



Full wwPDB X-ray Structure Validation Report ⓘ

May 25, 2020 – 08:56 am BST

PDB ID : 6O6L
Title : The Structure of EgtB(Cabther) in complex with Hercynine
Authors : Irani, S.; Zhang, Y.
Deposited on : 2019-03-07
Resolution : 2.25 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.11
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) : 2.11

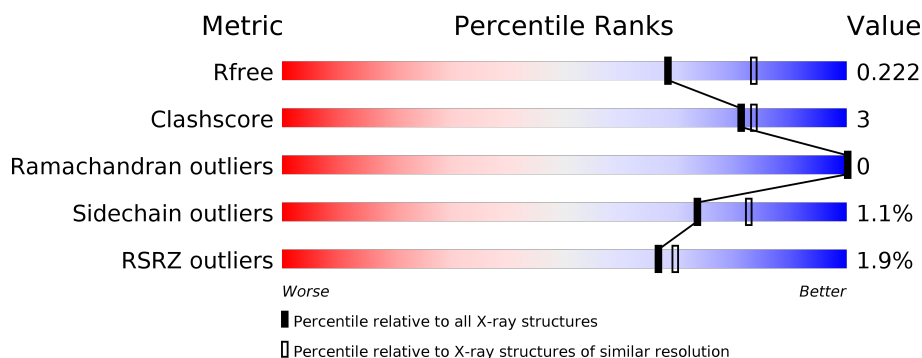
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.25 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	1377 (2.26-2.26)
Clashscore	141614	1487 (2.26-2.26)
Ramachandran outliers	138981	1449 (2.26-2.26)
Sidechain outliers	138945	1450 (2.26-2.26)
RSRZ outliers	127900	1356 (2.26-2.26)

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 $\leq 5\%$. 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	462	<div> <div>2%</div> <div> <div></div> <div>82%</div> <div>6%</div> <div>12%</div> </div> </div>
1	B	462	<div> <div>2%</div> <div> <div></div> <div>81%</div> <div>7%</div> <div>12%</div> </div> </div>
1	C	462	<div> <div>2%</div> <div> <div></div> <div>81%</div> <div>7%</div> <div>13%</div> </div> </div>
1	D	462	<div> <div>%</div> <div> <div></div> <div>81%</div> <div>6%</div> <div>13%</div> </div> </div>

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 13775 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 EgtB (Cabther).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	407	Total	C	N	O	S	0	0	0
			3281	2108	586	577	10			
1	B	407	Total	C	N	O	S	0	0	0
			3281	2108	586	577	10			
1	C	404	Total	C	N	O	S	0	0	0
			3259	2095	582	572	10			
1	D	402	Total	C	N	O	S	0	0	0
			3243	2085	579	569	10			

There are 116 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-6	MET	-	initiating methionine	UNP G2LET6
A	-5	GLY	-	expression tag	UNP G2LET6
A	-4	ASP	-	expression tag	UNP G2LET6
A	-3	ARG	-	expression tag	UNP G2LET6
A	-2	GLY	-	expression tag	UNP G2LET6
A	-1	PRO	-	expression tag	UNP G2LET6
A	0	GLU	-	expression tag	UNP G2LET6
A	1	PHE	-	expression tag	UNP G2LET6
A	435	LEU	-	expression tag	UNP G2LET6
A	436	GLU	-	expression tag	UNP G2LET6
A	437	VAL	-	expression tag	UNP G2LET6
A	438	ASP	-	expression tag	UNP G2LET6
A	439	LEU	-	expression tag	UNP G2LET6
A	440	GLN	-	expression tag	UNP G2LET6
A	441	GLY	-	expression tag	UNP G2LET6
A	442	ASP	-	expression tag	UNP G2LET6
A	443	HIS	-	expression tag	UNP G2LET6
A	444	GLY	-	expression tag	UNP G2LET6
A	445	LEU	-	expression tag	UNP G2LET6
A	446	SER	-	expression tag	UNP G2LET6
A	447	ALA	-	expression tag	UNP G2LET6

