



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 04:43 AM UTC

PDB ID : 5A34 / pdb\_00005a34  
Title : The crystal structure of the GST-like domains complex of EPRS-AIMP2  
Authors : Cho, H.Y.; Kang, B.S.  
Deposited on : 2015-05-27  
Resolution : 2.60 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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<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>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

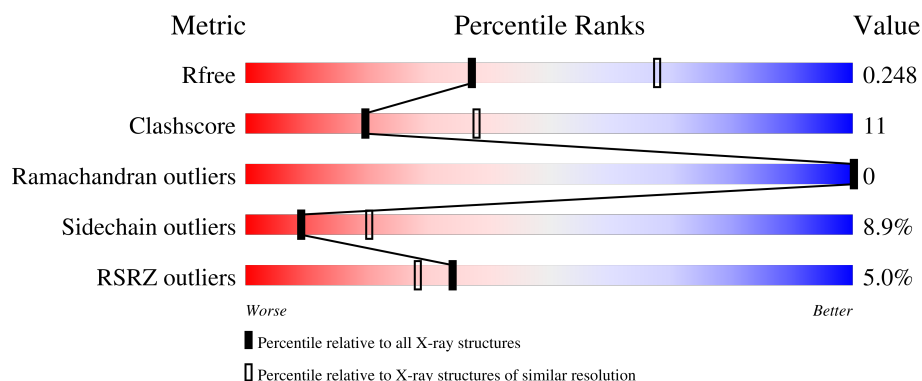
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.60 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))
$R_{free}$	180053	4008 (2.60-2.60)
Clashscore	190562	4347 (2.60-2.60)
Ramachandran outliers	187476	4277 (2.60-2.60)
Sidechain outliers	187428	4277 (2.60-2.60)
RSRZ outliers	180081	4008 (2.60-2.60)

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  $\geq 3$ , 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	175	<div> <div>0%</div> <div> <div></div> <div>74%</div> <div>19%</div> <div>• •</div> </div> </div>
1	C	175	<div> <div>2%</div> <div> <div></div> <div>77%</div> <div>17%</div> <div>• • •</div> </div> </div>
1	E	175	<div> <div>0%</div> <div> <div></div> <div>73%</div> <div>19%</div> <div>• 5%</div> </div> </div>
1	G	175	<div> <div>2%</div> <div> <div></div> <div>74%</div> <div>21%</div> <div>• •</div> </div> </div>
2	B	240	<div> <div>5%</div> <div> <div></div> <div>61%</div> <div>20%</div> <div>• • 15%</div> </div> </div>

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Mol	Chain	Length	Quality of chain
2	D	240	<div><div></div><div>5%</div><div>56%</div><div>22%</div><div>•</div><div>18%</div></div>
2	F	240	<div><div></div><div>4%</div><div>65%</div><div>16%</div><div>•</div><div>16%</div></div>
2	H	240	<div><div></div><div>13%</div><div>52%</div><div>23%</div><div>• •</div><div>20%</div></div>

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 11266 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 BIFUNCTIONAL GLUTAMATE/PROLINE--TRNA LIG-ASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	168	Total	C	N	O	S	0	0	0
			1286	816	217	249	4			
1	C	170	Total	C	N	O	S	0	0	0
			1311	832	221	254	4			
1	E	167	Total	C	N	O	S	0	0	0
			1299	826	220	249	4			
1	G	168	Total	C	N	O	S	0	0	0
			1281	815	216	246	4			

- Molecule 2 is a protein called AMINOACYL TRNA SYNTHASE COMPLEX-INTERACTING MULTIFUNCTIONAL PROTEIN 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	204	Total	C	N	O	S	0	2	0
			1556	1001	265	282	8			
2	D	196	Total	C	N	O	S	0	1	0
			1483	957	256	261	9			
2	F	201	Total	C	N	O	S	0	0	0
			1535	990	264	273	8			
2	H	193	Total	C	N	O	S	0	0	0
			1436	924	247	257	8			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	89	MET	-	expression tag	UNP Q13155
B	321	LEU	-	expression tag	UNP Q13155
B	322	GLU	-	expression tag	UNP Q13155
B	323	HIS	-	expression tag	UNP Q13155
B	324	HIS	-	expression tag	UNP Q13155
B	325	HIS	-	expression tag	UNP Q13155
B	326	HIS	-	expression tag	UNP Q13155

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Chain	Residue	Modelled	Actual	Comment	Reference
B	327	HIS	-	expression tag	UNP Q13155
B	328	HIS	-	expression tag	UNP Q13155
D	89	MET	-	expression tag	UNP Q13155
D	321	LEU	-	expression tag	UNP Q13155
D	322	GLU	-	expression tag	UNP Q13155
D	323	HIS	-	expression tag	UNP Q13155
D	324	HIS	-	expression tag	UNP Q13155
D	325	HIS	-	expression tag	UNP Q13155
D	326	HIS	-	expression tag	UNP Q13155
D	327	HIS	-	expression tag	UNP Q13155
D	328	HIS	-	expression tag	UNP Q13155
F	89	MET	-	expression tag	UNP Q13155
F	321	LEU	-	expression tag	UNP Q13155
F	322	GLU	-	expression tag	UNP Q13155
F	323	HIS	-	expression tag	UNP Q13155
F	324	HIS	-	expression tag	UNP Q13155
F	325	HIS	-	expression tag	UNP Q13155
F	326	HIS	-	expression tag	UNP Q13155
F	327	HIS	-	expression tag	UNP Q13155
F	328	HIS	-	expression tag	UNP Q13155
H	89	MET	-	expression tag	UNP Q13155
H	321	LEU	-	expression tag	UNP Q13155
H	322	GLU	-	expression tag	UNP Q13155
H	323	HIS	-	expression tag	UNP Q13155
H	324	HIS	-	expression tag	UNP Q13155
H	325	HIS	-	expression tag	UNP Q13155
H	326	HIS	-	expression tag	UNP Q13155
H	327	HIS	-	expression tag	UNP Q13155
H	328	HIS	-	expression tag	UNP Q13155

