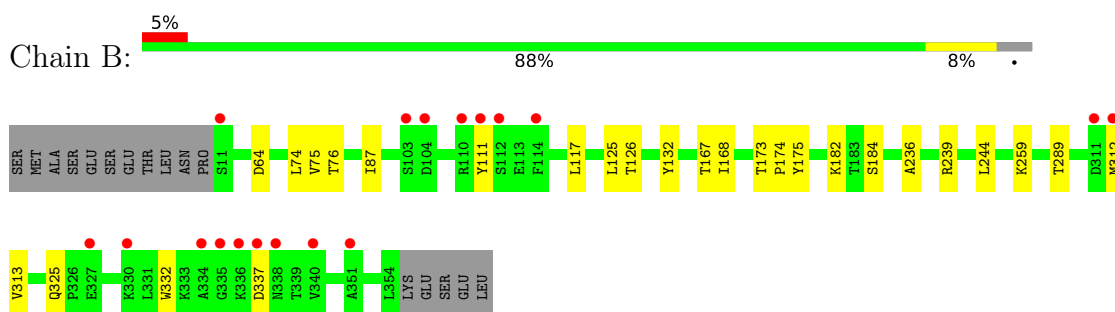
3 Residue-property plots [i](#)

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.

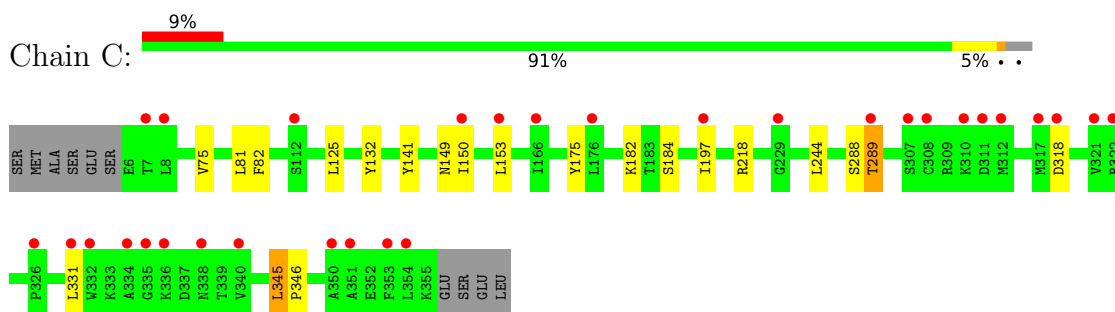
- Molecule 1: Lysine-specific demethylase 4A



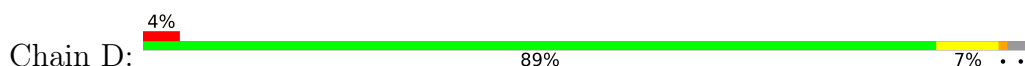
- Molecule 1: Lysine-specific demethylase 4A

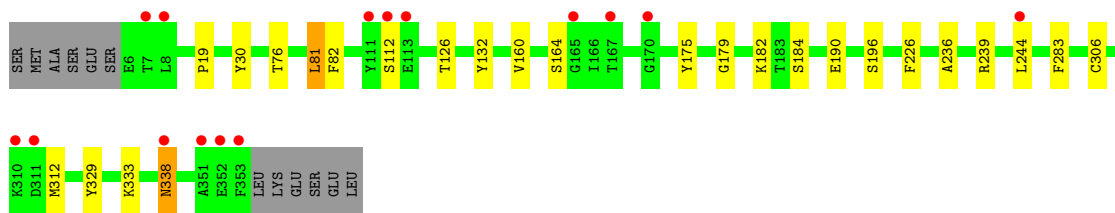


- Molecule 1: Lysine-specific demethylase 4A



- Molecule 1: Lysine-specific demethylase 4A





4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	57.22Å 102.59Å 141.74Å 90.00° 99.29° 90.00°	Depositor
Resolution (Å)	41.00 – 2.05 40.83 – 2.05	Depositor EDS
% Data completeness (in resolution range)	88.0 (41.00-2.05) 88.0 (40.83-2.05)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.04 (at 2.05Å)	Xtrriage
Refinement program	BUSTER 2.10.2	Depositor
R, R_{free}	0.168 , 0.203 0.172 , 0.203	Depositor DCC
R_{free} test set	4452 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	45.9	Xtrriage
Anisotropy	0.325	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 61.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.025 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	11989	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 23.26 % 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 4.8289e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: EDO, 5V7, GOL, DMS, ZN