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Chain	Residue	Modelled	Actual	Comment	Reference
A	448	TRP	-	expression tag	UNP G2LET6
A	449	SER	-	expression tag	UNP G2LET6
A	450	HIS	-	expression tag	UNP G2LET6
A	451	PRO	-	expression tag	UNP G2LET6
A	452	GLN	-	expression tag	UNP G2LET6
A	453	PHE	-	expression tag	UNP G2LET6
A	454	GLU	-	expression tag	UNP G2LET6
A	455	LYS	-	expression tag	UNP G2LET6
B	-6	MET	-	initiating methionine	UNP G2LET6
B	-5	GLY	-	expression tag	UNP G2LET6
B	-4	ASP	-	expression tag	UNP G2LET6
B	-3	ARG	-	expression tag	UNP G2LET6
B	-2	GLY	-	expression tag	UNP G2LET6
B	-1	PRO	-	expression tag	UNP G2LET6
B	0	GLU	-	expression tag	UNP G2LET6
B	1	PHE	-	expression tag	UNP G2LET6
B	435	LEU	-	expression tag	UNP G2LET6
B	436	GLU	-	expression tag	UNP G2LET6
B	437	VAL	-	expression tag	UNP G2LET6
B	438	ASP	-	expression tag	UNP G2LET6
B	439	LEU	-	expression tag	UNP G2LET6
B	440	GLN	-	expression tag	UNP G2LET6
B	441	GLY	-	expression tag	UNP G2LET6
B	442	ASP	-	expression tag	UNP G2LET6
B	443	HIS	-	expression tag	UNP G2LET6
B	444	GLY	-	expression tag	UNP G2LET6
B	445	LEU	-	expression tag	UNP G2LET6
B	446	SER	-	expression tag	UNP G2LET6
B	447	ALA	-	expression tag	UNP G2LET6
B	448	TRP	-	expression tag	UNP G2LET6
B	449	SER	-	expression tag	UNP G2LET6
B	450	HIS	-	expression tag	UNP G2LET6
B	451	PRO	-	expression tag	UNP G2LET6
B	452	GLN	-	expression tag	UNP G2LET6
B	453	PHE	-	expression tag	UNP G2LET6
B	454	GLU	-	expression tag	UNP G2LET6
B	455	LYS	-	expression tag	UNP G2LET6
C	-6	MET	-	initiating methionine	UNP G2LET6
C	-5	GLY	-	expression tag	UNP G2LET6
C	-4	ASP	-	expression tag	UNP G2LET6
C	-3	ARG	-	expression tag	UNP G2LET6
C	-2	GLY	-	expression tag	UNP G2LET6

