Full wwPDB X-ray Structure Validation Report (i)

Dec 16, 2023 – 10:48 pm GMT

PDB ID	:	2Y84
Title	:	DntR Inducer Binding Domain
Authors	:	Devesse, L.; Smirnova, I.; Lonneborg, R.; Kapp, U.; Brzezinski, P.; Leonard, G.A.; Dian, C.
Deposited on	:	2011-02-03
Resolution	:	2.80 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 (i) 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 (i)) were used in the production of this report:

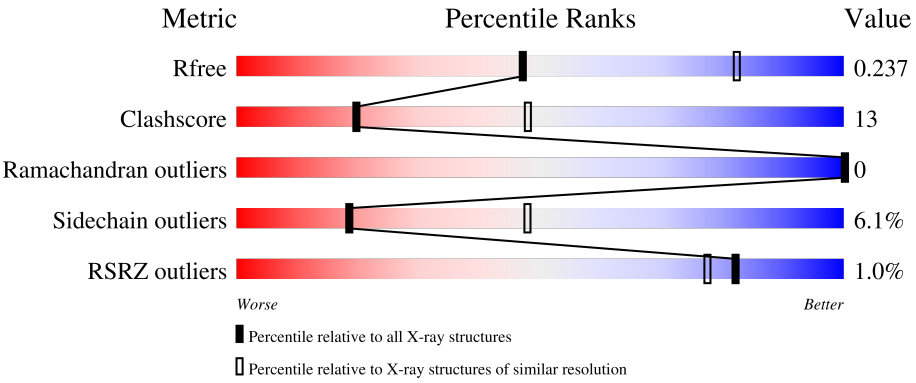
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)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

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 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	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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 <=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	228	65% 28% • 7%
1	B	228	70% 23% • 7%
1	C	228	67% 26% • 7%
1	D	228	% 64% 27% • 7%
1	E	228	62% 28% • 7%

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Mol	Chain	Length	Quality of chain
1	F	228	2% 64% 26% 6%
1	G	228	2% 62% 29% 7%
1	H	228	2% 68% 23% 7%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 13607 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 LYSR-TYPE REGULATORY PROTEIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	213	Total	C	N	O	S	0	4	0
			1717	1103	306	297	11			
1	B	213	Total	C	N	O	S	0	0	0
			1680	1082	296	291	11			
1	C	213	Total	C	N	O	S	0	0	0
			1672	1076	299	286	11			
1	D	212	Total	C	N	O	S	0	1	0
			1679	1081	299	288	11			
1	E	212	Total	C	N	O	S	0	1	0
			1690	1088	302	289	11			
1	F	214	Total	C	N	O	S	0	0	0
			1678	1081	293	293	11			
1	G	213	Total	C	N	O	S	0	1	0
			1694	1089	303	291	11			
1	H	211	Total	C	N	O	S	0	0	0
			1669	1076	296	286	11			

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	80	MET	LEU	engineered mutation	UNP Q7WT50
A	302	HIS	-	expression tag	UNP Q7WT50
A	303	HIS	-	expression tag	UNP Q7WT50
A	304	HIS	-	expression tag	UNP Q7WT50
A	305	HIS	-	expression tag	UNP Q7WT50
A	306	HIS	-	expression tag	UNP Q7WT50
A	307	HIS	-	expression tag	UNP Q7WT50
B	80	MET	LEU	engineered mutation	UNP Q7WT50
B	302	HIS	-	expression tag	UNP Q7WT50
B	303	HIS	-	expression tag	UNP Q7WT50
B	304	HIS	-	expression tag	UNP Q7WT50
B	305	HIS	-	expression tag	UNP Q7WT50
B	306	HIS	-	expression tag	UNP Q7WT50

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Chain	Residue	Modelled	Actual	Comment	Reference
B	307	HIS	-	expression tag	UNP Q7WT50
C	80	MET	LEU	engineered mutation	UNP Q7WT50
C	302	HIS	-	expression tag	UNP Q7WT50
C	303	HIS	-	expression tag	UNP Q7WT50
C	304	HIS	-	expression tag	UNP Q7WT50
C	305	HIS	-	expression tag	UNP Q7WT50
C	306	HIS	-	expression tag	UNP Q7WT50
C	307	HIS	-	expression tag	UNP Q7WT50
D	80	MET	LEU	engineered mutation	UNP Q7WT50
D	302	HIS	-	expression tag	UNP Q7WT50
D	303	HIS	-	expression tag	UNP Q7WT50
D	304	HIS	-	expression tag	UNP Q7WT50
D	305	HIS	-	expression tag	UNP Q7WT50
D	306	HIS	-	expression tag	UNP Q7WT50
D	307	HIS	-	expression tag	UNP Q7WT50
E	80	MET	LEU	engineered mutation	UNP Q7WT50
E	302	HIS	-	expression tag	UNP Q7WT50
E	303	HIS	-	expression tag	UNP Q7WT50
E	304	HIS	-	expression tag	UNP Q7WT50
E	305	HIS	-	expression tag	UNP Q7WT50
E	306	HIS	-	expression tag	UNP Q7WT50
E	307	HIS	-	expression tag	UNP Q7WT50
F	80	MET	LEU	engineered mutation	UNP Q7WT50
F	302	HIS	-	expression tag	UNP Q7WT50
F	303	HIS	-	expression tag	UNP Q7WT50
F	304	HIS	-	expression tag	UNP Q7WT50
F	305	HIS	-	expression tag	UNP Q7WT50
F	306	HIS	-	expression tag	UNP Q7WT50
F	307	HIS	-	expression tag	UNP Q7WT50
G	80	MET	LEU	engineered mutation	UNP Q7WT50
G	302	HIS	-	expression tag	UNP Q7WT50
G	303	HIS	-	expression tag	UNP Q7WT50
G	304	HIS	-	expression tag	UNP Q7WT50
G	305	HIS	-	expression tag	UNP Q7WT50
G	306	HIS	-	expression tag	UNP Q7WT50
G	307	HIS	-	expression tag	UNP Q7WT50
H	80	MET	LEU	engineered mutation	UNP Q7WT50
H	302	HIS	-	expression tag	UNP Q7WT50
H	303	HIS	-	expression tag	UNP Q7WT50
H	304	HIS	-	expression tag	UNP Q7WT50
H	305	HIS	-	expression tag	UNP Q7WT50
H	306	HIS	-	expression tag	UNP Q7WT50