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	0.49	0/2805	0.65	0/3817
1	B	0.53	0/2862	0.66	0/3887
1	C	0.51	0/2875	0.66	0/3910
1	D	0.54	0/2887	0.66	0/3923
All	All	0.52	0/11429	0.66	0/15537

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	2719	0	2511	12	0
1	B	2775	0	2608	15	0
1	C	2789	0	2614	6	0
1	D	2800	0	2634	14	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
3	A	17	0	7	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	17	0	7	2	0
3	C	17	0	7	1	0
3	D	17	0	7	2	0
4	A	4	0	6	0	0
4	B	4	0	6	0	0
4	C	8	0	12	0	0
4	D	8	0	12	0	0
5	A	4	0	6	1	0
5	B	4	0	6	0	0
5	D	8	0	12	0	0
6	A	6	0	8	3	0
6	B	6	0	8	10	0
6	D	12	0	16	0	0
7	A	138	0	0	0	0
7	B	184	0	0	1	0
7	C	211	0	0	0	0
7	D	233	0	0	0	0
All	All	11989	0	10487	54	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 2.

All (54) 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)
6:B:406:GOL:H2	1:D:126:THR:HB	1.43	1.01
1:B:76:THR:HA	6:B:406:GOL:H11	1.44	0.99
6:B:406:GOL:H31	1:D:76[A]:THR:HA	1.66	0.78
1:B:126:THR:HB	6:B:406:GOL:H32	1.66	0.78
1:A:164:SER:OG	1:A:166:ILE:HG12	1.85	0.77
6:B:406:GOL:H31	1:D:76[B]:THR:HA	1.67	0.77
1:A:74:LEU:HD23	1:A:87:ILE:HD12	1.77	0.66
1:B:126:THR:CB	6:B:406:GOL:H32	2.26	0.66
1:B:126:THR:HB	6:B:406:GOL:H12	1.79	0.65
1:A:126:THR:HB	6:A:406:GOL:H11	1.81	0.62
3:B:403:5V7:H5	3:B:403:5V7:N3	2.17	0.59
1:B:74:LEU:HD11	1:B:87:ILE:CD1	2.32	0.59
1:D:82:PHE:HB2	1:D:244[A]:LEU:HB2	1.86	0.56
3:D:403:5V7:N3	3:D:403:5V7:H5	2.20	0.55
1:A:297:ILE:HD12	1:A:320:PHE:HB3	1.88	0.55
1:C:153:LEU:HD11	1:C:197:ILE:HG21	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:75:VAL:HG11	1:C:125[B]:LEU:HG	1.90	0.54
1:B:75:VAL:HG11	1:B:125[B]:LEU:HG	1.92	0.52
3:A:403:5V7:N3	3:A:403:5V7:H5	2.25	0.51
3:C:403:5V7:N3	3:C:403:5V7:H5	2.25	0.51
1:B:126:THR:CB	6:B:406:GOL:H12	2.41	0.51
1:C:345:LEU:HD23	1:C:346:PRO:HD2	1.93	0.50
1:A:153:LEU:HD11	1:A:197:ILE:HG21	1.92	0.50