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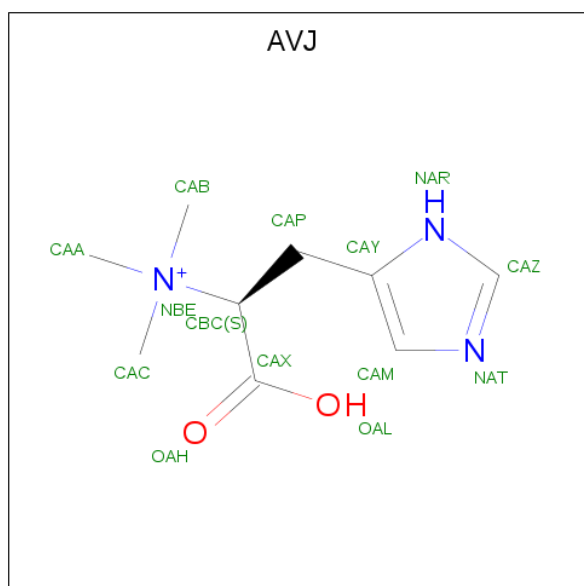
Chain	Residue	Modelled	Actual	Comment	Reference
C	-1	PRO	-	expression tag	UNP G2LET6
C	0	GLU	-	expression tag	UNP G2LET6
C	1	PHE	-	expression tag	UNP G2LET6
C	435	LEU	-	expression tag	UNP G2LET6
C	436	GLU	-	expression tag	UNP G2LET6
C	437	VAL	-	expression tag	UNP G2LET6
C	438	ASP	-	expression tag	UNP G2LET6
C	439	LEU	-	expression tag	UNP G2LET6
C	440	GLN	-	expression tag	UNP G2LET6
C	441	GLY	-	expression tag	UNP G2LET6
C	442	ASP	-	expression tag	UNP G2LET6
C	443	HIS	-	expression tag	UNP G2LET6
C	444	GLY	-	expression tag	UNP G2LET6
C	445	LEU	-	expression tag	UNP G2LET6
C	446	SER	-	expression tag	UNP G2LET6
C	447	ALA	-	expression tag	UNP G2LET6
C	448	TRP	-	expression tag	UNP G2LET6
C	449	SER	-	expression tag	UNP G2LET6
C	450	HIS	-	expression tag	UNP G2LET6
C	451	PRO	-	expression tag	UNP G2LET6
C	452	GLN	-	expression tag	UNP G2LET6
C	453	PHE	-	expression tag	UNP G2LET6
C	454	GLU	-	expression tag	UNP G2LET6
C	455	LYS	-	expression tag	UNP G2LET6
D	-6	MET	-	initiating methionine	UNP G2LET6
D	-5	GLY	-	expression tag	UNP G2LET6
D	-4	ASP	-	expression tag	UNP G2LET6
D	-3	ARG	-	expression tag	UNP G2LET6
D	-2	GLY	-	expression tag	UNP G2LET6
D	-1	PRO	-	expression tag	UNP G2LET6
D	0	GLU	-	expression tag	UNP G2LET6
D	1	PHE	-	expression tag	UNP G2LET6
D	435	LEU	-	expression tag	UNP G2LET6
D	436	GLU	-	expression tag	UNP G2LET6
D	437	VAL	-	expression tag	UNP G2LET6
D	438	ASP	-	expression tag	UNP G2LET6
D	439	LEU	-	expression tag	UNP G2LET6
D	440	GLN	-	expression tag	UNP G2LET6
D	441	GLY	-	expression tag	UNP G2LET6
D	442	ASP	-	expression tag	UNP G2LET6
D	443	HIS	-	expression tag	UNP G2LET6
D	444	GLY	-	expression tag	UNP G2LET6

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Chain	Residue	Modelled	Actual	Comment	Reference
D	445	LEU	-	expression tag	UNP G2LET6
D	446	SER	-	expression tag	UNP G2LET6
D	447	ALA	-	expression tag	UNP G2LET6
D	448	TRP	-	expression tag	UNP G2LET6
D	449	SER	-	expression tag	UNP G2LET6
D	450	HIS	-	expression tag	UNP G2LET6
D	451	PRO	-	expression tag	UNP G2LET6
D	452	GLN	-	expression tag	UNP G2LET6
D	453	PHE	-	expression tag	UNP G2LET6
D	454	GLU	-	expression tag	UNP G2LET6
D	455	LYS	-	expression tag	UNP G2LET6

- Molecule 2 is N,N,N-trimethyl-histidine (three-letter code: AVJ) (formula: $C_9H_{16}N_3O_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	9	3	2		
2	B	1	Total	C	N	O	0	0
			14	9	3	2		
2	C	1	Total	C	N	O	0	0
			14	9	3	2		
2	D	1	Total	C	N	O	0	0
			14	9	3	2		

- Molecule 3 is FE (III) ION (three-letter code: FE) (formula: Fe).

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

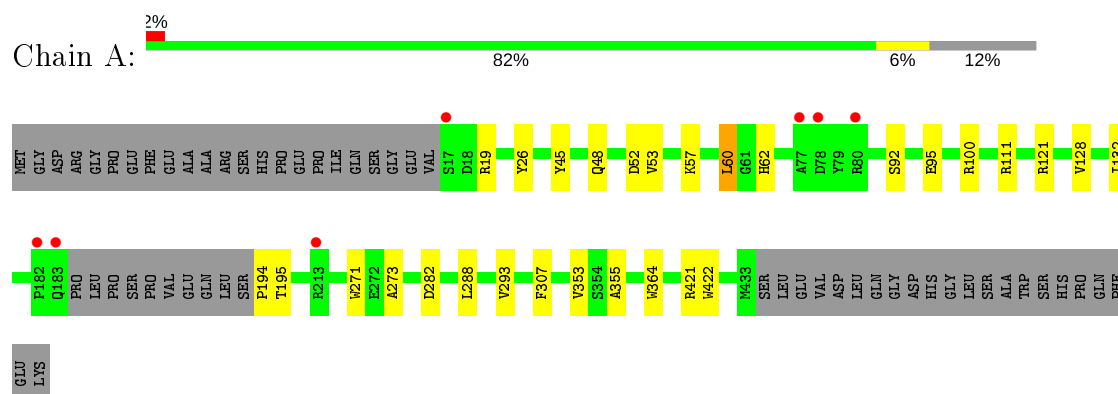
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	166	Total O 166 166	0	0
4	B	169	Total O 169 169	0	0
4	C	167	Total O 167 167	0	0
4	D	149	Total O 149 149	0	0