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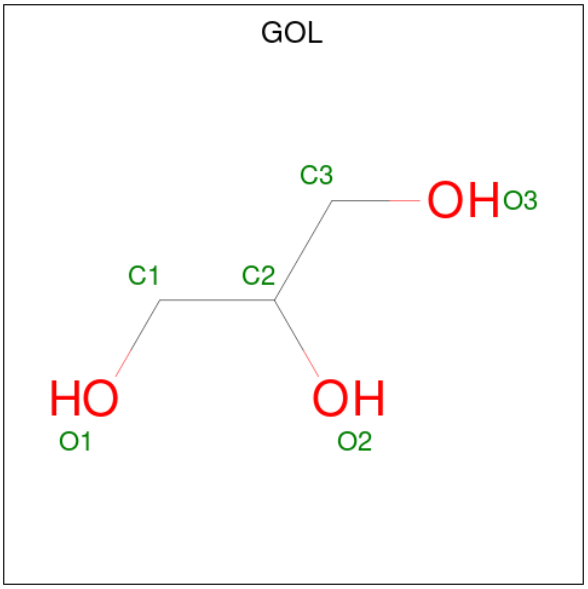
Chain	Residue	Modelled	Actual	Comment	Reference
H	307	HIS	-	expression tag	UNP Q7WT50

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	D	1	Total C O 6 3 3	0	0
2	D	1	Total C O 6 3 3	0	0
2	E	1	Total C O 6 3 3	0	0
2	H	1	Total C O 6 3 3	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	13	Total O 13 13	0	0
3	B	16	Total O 16 16	0	0
3	C	18	Total O 18 18	0	0
3	D	10	Total O 10 10	0	0
3	E	20	Total O 20 20	0	0

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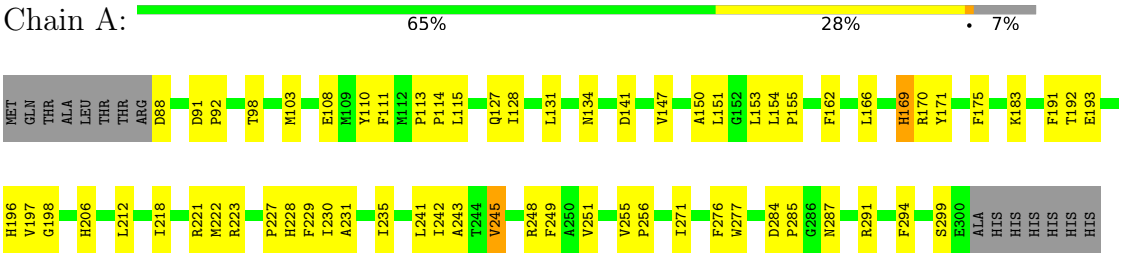
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	F	8	Total O 8 8	0	0
3	G	10	Total O 10 10	0	0
3	H	9	Total O 9 9	0	0

3 Residue-property plots

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.

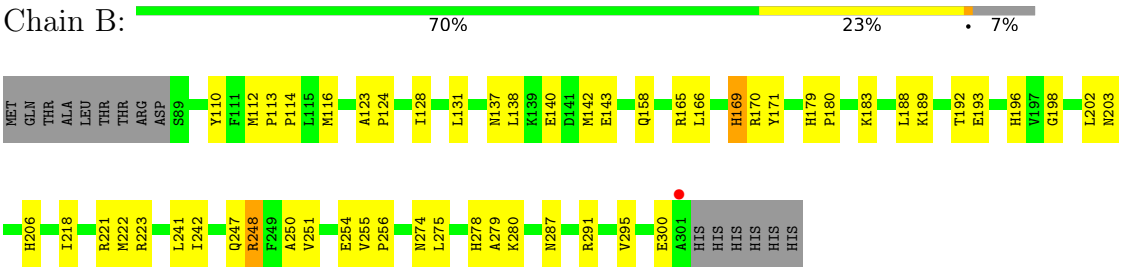
• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

Chain A:



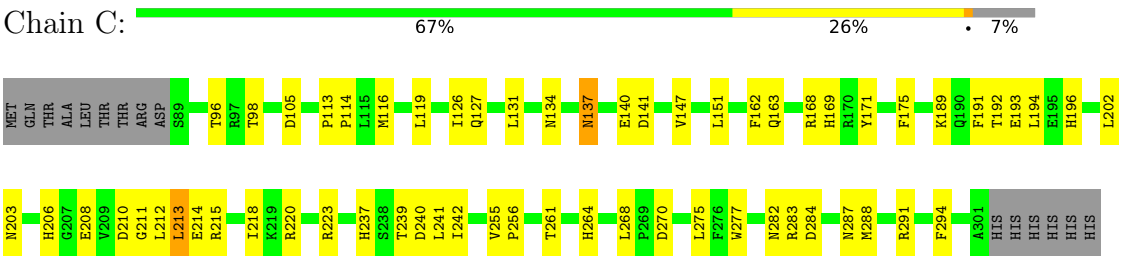
• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

Chain B:



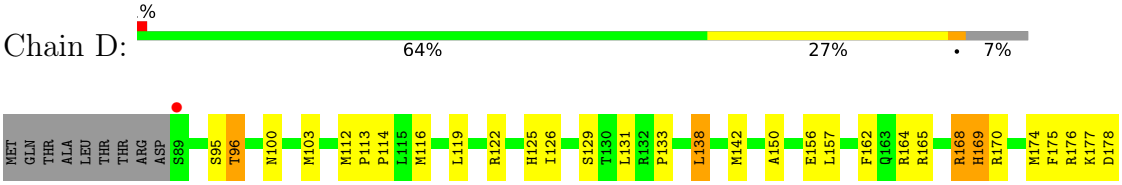
• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

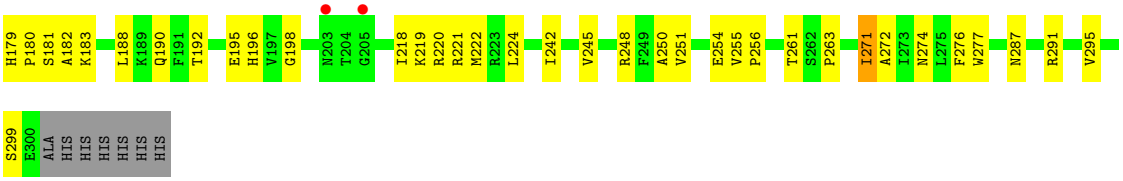
Chain C:



• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

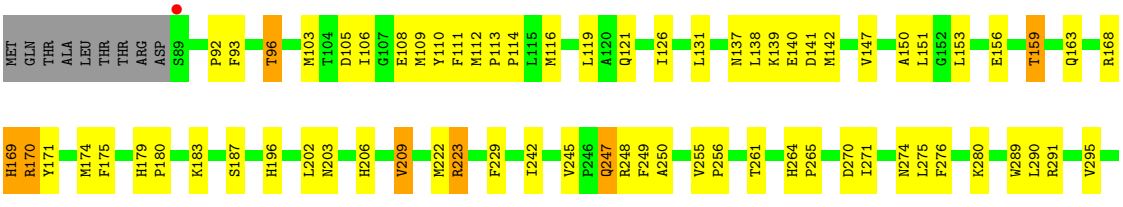
Chain D:

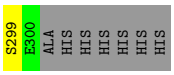




• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

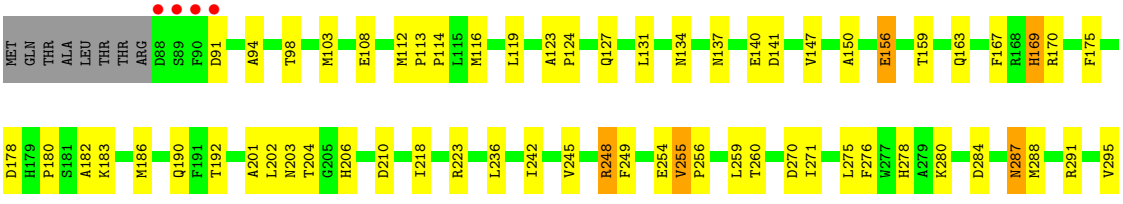
Chain E:





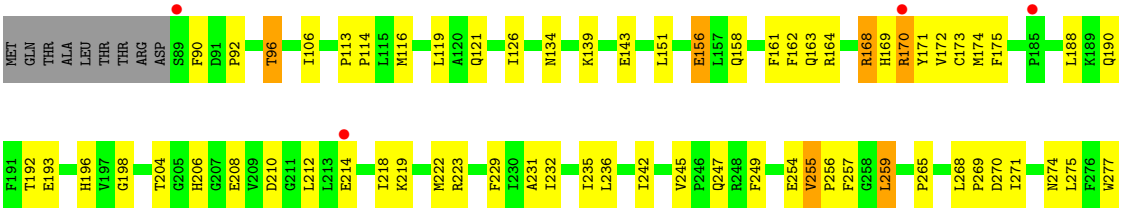
• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

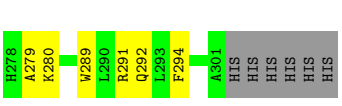
Chain F:



• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

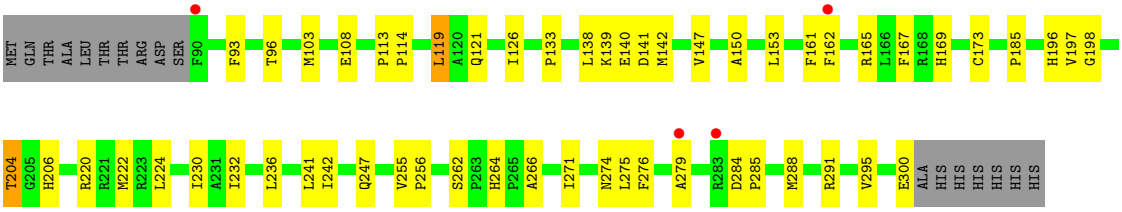
Chain G:





• Molecule 1: LYSR-TYPE REGULATORY PROTEIN

Chain H:


MET GLN THR ALA LEU THR THR ARG ASP SER F90 F93 T96 M103 E108 P113 P114 L119 A120 Q121 I126 P133 L138 K139 E140 D141 M142 V147 A150 L153 F161 F162 R165 L166 F167 R168 H169 C173 P185 H196 V197 G198
T204 G205 H206 R220 R221 M222 R223 L224 I230 A231 I232 L236 L241 I242 Q247 V255 P256 S262 P263 H264 P265 A266 I271 M274 L275 F276 A279 R283 D284 P285 M288 R291 V296 E300 ALA HIS HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	81.20Å 111.50Å 213.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.23 – 2.80 48.23 – 2.80	Depositor EDS
% Data completeness (in resolution range)	99.3 (48.23-2.80) 99.3 (48.23-2.80)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.13 (at 2.81Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.218 , 0.244 0.208 , 0.237	Depositor DCC
R_{free} test set	2437 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å^2)	36.5	Xtriage
Anisotropy	0.274	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 40.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	13607	wwPDB-VP
Average B, all atoms (Å^2)	31.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.32% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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	0.22	0/1772	0.41	0/2402
1	B	0.23	0/1726	0.42	0/2343
1	C	0.24	0/1718	0.43	0/2333
1	D	0.24	0/1728	0.44	0/2345
1	E	0.28	0/1736	0.45	0/2353
1	F	0.22	0/1724	0.43	0/2342
1	G	0.22	0/1741	0.42	0/2361
1	H	0.24	0/1715	0.43	0/2327
All	All	0.24	0/13860	0.43	0/18806

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

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	1717	0	1715	36	0
1	B	1680	0	1665	40	0
1	C	1672	0	1652	42	0
1	D	1679	0	1672	56	0
1	E	1690	0	1689	53	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	1678	0	1652	43	0
1	G	1694	0	1692	53	0
1	H	1669	0	1661	40	0
2	D	12	0	16	0	0
2	E	6	0	8	0	0
2	H	6	0	8	0	0
3	A	13	0	0	0	0
3	B	16	0	0	0	0
3	C	18	0	0	0	0
3	D	10	0	0	1	0
3	E	20	0	0	0	0
3	F	8	0	0	2	0
3	G	10	0	0	0	0
3	H	9	0	0	0	0
All	All	13607	0	13430	342	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 13.