1:A:126:THR:CB	6:A:406:GOL:H11	2.41	0.50
1:D:82:PHE:HB2	1:D:244[B]:LEU:HB2	1.94	0.49
1:D:338:ASN:H	1:D:338:ASN:HD22	1.60	0.49
3:B:403:5V7:N3	3:B:403:5V7:C2	2.76	0.48
1:C:82:PHE:HB2	1:C:244:LEU:HB2	1.94	0.48
1:D:190:GLU:HG3	1:D:196:SER:HB3	1.97	0.47
1:D:160:VAL:O	1:D:164:SER:HB2	2.15	0.47
1:A:125[B]:LEU:HD21	1:A:244:LEU:HD13	1.96	0.47
1:B:259:LYS:HB2	7:B:614:HOH:O	2.14	0.46
3:D:403:5V7:N3	3:D:403:5V7:C2	2.78	0.46
1:B:126:THR:HB	6:B:406:GOL:C1	2.45	0.46
1:D:179:GLY:O	1:D:283:PHE:HA	2.16	0.46
1:C:150:ILE:HG23	1:C:289:THR:HG22	1.98	0.46
1:A:75:VAL:HG11	1:A:125[B]:LEU:HG	1.98	0.46
1:B:111:TYR:CD1	1:B:117:LEU:HD13	2.51	0.46
1:A:332:TRP:HA	1:A:337:ASP:HB2	1.98	0.45
3:A:403:5V7:N3	3:A:403:5V7:C2	2.80	0.45
1:A:44:LEU:HG	1:A:268:MET:CE	2.47	0.45
1:B:74:LEU:HD11	1:B:87:ILE:HD11	1.99	0.44
1:B:168:ILE:HD13	1:B:313:VAL:HG13	2.00	0.44
1:B:332:TRP:HA	1:B:337:ASP:HB2	2.02	0.42
6:B:406:GOL:H2	1:D:126:THR:CB	2.31	0.42
1:D:329:TYR:CZ	1:D:333:LYS:HD2	2.55	0.42
1:A:153:LEU:HA	5:A:405:EDO:H22	2.01	0.42
1:B:236:ALA:HB1	1:B:239:ARG:HG3	2.01	0.42
1:B:125[B]:LEU:HD21	1:B:244:LEU:HD13	2.01	0.41
1:C:141:TYR:CE2	1:C:149:ASN:HA	2.55	0.41
1:D:236:ALA:HB1	1:D:239:ARG:HG3	2.01	0.41
1:A:76:THR:HA	6:A:406:GOL:H32	2.02	0.41
1:D:19:PRO:HB3	1:D:30:TYR:CZ	2.56	0.40
1:D:81:LEU:HD11	1:D:226:PHE:CD2	2.56	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	342/360 (95%)	335 (98%)	7 (2%)	0	100	100
1	B	347/360 (96%)	343 (99%)	4 (1%)	0	100	100
1	C	350/360 (97%)	343 (98%)	7 (2%)	0	100	100
1	D	349/360 (97%)	345 (99%)	4 (1%)	0	100	100
All	All	1388/1440 (96%)	1366 (98%)	22 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	266/316 (84%)	259 (97%)	7 (3%)	46	39
1	B	276/316 (87%)	264 (96%)	12 (4%)	29	22
1	C	276/316 (87%)	265 (96%)	11 (4%)	31	24
1	D	280/316 (89%)	271 (97%)	9 (3%)	39	32
All	All	1098/1264 (87%)	1059 (96%)	39 (4%)	36	28