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



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

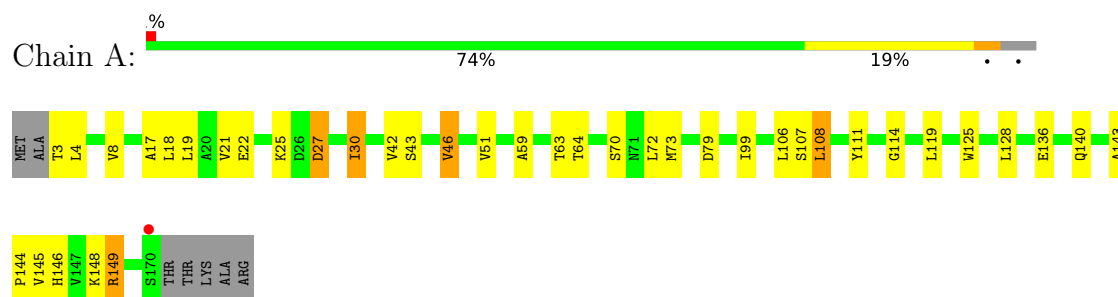
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	11	Total	O	0	0
			11	11		
4	B	6	Total	O	0	0
			6	6		
4	C	14	Total	O	0	0
			14	14		
4	D	10	Total	O	0	0
			10	10		
4	E	11	Total	O	0	0
			11	11		
4	F	9	Total	O	0	0
			9	9		
4	G	3	Total	O	0	0
			3	3		
4	H	3	Total	O	0	0
			3	3		

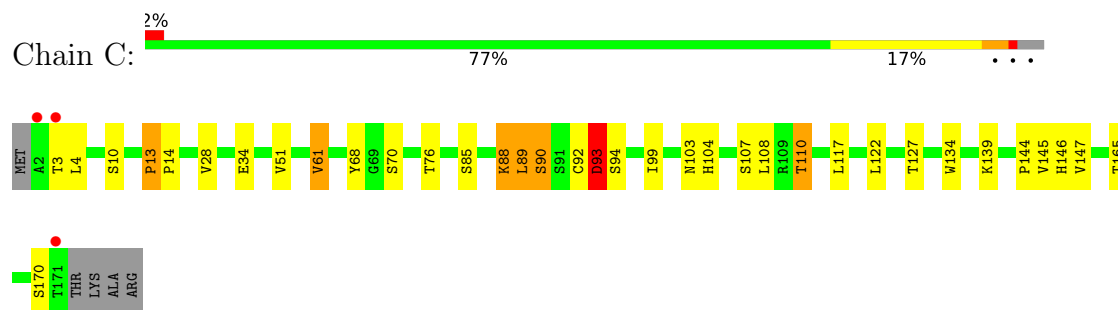
### 3 Residue-property plots [i](#)

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.

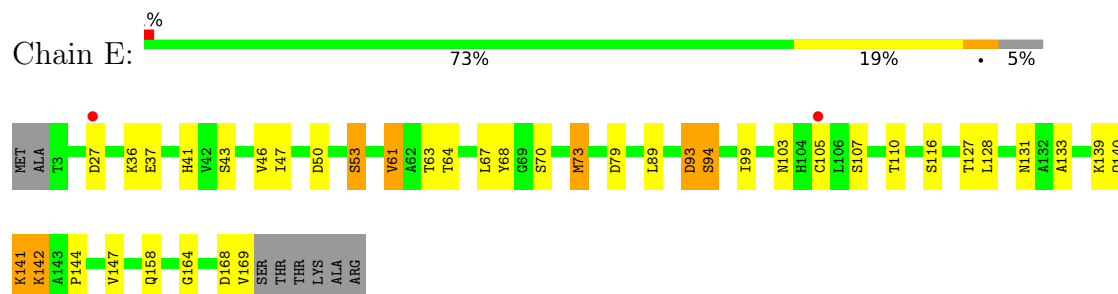
#### • Molecule 1: BIFUNCTIONAL GLUTAMATE/PROLINE--TRNA LIGASE



#### • Molecule 1: BIFUNCTIONAL GLUTAMATE/PROLINE--TRNA LIGASE

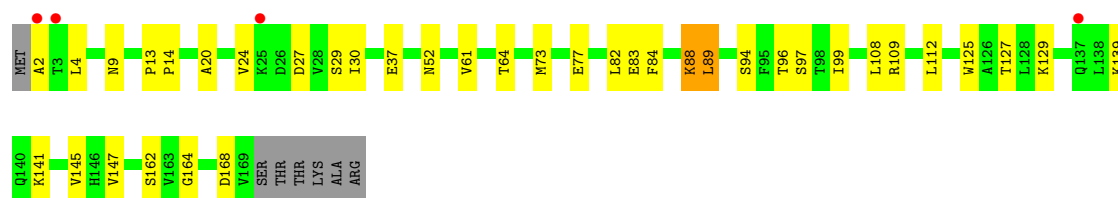


#### • Molecule 1: BIFUNCTIONAL GLUTAMATE/PROLINE--TRNA LIGASE

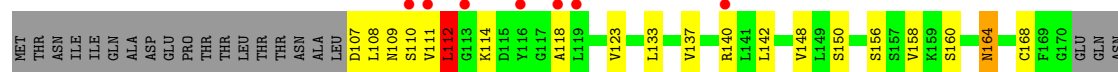


#### • Molecule 1: BIFUNCTIONAL GLUTAMATE/PROLINE--TRNA LIGASE

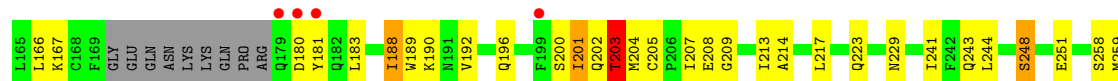
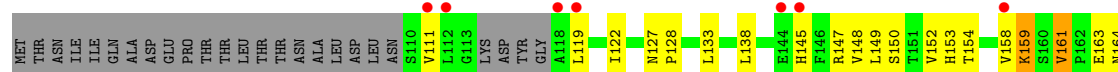




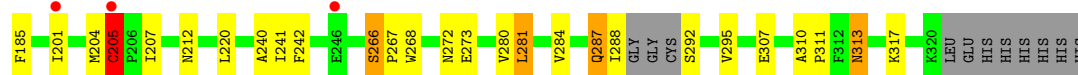
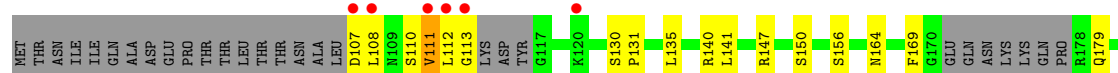
• Molecule 2: AMINOACYL TRNA SYNTHASE COMPLEX-INTERACTING MULTIFUNCTIONAL PROTEIN 2