All (342) 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:G:170:ARG:HG3	1:G:170:ARG:HH11	1.31	0.93
1:F:255:VAL:HG13	1:F:256:PRO:HD3	1.52	0.90
1:F:170:ARG:HG2	1:F:270:ASP:HB3	1.54	0.88
1:B:300:GLU:O	1:B:300:GLU:HG3	1.75	0.86
1:G:168:ARG:HH11	1:G:270:ASP:HB2	1.42	0.84
1:G:188:LEU:HD12	1:G:265:PRO:HB2	1.59	0.82
1:B:198:GLY:HA3	1:B:222:MET:HE1	1.62	0.81
1:D:168:ARG:HH11	1:D:168:ARG:CG	1.95	0.80
1:C:277:TRP:CD2	1:C:291:ARG:HD2	2.19	0.78
1:D:165:ARG:HE	1:D:272:ALA:HB1	1.48	0.77
1:D:168:ARG:HH11	1:D:168:ARG:CB	2.01	0.73
1:D:168:ARG:HH11	1:D:168:ARG:HG2	1.53	0.73
1:F:204:THR:HG23	1:F:206:HIS:H	1.53	0.73
1:G:143:GLU:CG	1:G:143:GLU:OE1	2.38	0.71
1:G:143:GLU:CG	1:G:143:GLU:OE2	2.38	0.71
1:C:168:ARG:HH22	1:F:183:LYS:HD2	1.57	0.70
1:C:137:ASN:HB3	1:C:140:GLU:HB2	1.74	0.69
1:C:282:ASN:HD22	1:G:121:GLN:HE21	1.38	0.69
1:A:198:GLY:HA3	1:A:222:MET:HE1	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:204:THR:HG22	1:H:206:HIS:H	1.58	0.68
1:F:275:LEU:HD21	1:F:291:ARG:HB2	1.75	0.68
1:F:201:ALA:O	1:F:204:THR:HG22	1.95	0.67
1:A:113:PRO:HB2	1:A:114:PRO:HD3	1.76	0.67
1:E:202:LEU:HG	1:E:203:ASN:HD22	1.60	0.67
1:H:274:ASN:HB2	1:H:276:PHE:CE1	2.29	0.67
1:B:202:LEU:HG	1:B:203:ASN:OD1	1.95	0.66
1:C:277:TRP:CE3	1:C:291:ARG:HD2	2.30	0.66
1:G:90:PHE:O	1:G:92:PRO:HD3	1.96	0.66
1:H:113:PRO:HB2	1:H:114:PRO:HD3	1.76	0.66
1:E:169:HIS:CD2	1:E:248:ARG:HB2	2.31	0.66
1:C:288:MET:HG2	1:C:291:ARG:NH2	2.12	0.65
1:B:137:ASN:ND2	1:B:140:GLU:HB2	2.11	0.65
1:C:202:LEU:HG	1:C:203:ASN:ND2	2.12	0.65
1:F:113:PRO:HB2	1:F:114:PRO:HD3	1.78	0.65
1:F:167:PHE:HB3	1:F:300:GLU:HB2	1.78	0.65
1:F:201:ALA:HB1	1:F:204:THR:HG21	1.78	0.65
1:G:113:PRO:HB2	1:G:114:PRO:HD3	1.77	0.65
1:C:192:THR:HG22	1:C:218:ILE:HG23	1.80	0.64
1:E:113:PRO:HB2	1:E:114:PRO:HD3	1.79	0.64
1:D:113:PRO:HB2	1:D:114:PRO:HD3	1.78	0.64
1:F:255:VAL:HG12	3:F:2007:HOH:O	1.98	0.63
1:B:287:ASN:O	1:B:291:ARG:HG2	1.99	0.63
1:H:139:LYS:HG3	1:H:161:PHE:CE2	2.33	0.63
1:H:204:THR:CG2	1:H:206:HIS:H	2.11	0.63
1:G:174:MET:SD	1:G:259:LEU:HD23	2.39	0.62
1:H:153:LEU:HD22	1:H:271:ILE:HD11	1.80	0.62
1:D:174:MET:HG3	1:D:261:THR:HG22	1.80	0.62
1:G:116:MET:HE1	1:G:119:LEU:HD12	1.81	0.62
1:H:162:PHE:CE2	1:H:279:ALA:HA	2.34	0.62
1:F:284:ASP:O	1:F:288:MET:HG3	2.00	0.62
1:H:275:LEU:HD21	1:H:291:ARG:HB2	1.81	0.62
1:C:113:PRO:HB2	1:C:114:PRO:HD3	1.80	0.62
1:D:179:HIS:CG	1:D:180:PRO:HD2	2.35	0.62
1:G:170:ARG:HH11	1:G:170:ARG:CG	2.09	0.61
1:B:113:PRO:HB2	1:B:114:PRO:HD3	1.82	0.61
1:B:247:GLN:O	1:B:251:VAL:HG23	2.00	0.61
1:C:223:ARG:NH2	1:H:119:LEU:HB3	2.16	0.61
1:E:174:MET:HG2	1:E:261:THR:HG22	1.82	0.61
1:C:191:PHE:CE2	1:C:220:ARG:HD3	2.36	0.61
1:D:170:ARG:HH12	1:D:263:PRO:HA	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:170:ARG:HG3	1:G:170:ARG:NH1	2.08	0.60
1:B:280:LYS:HG3	1:E:93:PHE:CZ	2.37	0.60
1:F:254:GLU:HB3	3:F:2007:HOH:O	2.02	0.60
1:C:210:ASP:O	1:C:214:GLU:HG3	2.02	0.59
1:D:168:ARG:HH11	1:D:168:ARG:HB3	1.67	0.59
1:D:112:MET:HE2	1:D:112:MET:HA	1.82	0.59
1:G:245:VAL:HG11	1:G:249:PHE:HD2	1.68	0.59
1:B:250:ALA:O	1:B:254:GLU:HG3	2.03	0.59
1:E:274:ASN:HB2	1:E:276:PHE:CE1	2.38	0.59
1:A:192:THR:HG22	1:A:218:ILE:HG23	1.84	0.58
1:A:98:THR:HG23	1:A:127[B]:GLN:HG2	1.85	0.58
1:E:170:ARG:HB3	1:E:270:ASP:OD1	2.03	0.58
1:B:196:HIS:CE1	1:B:242:ILE:HD11	2.39	0.58
1:G:143:GLU:OE1	1:G:143:GLU:OE2	2.20	0.58
1:A:150:ALA:HB3	1:A:276:PHE:HB2	1.86	0.57
1:A:127[B]:GLN:HG3	1:A:128:ILE:N	2.17	0.57
1:G:208:GLU:O	1:G:212:LEU:HD13	2.06	0.56
1:D:248:ARG:O	1:D:251:VAL:HG12	2.06	0.56
1:H:198:GLY:HA3	1:H:222:MET:HE1	1.87	0.56
1:E:183:LYS:NZ	1:E:187:SER:H	2.04	0.56
1:G:275:LEU:HD21	1:G:291:ARG:HB2	1.87	0.56
1:D:174:MET:CE	1:D:245:VAL:HG21	2.36	0.55
1:D:255:VAL:HB	1:D:256:PRO:HD3	1.88	0.55
1:F:169:HIS:ND1	1:F:248:ARG:HB2	2.21	0.55
1:F:245:VAL:HG11	1:F:249:PHE:HD2	1.71	0.55
1:H:196:HIS:CE1	1:H:242:ILE:HD11	2.41	0.55
1:D:221:ARG:HG2	3:D:2006:HOH:O	2.06	0.55
1:F:204:THR:HG23	1:F:206:HIS:N	2.20	0.55
1:B:166:LEU:O	1:B:300:GLU:N	2.36	0.55
1:D:195:GLU:HG2	1:D:221:ARG:HB2	1.87	0.55
1:D:188:LEU:HD11	1:D:218:ILE:HD13	1.87	0.55
1:E:109:MET:HE1	1:E:249:PHE:HE1	1.71	0.55
1:F:137:ASN:HD22	1:F:140:GLU:CD	2.11	0.55
1:D:169:HIS:O	1:D:271:ILE:HG13	2.07	0.55
1:C:287:ASN:O	1:C:291:ARG:HB2	2.07	0.55
1:F:175:PHE:HB3	1:F:242:ILE:HG22	1.89	0.55
1:F:254:GLU:HG3	1:F:259:LEU:O	2.07	0.55
1:H:162:PHE:HE2	1:H:279:ALA:HA	1.70	0.55
1:D:181:SER:O	1:D:190:GLN:NE2	2.40	0.54
1:F:201:ALA:HB1	1:F:204:THR:CG2	2.36	0.54
1:A:127[B]:GLN:NE2	1:E:222:MET:O	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:169:HIS:CE1	1:B:248:ARG:HB2	2.43	0.54
1:C:163:GLN:HG3	1:F:180:PRO:HB2	1.90	0.54
1:E:112:MET:O	1:E:116:MET:HG2	2.09	0.53
1:E:275:LEU:HD21	1:E:291:ARG:HB2	1.90	0.53
1:F:119:LEU:HB3	1:G:223[A]:ARG:HH22	1.73	0.53
1:E:153:LEU:HD22	1:E:271:ILE:HD11	1.91	0.53
1:F:287:ASN:O	1:F:291:ARG:HG2	2.08	0.53
1:H:139:LYS:HG3	1:H:161:PHE:CZ	2.43	0.53
1:B:143:GLU:HB2	1:B:278:HIS:CD2	2.43	0.53
1:D:168:ARG:HG2	1:D:168:ARG:NH1	2.20	0.53
1:E:247:GLN:HE22	1:E:248:ARG:HH11	1.57	0.53
1:B:169:HIS:ND1	1:B:248:ARG:HB2	2.24	0.53
1:D:192:THR:HG23	1:D:219:LYS:O	2.08	0.52
1:C:196:HIS:NE2	1:C:220:ARG:HG2	2.25	0.52
1:C:255:VAL:HB	1:C:256:PRO:HD3	1.91	0.52
1:F:182:ALA:HA	1:F:190:GLN:NE2	2.23	0.52
1:D:198:GLY:HA3	1:D:222:MET:HE1	1.91	0.52