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	62	ILE
1	A	132	TYR

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Mol	Chain	Res	Type
1	A	159	LEU
1	A	167	THR
1	A	175	TYR
1	A	182	LYS
1	A	289	THR
1	B	64	ASP
1	B	132	TYR
1	B	167	THR
1	B	173	THR
1	B	174	PRO
1	B	175	TYR
1	B	182	LYS
1	B	184	SER
1	B	289	THR
1	B	312[A]	MET
1	B	312[B]	MET
1	B	325	GLN
1	C	81	LEU
1	C	132	TYR
1	C	175	TYR
1	C	182	LYS
1	C	184	SER
1	C	218	ARG
1	C	288	SER
1	C	289	THR
1	C	318	ASP
1	C	331	LEU
1	C	345	LEU
1	D	81	LEU
1	D	112	SER
1	D	132	TYR
1	D	175	TYR
1	D	182	LYS
1	D	184	SER
1	D	306	CYS
1	D	312	MET
1	D	338	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	338	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 26 ligands modelled in this entry, 8 are monoatomic - leaving 18 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	$\# Z > 2$
4	DMS	C	405	-	3,3,3	0.31	0	3,3,3	0.26	0
6	GOL	A	406	-	5,5,5	0.21	0	5,5,5	0.51	0
5	EDO	A	405	-	3,3,3	0.57	0	2,2,2	0.23	0
6	GOL	B	406	-	5,5,5	0.46	0	5,5,5	0.87	0
3	5V7	C	403	2	16,19,19	0.64	0	15,27,27	0.71	0
6	GOL	D	408	-	5,5,5	0.04	0	5,5,5	0.17	0
4	DMS	C	404	-	3,3,3	0.28	0	3,3,3	0.49	0
3	5V7	A	403	2	16,19,19	0.63	0	15,27,27	0.75	0
3	5V7	D	403	2	16,19,19	0.64	0	15,27,27	0.74	0
5	EDO	D	406	-	3,3,3	0.67	0	2,2,2	0.06	0
4	DMS	D	404	-	3,3,3	0.26	0	3,3,3	0.24	0
3	5V7	B	403	2	16,19,19	0.68	0	15,27,27	0.81	0
4	DMS	D	405	-	3,3,3	0.30	0	3,3,3	0.27	0
5	EDO	D	407	-	3,3,3	0.62	0	2,2,2	0.05	0
4	DMS	A	404	-	3,3,3	0.28	0	3,3,3	0.30	0
6	GOL	D	409	-	5,5,5	0.20	0	5,5,5	0.20	0
4	DMS	B	404	-	3,3,3	0.26	0	3,3,3	0.23	0
5	EDO	B	405	-	3,3,3	0.58	0	2,2,2	0.27	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
6	GOL	A	406	-	-	2/4/4/4	-
5	EDO	A	405	-	-	1/1/1/1	-
6	GOL	B	406	-	-	4/4/4/4	-
3	5V7	C	403	2	-	0/1/4/4	0/3/3/3
3	5V7	A	403	2	-	0/1/4/4	0/3/3/3
3	5V7	D	403	2	-	0/1/4/4	0/3/3/3
5	EDO	D	406	-	-	0/1/1/1	-
3	5V7	B	403	2	-	0/1/4/4	0/3/3/3
5	EDO	D	407	-	-	0/1/1/1	-
6	GOL	D	408	-	-	0/4/4/4	-
6	GOL	D	409	-	-	2/4/4/4	-
5	EDO	B	405	-	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	406	GOL	C1-C2-C3-O3
6	B	406	GOL	O1-C1-C2-C3
6	B	406	GOL	C1-C2-C3-O3
6	A	406	GOL	O2-C2-C3-O3
6	B	406	GOL	O1-C1-C2-O2
6	D	409	GOL	O1-C1-C2-C3
6	B	406	GOL	O2-C2-C3-O3
5	A	405	EDO	O1-C1-C2-O2
6	D	409	GOL	C1-C2-C3-O3

There are no ring outliers.

7 monomers are involved in 21 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	406	GOL	3	0
5	A	405	EDO	1	0
6	B	406	GOL	10	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	403	5V7	1	0
3	A	403	5V7	2	0
3	D	403	5V7	2	0
3	B	403	5V7	2	0

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, 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	342/360 (95%)	0.35	28 (8%) 11 12	38, 61, 93, 110	0
1	B	344/360 (95%)	0.06	18 (5%) 27 29	32, 53, 87, 102	0
1	C	350/360 (97%)	0.46	31 (8%) 9 10	35, 54, 88, 122	0
1	D	348/360 (96%)	0.18	15 (4%) 35 38	34, 50, 80, 94	0
All	All	1384/1440 (96%)	0.27	92 (6%) 18 19	32, 55, 89, 122	0

All (92) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	334	ALA	6.1
1	B	334	ALA	5.7
1	B	340	VAL	5.3
1	A	104	ASP	5.2
1	C	354	LEU	4.8
1	C	331	LEU	4.7
1	D	167	THR	4.5
1	B	335	GLY	4.3
1	C	318	ASP	4.3
1	A	339	THR	4.3
1	D	311	ASP	4.2
1	B	111	TYR	4.1
1	C	351	ALA	4.1
1	C	311	ASP	4.0
1	B	338	ASN	4.0
1	C	350	ALA	4.0
1	C	307	SER	4.0
1	C	308	CYS	3.9
1	A	107	CYS	3.8
1	A	326	PRO	3.8
1	D	7	THR	3.8