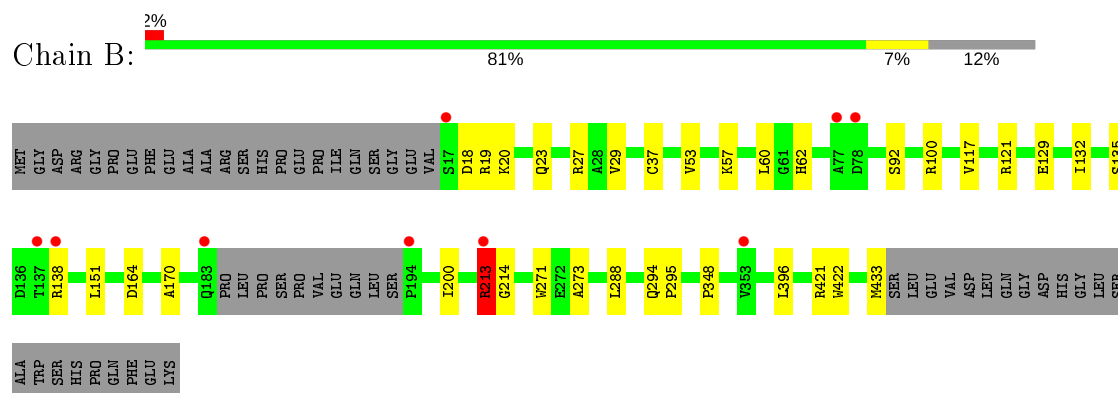
3 Residue-property plots [i](#)

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.

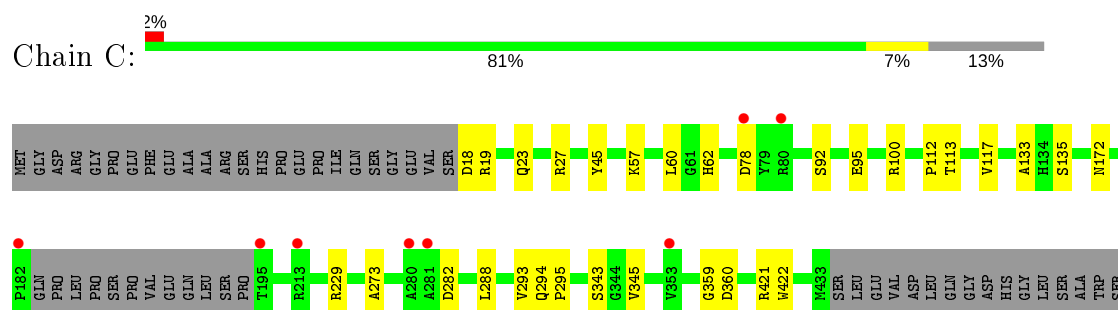
• Molecule 1: EgtB (Cabther)



• Molecule 1: EgtB (Cabther)

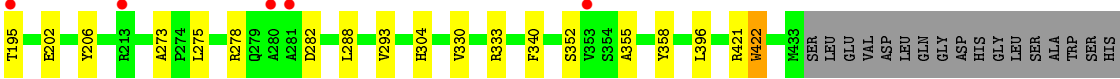
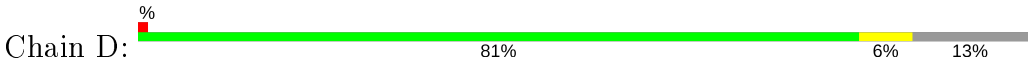