• Molecule 2: AMINOACYL TRNA SYNTHASE COMPLEX-INTERACTING MULTIFUNCTIONAL PROTEIN 2

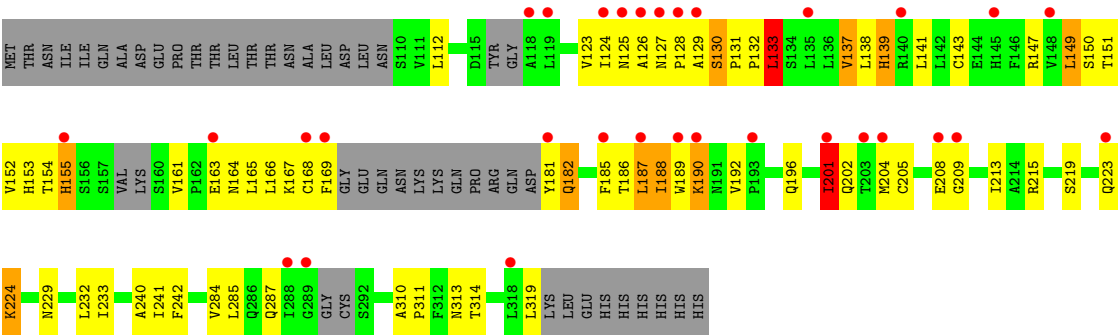


• Molecule 2: AMINOACYL TRNA SYNTHASE COMPLEX-INTERACTING MULTIFUNCTIONAL PROTEIN 2





● Molecule 2: AMINOACYL TRNA SYNTHASE COMPLEX-INTERACTING MULTIFUNCTIONAL PROTEIN 2



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	94.67Å 111.77Å 181.25Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	42.50 – 2.60 42.50 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.6 (42.50-2.60) 98.0 (42.50-2.60)	Depositor EDS
$R_{merge}$	0.15	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.87 (at 2.61Å)	Xtrriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, $R_{free}$	0.189 , 0.247 0.209 , 0.248	Depositor DCC
$R_{free}$ test set	2000 reflections (3.35%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	54.8	Xtrriage
Anisotropy	0.342	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 58.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	11266	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	73.0	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 20.77 % 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 8.0908e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 5 Model quality

### 5.1 Standard geometry

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

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	0.97	0/1313	0.97	4/1793 (0.2%)
1	C	0.99	0/1338	0.99	7/1823 (0.4%)
1	E	1.20	0/1326	1.02	4/1805 (0.2%)
1	G	0.76	0/1308	0.89	1/1786 (0.1%)
2	B	0.96	0/1595	1.60	24/2174 (1.1%)
2	D	0.87	0/1516	1.13	12/2065 (0.6%)
2	F	0.98	0/1566	1.06	10/2128 (0.5%)
2	H	0.83	1/1463 (0.1%)	1.16	11/1994 (0.6%)
All	All	0.95	1/11425 (0.0%)	1.14	73/15568 (0.5%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	130	SER	C-N	5.18	1.39	1.33

All (73) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	181[A]	TYR	CA-C-O	-29.93	86.91	120.43
2	B	181[B]	TYR	CA-C-O	-29.93	86.91	120.43
2	B	257[A]	ARG	CA-C-O	15.33	136.80	120.55
2	B	257[B]	ARG	CA-C-O	15.33	136.80	120.55
2	B	181[A]	TYR	N-CA-C	13.56	130.53	108.96
2	B	181[B]	TYR	N-CA-C	13.56	130.53	108.96
2	B	257[A]	ARG	N-CA-C	11.40	123.71	111.28
2	B	257[B]	ARG	N-CA-C	11.40	123.71	111.28
2	D	241	ILE	N-CA-C	11.17	121.03	110.53
1	A	145	VAL	N-CA-C	10.86	120.84	110.42
1	C	93	ASP	N-CA-C	9.40	121.13	111.07
2	H	129	ALA	N-CA-C	-8.81	101.68	111.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	244	LEU	N-CA-C	8.51	123.76	113.12
2	B	114	LYS	N-CA-C	8.41	120.06	111.07
2	H	133	LEU	N-CA-C	-8.24	102.82	113.12
2	D	159	LYS	N-CA-C	7.81	123.06	112.68
1	C	145	VAL	N-CA-C	7.79	117.89	110.42
2	H	190	LYS	N-CA-C	7.78	122.53	112.41
2	D	201	ILE	N-CA-C	-7.67	102.56	113.07
2	F	111	VAL	N-CA-C	7.19	120.10	113.20
2	B	247	GLY	N-CA-C	7.11	121.31	112.14
2	B	112	LEU	N-CA-C	6.76	118.65	111.28
2	B	295	VAL	N-CA-C	6.71	118.31	107.71
1	E	61	VAL	N-CA-C	6.57	117.36	110.72
2	B	293	VAL	N-CA-C	6.48	117.45	108.12
1	C	3	THR	N-CA-C	-6.46	104.32	111.36
1	A	114	GLY	N-CA-C	6.44	123.82	114.10
2	B	148	VAL	N-CA-C	6.23	117.45	108.48
2	B	313	ASN	N-CA-C	6.15	117.65	111.07
2	D	295	VAL	CA-C-N	6.12	126.08	119.78
2	D	295	VAL	C-N-CA	6.12	126.08	119.78
1	C	13	PRO	CA-C-N	6.05	127.40	119.84
1	C	13	PRO	C-N-CA	6.05	127.40	119.84
1	E	46	VAL	N-CA-C	5.97	116.60	107.77
1	E	141	LYS	N-CA-C	5.94	119.76	111.74
1	A	25	LYS	N-CA-C	5.91	117.40	111.07
2	B	160	SER	N-CA-C	5.85	119.64	111.74
2	F	179	GLN	N-CA-C	5.83	118.31	107.99
2	D	243	GLN	N-CA-C	5.81	117.69	111.36
2	B	245	LYS	N-CA-C	5.73	117.20	111.07
2	F	147	ARG	N-CA-C	-5.71	99.88	108.96
2	F	130	SER	CA-C-N	-5.64	114.57	120.38
2	F	130	SER	C-N-CA	-5.64	114.57	120.38
2	B	179	GLN	N-CA-C	5.56	117.02	111.07
1	G	88	LYS	N-CA-C	5.55	117.33	111.28
2	B	257[A]	ARG	CA-C-N	-5.55	112.41	120.29
2	B	257[A]	ARG	C-N-CA	-5.55	112.41	120.29
2	B	257[B]	ARG	CA-C-N	-5.55	112.41	120.29
2	B	257[B]	ARG	C-N-CA	-5.55	112.41	120.29
2	H	201	ILE	N-CA-C	5.51	116.24	110.62
2	D	203	THR	N-CA-C	5.50	122.52	110.80
2	F	295	VAL	N-CA-C	5.46	112.96	107.55
2	D	127	ASN	CA-C-N	5.46	125.28	119.28
2	D	127	ASN	C-N-CA	5.46	125.28	119.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	161	VAL	CA-C-N	-5.45	114.34	119.90
2	D	161	VAL	C-N-CA	-5.45	114.34	119.90
2	F	205	CYS	CA-C-N	-5.42	114.76	120.66
2	F	205	CYS	C-N-CA	-5.42	114.76	120.66
2	H	124	ILE	N-CA-C	5.40	115.76	107.77
2	F	287	GLN	N-CA-C	5.35	119.43	113.01
1	C	110	THR	N-CA-C	-5.29	106.88	113.55
2	B	158	VAL	N-CA-C	5.23	116.01	108.48
2	H	204	MET	N-CA-C	5.23	116.98	111.28
2	H	182	GLN	N-CA-C	-5.21	106.98	113.38
2	H	150	SER	N-CA-C	5.20	117.29	109.23
1	A	111	TYR	N-CA-C	-5.17	101.68	109.85
2	H	161	VAL	CA-C-N	-5.16	114.44	119.76
2	H	161	VAL	C-N-CA	-5.16	114.44	119.76
2	F	220	LEU	N-CA-C	5.12	116.86	111.28
1	C	88	LYS	N-CA-C	5.11	116.85	111.28
2	H	137	VAL	CB-CA-C	-5.09	105.27	112.14
1	E	67	LEU	N-CA-C	5.08	119.10	113.01
2	B	111	VAL	N-CA-C	-5.01	107.82	112.43