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Mol	Chain	Res	Type	RSRZ
1	D	112	SER	3.8
1	C	335	GLY	3.7
1	A	337	ASP	3.6
1	B	114[A]	PHE	3.6
1	B	103	SER	3.5
1	C	334	ALA	3.5
1	A	331	LEU	3.4
1	A	335	GLY	3.4
1	C	353	PHE	3.3
1	C	310	LYS	3.3
1	C	340	VAL	3.3
1	B	311	ASP	3.3
1	C	338	ASN	3.2
1	C	336	LYS	3.2
1	C	8	LEU	3.2
1	A	144[A]	HIS	3.2
1	D	351	ALA	3.1
1	A	329	TYR	3.1
1	D	353	PHE	3.0
1	A	330	LYS	3.0
1	D	338	ASN	2.9
1	C	112	SER	2.9
1	D	310	LYS	2.9
1	A	96	GLU	2.8
1	A	20	THR	2.8
1	A	332	TRP	2.7
1	A	351	ALA	2.7
1	A	64	ASP	2.7
1	B	110	ARG	2.7
1	A	21	MET	2.7
1	C	7	THR	2.7
1	A	316	SER	2.6
1	D	165	GLY	2.6
1	A	340	VAL	2.6
1	A	226	PHE	2.6
1	D	170	GLY	2.6
1	C	321	VAL	2.5
1	B	330	LYS	2.5
1	B	336	LYS	2.5
1	A	318	ASP	2.5
1	A	66	VAL	2.4
1	B	104	ASP	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	111	TYR	2.4
1	B	312[A]	MET	2.4
1	C	317	MET	2.4
1	B	337	ASP	2.3
1	C	176	LEU	2.3
1	A	145	VAL	2.3
1	A	113	GLU	2.3
1	C	289	THR	2.2
1	A	106	TYR	2.2
1	B	112	SER	2.2
1	C	229	GLY	2.2
1	C	166	ILE	2.2
1	D	352	GLU	2.2
1	C	197	ILE	2.2
1	B	351	ALA	2.2
1	C	153	LEU	2.1
1	A	327	GLU	2.1
1	C	150	ILE	2.1
1	D	113	GLU	2.1
1	B	11	SER	2.1
1	D	8	LEU	2.1
1	D	244[A]	LEU	2.1
1	C	332	TRP	2.1
1	A	11	SER	2.0
1	C	312	MET	2.0
1	C	326	PRO	2.0
1	B	327	GLU	2.0
1	A	171	VAL	2.0
1	C	322	ARG	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, 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	B-factors(Å ²)	Q<0.9
6	GOL	D	408	6/6	0.49	0.60	105,107,108,109	0
5	EDO	A	405	4/4	0.81	0.17	67,69,70,72	0
4	DMS	C	405	4/4	0.81	0.26	96,97,97,97	4
6	GOL	A	406	6/6	0.82	0.34	34,37,38,39	6
5	EDO	B	405	4/4	0.83	0.21	72,74,78,80	0
4	DMS	D	405	4/4	0.85	0.15	129,129,130,130	0
5	EDO	D	406	4/4	0.85	0.15	69,70,70,70	0
6	GOL	D	409	6/6	0.85	0.27	43,44,46,49	6
5	EDO	D	407	4/4	0.90	0.11	63,64,64,64	4
4	DMS	C	404	4/4	0.92	0.44	88,88,89,89	0
6	GOL	B	406	6/6	0.92	0.23	30,34,36,36	6
3	5V7	C	403	17/17	0.93	0.32	33,36,43,44	17
4	DMS	B	404	4/4	0.93	0.24	88,89,89,90	0
4	DMS	D	404	4/4	0.93	0.23	96,96,97,97	0
4	DMS	A	404	4/4	0.94	0.23	94,94,96,96	0
3	5V7	A	403	17/17	0.94	0.22	36,42,44,44	17
3	5V7	B	403	17/17	0.95	0.16	37,40,43,44	17
3	5V7	D	403	17/17	0.95	0.25	30,35,40,41	17
2	ZN	B	402	1/1	0.98	0.09	42,42,42,42	1
2	ZN	C	402	1/1	0.98	0.07	56,56,56,56	1
2	ZN	A	401	1/1	0.99	0.18	43,43,43,43	1
2	ZN	A	402	1/1	0.99	0.10	48,48,48,48	1
2	ZN	D	401	1/1	1.00	0.15	43,43,43,43	0
2	ZN	D	402	1/1	1.00	0.09	41,41,41,41	1
2	ZN	C	401	1/1	1.00	0.17	43,43,43,43	1
2	ZN	B	401	1/1	1.00	0.15	39,39,39,39	1

6.5 Other polymers [i](#)

There are no such residues in this entry.