Full wwPDB X-ray Structure Validation Report ⓘ

Jan 23, 2021 – 03:44 PM EST

PDB ID	:	1X8M
Title	:	X-ray structure of pectin degrading enzyme 5-keto 4-deoxyuronate isomerase from Escherichia coli
Authors	:	Fedorov, A.A.; Fedorov, E.V.; Almo, S.C.; Burley, S.K.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on	:	2004-08-18
Resolution	:	2.60 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:

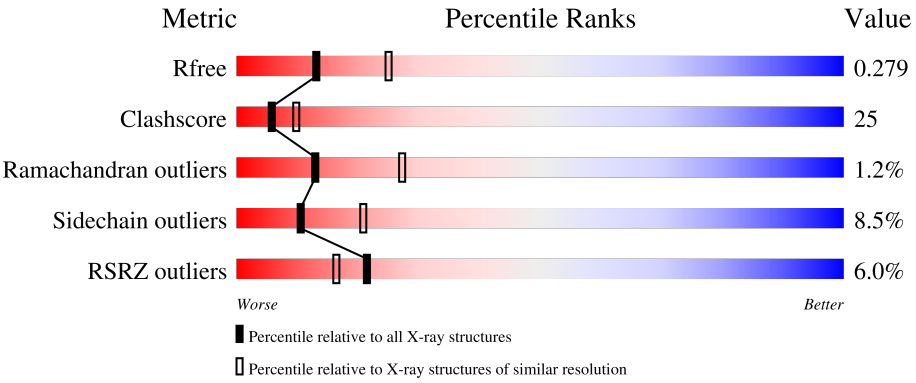
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.16
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.16

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}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (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 >=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	288	4% 53% 31% 5% 10%
1	B	288	5% 57% 28% 5% 10%
1	C	288	5% 54% 31% 5% 10%
1	D	288	5% 55% 29% 6% 10%
1	E	288	8% 54% 30% 6% 10%

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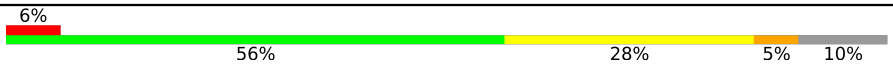
Mol	Chain	Length	Quality of chain
1	F	288	

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 12126 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 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	259	Total	C	N	O	S	0	0	0
			2021	1284	341	383	13			
1	B	259	Total	C	N	O	S	0	0	0
			2021	1284	341	383	13			
1	C	259	Total	C	N	O	S	0	0	0
			2021	1284	341	383	13			
1	D	259	Total	C	N	O	S	0	0	0
			2021	1284	341	383	13			
1	E	259	Total	C	N	O	S	0	0	0
			2021	1284	341	383	13			
1	F	259	Total	C	N	O	S	0	0	0
			2021	1284	341	383	13			

There are 66 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1001	MET	-	cloning artifact	UNP Q46938
A	1002	SER	-	cloning artifact	UNP Q46938
A	1003	LEU	-	cloning artifact	UNP Q46938
A	1281	GLU	-	expression tag	UNP Q46938
A	1282	GLY	-	expression tag	UNP Q46938
A	1283	HIS	-	expression tag	UNP Q46938
A	1284	HIS	-	expression tag	UNP Q46938
A	1285	HIS	-	expression tag	UNP Q46938
A	1286	HIS	-	expression tag	UNP Q46938
A	1287	HIS	-	expression tag	UNP Q46938
A	1288	HIS	-	expression tag	UNP Q46938
B	2001	MET	-	cloning artifact	UNP Q46938
B	2002	SER	-	cloning artifact	UNP Q46938
B	2003	LEU	-	cloning artifact	UNP Q46938
B	2281	GLU	-	expression tag	UNP Q46938
B	2282	GLY	-	expression tag	UNP Q46938
B	2283	HIS	-	expression tag	UNP Q46938

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Chain	Residue	Modelled	Actual	Comment	Reference
B	2284	HIS	-	expression tag	UNP Q46938
B	2285	HIS	-	expression tag	UNP Q46938
B	2286	HIS	-	expression tag	UNP Q46938
B	2287	HIS	-	expression tag	UNP Q46938
B	2288	HIS	-	expression tag	UNP Q46938
C	3001	MET	-	cloning artifact	UNP Q46938
C	3002	SER	-	cloning artifact	UNP Q46938
C	3003	LEU	-	cloning artifact	UNP Q46938
C	3281	GLU	-	expression tag	UNP Q46938
C	3282	GLY	-	expression tag	UNP Q46938
C	3283	HIS	-	expression tag	UNP Q46938
C	3284	HIS	-	expression tag	UNP Q46938
C	3285	HIS	-	expression tag	UNP Q46938
C	3286	HIS	-	expression tag	UNP Q46938
C	3287	HIS	-	expression tag	UNP Q46938
C	3288	HIS	-	expression tag	UNP Q46938
D	4001	MET	-	cloning artifact	UNP Q46938
D	4002	SER	-	cloning artifact	UNP Q46938
D	4003	LEU	-	cloning artifact	UNP Q46938
D	4281	GLU	-	expression tag	UNP Q46938
D	4282	GLY	-	expression tag	UNP Q46938
D	4283	HIS	-	expression tag	UNP Q46938
D	4284	HIS	-	expression tag	UNP Q46938
D	4285	HIS	-	expression tag	UNP Q46938
D	4286	HIS	-	expression tag	UNP Q46938
D	4287	HIS	-	expression tag	UNP Q46938
D	4288	HIS	-	expression tag	UNP Q46938
E	5001	MET	-	cloning artifact	UNP Q46938
E	5002	SER	-	cloning artifact	UNP Q46938
E	5003	LEU	-	cloning artifact	UNP Q46938
E	5281	GLU	-	expression tag	UNP Q46938
E	5282	GLY	-	expression tag	UNP Q46938
E	5283	HIS	-	expression tag	UNP Q46938
E	5284	HIS	-	expression tag	UNP Q46938
E	5285	HIS	-	expression tag	UNP Q46938
E	5286	HIS	-	expression tag	UNP Q46938
E	5287	HIS	-	expression tag	UNP Q46938
E	5288	HIS	-	expression tag	UNP Q46938
F	6001	MET	-	cloning artifact	UNP Q46938
F	6002	SER	-	cloning artifact	UNP Q46938
F	6003	LEU	-	cloning artifact	UNP Q46938
F	6281	GLU	-	expression tag	UNP Q46938

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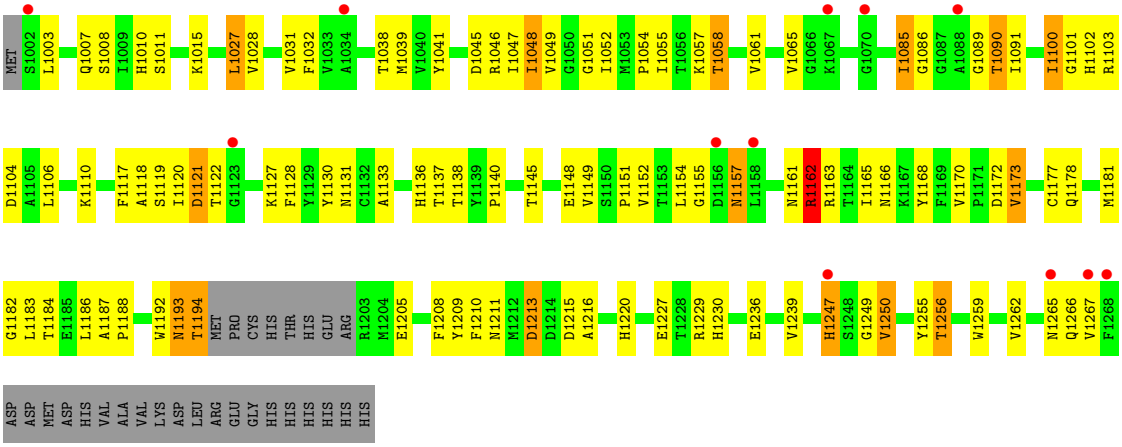
Chain	Residue	Modelled	Actual	Comment	Reference
F	6282	GLY	-	expression tag	UNP Q46938
F	6283	HIS	-	expression tag	UNP Q46938
F	6284	HIS	-	expression tag	UNP Q46938
F	6285	HIS	-	expression tag	UNP Q46938
F	6286	HIS	-	expression tag	UNP Q46938
F	6287	HIS	-	expression tag	UNP Q46938
F	6288	HIS	-	expression tag	UNP Q46938

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.