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-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 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	1286	0	1240	25	0
1	C	1311	0	1280	21	0
1	E	1299	0	1281	22	0
1	G	1281	0	1239	22	0
2	B	1556	0	1528	39	0
2	D	1483	0	1482	48	0
2	F	1535	0	1546	27	0
2	H	1436	0	1412	69	0
3	B	6	0	8	0	0
3	D	6	0	8	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	11	0	0	0	0
4	B	6	0	0	0	0
4	C	14	0	0	0	0
4	D	10	0	0	0	0
4	E	11	0	0	0	0
4	F	9	0	0	0	0
4	G	3	0	0	0	0
4	H	3	0	0	0	0
All	All	11266	0	11024	255	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 11.

All (255) 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:E:105:CYS:HB2	2:F:205:CYS:SG	1.88	1.14
2:H:163:GLU:HA	2:H:166:LEU:HD12	1.35	1.03
2:F:112:LEU:HD12	2:F:113:GLY:N	1.78	0.99
2:H:152:VAL:HG13	2:H:187:LEU:HD23	1.58	0.86
2:D:149:LEU:CD1	2:D:181:TYR:CB	2.55	0.84
2:D:149:LEU:HD11	2:D:181:TYR:CB	2.08	0.84
1:E:105:CYS:CB	2:F:205:CYS:SG	2.68	0.81
1:C:104:HIS:NE2	2:D:204:MET:HE2	1.97	0.80
2:B:248:SER:OG	2:B:251:GLU:HG3	1.81	0.80
2:H:201:ILE:HD12	2:H:201:ILE:O	1.84	0.78
2:H:165:LEU:O	2:H:168:CYS:HB3	1.84	0.78
2:B:110:SER:HB3	2:B:118:ALA:HB1	1.66	0.77
1:G:20:ALA:O	1:G:24:VAL:HG22	1.85	0.76
2:H:147:ARG:HG3	2:H:182:GLN:HG3	1.69	0.75
2:D:318:LEU:HD23	2:D:318:LEU:N	2.04	0.73
2:B:112:LEU:HD23	2:B:112:LEU:N	2.05	0.72
1:E:93:ASP:OD1	1:E:93:ASP:N	2.22	0.72
2:B:178:ARG:CZ	2:B:178:ARG:HB3	2.19	0.72
2:H:188:ILE:HD11	2:H:190:LYS:CB	2.19	0.72
2:B:178:ARG:HB3	2:B:178:ARG:NH1	2.05	0.71
2:H:126:ALA:O	2:H:189:TRP:CE3	2.43	0.71
2:H:127:ASN:HA	2:H:189:TRP:HE3	1.54	0.71
2:D:161:VAL:HG23	2:D:166:LEU:HG	1.73	0.71
2:H:163:GLU:CA	2:H:166:LEU:HD12	2.17	0.71
2:H:319:LEU:N	2:H:319:LEU:HD12	2.05	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:288:ILE:HD12	2:D:288:ILE:C	2.16	0.71
2:F:131:PRO:O	2:F:287:GLN:NE2	2.23	0.71
2:H:188:ILE:HD12	2:H:188:ILE:C	2.15	0.71
2:H:163:GLU:O	2:H:167:LYS:N	2.23	0.71
1:G:27:ASP:OD2	1:G:64:THR:HB	1.90	0.70
1:E:103:ASN:OD1	1:E:144:PRO:HB2	1.91	0.70
2:F:112:LEU:HD12	2:F:112:LEU:C	2.15	0.70
1:A:27:ASP:N	1:A:27:ASP:OD1	2.21	0.69
1:G:9:ASN:HB2	1:G:37:GLU:HA	1.74	0.69
1:C:104:HIS:CE1	2:D:204:MET:HE2	2.29	0.68
1:A:21:VAL:HG13	1:A:30:ILE:HD13	1.76	0.68
2:H:313:ASN:OD1	2:H:314:THR:N	2.27	0.67
1:A:106:LEU:O	1:A:149:ARG:NH2	2.28	0.66
1:C:89:LEU:HB3	1:C:127:THR:HG21	1.78	0.66
2:B:178:ARG:HG3	2:B:178:ARG:HH11	1.61	0.66
1:E:50:ASP:CG	1:E:53:SER:HB2	2.21	0.65
2:H:163:GLU:O	2:H:166:LEU:N	2.29	0.65
2:D:202:GLN:O	2:D:203:THR:HB	1.96	0.64
1:E:103:ASN:OD1	1:E:144:PRO:CB	2.45	0.64
2:H:127:ASN:C	2:H:189:TRP:CZ3	2.75	0.64
2:B:178:ARG:HH11	2:B:178:ARG:CG	2.11	0.64
2:H:127:ASN:HA	2:H:189:TRP:CE3	2.33	0.64
2:H:188:ILE:HD12	2:H:189:TRP:N	2.14	0.63
2:F:107:ASP:OD1	2:F:108:LEU:N	2.25	0.63
2:H:188:ILE:HD12	2:H:189:TRP:C	2.23	0.63
1:A:42:VAL:HB	1:A:46:VAL:HG22	1.81	0.63
1:G:94:SER:HB2	1:G:97:SER:HB3	1.80	0.62
1:C:28:VAL:HG21	1:C:61:VAL:HG13	1.81	0.62
1:G:164:GLY:O	1:G:168:ASP:HB2	1.99	0.61
2:H:168:CYS:SG	2:H:169:PHE:CD2	2.94	0.61
2:H:139:HIS:CE1	2:H:143:CYS:SG	2.94	0.61
2:B:109:ASN:OD1	2:B:110:SER:N	2.33	0.61