1:F:192:THR:HG22	1:F:218:ILE:HG23	1.90	0.52
1:B:165:ARG:HE	1:B:274:ASN:HD21	1.58	0.52
1:E:168:ARG:HH11	1:E:270:ASP:HB2	1.75	0.52
1:E:183:LYS:HZ3	1:E:187:SER:H	1.58	0.52
1:E:169:HIS:CE1	1:E:271:ILE:HG23	2.44	0.51
1:E:169:HIS:HD2	1:E:248:ARG:HB2	1.72	0.51
1:A:169:HIS:CD2	1:A:271:ILE:HB	2.45	0.51
1:F:202:LEU:HG	1:F:203:ASN:HD22	1.76	0.51
1:E:250:ALA:HB1	1:E:261:THR:HG21	1.92	0.51
1:G:175:PHE:HB3	1:G:242:ILE:HG22	1.92	0.51
1:C:213:LEU:HD13	1:C:268:LEU:HD21	1.93	0.51
1:H:198:GLY:HA3	1:H:222:MET:CE	2.41	0.51
1:D:287:ASN:O	1:D:291:ARG:HB2	2.10	0.51
1:A:193:GLU:O	1:A:221:ARG:NH1	2.45	0.50
1:D:96:THR:CG2	1:D:96:THR:O	2.59	0.50
1:C:141:ASP:HB3	1:C:147:VAL:HG23	1.94	0.50
1:B:198:GLY:CA	1:B:222:MET:HE1	2.36	0.50
1:B:223:ARG:NH2	1:D:119:LEU:HB3	2.27	0.50
1:C:237:HIS:C	1:C:237:HIS:CD2	2.85	0.50
1:C:284:ASP:O	1:C:288:MET:HG3	2.12	0.50
1:C:288:MET:HG2	1:C:291:ARG:HH22	1.77	0.50
1:G:171:TYR:OH	1:G:206:HIS:HA	2.13	0.49
1:D:116:MET:HE1	1:D:119:LEU:HD12	1.92	0.49
1:A:245:VAL:HG11	1:A:249:PHE:HD2	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:168:ARG:CB	1:D:168:ARG:NH1	2.73	0.49
1:E:196:HIS:CE1	1:E:242:ILE:HD11	2.47	0.49
1:E:223:ARG:HA	1:E:223:ARG:NE	2.28	0.49
1:F:278:HIS:CE1	1:F:280:LYS:HG3	2.48	0.49
1:D:150:ALA:HB3	1:D:276:PHE:HB2	1.95	0.49
1:H:133:PRO:HB3	1:H:138:LEU:HD22	1.95	0.49
1:C:239:THR:HG22	1:C:240:ASP:N	2.28	0.49
1:H:150:ALA:HB3	1:H:276:PHE:HB2	1.95	0.49
1:A:88:ASP:O	1:A:285:PRO:HG2	2.13	0.49
1:D:100:ASN:ND2	1:D:129:SER:HB3	2.28	0.49
1:D:196:HIS:CE1	1:D:242:ILE:HD11	2.47	0.49
1:H:167:PHE:HB3	1:H:300:GLU:HB3	1.95	0.48
1:B:300:GLU:O	1:B:300:GLU:CG	2.55	0.48
1:F:186:MET:HB2	1:F:190:GLN:OE1	2.14	0.48
1:C:282:ASN:ND2	1:G:121:GLN:HE21	2.08	0.48
1:D:182:ALA:HA	1:D:190:GLN:HE22	1.79	0.48
1:H:169:HIS:CD2	1:H:271:ILE:CG2	2.97	0.48
1:C:151:LEU:HD11	1:C:294:PHE:CE2	2.49	0.48
1:D:100:ASN:HD22	1:D:129:SER:HB3	1.78	0.48
1:E:280:LYS:HB2	1:E:280:LYS:HE3	1.61	0.48
1:B:171:TYR:OH	1:B:206:HIS:HA	2.13	0.48
1:D:221:ARG:HG3	1:D:221:ARG:HH11	1.78	0.48
1:F:103:MET:SD	1:F:108:GLU:HA	2.54	0.48
1:G:151:LEU:HD11	1:G:294:PHE:CE1	2.48	0.48
1:D:103:MET:O	1:D:133:PRO:HD3	2.14	0.47
1:D:168:ARG:CG	1:D:168:ARG:NH1	2.64	0.47
1:D:250:ALA:O	1:D:254:GLU:HG3	2.14	0.47
1:H:255:VAL:HB	1:H:256:PRO:HD3	1.96	0.47
1:G:174:MET:HG2	1:G:236:LEU:CD1	2.42	0.47
1:A:110:TYR:CE1	1:A:248:ARG:HG3	2.49	0.47
1:D:175:PHE:HB3	1:D:242:ILE:HG22	1.97	0.47
1:D:176:ARG:NH2	1:D:180:PRO:HD3	2.29	0.47
1:F:295:VAL:O	1:F:299:SER:HB2	2.15	0.47
1:G:119:LEU:HD13	1:G:126:ILE:HD11	1.96	0.47
1:G:162:PHE:CE1	1:G:279:ALA:HA	2.49	0.47
1:A:171:TYR:OH	1:A:206:HIS:HA	2.14	0.47
1:A:197:VAL:HG13	1:A:243:ALA:HB2	1.96	0.47
1:E:171:TYR:OH	1:E:206:HIS:HA	2.13	0.47
1:E:92:PRO:HB3	1:E:289:TRP:CE2	2.49	0.47
1:G:245:VAL:CG1	1:G:249:PHE:HD2	2.26	0.47
1:H:140:GLU:OE1	1:H:140:GLU:N	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:166:LEU:O	1:A:299:SER:HA	2.15	0.47
1:B:179:HIS:ND1	1:B:180:PRO:HD2	2.30	0.47
1:E:109:MET:HE1	1:E:249:PHE:CE1	2.50	0.47
1:E:295:VAL:HG13	1:E:299:SER:OG	2.15	0.47
1:A:255:VAL:HB	1:A:256:PRO:HD3	1.97	0.47
1:G:170:ARG:CG	1:G:170:ARG:NH1	2.71	0.47
1:H:169:HIS:HD2	1:H:271:ILE:HG22	1.80	0.47
1:C:189:LYS:HE2	1:C:193:GLU:OE2	2.15	0.47
1:E:113:PRO:CB	1:E:114:PRO:HD3	2.45	0.47
1:C:119:LEU:HD13	1:C:126:ILE:HD11	1.97	0.46
1:C:175:PHE:HB3	1:C:242:ILE:HG22	1.96	0.46
1:F:150:ALA:HB3	1:F:276:PHE:HB2	1.97	0.46
1:F:182:ALA:HA	1:F:190:GLN:HE22	1.79	0.46
1:G:198:GLY:HA3	1:G:222:MET:CE	2.46	0.46
1:G:255:VAL:HG13	1:G:256:PRO:HD3	1.98	0.46
1:H:141:ASP:HB3	1:H:147:VAL:HG23	1.97	0.46
1:D:174:MET:HE3	1:D:245:VAL:HG21	1.98	0.46
1:E:142:MET:HA	1:E:147:VAL:O	2.16	0.46
1:H:103:MET:SD	1:H:108:GLU:HA	2.56	0.46
1:E:171:TYR:O	1:E:264:HIS:HB2	2.15	0.46
1:C:211:GLY:O	1:C:215:ARG:HG3	2.16	0.46
1:H:96:THR:O	1:H:96:THR:CG2	2.64	0.46
1:A:223[A]:ARG:HD3	1:A:241:LEU:HD21	1.98	0.46
1:A:287:ASN:O	1:A:291:ARG:HB2	2.15	0.46
1:D:174:MET:HE2	1:D:245:VAL:HG21	1.98	0.46
1:G:162:PHE:HE1	1:G:279:ALA:HA	1.81	0.46
1:A:191:PHE:CE1	1:A:196:HIS:HE1	2.34	0.45
1:F:300:GLU:O	1:F:301:ALA:C	2.54	0.45
1:G:106:ILE:HD11	1:G:229:PHE:CG	2.51	0.45
1:G:196:HIS:CE1	1:G:242:ILE:HD11	2.51	0.45
1:E:163:GLN:HA	1:E:275:LEU:O	2.16	0.45
1:D:295:VAL:O	1:D:299:SER:HB3	2.16	0.45
1:G:156:GLU:O	1:G:158:GLN:HG2	2.16	0.45
1:A:91:ASP:HA	1:A:92:PRO:HD2	1.78	0.45
1:B:183:LYS:HE2	1:B:183:LYS:HB3	1.77	0.45
1:G:113:PRO:CB	1:G:114:PRO:HD3	2.45	0.45
1:B:138:LEU:O	1:B:142:MET:HG3	2.16	0.45
1:H:169:HIS:CD2	1:H:271:ILE:HG22	2.52	0.45
1:H:291:ARG:O	1:H:295:VAL:HG23	2.17	0.45
1:B:113:PRO:CB	1:B:114:PRO:HD3	2.47	0.45
1:D:113:PRO:CB	1:D:114:PRO:HD3	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:156:GLU:H	1:F:156:GLU:HG3	1.45	0.45
1:E:206:HIS:O	1:E:209:VAL:HG13	2.17	0.45
1:D:112:MET:HB2	1:D:113:PRO:HD3	1.98	0.44
1:G:192:THR:HG23	1:G:219:LYS:O	2.17	0.44
1:H:119:LEU:HG	1:H:126:ILE:HD11	1.99	0.44
1:E:141:ASP:HB3	1:E:147:VAL:HG23	1.99	0.44
1:B:278:HIS:HE1	1:E:93:PHE:CZ	2.36	0.44
1:C:113:PRO:CB	1:C:114:PRO:HD3	2.47	0.44
1:F:141:ASP:HB3	1:F:147:VAL:HG23	2.00	0.44
1:C:105:ASP:HB2	1:H:230:ILE:HD13	2.00	0.44
1:B:279:ALA:HB1	1:E:121:GLN:HA	1.99	0.44
1:C:208:GLU:O	1:C:212:LEU:HB2	2.18	0.44
1:E:111:PHE:O	1:E:114:PRO:HD2	2.18	0.44
1:C:162:PHE:HB2	1:C:277:TRP:CE2	2.53	0.44