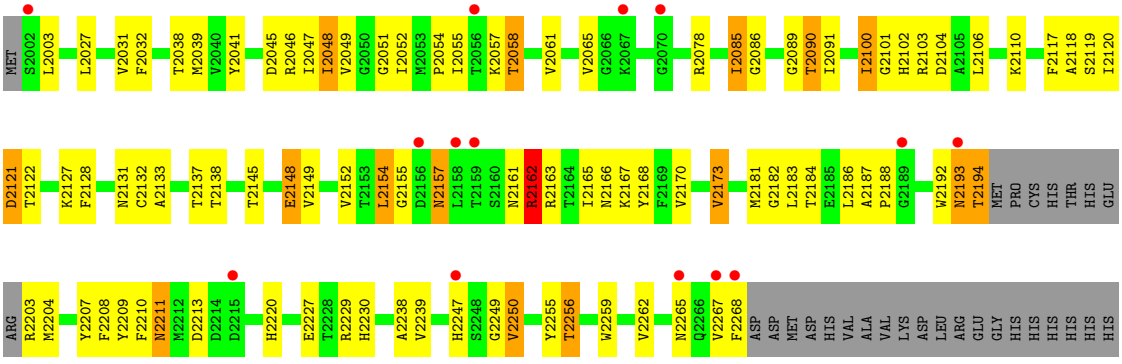
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase

Chain A:



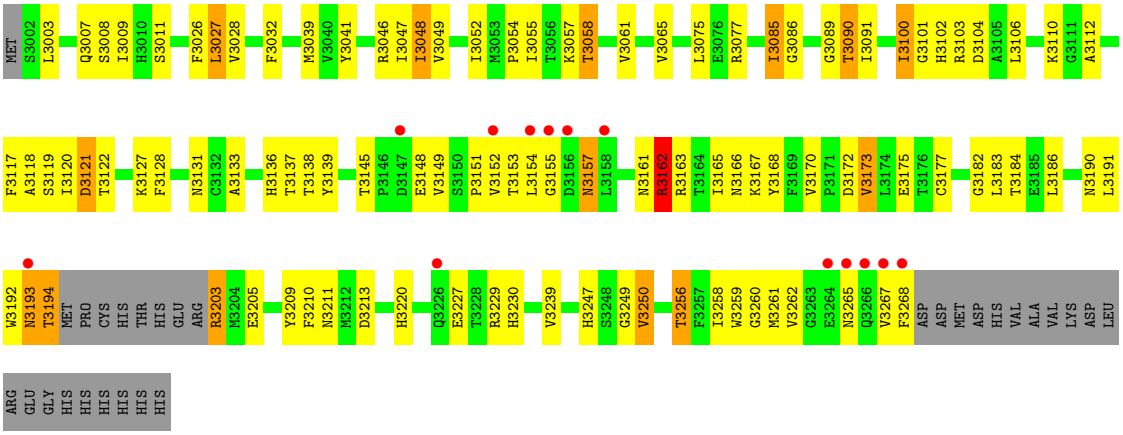
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase

Chain B:



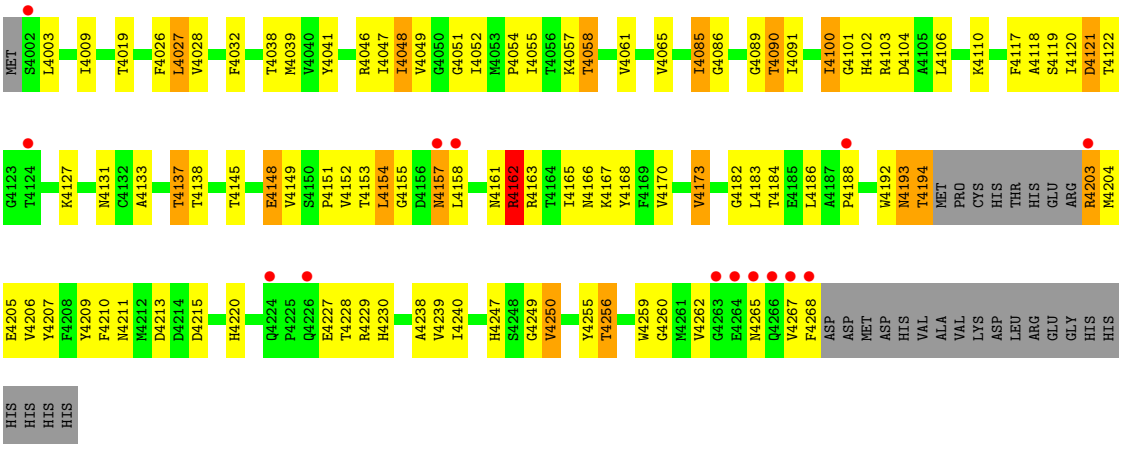
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase

Chain C:



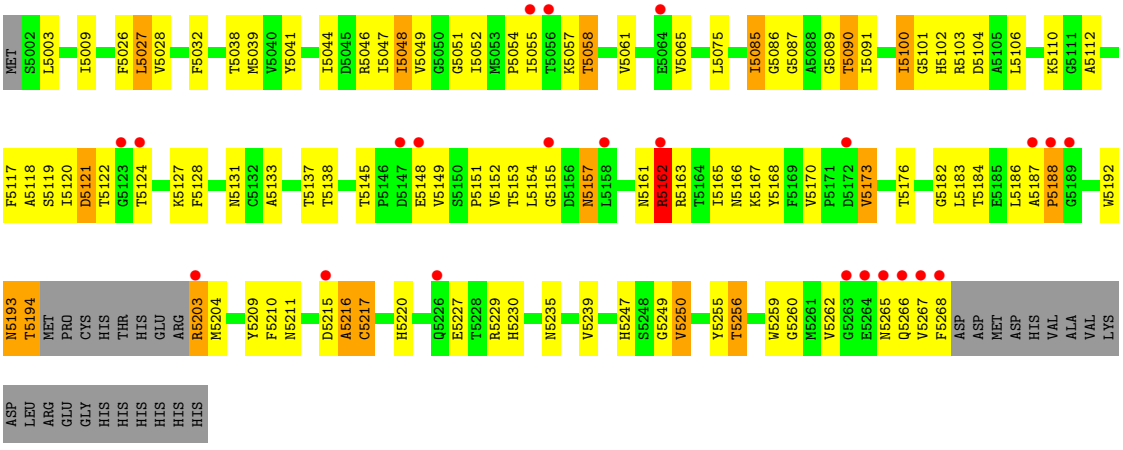
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase

Chain D:



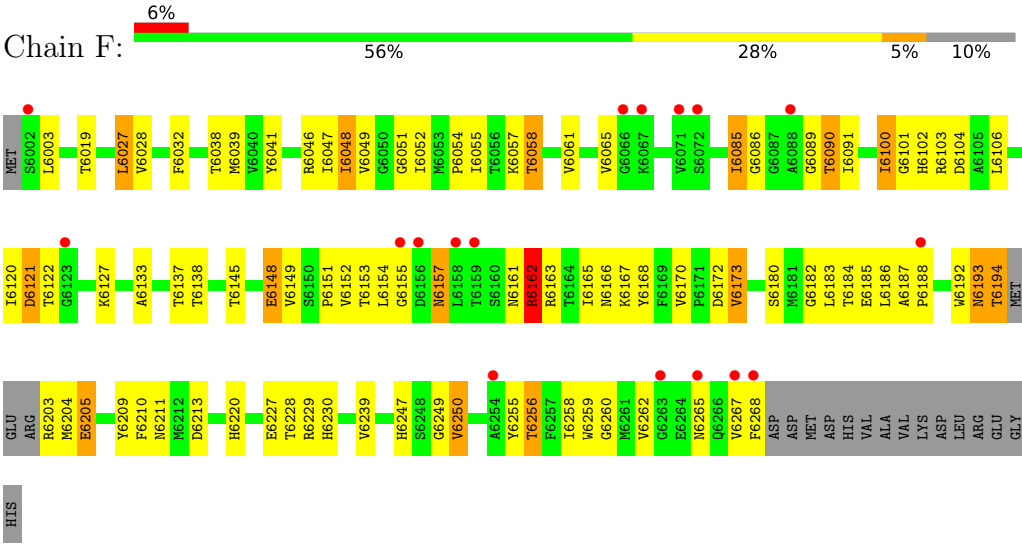
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase

Chain E:



• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase

Chain F:


6%
56%
28%
5%
10%
MET S6002 L6003 T6019 L6027 V6028 F6032 T6038 M6039 V6040 Y6041 R6046 I6047 I6048 V6049 G6050 G6051 I6052 M6053 P6054 I6055 T6056 K6057 T6058 V6061 V6065 G6066 K6067 V6071 S6072 I6085 G6086 G6087 A6088 G6089 T6090 I6091 I6100 G6101 H6102 R6103 D6104 A6105 L6106 K6110 F6117 A6118 S6119
I6120 D6121 T6122 G6123 K6127 A6133 T6137 T6138 T6145 E6148 V6149 S6150 P6151 V6152 T6153 L6154 G6155 D6156 N6157 L6158 T6159 S6160 N6161 R6162 R6163 T6164 I6165 N6166 K6167 Y6168 F6169 V6170 P6171 D6172 V6173 S6180 W6181 G6182 L6183 T6184 E6185 L6186 A6187 P6188 W6192 N6193 T6194 MET PRO CYS HIS THR HIS
GLU ARG R6203 M6204 E6205 Y6209 F6210 N6211 M6212 D6213 H6220 E6227 T6228 R6229 H6230 V6239 H6247 S6248 G6249 V6250 A6254 Y6255 T6256 F6257 I6258 W6259 G6260 M6261 V6262 G6263 E6264 N6265 Q6266 V6267 F6268 ASP ASP MET ASP HIS VAL ALA VAL LYS ASP LEU ARG GLU GLY HIS HIS HIS HIS HIS
HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31	Depositor
Cell constants a, b, c, α, β, γ	101.01Å 101.01Å 179.41Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	25.00 – 2.60 29.25 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.1 (25.00-2.60) 99.1 (29.25-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.12 (at 2.61Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.257 , 0.280 0.254 , 0.279	Depositor DCC
R_{free} test set	3176 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å^2)	41.4	Xtriage
Anisotropy	0.325	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 43.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.000 for -h,-k,l 0.037 for h,-h-k,-l 0.000 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	12126	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 44.77 % 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 1.4544e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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

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	0.42	0/2067	0.68	0/2806
1	B	0.42	0/2067	0.67	0/2806
1	C	0.45	0/2067	0.67	0/2806
1	D	0.45	0/2067	0.67	0/2806
1	E	0.45	0/2067	0.69	0/2806
1	F	0.42	0/2067	0.67	0/2806
All	All	0.43	0/12402	0.67	0/16836

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	2021	0	1972	116	0
1	B	2021	0	1972	93	0
1	C	2021	0	1972	112	0
1	D	2021	0	1972	112	0
1	E	2021	0	1972	102	0
1	F	2021	0	1972	104	0
All	All	12126	0	11832	607	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 25.