2:B:310:ALA:O	2:B:314:THR:HG23	2.00	0.61
2:H:168:CYS:SG	2:H:169:PHE:CE2	2.94	0.61
2:H:168:CYS:SG	2:H:169:PHE:CZ	2.94	0.61
2:F:111:VAL:HG12	2:F:111:VAL:O	2.00	0.61
2:H:168:CYS:SG	2:H:169:PHE:CE1	2.94	0.61
2:D:133:LEU:HB3	2:D:287:GLN:OE1	2.01	0.60
2:D:152:VAL:O	2:D:153:HIS:HD2	1.85	0.60
2:H:164:ASN:OD1	2:H:165:LEU:N	2.32	0.60
2:H:319:LEU:HD12	2:H:319:LEU:H	1.67	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:41:HIS:HA	1:E:47:ILE:HG22	1.84	0.60
2:H:168:CYS:SG	2:H:169:PHE:CG	2.94	0.60
1:C:88:LYS:NZ	2:D:208:GLU:OE1	2.36	0.58
1:G:88:LYS:NZ	2:H:208:GLU:OE1	2.36	0.58
1:G:52:ASN:OD1	1:G:82:LEU:HB3	2.04	0.58
2:D:153:HIS:HB2	2:D:188:ILE:HG13	1.86	0.57
1:E:105:CYS:SG	2:F:205:CYS:SG	3.02	0.57
1:G:83:GLU:HG2	2:H:242:PHE:HZ	1.70	0.57
2:D:190:LYS:HD2	2:D:192:VAL:HG13	1.87	0.57
2:F:273:GLU:OE1	2:F:273:GLU:N	2.35	0.57
2:H:153:HIS:O	2:H:188:ILE:HA	2.05	0.57
1:A:72:LEU:HD23	2:B:112:LEU:HD13	1.87	0.56
1:C:103:ASN:OD1	1:C:144:PRO:HB2	2.05	0.56
2:H:168:CYS:SG	2:H:169:PHE:CD1	2.94	0.56
1:A:136:GLU:O	1:A:140:GLN:HG3	2.05	0.56
2:D:303:MET:O	2:D:307:GLU:HG3	2.06	0.56
2:F:112:LEU:CD1	2:F:113:GLY:N	2.63	0.56
2:D:259:MET:HE3	2:D:281:LEU:HD23	1.88	0.55
1:C:117:LEU:HD21	1:C:122:LEU:HD21	1.88	0.55
2:F:267:PRO:HG2	2:F:272:ASN:HA	1.87	0.55
2:F:108:LEU:O	2:F:112:LEU:HD23	2.06	0.55
2:F:140:ARG:HB2	2:F:311:PRO:HB3	1.89	0.55
2:D:161:VAL:CG2	2:D:166:LEU:HG	2.37	0.54
2:H:127:ASN:CA	2:H:189:TRP:CE3	2.90	0.54
1:E:50:ASP:OD1	1:E:53:SER:HB2	2.08	0.54
2:H:310:ALA:HB3	2:H:311:PRO:HD3	1.90	0.54
1:A:73:MET:SD	2:B:199:PHE:CE2	3.01	0.54
2:B:293:VAL:HG13	2:B:295:VAL:HG23	1.89	0.54
2:F:240:ALA:HB2	2:F:281:LEU:HG	1.88	0.54
2:H:149:LEU:HD22	2:H:181:TYR:CB	2.38	0.54
1:A:21:VAL:HG13	1:A:30:ILE:HG21	1.90	0.54
2:B:251:GLU:O	2:B:255:VAL:HG23	2.08	0.54
2:H:133:LEU:HD22	2:H:137:VAL:HG23	1.90	0.54
1:E:164:GLY:O	1:E:168:ASP:HB2	2.08	0.53
2:H:151:THR:HG22	2:H:152:VAL:N	2.23	0.53
2:B:260:ASN:CG	2:B:296:PRO:HB3	2.34	0.53
2:H:126:ALA:O	2:H:189:TRP:HE3	1.90	0.53
2:D:223:GLN:OE1	2:D:223:GLN:N	2.41	0.53
2:F:112:LEU:HD12	2:F:113:GLY:CA	2.38	0.53
2:D:292:SER:O	2:D:292:SER:OG	2.26	0.53
1:A:59:ALA:HB2	1:A:119:LEU:HD21	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:85:SER:O	1:C:90:SER:OG	2.28	0.52
2:D:196:GLN:HG2	2:D:208:GLU:HG2	1.92	0.52
2:H:215:ARG:O	2:H:219:SER:OG	2.25	0.52
2:B:133:LEU:O	2:B:137:VAL:HG23	2.09	0.52
2:H:123:VAL:HG12	2:H:186:THR:HB	1.91	0.52
2:H:152:VAL:CG1	2:H:187:LEU:HD23	2.35	0.52
1:E:79:ASP:HB3	2:F:212:ASN:OD1	2.10	0.52
2:B:178:ARG:NH1	2:B:178:ARG:CB	2.73	0.52
2:F:141:LEU:HD23	2:F:311:PRO:HG2	1.92	0.52
2:H:209:GLY:O	2:H:213:ILE:HG13	2.10	0.51
2:D:164:ASN:ND2	2:D:318:LEU:O	2.44	0.51
1:C:107:SER:CB	1:C:146:HIS:CE1	2.94	0.51
1:E:140:GLN:O	1:E:140:GLN:HG3	2.10	0.50
2:F:108:LEU:HG	2:F:110:SER:H	1.77	0.50
2:D:128:PRO:HD3	2:D:189:TRP:HE3	1.75	0.50
1:G:2:ALA:HB2	1:G:29:SER:OG	2.12	0.50
2:H:223:GLN:O	2:H:224:LYS:HD3	2.12	0.50
2:D:148:VAL:HG22	2:D:183:LEU:HB3	1.93	0.50
2:D:288:ILE:C	2:D:288:ILE:CD1	2.85	0.49
2:H:154:THR:HG22	2:H:155:HIS:N	2.27	0.49
1:G:89:LEU:HB3	1:G:127:THR:HG21	1.95	0.49
1:C:107:SER:HA	1:C:146:HIS:ND1	2.28	0.48