1:B:255:VAL:HB	1:B:256:PRO:HD3	2.00	0.43
1:C:239:THR:CG2	1:C:241:LEU:HG	2.48	0.43
1:D:274:ASN:HB2	1:D:276:PHE:CE1	2.53	0.43
1:A:231:ALA:O	1:A:235:ILE:HG13	2.18	0.43
1:B:110:TYR:CE1	1:B:248:ARG:HG3	2.53	0.43
1:E:159:THR:O	1:E:159:THR:HG22	2.19	0.43
1:F:91:ASP:OD2	1:F:94:ALA:HB3	2.18	0.43
1:B:275:LEU:HD21	1:B:291:ARG:HB2	2.00	0.43
1:D:177:LYS:HG3	1:D:178:ASP:OD1	2.19	0.43
1:E:96:THR:O	1:E:96:THR:CG2	2.66	0.43
1:B:189:LYS:HE2	1:B:193:GLU:OE2	2.18	0.43
1:F:113:PRO:CB	1:F:114:PRO:HD3	2.45	0.43
1:H:284:ASP:HA	1:H:285:PRO:HD3	1.86	0.43
1:B:188:LEU:HD11	1:B:218:ILE:HD11	2.00	0.43
1:C:163:GLN:HA	1:C:275:LEU:O	2.19	0.43
1:C:194:LEU:HD12	1:C:242:ILE:HD13	2.00	0.43
1:E:103:MET:SD	1:E:108:GLU:HA	2.58	0.43
1:D:112:MET:HA	1:D:112:MET:CE	2.49	0.43
1:E:255:VAL:HB	1:E:256:PRO:HD3	2.01	0.43
1:H:119:LEU:HD12	1:H:119:LEU:HA	1.86	0.43
1:A:141:ASP:HB3	1:A:147:VAL:HG23	2.01	0.43
1:B:112:MET:O	1:B:116:MET:HG2	2.18	0.43
1:B:223:ARG:HH22	1:D:119:LEU:HB3	1.84	0.43
1:B:291:ARG:O	1:B:295:VAL:HG23	2.19	0.43
1:G:168:ARG:HG2	1:G:270:ASP:HB3	2.01	0.43
1:E:169:HIS:HB2	1:E:247:GLN:HE21	1.83	0.43
1:E:137:ASN:HB3	1:E:140:GLU:HG3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:139:LYS:HG3	1:G:161:PHE:CZ	2.53	0.42
1:G:162:PHE:HB2	1:G:277:TRP:CE2	2.54	0.42
1:A:277:TRP:CZ3	1:A:291:ARG:HD3	2.54	0.42
1:C:223:ARG:HH22	1:H:119:LEU:HB3	1.84	0.42
1:E:153:LEU:HD22	1:E:271:ILE:CD1	2.49	0.42
1:E:169:HIS:HD2	1:E:248:ARG:H	1.68	0.42
1:G:96:THR:O	1:G:96:THR:CG2	2.66	0.42
1:H:139:LYS:HG3	1:H:161:PHE:HE2	1.82	0.42
1:A:151:LEU:HD21	1:A:294:PHE:CD2	2.53	0.42
1:H:264:HIS:ND1	1:H:266:ALA:HB3	2.35	0.42
1:A:103:MET:SD	1:A:108:GLU:HA	2.60	0.42
1:B:223:ARG:HH12	1:D:126:ILE:HG13	1.85	0.42
1:D:138:LEU:HD23	1:D:138:LEU:HA	1.91	0.42
1:E:110:TYR:CE1	1:E:248:ARG:HG3	2.54	0.42
1:G:210:ASP:O	1:G:214:GLU:HG2	2.20	0.42
1:G:223[B]:ARG:HA	1:G:223[B]:ARG:NE	2.34	0.42
1:H:113:PRO:CB	1:H:114:PRO:HD3	2.45	0.42
1:H:197:VAL:O	1:H:197:VAL:HG13	2.19	0.42
1:H:288:MET:HG2	1:H:291:ARG:NH2	2.35	0.42
1:G:268:LEU:HA	1:G:269:PRO:HD3	1.90	0.42
1:A:154:LEU:N	1:A:155:PRO:HD3	2.35	0.42
1:D:179:HIS:ND1	1:D:180:PRO:HD2	2.35	0.42
1:G:163:GLN:HA	1:G:275:LEU:O	2.19	0.42
1:A:113:PRO:CB	1:A:114:PRO:HD3	2.46	0.42
1:C:116:MET:HE3	1:H:224:LEU:HD13	2.02	0.42
1:B:193:GLU:O	1:B:221:ARG:NH1	2.53	0.42
1:G:92:PRO:HB3	1:G:289:TRP:CZ2	2.55	0.42
1:E:174:MET:CE	1:E:245:VAL:HG21	2.50	0.41
1:G:229:PHE:HA	1:G:232:ILE:HD13	2.02	0.41
1:G:254:GLU:HA	1:G:259:LEU:HB2	2.02	0.41
1:A:111:PHE:O	1:A:114:PRO:HD2	2.20	0.41
1:D:165:ARG:HA	1:D:274:ASN:HD22	1.85	0.41
1:F:123:ALA:N	1:F:124:PRO:HD3	2.35	0.41
1:C:213:LEU:CD1	1:C:268:LEU:HD21	2.50	0.41
1:D:138:LEU:HD22	1:D:142:MET:HG3	2.02	0.41
1:C:171:TYR:OH	1:C:206:HIS:HA	2.20	0.41
1:E:175:PHE:HB3	1:E:242:ILE:HG22	2.01	0.41
1:E:179:HIS:CG	1:E:180:PRO:HD2	2.55	0.41
1:G:257:PHE:O	1:G:259:LEU:HD13	2.21	0.41
1:G:143:GLU:O	1:G:280:LYS:HD3	2.21	0.41
1:H:185:PRO:HA	1:H:262:SER:OG	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:ARG:NH2	1:B:158:GLN:OE1	2.53	0.41
1:B:179:HIS:CG	1:B:180:PRO:HD2	2.55	0.41
1:D:182:ALA:HA	1:D:190:GLN:NE2	2.36	0.41
1:E:150:ALA:HB3	1:E:276:PHE:HB2	2.02	0.41
1:H:138:LEU:O	1:H:142:MET:HG3	2.21	0.41
1:A:284:ASP:HA	1:A:285:PRO:HD2	1.85	0.41
1:D:196:HIS:CD2	1:D:220:ARG:HB3	2.56	0.41
1:A:162:PHE:HB2	1:A:277:TRP:CE2	2.56	0.41
1:A:229:PHE:HB3	1:A:249:PHE:CE1	2.56	0.41
1:C:98:THR:HA	1:C:127:GLN:O	2.21	0.41
1:G:172:VAL:CG1	1:G:173:CYS:N	2.84	0.41
1:A:230:ILE:HD13	1:E:105:ASP:HB2	2.02	0.41
1:C:171:TYR:O	1:C:264:HIS:HB2	2.21	0.41
1:F:98:THR:HA	1:F:127:GLN:O	2.20	0.41
1:G:231:ALA:O	1:G:235:ILE:HG13	2.20	0.41
1:A:227:PRO:HB2	1:A:228:HIS:CD2	2.57	0.40
1:C:239:THR:HG21	1:C:241:LEU:HG	2.03	0.40
1:D:95:SER:O	1:D:125:HIS:HB2	2.21	0.40
1:F:297:LEU:HD12	1:F:297:LEU:HA	1.89	0.40
1:G:164:ARG:O	1:G:274:ASN:HA	2.21	0.40
1:G:190:GLN:HA	1:G:193:GLU:HG2	2.03	0.40
1:A:175:PHE:HB3	1:A:242:ILE:HG22	2.03	0.40
1:B:128:ILE:O	1:D:224:LEU:HD12	2.21	0.40
1:F:119:LEU:HB3	1:G:223[A]:ARG:NH2	2.35	0.40
1:F:163:GLN:HA	1:F:275:LEU:O	2.22	0.40
1:D:162:PHE:HB2	1:D:277:TRP:CE2	2.56	0.40
1:F:112:MET:O	1:F:116:MET:HG2	2.21	0.40
1:H:197:VAL:HB	1:H:241:LEU:HD23	2.04	0.40
1:E:119:LEU:HD22	1:E:126:ILE:HD11	2.03	0.40
1:E:138:LEU:O	1:E:142:MET:HG3	2.22	0.40
1:E:264:HIS:HA	1:E:265:PRO:HD2	1.86	0.40
1:F:223:ARG:NH1	1:G:126:ILE:O	2.55	0.40
1:A:127[B]:GLN:HE21	1:A:127[B]:GLN:HB2	1.56	0.40
1:B:123:ALA:N	1:B:124:PRO:HD3	2.35	0.40
1:B:275:LEU:HD21	1:B:291:ARG:CB	2.52	0.40
1:E:106:ILE:HD11	1:E:229:PHE:CG	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	215/228 (94%)	212 (99%)	3 (1%)	0	100	100
1	B	211/228 (92%)	204 (97%)	7 (3%)	0	100	100
1	C	211/228 (92%)	206 (98%)	5 (2%)	0	100	100
1	D	211/228 (92%)	204 (97%)	7 (3%)	0	100	100
1	E	211/228 (92%)	206 (98%)	5 (2%)	0	100	100
1	F	212/228 (93%)	209 (99%)	3 (1%)	0	100	100
1	G	212/228 (93%)	209 (99%)	3 (1%)	0	100	100
1	H	209/228 (92%)	204 (98%)	5 (2%)	0	100	100
All	All	1692/1824 (93%)	1654 (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	184/196 (94%)	174 (95%)	10 (5%)	22	53
1	B	177/196 (90%)	171 (97%)	6 (3%)	37	71
1	C	174/196 (89%)	165 (95%)	9 (5%)	23	55
1	D	178/196 (91%)	167 (94%)	11 (6%)	18	47
1	E	179/196 (91%)	167 (93%)	12 (7%)	16	43
1	F	176/196 (90%)	161 (92%)	15 (8%)	10	31