All (607) 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:5163:ARG:HB3	1:E:5186:LEU:HD23	1.36	1.08
1:C:3163:ARG:HB3	1:C:3186:LEU:HD23	1.37	1.07
1:D:4163:ARG:HB3	1:D:4186:LEU:HD23	1.37	1.07
1:A:1163:ARG:HB3	1:A:1186:LEU:HD23	1.36	1.05
1:F:6163:ARG:HB3	1:F:6186:LEU:HD23	1.38	1.04
1:C:3175:GLU:OE1	1:D:4153:THR:HB	1.59	1.02
1:F:6039:MET:HG3	1:F:6048:ILE:HD13	1.42	1.02
1:B:2163:ARG:HB3	1:B:2186:LEU:HD23	1.38	1.01
1:E:5047:ILE:HD11	1:E:5262:VAL:HG11	1.38	1.00
1:E:5061:VAL:HG23	1:E:5065:VAL:HG21	1.44	0.98
1:D:4047:ILE:HD11	1:D:4262:VAL:HG11	1.45	0.98
1:A:1061:VAL:HG23	1:A:1065:VAL:HG21	1.46	0.97
1:B:2039:MET:HG3	1:B:2048:ILE:HD13	1.45	0.97
1:B:2061:VAL:HG23	1:B:2065:VAL:HG21	1.46	0.97
1:E:5039:MET:HG3	1:E:5048:ILE:HD13	1.45	0.97
1:C:3061:VAL:HG23	1:C:3065:VAL:HG21	1.46	0.96
1:D:4039:MET:HG3	1:D:4048:ILE:HD13	1.45	0.96
1:A:1039:MET:HG3	1:A:1048:ILE:HD13	1.44	0.96
1:F:6061:VAL:HG23	1:F:6065:VAL:HG21	1.49	0.95
1:D:4061:VAL:HG23	1:D:4065:VAL:HG21	1.47	0.92
1:C:3039:MET:HG3	1:C:3048:ILE:HD13	1.50	0.91
1:A:1011:SER:H	1:C:3007:GLN:HE22	1.08	0.90
1:A:1136:HIS:HB2	1:C:3136:HIS:HB2	1.52	0.90
1:C:3091:ILE:HD13	1:C:3106:LEU:HD23	1.55	0.86
1:F:6091:ILE:HD13	1:F:6106:LEU:HD23	1.56	0.86
1:E:5211:ASN:HB3	1:E:5256:THR:HG23	1.59	0.85
1:A:1091:ILE:HD13	1:A:1106:LEU:HD23	1.59	0.84
1:C:3047:ILE:HD11	1:C:3262:VAL:HG11	1.59	0.84
1:E:5091:ILE:HD13	1:E:5106:LEU:HD23	1.58	0.83
1:A:1136:HIS:H	1:C:3136:HIS:HD2	1.26	0.82
1:A:1047:ILE:HD11	1:A:1262:VAL:HG11	1.59	0.82
1:D:4091:ILE:HD13	1:D:4106:LEU:HD23	1.59	0.82
1:B:2091:ILE:HD13	1:B:2106:LEU:HD23	1.60	0.82
1:A:1055:ILE:O	1:A:1122:THR:HG22	1.82	0.80
1:A:1011:SER:H	1:C:3007:GLN:NE2	1.80	0.80
1:B:2157:ASN:HD22	1:B:2157:ASN:N	1.79	0.80
1:F:6211:ASN:HB3	1:F:6256:THR:HG23	1.62	0.80
1:A:1157:ASN:HD22	1:A:1157:ASN:N	1.80	0.79
1:F:6055:ILE:O	1:F:6122:THR:HG22	1.82	0.78
1:C:3157:ASN:HD22	1:C:3157:ASN:N	1.81	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2055:ILE:O	1:B:2122:THR:HG22	1.83	0.77
1:F:6157:ASN:N	1:F:6157:ASN:HD22	1.81	0.77
1:E:5055:ILE:O	1:E:5122:THR:HG22	1.83	0.77
1:D:4055:ILE:O	1:D:4122:THR:HG22	1.84	0.77
1:B:2211:ASN:HB3	1:B:2256:THR:HG23	1.65	0.77
1:C:3055:ILE:O	1:C:3122:THR:HG22	1.84	0.76
1:D:4211:ASN:HB3	1:D:4256:THR:HG23	1.68	0.76
1:E:5192:TRP:CZ3	1:E:5250:VAL:HG22	2.22	0.75
1:C:3139:TYR:CE2	1:D:4162:ARG:NH2	2.55	0.75
1:A:1192:TRP:CZ3	1:A:1250:VAL:HG22	2.21	0.75
1:C:3211:ASN:HB3	1:C:3256:THR:HG23	1.66	0.74
1:B:2047:ILE:HD11	1:B:2262:VAL:HG11	1.69	0.74
1:B:2209:TYR:OH	1:B:2220:HIS:HD2	1.71	0.73
1:E:5157:ASN:HD22	1:E:5157:ASN:N	1.83	0.73
1:D:4209:TYR:OH	1:D:4220:HIS:HD2	1.72	0.73
1:E:5211:ASN:HD22	1:E:5256:THR:HG21	1.55	0.72
1:C:3161:ASN:HB3	1:C:3163:ARG:NH1	2.04	0.72
1:D:4161:ASN:HB3	1:D:4163:ARG:NH1	2.04	0.72
1:C:3209:TYR:OH	1:C:3220:HIS:HD2	1.72	0.72
1:D:4230:HIS:HE1	1:F:6228:THR:OG1	1.73	0.71
1:E:5161:ASN:HB3	1:E:5163:ARG:NH1	2.05	0.71
1:E:5102:HIS:ND1	1:E:5103:ARG:HG2	2.06	0.71
1:A:1211:ASN:HB3	1:A:1256:THR:HG23	1.73	0.71
1:D:4157:ASN:HD22	1:D:4157:ASN:N	1.89	0.71
1:E:5193:ASN:HD21	1:E:5249:GLY:H	1.39	0.71
1:E:5209:TYR:OH	1:E:5220:HIS:HD2	1.74	0.71
1:D:4101:GLY:O	1:D:4104:ASP:HB2	1.92	0.70
1:A:1193:ASN:HD21	1:A:1249:GLY:H	1.40	0.69
1:C:3102:HIS:ND1	1:C:3103:ARG:HG2	2.08	0.69
1:F:6161:ASN:HB3	1:F:6163:ARG:NH1	2.08	0.69
1:D:4192:TRP:CZ3	1:D:4250:VAL:HG22	2.28	0.69
1:E:5039:MET:HG3	1:E:5048:ILE:CD1	2.22	0.69
1:B:2161:ASN:HB3	1:B:2163:ARG:NH1	2.09	0.68
1:E:5101:GLY:O	1:E:5104:ASP:HB2	1.93	0.68
1:A:1161:ASN:HB3	1:A:1163:ARG:NH1	2.08	0.67
1:B:2102:HIS:ND1	1:B:2103:ARG:HG2	2.09	0.67
1:D:4039:MET:HG3	1:D:4048:ILE:CD1	2.24	0.67
1:C:3155:GLY:HA3	1:C:3161:ASN:HB2	1.76	0.67
1:D:4193:ASN:HD21	1:D:4249:GLY:H	1.43	0.67
1:B:2039:MET:HG3	1:B:2048:ILE:CD1	2.24	0.67
1:F:6039:MET:HG3	1:F:6048:ILE:CD1	2.20	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1011:SER:N	1:C:3007:GLN:HE22	1.87	0.66
1:D:4204:MET:HE1	1:D:4240:ILE:HG23	1.78	0.66
1:C:3152:VAL:HG12	1:C:3154:LEU:HD13	1.77	0.66
1:D:4155:GLY:HA3	1:D:4161:ASN:HB2	1.78	0.66
1:F:6155:GLY:HA3	1:F:6161:ASN:HB2	1.78	0.66
1:D:4230:HIS:HD2	1:F:6230:HIS:HD2	1.42	0.66
1:E:5155:GLY:HA3	1:E:5161:ASN:HB2	1.77	0.66