2:B:194:LYS:HD2	2:B:208:GLU:HB3	1.93	0.48
2:F:112:LEU:C	2:F:112:LEU:CD1	2.86	0.48
2:B:240:ALA:HB2	2:B:281:LEU:HG	1.95	0.48
2:H:139:HIS:C	2:H:139:HIS:HD1	2.22	0.48
2:B:123:VAL:HG22	2:B:186:THR:HB	1.95	0.48
2:F:266:SER:HB2	2:F:268:TRP:O	2.13	0.48
2:D:147:ARG:CD	2:D:180:ASP:O	2.61	0.48
1:C:93:ASP:OD1	1:C:93:ASP:N	2.46	0.48
2:D:158:VAL:CG1	2:D:159:LYS:N	2.77	0.48
2:H:127:ASN:O	2:H:131:PRO:HA	2.12	0.48
1:A:108:LEU:HD11	2:B:204:MET:HE1	1.96	0.48
2:D:152:VAL:C	2:D:153:HIS:HD2	2.23	0.47
2:D:158:VAL:HG12	2:D:159:LYS:N	2.30	0.47
2:H:201:ILE:HD12	2:H:201:ILE:C	2.40	0.47
2:F:164:ASN:OD1	2:F:164:ASN:N	2.47	0.47
1:G:96:THR:HA	1:G:99:ILE:HG22	1.97	0.47
2:H:127:ASN:C	2:H:189:TRP:HZ3	2.23	0.46
1:C:76:THR:HG22	2:D:207:ILE:HG12	1.98	0.46
2:B:260:ASN:OD1	2:B:296:PRO:CB	2.63	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:152:VAL:HG22	2:H:169:PHE:CE2	2.49	0.46
1:E:93:ASP:O	1:E:94:SER:HB2	2.14	0.46
1:G:2:ALA:CB	1:G:29:SER:OG	2.62	0.46
2:B:178:ARG:NH1	2:B:178:ARG:CG	2.72	0.46
2:H:164:ASN:CG	2:H:165:LEU:N	2.73	0.46
2:H:163:GLU:O	2:H:164:ASN:C	2.58	0.46
2:H:139:HIS:C	2:H:139:HIS:ND1	2.73	0.46
2:H:125:ASN:CB	2:H:196:GLN:HG2	2.46	0.46
2:H:128:PRO:HA	2:H:131:PRO:HG3	1.98	0.45
2:H:285:LEU:HD23	2:H:285:LEU:HA	1.75	0.45
1:A:8:VAL:HG11	1:A:18:LEU:HD21	1.97	0.45
2:B:178:ARG:CZ	2:B:178:ARG:CB	2.91	0.45
2:D:200:SER:HB2	2:D:202:GLN:HB3	1.96	0.45
1:G:99:ILE:HD11	1:G:147:VAL:HG11	1.97	0.45
2:H:126:ALA:O	2:H:189:TRP:HA	2.17	0.45
2:D:209:GLY:O	2:D:213:ILE:HG13	2.17	0.45
2:H:147:ARG:NH1	2:H:182:GLN:HG2	2.31	0.45
2:D:161:VAL:HG23	2:D:166:LEU:CG	2.45	0.45
2:H:319:LEU:N	2:H:319:LEU:CD1	2.77	0.45
1:A:30:ILE:O	1:A:30:ILE:HG23	2.16	0.45
2:B:241:ILE:HG22	2:B:242:PHE:CD1	2.52	0.45
1:C:110:THR:HG23	1:E:110:THR:HG23	1.98	0.45
2:B:164:ASN:OD1	2:B:164:ASN:N	2.39	0.45
1:A:107:SER:OG	1:A:108:LEU:HG	2.16	0.45
2:H:126:ALA:C	2:H:189:TRP:CE3	2.94	0.45
1:A:73:MET:SD	2:B:199:PHE:HE2	2.40	0.44
1:A:17:ALA:O	1:A:21:VAL:HG23	2.17	0.44
1:A:108:LEU:HD23	1:G:145:VAL:HG13	1.98	0.44
2:D:282:TRP:CZ2	2:D:307:GLU:HG2	2.52	0.44
1:E:99:ILE:HD11	1:E:147:VAL:HG11	1.99	0.44
1:C:4:LEU:HD12	1:C:4:LEU:HA	1.82	0.44
2:H:147:ARG:HG3	2:H:182:GLN:CG	2.45	0.44
2:B:303:MET:O	2:B:307:GLU:HG3	2.18	0.44
2:D:122:ILE:HD12	2:D:183:LEU:HD21	1.99	0.44
2:D:147:ARG:HD3	2:D:180:ASP:O	2.18	0.44
2:D:161:VAL:CG2	2:D:166:LEU:CG	2.95	0.44
2:H:164:ASN:OD1	2:H:164:ASN:N	2.50	0.44
1:A:143:ALA:HA	1:A:144:PRO:HD3	1.87	0.44
1:E:27:ASP:CG	1:E:64:THR:OG1	2.61	0.44
1:A:43:SER:OG	1:A:46:VAL:HG13	2.17	0.44
1:C:10:SER:OG	1:C:34:GLU:OE1	2.29	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:163:GLU:HA	2:H:166:LEU:CD1	2.26	0.43
1:A:79:ASP:HB3	2:B:212:ASN:OD1	2.17	0.43
1:E:89:LEU:HB3	1:E:127:THR:HG21	1.99	0.43
2:F:310:ALA:HA	2:F:313:ASN:ND2	2.33	0.43
2:B:285:LEU:HD13	2:B:303:MET:HE2	2.00	0.43
2:D:163:GLU:O	2:D:167:LYS:N	2.51	0.43
2:D:259:MET:HE3	2:D:281:LEU:CD2	2.48	0.43
2:F:307:GLU:O	2:F:313:ASN:OD1	2.37	0.43
2:B:260:ASN:CG	2:B:296:PRO:CB	2.92	0.43
2:H:168:CYS:SG	2:H:169:PHE:N	2.92	0.43
2:B:168:CYS:HB2	2:B:318:LEU:HD23	2.00	0.43
2:D:147:ARG:HD2	2:D:180:ASP:O	2.18	0.43
1:C:99:ILE:HD12	1:C:99:ILE:HA	1.89	0.43