• Molecule 1: EgtB (Cabther)



HIS
PRO
GLN
PHE
GLU
LYS

● Molecule 1: EgtB (Cabther)



PRO
GLN
PHE
GLU
LYS

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	85.16Å 137.51Å 85.22Å 90.00° 92.37° 90.00°	Depositor
Resolution (Å)	45.83 – 2.25 45.83 – 2.25	Depositor EDS
% Data completeness (in resolution range)	99.5 (45.83-2.25) 99.5 (45.83-2.25)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.01 (at 2.24Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155: ???)	Depositor
R, R_{free}	0.187 , 0.221 0.187 , 0.222	Depositor DCC
R_{free} test set	1980 reflections (2.15%)	wwPDB-VP
Wilson B-factor (Å ²)	23.6	Xtriage
Anisotropy	0.521	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 33.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.002 for l,k,-h 0.025 for h,-k,-l 0.023 for l,-k,h	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	13775	wwPDB-VP
Average B, all atoms (Å ²)	20.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.71% 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: FE, AVJ

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	0.52	0/3399	0.60	0/4647
1	B	0.57	2/3399 (0.1%)	0.63	3/4647 (0.1%)
1	C	0.52	0/3376	0.60	1/4616 (0.0%)
1	D	0.52	0/3359	0.59	0/4592
All	All	0.53	2/13533 (0.0%)	0.61	4/18502 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	213	ARG	CZ-NH1	-9.41	1.20	1.33
1	B	213	ARG	NE-CZ	-8.76	1.21	1.33

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	213	ARG	NE-CZ-NH1	-6.38	117.11	120.30
1	B	213	ARG	CA-CB-CG	5.27	124.99	113.40
1	B	348	PRO	C-N-CA	5.24	134.81	121.70
1	C	282	ASP	CB-CG-OD2	5.13	122.92	118.30

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	A	3281	0	3118	17	0
1	B	3281	0	3117	17	0
1	C	3259	0	3097	16	0
1	D	3243	0	3082	18	0
2	A	14	0	15	0	0
2	B	14	0	15	0	0
2	C	14	0	15	0	0
2	D	14	0	15	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
4	A	166	0	0	0	0
4	B	169	0	0	0	0
4	C	167	0	0	3	0
4	D	149	0	0	2	0
All	All	13775	0	12474	67	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 3.