1:A:1211:ASN:HD22	1:A:1256:THR:HG21	1.61	0.65
1:F:6102:HIS:ND1	1:F:6103:ARG:HG2	2.11	0.65
1:F:6101:GLY:O	1:F:6104:ASP:HB2	1.97	0.65
1:F:6100:ILE:H	1:F:6100:ILE:HD12	1.61	0.65
1:D:4100:ILE:HD12	1:D:4100:ILE:H	1.62	0.64
1:D:4102:HIS:ND1	1:D:4103:ARG:HG2	2.13	0.64
1:D:4162:ARG:HG2	1:D:4162:ARG:HH11	1.62	0.64
1:F:6152:VAL:HG12	1:F:6154:LEU:HD13	1.78	0.64
1:A:1100:ILE:H	1:A:1100:ILE:HD12	1.63	0.64
1:A:1102:HIS:ND1	1:A:1103:ARG:HG2	2.13	0.64
1:A:1155:GLY:HA3	1:A:1161:ASN:HB2	1.79	0.64
1:E:5100:ILE:H	1:E:5100:ILE:HD12	1.63	0.64
1:C:3182:GLY:HA3	1:C:3259:TRP:CZ2	2.33	0.64
1:F:6047:ILE:HD11	1:F:6262:VAL:HG11	1.79	0.64
1:A:1039:MET:HG3	1:A:1048:ILE:CD1	2.23	0.63
1:E:5149:VAL:HG11	1:E:5166:ASN:HB3	1.80	0.63
1:A:1157:ASN:ND2	1:A:1157:ASN:N	2.44	0.63
1:E:5152:VAL:HG12	1:E:5154:LEU:HD13	1.79	0.63
1:E:5168:TYR:O	1:E:5173:VAL:HG11	1.98	0.63
1:A:1152:VAL:HG12	1:A:1154:LEU:HD13	1.79	0.63
1:F:6057:LYS:HG2	1:F:6058:THR:H	1.63	0.63
1:B:2155:GLY:HA3	1:B:2161:ASN:HB2	1.81	0.63
1:D:4152:VAL:HG12	1:D:4154:LEU:HD13	1.81	0.63
1:F:6168:TYR:O	1:F:6173:VAL:HG11	1.99	0.63
1:E:5193:ASN:HD21	1:E:5249:GLY:N	1.96	0.62
1:E:5047:ILE:HD11	1:E:5262:VAL:CG1	2.22	0.62
1:B:2101:GLY:O	1:B:2104:ASP:HB2	1.99	0.62
1:B:2182:GLY:HA3	1:B:2259:TRP:CZ2	2.35	0.62
1:B:2192:TRP:CZ3	1:B:2250:VAL:HG22	2.35	0.62
1:C:3101:GLY:O	1:C:3104:ASP:HB2	1.99	0.62
1:E:5091:ILE:HD12	1:E:5117:PHE:CE1	2.35	0.62
1:B:2157:ASN:ND2	1:B:2157:ASN:N	2.43	0.62
1:B:2193:ASN:HD21	1:B:2249:GLY:H	1.48	0.62
1:F:6162:ARG:HH11	1:F:6162:ARG:HG2	1.65	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1136:HIS:CD2	1:C:3177:CYS:HB3	2.34	0.62
1:A:1193:ASN:O	1:A:1194:THR:HG23	2.00	0.61
1:C:3039:MET:HG3	1:C:3048:ILE:CD1	2.28	0.61
1:E:5157:ASN:ND2	1:E:5157:ASN:N	2.47	0.61
1:A:1192:TRP:CE2	1:A:1250:VAL:HG13	2.36	0.61
1:B:2057:LYS:HG2	1:B:2058:THR:H	1.65	0.61
1:D:4168:TYR:O	1:D:4173:VAL:HG11	2.01	0.61
1:B:2152:VAL:HG12	1:B:2154:LEU:HD13	1.81	0.61
1:E:5182:GLY:HA3	1:E:5259:TRP:CZ2	2.35	0.61
1:B:2157:ASN:ND2	1:B:2157:ASN:H	1.97	0.61
1:C:3162:ARG:HH11	1:C:3162:ARG:HG2	1.64	0.61
1:F:6157:ASN:N	1:F:6157:ASN:ND2	2.45	0.61
1:A:1162:ARG:HG2	1:A:1162:ARG:HH11	1.66	0.60
1:A:1193:ASN:HD21	1:A:1249:GLY:N	1.98	0.60
1:E:5162:ARG:HG2	1:E:5162:ARG:HH11	1.65	0.60
1:C:3157:ASN:N	1:C:3157:ASN:ND2	2.45	0.60
1:C:3193:ASN:O	1:C:3194:THR:HG23	2.01	0.60
1:C:3100:ILE:H	1:C:3100:ILE:HD12	1.66	0.60
1:C:3149:VAL:HG11	1:C:3166:ASN:HB3	1.84	0.60
1:F:6149:VAL:HG11	1:F:6166:ASN:HB3	1.84	0.60
1:E:5057:LYS:HG2	1:E:5058:THR:H	1.66	0.60
1:D:4182:GLY:HA3	1:D:4259:TRP:CZ2	2.36	0.60
1:C:3057:LYS:HG2	1:C:3058:THR:H	1.66	0.60
1:D:4193:ASN:HD21	1:D:4249:GLY:N	1.99	0.60
1:A:1192:TRP:CH2	1:A:1250:VAL:HG22	2.37	0.60
1:B:2193:ASN:O	1:B:2194:THR:HG23	2.02	0.60
1:B:2100:ILE:HD12	1:B:2100:ILE:H	1.66	0.59
1:F:6211:ASN:HD22	1:F:6256:THR:HG21	1.67	0.59
1:A:1149:VAL:HG11	1:A:1166:ASN:HB3	1.84	0.59
1:A:1057:LYS:HG2	1:A:1058:THR:H	1.66	0.59
1:B:2162:ARG:HG2	1:B:2162:ARG:HH11	1.66	0.59
1:D:4091:ILE:HD12	1:D:4117:PHE:CE1	2.37	0.59
1:D:4211:ASN:HD22	1:D:4256:THR:HG21	1.68	0.59
1:C:3157:ASN:ND2	1:C:3157:ASN:H	2.00	0.59
1:D:4057:LYS:HG2	1:D:4058:THR:H	1.68	0.59
1:D:4149:VAL:HG11	1:D:4166:ASN:HB3	1.84	0.59
1:E:5085:ILE:HG13	1:E:5210:PHE:CE2	2.36	0.59
1:D:4230:HIS:HD2	1:F:6230:HIS:CD2	2.21	0.58
1:F:6193:ASN:O	1:F:6194:THR:HG23	2.03	0.58
1:C:3168:TYR:O	1:C:3173:VAL:HG11	2.03	0.58
1:A:1209:TYR:OH	1:A:1220:HIS:HD2	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:4157:ASN:ND2	1:D:4157:ASN:N	2.51	0.58
1:C:3091:ILE:HD12	1:C:3117:PHE:CE1	2.39	0.58
1:D:4193:ASN:O	1:D:4194:THR:HG23	2.04	0.58
1:A:1157:ASN:ND2	1:A:1157:ASN:H	1.99	0.58
1:A:1136:HIS:H	1:C:3136:HIS:CD2	2.15	0.57
1:E:5193:ASN:ND2	1:E:5249:GLY:H	2.00	0.57
1:A:1101:GLY:O	1:A:1104:ASP:HB2	2.04	0.57
1:B:2149:VAL:HG11	1:B:2166:ASN:HB3	1.85	0.57
1:F:6091:ILE:HD12	1:F:6117:PHE:CE1	2.39	0.57
1:F:6157:ASN:H	1:F:6157:ASN:ND2	2.01	0.57
1:D:4228:THR:OG1	1:F:6230:HIS:HE1	1.87	0.57
1:D:4091:ILE:HG22	1:D:4100:ILE:HG13	1.87	0.57
1:A:1177:CYS:HB3	1:C:3136:HIS:CD2	2.39	0.57
1:E:5193:ASN:O	1:E:5194:THR:HG23	2.04	0.57
1:F:6086:GLY:O	1:F:6102:HIS:HD2	1.86	0.57
1:B:2193:ASN:HD21	1:B:2249:GLY:N	2.03	0.57