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	G	179/196 (91%)	166 (93%)	13 (7%)	14 38
1	H	176/196 (90%)	166 (94%)	10 (6%)	20 50
All	All	1423/1568 (91%)	1337 (94%)	86 (6%)	18 48

All (86) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	115	LEU
1	A	131	LEU
1	A	134	ASN
1	A	153	LEU
1	A	169	HIS
1	A	170	ARG
1	A	183	LYS
1	A	212	LEU
1	A	245	VAL
1	A	251	VAL
1	B	131	LEU
1	B	169	HIS
1	B	170	ARG
1	B	192	THR
1	B	241	LEU
1	B	248	ARG
1	C	96	THR
1	C	131	LEU
1	C	134	ASN
1	C	137	ASN
1	C	169	HIS
1	C	213	LEU
1	C	261	THR
1	C	270	ASP
1	C	283	ARG
1	D	96	THR
1	D	122	ARG
1	D	131	LEU
1	D	138	LEU
1	D	156	GLU
1	D	157	LEU
1	D	164	ARG
1	D	168	ARG
1	D	169	HIS

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Mol	Chain	Res	Type
1	D	183	LYS
1	D	271	ILE
1	E	96	THR
1	E	131	LEU
1	E	139	LYS
1	E	151	LEU
1	E	156	GLU
1	E	159	THR
1	E	169	HIS
1	E	170	ARG
1	E	209	VAL
1	E	223	ARG
1	E	247	GLN
1	E	290	LEU
1	F	131	LEU
1	F	134	ASN
1	F	156	GLU
1	F	159	THR
1	F	169	HIS
1	F	178	ASP
1	F	210	ASP
1	F	236	LEU
1	F	248	ARG
1	F	255	VAL
1	F	260	THR
1	F	271	ILE
1	F	287	ASN
1	F	297	LEU
1	F	300	GLU
1	G	96	THR
1	G	134	ASN
1	G	156	GLU
1	G	168	ARG
1	G	169	HIS
1	G	170	ARG
1	G	204	THR
1	G	218	ILE
1	G	247	GLN
1	G	255	VAL
1	G	259	LEU
1	G	271	ILE
1	G	292	GLN