All (67) 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:60:LEU:HD12	1:B:121:ARG:HD2	1.65	0.78
1:D:278:ARG:NH1	1:D:288:LEU:HD21	2.02	0.73
1:B:213:ARG:NE	1:B:214:GLY:H	1.90	0.69
1:D:288:LEU:HD23	1:D:293:VAL:HG22	1.76	0.65
1:D:330:VAL:O	1:D:333:ARG:HG2	1.97	0.65
1:B:60:LEU:HD12	1:B:121:ARG:CD	2.28	0.64
1:D:273:ALA:O	1:D:421:ARG:NH2	2.31	0.64
1:C:27:ARG:NH2	4:C:603:HOH:O	2.31	0.63
1:A:273:ALA:O	1:A:421:ARG:NH2	2.33	0.60
1:A:195:THR:HG21	1:A:355:ALA:HB3	1.85	0.59
1:A:52:ASP:HB3	1:A:422:TRP:CZ2	2.41	0.56
1:A:45:TYR:HB3	1:A:57:LYS:HB3	1.88	0.55
1:B:27:ARG:NH2	1:B:129:GLU:OE1	2.39	0.55
1:D:126:ALA:O	1:D:130:ARG:HG3	2.07	0.54
1:A:288:LEU:HD23	1:A:293:VAL:HG22	1.90	0.53
1:B:170:ALA:HA	1:B:288:LEU:HD21	1.90	0.53
1:A:282:ASP:OD1	1:A:282:ASP:N	2.40	0.53
1:C:288:LEU:HD23	1:C:293:VAL:HG22	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:95:GLU:HA	1:C:100:ARG:NH2	2.26	0.51
1:B:294:GLN:HG3	1:B:295:PRO:O	2.11	0.50
1:D:278:ARG:HH11	1:D:288:LEU:HD21	1.75	0.50
1:B:273:ALA:O	1:B:421:ARG:NH2	2.45	0.50
1:C:294:GLN:HG3	1:C:295:PRO:O	2.12	0.50
1:A:95:GLU:OE2	1:A:100:ARG:NH2	2.45	0.49
1:D:352:SER:N	4:D:601:HOH:O	2.30	0.49
1:B:19:ARG:NH1	1:B:135:SER:O	2.44	0.49
1:A:62:HIS:CE1	1:A:92:SER:HB3	2.47	0.49
1:D:195:THR:HG21	1:D:355:ALA:HB3	1.93	0.49
1:C:27:ARG:NH1	4:C:605:HOH:O	2.37	0.48
1:D:53:VAL:HG13	1:D:164:ASP:HB3	1.94	0.48
1:D:282:ASP:OD1	1:D:282:ASP:N	2.40	0.48
1:A:19:ARG:HD3	1:A:132:ILE:O	2.14	0.48
1:A:111:ARG:H	1:C:172:ASN:HD21	1.61	0.47
1:B:57:LYS:HG3	1:B:117:VAL:HG21	1.97	0.47
1:C:18:ASP:OD2	4:C:601:HOH:O	2.20	0.46
1:C:19:ARG:NH1	1:C:135:SER:O	2.47	0.46
1:B:19:ARG:HD3	1:B:132:ILE:O	2.15	0.46
1:A:307:PHE:HB2	1:A:364:TRP:CE3	2.51	0.46
1:C:113:THR:O	1:C:117:VAL:HG23	2.17	0.45
1:D:202:GLU:O	1:D:206:TYR:OH	2.24	0.45
1:C:273:ALA:O	1:C:421:ARG:NH2	2.43	0.45
1:A:60:LEU:HG	1:A:121:ARG:HD2	1.98	0.45
1:B:29:VAL:HB	1:B:151:LEU:HD22	1.99	0.45
1:B:37:CYS:SG	1:B:60:LEU:HD21	2.56	0.45
1:B:62:HIS:CE1	1:B:92:SER:HB3	2.52	0.44
1:D:62:HIS:CE1	1:D:92:SER:HB3	2.52	0.44
1:A:194:PRO:HB2	1:A:353:VAL:HG22	1.99	0.44
1:B:200:ILE:HG23	1:B:433:MET:CE	2.47	0.44
1:D:422:TRP:H	1:D:422:TRP:HE3	1.64	0.44
1:D:53:VAL:HG13	1:D:164:ASP:CB	2.48	0.43
1:A:26:TYR:CE1	1:A:128:VAL:HG11	2.54	0.43
1:C:45:TYR:HB3	1:C:57:LYS:HB3	2.01	0.43
1:D:23:GLN:HG3	1:D:129:GLU:OE2	2.18	0.43
1:C:62:HIS:CE1	1:C:92:SER:HB3	2.54	0.42
1:C:23:GLN:HE22	1:C:133:ALA:HB2	1.83	0.42
1:D:158:GLN:NE2	4:D:603:HOH:O	2.37	0.42
1:C:57:LYS:HE3	1:C:112:PRO:O	2.20	0.42
1:C:343:SER:OG	1:C:345:VAL:HG23	2.20	0.41
1:D:275:LEU:HB3	1:D:304:HIS:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:359:GLY:O	1:C:360:ASP:HB2	2.20	0.41
1:A:48:GLN:HG3	1:A:53:VAL:O	2.20	0.41
1:A:95:GLU:CD	1:A:100:ARG:HH22	2.23	0.41
1:B:53:VAL:HG13	1:B:164:ASP:HB3	2.02	0.41
1:B:23:GLN:HG3	1:B:132:ILE:HG21	2.03	0.41
1:B:271:TRP:CZ2	1:B:421:ARG:HD2	2.55	0.40
1:A:271:TRP:CZ2	1:A:421:ARG:HD2	2.56	0.40
1:D:340:PHE:HZ	1:D:358:TYR:HB3	1.87	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	403/462 (87%)	393 (98%)	10 (2%)	0	100	100
1	B	403/462 (87%)	395 (98%)	8 (2%)	0	100	100
1	C	400/462 (87%)	390 (98%)	10 (2%)	0	100	100
1	D	398/462 (86%)	388 (98%)	10 (2%)	0	100	100
All	All	1604/1848 (87%)	1566 (98%)	38 (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	332/379 (88%)	331 (100%)	1 (0%)	92	95
1	B	332/379 (88%)	325 (98%)	7 (2%)	53	62
1	C	329/379 (87%)	325 (99%)	4 (1%)	71	80
1	D	327/379 (86%)	324 (99%)	3 (1%)	78	86
All	All	1320/1516 (87%)	1305 (99%)	15 (1%)	73	82