1:D:4230:HIS:CD2	1:F:6230:HIS:HD2	2.23	0.57
1:A:1091:ILE:HD12	1:A:1117:PHE:CE1	2.39	0.57
1:C:3091:ILE:HG22	1:C:3100:ILE:HG13	1.87	0.56
1:D:4193:ASN:ND2	1:D:4249:GLY:H	2.03	0.56
1:B:2091:ILE:HD12	1:B:2117:PHE:CE1	2.41	0.56
1:C:3091:ILE:CD1	1:C:3106:LEU:HD23	2.33	0.56
1:A:1192:TRP:CH2	1:A:1250:VAL:CG2	2.89	0.56
1:A:1193:ASN:ND2	1:A:1249:GLY:H	2.04	0.56
1:E:5157:ASN:ND2	1:E:5157:ASN:H	2.04	0.56
1:F:6182:GLY:HA3	1:F:6259:TRP:CZ2	2.40	0.56
1:C:3183:LEU:HD23	1:C:3183:LEU:C	2.26	0.56
1:B:2168:TYR:O	1:B:2173:VAL:HG11	2.06	0.56
1:F:6193:ASN:HD21	1:F:6249:GLY:H	1.53	0.55
1:D:4183:LEU:HD23	1:D:4183:LEU:C	2.27	0.55
1:D:4193:ASN:HD22	1:D:4193:ASN:H	1.55	0.55
1:E:5192:TRP:CE2	1:E:5250:VAL:HG13	2.41	0.55
1:E:5091:ILE:HG22	1:E:5100:ILE:HG13	1.88	0.55
1:E:5192:TRP:CH2	1:E:5250:VAL:CG2	2.89	0.55
1:A:1205:GLU:OE2	1:A:1247:HIS:NE2	2.39	0.55
1:A:1091:ILE:HG22	1:A:1100:ILE:HG13	1.89	0.55
1:F:6183:LEU:HD23	1:F:6183:LEU:C	2.27	0.55
1:F:6091:ILE:HD13	1:F:6106:LEU:CD2	2.34	0.55
1:A:1086:GLY:O	1:A:1102:HIS:HD2	1.89	0.55
1:C:3193:ASN:HD22	1:C:3193:ASN:H	1.55	0.55
1:D:4086:GLY:O	1:D:4102:HIS:HD2	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:6170:VAL:H	1:F:6173:VAL:CG1	2.21	0.54
1:E:5192:TRP:CH2	1:E:5250:VAL:HG22	2.43	0.54
1:B:2157:ASN:H	1:B:2157:ASN:HD22	1.53	0.54
1:F:6091:ILE:CD1	1:F:6106:LEU:HD23	2.34	0.54
1:B:2183:LEU:C	1:B:2183:LEU:HD23	2.27	0.54
1:D:4230:HIS:CE1	1:F:6228:THR:OG1	2.57	0.54
1:B:2086:GLY:O	1:B:2102:HIS:HD2	1.91	0.54
1:E:5216:ALA:O	1:E:5217:CYS:HB3	2.09	0.53
1:E:5186:LEU:HD12	1:E:5255:TYR:CE1	2.43	0.53
1:B:2193:ASN:HD22	1:B:2193:ASN:H	1.55	0.53
1:F:6091:ILE:HG22	1:F:6100:ILE:HG13	1.90	0.53
1:F:6193:ASN:H	1:F:6193:ASN:HD22	1.55	0.53
1:D:4019:THR:HB	1:F:6227:GLU:OE2	2.07	0.53
1:A:1183:LEU:C	1:A:1183:LEU:HD23	2.29	0.53
1:B:2163:ARG:HB3	1:B:2186:LEU:CD2	2.26	0.53
1:D:4048:ILE:HD12	1:D:4049:VAL:N	2.24	0.53
1:A:1046:ARG:HH11	1:A:1046:ARG:HG3	1.74	0.53
1:C:3170:VAL:H	1:C:3173:VAL:CG1	2.22	0.53
1:D:4120:ILE:O	1:D:4121:ASP:HB2	2.08	0.53
1:B:2167:LYS:HE3	1:B:2268:PHE:HD2	1.74	0.53
1:C:3091:ILE:HD13	1:C:3106:LEU:CD2	2.33	0.53
1:D:4170:VAL:H	1:D:4173:VAL:CG1	2.21	0.53
1:E:5203:ARG:O	1:E:5203:ARG:HG3	2.09	0.53
1:F:6204:MET:SD	1:F:6204:MET:C	2.87	0.53
1:B:2046:ARG:HG3	1:B:2046:ARG:HH11	1.74	0.53
1:B:2193:ASN:ND2	1:B:2249:GLY:H	2.06	0.53
1:C:3120:ILE:O	1:C:3121:ASP:HB2	2.09	0.52
1:E:5089:GLY:O	1:E:5100:ILE:HD12	2.09	0.52
1:E:5046:ARG:HG3	1:E:5046:ARG:HH11	1.74	0.52
1:F:6046:ARG:HG3	1:F:6046:ARG:HH11	1.74	0.52
1:A:1193:ASN:HD22	1:A:1193:ASN:H	1.57	0.52
1:C:3086:GLY:O	1:C:3102:HIS:HD2	1.92	0.52
1:E:5091:ILE:CD1	1:E:5106:LEU:HD23	2.35	0.52
1:C:3046:ARG:HH11	1:C:3046:ARG:HG3	1.75	0.52
1:D:4203:ARG:NH1	1:D:4205:GLU:OE1	2.42	0.52
1:F:6120:ILE:O	1:F:6121:ASP:HB2	2.08	0.52
1:E:5044:ILE:HB	1:E:5204:MET:HE3	1.91	0.52
1:A:1163:ARG:HB3	1:A:1186:LEU:CD2	2.25	0.52
1:D:4046:ARG:HH11	1:D:4046:ARG:HG3	1.74	0.52
1:E:5104:ASP:OD2	1:E:5145:THR:HG22	2.10	0.52
1:B:2091:ILE:HG22	1:B:2100:ILE:HG13	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2120:ILE:O	1:B:2121:ASP:HB2	2.09	0.52
1:F:6209:TYR:OH	1:F:6220:HIS:HD2	1.92	0.52
1:B:2089:GLY:O	1:B:2100:ILE:HD12	2.09	0.52
1:E:5086:GLY:O	1:E:5102:HIS:HD2	1.92	0.52
1:E:5170:VAL:H	1:E:5173:VAL:CG1	2.22	0.52
1:A:1168:TYR:O	1:A:1173:VAL:HG11	2.09	0.51
1:A:1211:ASN:HD22	1:A:1256:THR:CG2	2.22	0.51
1:D:4227:GLU:HA	1:F:6019:THR:OG1	2.10	0.51
1:A:1165:ILE:HG22	1:A:1184:THR:OG1	2.10	0.51
1:E:5120:ILE:O	1:E:5121:ASP:HB2	2.09	0.51
1:B:2048:ILE:HD12	1:B:2049:VAL:N	2.25	0.51
1:C:3192:TRP:CZ3	1:C:3250:VAL:HG22	2.45	0.51
1:D:4047:ILE:HD11	1:D:4262:VAL:CG1	2.30	0.51
1:F:6193:ASN:HD21	1:F:6249:GLY:N	2.09	0.51
1:E:5193:ASN:HD22	1:E:5193:ASN:H	1.59	0.51
1:A:1157:ASN:H	1:A:1157:ASN:HD22	1.55	0.51
1:B:2170:VAL:H	1:B:2173:VAL:CG1	2.23	0.51
1:C:3090:THR:HG22	1:C:3118:ALA:HB3	1.93	0.51
1:F:6041:TYR:OH	1:F:6046:ARG:HG2	2.10	0.51
1:F:6154:LEU:O	1:F:6162:ARG:HA	2.10	0.51
1:D:4091:ILE:HD13	1:D:4106:LEU:CD2	2.37	0.51
1:E:5183:LEU:HD23	1:E:5183:LEU:C	2.31	0.51
1:F:6193:ASN:ND2	1:F:6249:GLY:H	2.09	0.51
1:D:4137:THR:HG21	1:E:5162:ARG:HH12	1.76	0.51
1:F:6110:LYS:HB3	1:F:6138:THR:HG22	1.93	0.51