1:E:73:MET:HB3	1:E:73:MET:HE3	1.63	0.43
1:G:84:PHE:HE1	1:G:89:LEU:HD22	1.84	0.43
2:H:224:LYS:HD3	2:H:224:LYS:HA	1.71	0.43
1:G:125:TRP:CH2	1:G:129:LYS:HD2	2.54	0.42
2:B:260:ASN:OD1	2:B:296:PRO:HB3	2.19	0.42
2:D:138:LEU:HD13	2:D:217:LEU:HB2	2.01	0.42
2:F:169:PHE:HZ	2:F:185:PHE:HE1	1.67	0.42
2:F:280:VAL:O	2:F:284:VAL:HG23	2.19	0.42
2:H:310:ALA:O	2:H:313:ASN:OD1	2.37	0.42
2:F:241:ILE:HG22	2:F:242:PHE:CD1	2.54	0.42
2:B:260:ASN:OD1	2:B:296:PRO:HB2	2.19	0.42
1:E:89:LEU:HD21	1:E:128:LEU:HD13	2.02	0.42
2:B:110:SER:HB3	2:B:118:ALA:CB	2.44	0.42
2:B:107:ASP:O	2:B:108:LEU:HB3	2.20	0.42
2:F:169:PHE:HZ	2:F:185:PHE:CE1	2.37	0.42
1:C:134:TRP:CH2	1:C:147:VAL:HG12	2.55	0.42
2:H:127:ASN:CA	2:H:189:TRP:CZ3	3.03	0.42
1:A:128:LEU:HD12	1:A:128:LEU:HA	1.85	0.41
1:C:13:PRO:HA	1:C:14:PRO:HD2	1.91	0.41
1:A:107:SER:HA	1:A:146:HIS:CE1	2.55	0.41
1:G:139:LYS:C	1:G:141:LYS:H	2.28	0.41
2:D:295:VAL:HA	2:D:296:PRO:HD3	1.76	0.41
1:A:3:THR:HB	1:A:4:LEU:H	1.52	0.41
1:A:107:SER:HA	1:A:146:HIS:ND1	2.36	0.41
1:C:104:HIS:NE2	2:D:204:MET:CE	2.76	0.41
1:E:103:ASN:OD1	1:E:144:PRO:HB3	2.17	0.41
1:G:109:ARG:NH1	1:G:112:LEU:O	2.54	0.41
2:H:152:VAL:HG13	2:H:187:LEU:CD2	2.41	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:19:LEU:HD11	1:A:125:TRP:CZ3	2.56	0.41
2:D:318:LEU:HD23	2:D:318:LEU:H	1.83	0.41
1:G:13:PRO:HA	1:G:14:PRO:HD3	1.98	0.41
2:H:229:ASN:O	2:H:233:ILE:HG13	2.21	0.41
2:D:138:LEU:CD1	2:D:214:ALA:HA	2.50	0.41
1:C:108:LEU:HD23	1:C:108:LEU:HA	1.89	0.41
2:D:269:LEU:HD11	2:D:281:LEU:HD23	2.02	0.41
1:G:89:LEU:HD12	1:G:89:LEU:HA	1.91	0.41
2:B:316:LEU:HD12	2:B:316:LEU:HA	1.90	0.41
1:G:84:PHE:CE1	1:G:89:LEU:HD22	2.56	0.40
2:B:309:LEU:HA	2:B:309:LEU:HD23	1.91	0.40
2:D:152:VAL:C	2:D:153:HIS:CD2	3.00	0.40
2:B:203:THR:OG1	2:B:204:MET:N	2.55	0.40
1:C:103:ASN:CG	1:C:144:PRO:HB2	2.46	0.40
1:E:131:ASN:OD1	1:E:133:ALA:HB3	2.21	0.40
1:G:73:MET:O	1:G:77:GLU:HG3	2.22	0.40
2:H:240:ALA:O	2:H:284:VAL:HG21	2.21	0.40
2:D:152:VAL:O	2:D:153:HIS:CD2	2.70	0.40
2:D:248:SER:HB2	2:D:251:GLU:H	1.87	0.40
2:H:126:ALA:C	2:H:189:TRP:CZ3	2.99	0.40
2:H:215:ARG:HH11	2:H:215:ARG:HD2	1.72	0.40
1:A:149:ARG:HG2	1:A:149:ARG:NH1	2.37	0.40
1:E:142:LYS:O	1:E:142:LYS:CG	2.70	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	166/175 (95%)	162 (98%)	4 (2%)	0	100	100
1	C	168/175 (96%)	161 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	165/175 (94%)	162 (98%)	3 (2%)	0	100	100
1	G	166/175 (95%)	158 (95%)	8 (5%)	0	100	100
2	B	200/240 (83%)	194 (97%)	6 (3%)	0	100	100
2	D	189/240 (79%)	182 (96%)	7 (4%)	0	100	100
2	F	193/240 (80%)	189 (98%)	4 (2%)	0	100	100
2	H	183/240 (76%)	174 (95%)	9 (5%)	0	100	100
All	All	1430/1660 (86%)	1382 (97%)	48 (3%)	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	140/151 (93%)	128 (91%)	12 (9%)	10	22
1	C	144/151 (95%)	132 (92%)	12 (8%)	10	23
1	E	144/151 (95%)	126 (88%)	18 (12%)	4	9
1	G	138/151 (91%)	132 (96%)	6 (4%)	26	51
2	B	167/211 (79%)	153 (92%)	14 (8%)	10	23
2	D	161/211 (76%)	148 (92%)	13 (8%)	11	24
2	F	168/211 (80%)	155 (92%)	13 (8%)	12	27
2	H	152/211 (72%)	132 (87%)	20 (13%)	4	8
All	All	1214/1448 (84%)	1106 (91%)	108 (9%)	9	20