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	60	LEU
1	B	18	ASP
1	B	20	LYS
1	B	100	ARG
1	B	138	ARG
1	B	213	ARG
1	B	396	LEU
1	B	422	TRP
1	C	60	LEU
1	C	78	ASP
1	C	229	ARG
1	C	422	TRP
1	D	80	ARG
1	D	396	LEU
1	D	422	TRP

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

Mol	Chain	Res	Type
1	B	23	GLN

5.3.3 RNA ⓘ

There are no RNA molecules 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

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 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	$\# Z > 2$
2	AVJ	C	501	3	6,14,14	0.90	0	8,20,20	0.88	0
2	AVJ	D	501	3	6,14,14	0.92	0	8,20,20	1.06	0
2	AVJ	A	501	3	6,14,14	0.91	0	8,20,20	0.58	0
2	AVJ	B	501	3	6,14,14	0.80	0	8,20,20	0.86	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	AVJ	C	501	3	-	0/10/14/14	0/1/1/1
2	AVJ	D	501	3	-	0/10/14/14	0/1/1/1
2	AVJ	A	501	3	-	0/10/14/14	0/1/1/1
2	AVJ	B	501	3	-	0/10/14/14	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

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

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	407/462 (88%)	-0.36	7 (1%) 70 73	9, 18, 44, 66	0
1	B	407/462 (88%)	-0.43	9 (2%) 62 65	11, 19, 36, 67	0
1	C	404/462 (87%)	-0.32	8 (1%) 65 68	11, 18, 36, 56	0
1	D	402/462 (87%)	-0.40	6 (1%) 73 75	11, 19, 41, 61	0
All	All	1620/1848 (87%)	-0.38	30 (1%) 66 69	9, 18, 41, 67	0

All (30) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	353	VAL	4.4
1	A	78	ASP	4.1
1	C	281	ALA	3.8
1	B	78	ASP	3.8
1	D	195	THR	3.5
1	B	213	ARG	3.5
1	A	17	SER	3.5
1	C	213	ARG	3.4
1	C	195	THR	3.4
1	C	280	ALA	3.3
1	A	213	ARG	3.3
1	C	80	ARG	3.3
1	A	80	ARG	3.2
1	C	78	ASP	3.1
1	B	183	GLN	3.1
1	D	353	VAL	3.0
1	A	183	GLN	3.0
1	B	138	ARG	2.8
1	A	182	PRO	2.7
1	D	281	ALA	2.5
1	C	182	PRO	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	353	VAL	2.5
1	A	77	ALA	2.4
1	D	280	ALA	2.4
1	B	137	THR	2.4
1	B	77	ALA	2.4
1	B	194	PRO	2.3
1	D	213	ARG	2.3
1	D	80	ARG	2.2
1	B	17	SER	2.2

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, 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
2	AVJ	C	501	14/14	0.96	0.13	12,14,15,15	0
2	AVJ	A	501	14/14	0.97	0.10	13,15,16,17	0
2	AVJ	D	501	14/14	0.97	0.13	13,15,18,20	0
2	AVJ	B	501	14/14	0.98	0.09	11,12,14,14	0
3	FE	D	502	1/1	0.99	0.08	17,17,17,17	0
3	FE	C	502	1/1	0.99	0.13	17,17,17,17	0
3	FE	A	502	1/1	1.00	0.06	17,17,17,17	0
3	FE	B	502	1/1	1.00	0.07	12,12,12,12	0

6.5 Other polymers [i](#)

There are no such residues in this entry.