1:B:2170:VAL:HG23	1:B:2173:VAL:HG12	1.93	0.51
1:B:2193:ASN:HD22	1:B:2193:ASN:N	2.09	0.51
1:C:3041:TYR:OH	1:C:3046:ARG:HG2	2.10	0.51
1:A:1170:VAL:H	1:A:1173:VAL:CG1	2.24	0.51
1:C:3211:ASN:HD22	1:C:3256:THR:HG21	1.75	0.50
1:F:6211:ASN:HD22	1:F:6256:THR:CG2	2.24	0.50
1:A:1120:ILE:O	1:A:1121:ASP:HB2	2.11	0.50
1:A:1186:LEU:HD12	1:A:1255:TYR:CE1	2.47	0.50
1:A:1048:ILE:HD12	1:A:1049:VAL:N	2.26	0.50
1:D:4157:ASN:H	1:D:4157:ASN:ND2	2.09	0.50
1:D:4192:TRP:CH2	1:D:4250:VAL:HG22	2.47	0.50
1:D:4186:LEU:HD12	1:D:4255:TYR:CE1	2.47	0.50
1:A:1045:ASP:OD1	1:C:3046:ARG:NH1	2.45	0.50
1:D:4162:ARG:HH11	1:D:4162:ARG:CG	2.24	0.50
1:D:4207:TYR:O	1:D:4238:ALA:HA	2.11	0.50
1:E:5054:PRO:HG2	1:E:5119:SER:OG	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:6048:ILE:HD12	1:F:6049:VAL:N	2.27	0.50
1:F:6165:ILE:HG22	1:F:6184:THR:OG1	2.12	0.50
1:F:6193:ASN:N	1:F:6193:ASN:HD22	2.08	0.50
1:C:3052:ILE:HD13	1:C:3117:PHE:CD2	2.47	0.50
1:A:1047:ILE:CD1	1:A:1133:ALA:HB2	2.42	0.50
1:D:4154:LEU:O	1:D:4162:ARG:HA	2.12	0.50
1:C:3110:LYS:CG	1:C:3138:THR:HG22	2.42	0.50
1:D:4110:LYS:CG	1:D:4138:THR:HG22	2.42	0.50
1:F:6089:GLY:O	1:F:6100:ILE:HD12	2.12	0.50
1:C:3162:ARG:CG	1:C:3162:ARG:HH11	2.25	0.49
1:D:4192:TRP:CH2	1:D:4250:VAL:CG2	2.95	0.49
1:B:2154:LEU:O	1:B:2162:ARG:HA	2.12	0.49
1:D:4089:GLY:O	1:D:4100:ILE:HD12	2.12	0.49
1:E:5162:ARG:CG	1:E:5162:ARG:HH11	2.25	0.49
1:A:1091:ILE:HD13	1:A:1106:LEU:CD2	2.38	0.49
1:A:1110:LYS:CG	1:A:1138:THR:HG22	2.43	0.49
1:E:5110:LYS:HB3	1:E:5138:THR:HG22	1.93	0.49
1:E:5154:LEU:O	1:E:5162:ARG:HA	2.12	0.49
1:B:2085:ILE:HG13	1:B:2210:PHE:CE2	2.47	0.49
1:A:1008:SER:HG	1:C:3008:SER:CB	2.25	0.49
1:C:3193:ASN:HD21	1:C:3249:GLY:H	1.60	0.49
1:D:4227:GLU:OE1	1:D:4229:ARG:NH2	2.45	0.49
1:C:3048:ILE:HD12	1:C:3049:VAL:N	2.28	0.49
1:C:3227:GLU:OE1	1:C:3229:ARG:NH2	2.45	0.49
1:B:2203:ARG:HG3	1:B:2203:ARG:O	2.13	0.49
1:E:5110:LYS:CG	1:E:5138:THR:HG22	2.43	0.49
1:F:6110:LYS:O	1:F:6138:THR:HB	2.13	0.49
1:A:1154:LEU:O	1:A:1162:ARG:HA	2.13	0.48
1:B:2091:ILE:CD1	1:B:2106:LEU:HD23	2.38	0.48
1:A:1136:HIS:HD2	1:C:3136:HIS:H	1.59	0.48
1:E:5131:ASN:ND2	1:E:5260:GLY:HA3	2.28	0.48
1:F:6204:MET:O	1:F:6205:GLU:HG3	2.13	0.48
1:C:3089:GLY:O	1:C:3100:ILE:HD12	2.13	0.48
1:D:4054:PRO:HG2	1:D:4119:SER:OG	2.12	0.48
1:A:1193:ASN:N	1:A:1193:ASN:HD22	2.10	0.48
1:C:3193:ASN:HD22	1:C:3193:ASN:N	2.09	0.48
1:E:5052:ILE:HD13	1:E:5117:PHE:CD2	2.49	0.48
1:E:5165:ILE:HG22	1:E:5184:THR:OG1	2.13	0.48
1:F:6110:LYS:CG	1:F:6138:THR:HG22	2.43	0.48
1:B:2110:LYS:CG	1:B:2138:THR:HG22	2.44	0.48
1:C:3054:PRO:HG2	1:C:3119:SER:OG	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:6227:GLU:OE1	1:F:6229:ARG:NH2	2.46	0.48
1:A:1136:HIS:N	1:C:3136:HIS:HD2	2.02	0.48
1:C:3154:LEU:O	1:C:3162:ARG:HA	2.13	0.48
1:E:5170:VAL:HG23	1:E:5173:VAL:HG12	1.96	0.48
1:D:4019:THR:OG1	1:F:6227:GLU:HA	2.14	0.48
1:A:1215:ASP:OD2	1:A:1216:ALA:N	2.47	0.48
1:C:3091:ILE:CG2	1:C:3106:LEU:HD22	2.44	0.48
1:D:4027:LEU:HD22	1:D:4028:VAL:N	2.29	0.48
1:E:5048:ILE:HD12	1:E:5049:VAL:N	2.29	0.48
1:E:5227:GLU:OE1	1:E:5229:ARG:NH2	2.46	0.48
1:D:4047:ILE:CD1	1:D:4133:ALA:HB2	2.43	0.48
1:F:6210:PHE:CE1	1:F:6258:ILE:HG12	2.49	0.48
1:A:1170:VAL:HG23	1:A:1172:ASP:OD2	2.14	0.48
1:B:2192:TRP:CH2	1:B:2250:VAL:HG22	2.48	0.48
1:B:2207:TYR:O	1:B:2238:ALA:HA	2.14	0.48
1:B:2162:ARG:CG	1:B:2162:ARG:HH11	2.27	0.48
1:A:1052:ILE:HD13	1:A:1117:PHE:CD2	2.49	0.47
1:A:1182:GLY:HA3	1:A:1259:TRP:CZ2	2.48	0.47
1:B:2054:PRO:HG2	1:B:2119:SER:OG	2.14	0.47
1:A:1085:ILE:HG13	1:A:1210:PHE:CE2	2.49	0.47
1:A:1091:ILE:CD1	1:A:1106:LEU:HD23	2.37	0.47
1:B:2182:GLY:HA3	1:B:2259:TRP:CE2	2.49	0.47
1:F:6091:ILE:CG2	1:F:6106:LEU:HD22	2.45	0.47
1:B:2104:ASP:OD2	1:B:2145:THR:HG22	2.14	0.47
1:D:4110:LYS:HB3	1:D:4138:THR:HG22	1.97	0.47
1:E:5192:TRP:CH2	1:E:5250:VAL:HG21	2.50	0.47
1:F:6057:LYS:HG2	1:F:6058:THR:N	2.28	0.47
1:F:6104:ASP:OD2	1:F:6145:THR:HG22	2.13	0.47
1:F:6203:ARG:HG3	1:F:6203:ARG:O	2.13	0.47
1:A:1031:VAL:HG21	1:A:1208:PHE:HE2	1.79	0.47
1:B:2165:ILE:HG22	1:B:2184:THR:OG1	2.15	0.47
1:C:3165:ILE:HG22	1:C:3184:THR:OG1	2.14	0.47
1:D:4192:TRP:CE2	1:D:4250:VAL:HG13	2.49	0.47
1:E:5110:LYS:O	1:E:5138:THR:HB	2.15	0.47