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Mol	Chain	Res	Type
1	H	93	PHE
1	H	119	LEU
1	H	121	GLN
1	H	165	ARG
1	H	173	CYS
1	H	204	THR
1	H	220	ARG
1	H	232	ILE
1	H	236	LEU
1	H	247	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (26) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	228	HIS
1	B	163	GLN
1	B	206	HIS
1	B	274	ASN
1	C	203	ASN
1	C	228	HIS
1	C	237	HIS
1	D	100	ASN
1	D	196	HIS
1	D	274	ASN
1	E	203	ASN
1	E	247	GLN
1	F	127	GLN
1	F	137	ASN
1	F	203	ASN
1	F	206	HIS
1	F	228	HIS
1	G	121	GLN
1	G	134	ASN
1	G	190	GLN
1	G	228	HIS
1	G	237	HIS
1	G	247	GLN
1	H	169	HIS
1	H	203	ASN
1	H	247	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 monosaccharides in this entry.

5.6 Ligand geometry

4 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	GOL	D	1302	-	5,5,5	0.37	0	5,5,5	0.40	0
2	GOL	E	1301	-	5,5,5	0.37	0	5,5,5	0.34	0
2	GOL	H	1301	-	5,5,5	0.38	0	5,5,5	0.19	0
2	GOL	D	1301	-	5,5,5	0.37	0	5,5,5	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
2	GOL	D	1302	-	-	2/4/4/4	-
2	GOL	E	1301	-	-	2/4/4/4	-
2	GOL	H	1301	-	-	4/4/4/4	-
2	GOL	D	1301	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	1301	GOL	C1-C2-C3-O3
2	E	1301	GOL	C1-C2-C3-O3
2	H	1301	GOL	C1-C2-C3-O3
2	H	1301	GOL	O1-C1-C2-O2
2	H	1301	GOL	O2-C2-C3-O3
2	D	1302	GOL	C1-C2-C3-O3
2	H	1301	GOL	O1-C1-C2-C3
2	D	1301	GOL	O2-C2-C3-O3
2	E	1301	GOL	O2-C2-C3-O3
2	D	1302	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^{th} 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	213/228 (93%)	-0.30	0 100 100	13, 23, 44, 60	0
1	B	213/228 (93%)	-0.31	1 (0%) 91 88	13, 26, 49, 63	0
1	C	213/228 (93%)	-0.32	0 100 100	17, 28, 45, 62	1 (0%)
1	D	212/228 (92%)	-0.06	3 (1%) 75 70	13, 28, 52, 68	0
1	E	212/228 (92%)	-0.29	1 (0%) 91 88	13, 26, 44, 59	0
1	F	214/228 (93%)	-0.13	4 (1%) 66 59	18, 34, 57, 72	1 (0%)
1	G	213/228 (93%)	-0.00	4 (1%) 66 59	15, 33, 63, 77	0
1	H	211/228 (92%)	0.06	4 (1%) 66 59	20, 37, 57, 71	0
All	All	1701/1824 (93%)	-0.17	17 (0%) 82 77	13, 29, 53, 77	2 (0%)

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	89	SER	3.3
1	F	89	SER	3.1
1	F	88	ASP	3.0
1	D	89	SER	2.9
1	B	301	ALA	2.8
1	G	170	ARG	2.7
1	D	205	GLY	2.5
1	D	203	ASN	2.5
1	H	283	ARG	2.4
1	G	185	PRO	2.4
1	G	214	GLU	2.3
1	H	279	ALA	2.2
1	F	90	PHE	2.2
1	H	162	PHE	2.2
1	F	91	ASP	2.1
1	G	89	SER	2.1

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Mol	Chain	Res	Type	RSRZ
1	H	90	PHE	2.1

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, 95^{th} 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	GOL	D	1301	6/6	0.89	0.22	38,41,43,47	0
2	GOL	D	1302	6/6	0.91	0.22	35,38,40,42	0
2	GOL	H	1301	6/6	0.93	0.16	26,30,32,33	0
2	GOL	E	1301	6/6	0.97	0.16	25,28,31,31	0

6.5 Other polymers (i)

There are no such residues in this entry.