All (108) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	22	GLU
1	A	27	ASP
1	A	30	ILE
1	A	46	VAL

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Mol	Chain	Res	Type
1	A	51	VAL
1	A	63	THR
1	A	64	THR
1	A	70	SER
1	A	99	ILE
1	A	108	LEU
1	A	148	LYS
1	A	149	ARG
2	B	112	LEU
2	B	140	ARG
2	B	142	LEU
2	B	150	SER
2	B	156	SER
2	B	164	ASN
2	B	178	ARG
2	B	198	LYS
2	B	249	SER
2	B	266	SER
2	B	281	LEU
2	B	288	ILE
2	B	293	VAL
2	B	296	PRO
1	C	51	VAL
1	C	61	VAL
1	C	68	TYR
1	C	70	SER
1	C	89	LEU
1	C	90	SER
1	C	92	CYS
1	C	93	ASP
1	C	94	SER
1	C	139	LYS
1	C	165	THR
1	C	170	SER
2	D	111	VAL
2	D	119	LEU
2	D	150	SER
2	D	154	THR
2	D	188	ILE
2	D	201	ILE
2	D	203	THR
2	D	205	CYS

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Mol	Chain	Res	Type
2	D	229	ASN
2	D	248	SER
2	D	258	SER
2	D	287	GLN
2	D	318	LEU
1	E	36	LYS
1	E	37	GLU
1	E	43	SER
1	E	53	SER
1	E	61	VAL
1	E	63	THR
1	E	68	TYR
1	E	70	SER
1	E	73	MET
1	E	93	ASP
1	E	94	SER
1	E	107	SER
1	E	116	SER
1	E	139	LYS
1	E	141	LYS
1	E	142	LYS
1	E	158	GLN
1	E	169	VAL
2	F	135	LEU
2	F	150	SER
2	F	156	SER
2	F	201	ILE
2	F	204	MET
2	F	205	CYS
2	F	207	ILE
2	F	266	SER
2	F	281	LEU
2	F	288	ILE
2	F	292	SER
2	F	313	ASN
2	F	317	LYS
1	G	4	LEU
1	G	30	ILE
1	G	61	VAL
1	G	89	LEU
1	G	108	LEU
1	G	162	SER

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Mol	Chain	Res	Type
2	H	112	LEU
2	H	130	SER
2	H	132	PRO
2	H	133	LEU
2	H	138	LEU
2	H	139	HIS
2	H	141	LEU
2	H	149	LEU
2	H	155	HIS
2	H	185	PHE
2	H	187	LEU
2	H	188	ILE
2	H	192	VAL
2	H	201	ILE
2	H	202	GLN
2	H	205	CYS
2	H	224	LYS
2	H	232	LEU
2	H	241	ILE
2	H	287	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	115	ASN
1	C	135	GLN
2	D	139	HIS
2	D	153	HIS
2	D	202	GLN
2	D	229	ASN
2	D	286	GLN
1	E	104	HIS
1	E	146	HIS
2	F	145	HIS
2	F	286	GLN
1	G	41	HIS
1	G	100	ASN
1	G	103	ASN
1	G	115	ASN
1	G	137	GLN
2	H	153	HIS
2	H	300	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 oligosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

2 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	B	1321	-	5,5,5	0.25	0	5,5,5	0.50	0
3	GOL	D	1321	-	5,5,5	0.25	0	5,5,5	0.87	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
3	GOL	B	1321	-	-	2/4/4/4	-
3	GOL	D	1321	-	-	4/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	1321	GOL	C1-C2-C3-O3
3	B	1321	GOL	O2-C2-C3-O3
3	D	1321	GOL	O1-C1-C2-O2
3	D	1321	GOL	C1-C2-C3-O3
3	D	1321	GOL	O1-C1-C2-C3
3	D	1321	GOL	O2-C2-C3-O3

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

### 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	168/175 (96%)	0.25	1 (0%) 85 83	42, 69, 118, 145	0
1	C	170/175 (97%)	0.10	3 (1%) 67 63	30, 58, 101, 143	0
1	E	167/175 (95%)	-0.02	2 (1%) 76 73	25, 55, 101, 120	0
1	G	168/175 (96%)	0.31	4 (2%) 59 54	48, 71, 106, 152	0
2	B	204/240 (85%)	0.32	11 (5%) 31 26	22, 72, 127, 153	2 (0%)
2	D	196/240 (81%)	0.51	12 (6%) 27 22	44, 74, 130, 166	1 (0%)
2	F	201/240 (83%)	0.17	9 (4%) 38 32	38, 57, 111, 144	0
2	H	193/240 (80%)	1.04	31 (16%) 4 3	49, 91, 138, 157	0
All	All	1467/1660 (88%)	0.35	73 (4%) 34 28	22, 68, 125, 166	3 (0%)

All (73) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	2	ALA	8.0
2	H	189	TRP	6.4
2	H	204	MET	5.8
2	H	119	LEU	5.8
2	H	126	ALA	5.3
1	E	27	ASP	4.5
2	H	118	ALA	4.5
2	F	113	GLY	4.5
2	H	169	PHE	4.5
2	D	118	ALA	4.4
2	B	140	ARG	4.4
2	F	201	ILE	4.0
2	H	127	ASN	4.0
2	D	119	LEU	3.8
2	F	111	VAL	3.8
1	G	137	GLN	3.7

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Mol	Chain	Res	Type	RSRZ
2	D	145[A]	HIS	3.6
2	H	145	HIS	3.5
2	H	289	GLY	3.4
2	H	185	PHE	3.4
2	H	155	HIS	3.3
2	D	180	ASP	3.3
2	B	116	TYR	3.2
2	D	158	VAL	3.2
1	E	105	CYS	3.1
2	H	168	CYS	3.1
1	G	3	THR	3.0
2	B	293	VAL	3.0
2	D	181	TYR	3.0
2	H	203	THR	3.0
2	F	246	GLU	3.0
1	C	3	THR	2.9
2	B	294	THR	2.8
2	D	144	GLU	2.8
1	C	171	THR	2.7
2	H	128	PRO	2.7
2	H	125	ASN	2.7
2	B	113	GLY	2.6
2	B	111	VAL	2.6
2	F	120	LYS	2.5
2	B	273	GLU	2.5
2	D	111	VAL	2.5
2	H	124	ILE	2.4
2	H	187	LEU	2.4
1	A	170	SER	2.4
2	D	179	GLN	2.4
2	B	119	LEU	2.4
2	H	190	LYS	2.4
2	H	201	ILE	2.3
2	H	193	PRO	2.3
2	H	181	TYR	2.3
2	F	107	ASP	2.3
2	F	108	LEU	2.3
2	F	112	LEU	2.3
2	D	112	LEU	2.3
1	G	2	ALA	2.3
2	H	209	GLY	2.3
2	H	208	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
2	B	118	ALA	2.2
2	B	110	SER	2.2
2	H	135	LEU	2.2
2	D	199	PHE	2.2
2	H	288	ILE	2.2
2	B	181[A]	TYR	2.2
1	G	25	LYS	2.2
2	H	140	ARG	2.2
2	H	148	VAL	2.2
2	H	163	GLU	2.1
2	F	205	CYS	2.1
2	H	223	GLN	2.1
2	H	129	ALA	2.0
2	D	308	ASN	2.0
2	H	318	LEU	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 oligosaccharides in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
3	GOL	D	1321	6/6	0.82	0.13	97,106,110,112	0
3	GOL	B	1321	6/6	0.89	0.23	102,109,110,112	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.