1:A:1031:VAL:HG21	1:A:1208:PHE:CE2	2.50	0.47
1:B:2057:LYS:HG2	1:B:2058:THR:N	2.30	0.47
1:C:3170:VAL:HG23	1:C:3172:ASP:OD2	2.15	0.47
1:E:5041:TYR:OH	1:E:5046:ARG:HG2	2.15	0.47
1:F:6151:PRO:HB3	1:F:6166:ASN:ND2	2.29	0.47
1:A:1089:GLY:O	1:A:1100:ILE:HD12	2.15	0.47
1:C:3057:LYS:HG2	1:C:3058:THR:N	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:4110:LYS:O	1:D:4138:THR:HB	2.15	0.47
1:D:4104:ASP:OD2	1:D:4145:THR:HG22	2.15	0.47
1:E:5182:GLY:HA3	1:E:5259:TRP:CE2	2.49	0.47
1:F:6052:ILE:HD13	1:F:6117:PHE:CD2	2.50	0.47
1:F:6162:ARG:HH11	1:F:6162:ARG:CG	2.26	0.47
1:B:2227:GLU:OE1	1:B:2229:ARG:NH2	2.47	0.47
1:D:4131:ASN:ND2	1:D:4260:GLY:HA3	2.30	0.47
1:F:6170:VAL:HG23	1:F:6172:ASP:OD2	2.15	0.47
1:A:1140:PRO:HD3	1:D:4158:LEU:CD1	2.45	0.47
1:E:5211:ASN:HD22	1:E:5256:THR:CG2	2.25	0.47
1:B:2052:ILE:HD13	1:B:2117:PHE:CD2	2.50	0.47
1:E:5047:ILE:CD1	1:E:5262:VAL:HG11	2.27	0.46
1:B:2031:VAL:HG21	1:B:2208:PHE:CE2	2.50	0.46
1:D:4038:THR:HB	1:D:4051:GLY:H	1.81	0.46
1:D:4090:THR:HG22	1:D:4118:ALA:HB3	1.97	0.46
1:D:4170:VAL:HG23	1:D:4173:VAL:HG12	1.98	0.46
1:D:4182:GLY:HA3	1:D:4259:TRP:CE2	2.51	0.46
1:C:3153:THR:O	1:C:3154:LEU:HD12	2.15	0.46
1:D:4193:ASN:HD22	1:D:4193:ASN:N	2.09	0.46
1:D:4003:LEU:HD11	1:D:4039:MET:HG2	1.98	0.46
1:D:4057:LYS:HG2	1:D:4058:THR:N	2.31	0.46
1:D:4167:LYS:HE3	1:D:4268:PHE:HD2	1.80	0.46
1:C:3085:ILE:HG13	1:C:3210:PHE:CE2	2.51	0.46
1:D:4161:ASN:HD22	1:D:4161:ASN:N	2.12	0.46
1:E:5090:THR:HG22	1:E:5118:ALA:HB3	1.98	0.46
1:F:6057:LYS:CG	1:F:6058:THR:H	2.28	0.46
1:B:2091:ILE:HD13	1:B:2106:LEU:CD2	2.38	0.46
1:E:5027:LEU:HD22	1:E:5028:VAL:N	2.31	0.46
1:E:5057:LYS:HG2	1:E:5058:THR:N	2.29	0.46
1:F:6192:TRP:CZ3	1:F:6250:VAL:HG22	2.51	0.46
1:A:1057:LYS:HG2	1:A:1058:THR:N	2.30	0.46
1:A:1090:THR:HG22	1:A:1118:ALA:HB3	1.98	0.46
1:B:2193:ASN:H	1:B:2193:ASN:ND2	2.14	0.46
1:E:5193:ASN:HD22	1:E:5193:ASN:N	2.12	0.46
1:C:3102:HIS:CE1	1:C:3103:ARG:HD3	2.51	0.46
1:E:5102:HIS:CE1	1:E:5103:ARG:HD3	2.51	0.46
1:C:3104:ASP:OD2	1:C:3145:THR:HG22	2.15	0.46
1:C:3193:ASN:ND2	1:C:3193:ASN:H	2.14	0.46
1:E:5163:ARG:HB3	1:E:5186:LEU:CD2	2.25	0.46
1:A:1110:LYS:HB3	1:A:1138:THR:HG22	1.98	0.45
1:A:1227:GLU:OE1	1:A:1229:ARG:NH2	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:4091:ILE:CG2	1:D:4106:LEU:HD22	2.46	0.45
1:F:6054:PRO:HG2	1:F:6119:SER:OG	2.16	0.45
1:A:1054:PRO:HG2	1:A:1119:SER:OG	2.15	0.45
1:B:2110:LYS:O	1:B:2138:THR:HB	2.15	0.45
1:C:3152:VAL:HB	1:C:3165:ILE:HG13	1.98	0.45
1:E:5091:ILE:HD13	1:E:5106:LEU:CD2	2.38	0.45
1:E:5091:ILE:CG2	1:E:5106:LEU:HD22	2.46	0.45
1:F:6163:ARG:HB3	1:F:6186:LEU:CD2	2.28	0.45
1:F:6193:ASN:H	1:F:6193:ASN:ND2	2.14	0.45
1:A:1161:ASN:N	1:A:1161:ASN:HD22	2.14	0.45
1:C:3091:ILE:HG22	1:C:3100:ILE:CG1	2.46	0.45
1:C:3110:LYS:HB3	1:C:3138:THR:HG22	1.98	0.45
1:D:4049:VAL:HG21	1:D:4206:VAL:HG11	1.98	0.45
1:D:4091:ILE:CD1	1:D:4106:LEU:HD23	2.37	0.45
1:A:1152:VAL:HB	1:A:1165:ILE:HG13	1.99	0.45
1:B:2047:ILE:CD1	1:B:2133:ALA:HB2	2.46	0.45
1:A:1162:ARG:HH11	1:A:1162:ARG:CG	2.28	0.45
1:F:6090:THR:HG22	1:F:6118:ALA:HB3	1.99	0.45
1:D:4228:THR:OG1	1:F:6230:HIS:CE1	2.68	0.45
1:F:6047:ILE:CD1	1:F:6133:ALA:HB2	2.46	0.45
1:B:2091:ILE:CG2	1:B:2106:LEU:HD22	2.47	0.45
1:F:6032:PHE:CE1	1:F:6127:LYS:HB3	2.51	0.45
1:D:4165:ILE:HG22	1:D:4184:THR:OG1	2.17	0.45
1:B:2057:LYS:CG	1:B:2058:THR:H	2.30	0.45
1:C:3193:ASN:HD21	1:C:3249:GLY:N	2.15	0.45
1:A:1091:ILE:CG2	1:A:1106:LEU:HD22	2.48	0.44
1:C:3151:PRO:HB3	1:C:3166:ASN:ND2	2.31	0.44
1:D:4009:ILE:HD11	1:D:4026:PHE:HZ	1.82	0.44
1:A:1041:TYR:OH	1:A:1046:ARG:HG2	2.16	0.44
1:B:2192:TRP:CH2	1:B:2250:VAL:CG2	3.00	0.44
1:A:1003:LEU:HD11	1:A:1039:MET:HG2	1.98	0.44
1:A:1057:LYS:CG	1:A:1058:THR:H	2.29	0.44
1:A:1178:GLN:HG3	1:C:3136:HIS:CE1	2.52	0.44
1:B:2148:GLU:HG2	1:B:2148:GLU:H	1.53	0.44
1:C:3163:ARG:HB3	1:C:3186:LEU:CD2	2.27	0.44
1:D:4220:HIS:O	1:D:4230:HIS:HA	2.17	0.44
1:E:5091:ILE:HG22	1:E:5100:ILE:CG1	2.48	0.44
1:E:5153:THR:O	1:E:5154:LEU:HD12	2.17	0.44
1:E:5167:LYS:HE3	1:E:5268:PHE:HD2	1.82	0.44
1:E:5265:ASN:ND2	1:E:5267:VAL:HB	2.32	0.44
1:C:3110:LYS:O	1:C:3138:THR:HB	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:4085:ILE:HG13	1:D:4210:PHE:CE2	2.52	0.44
1:D:4163:ARG:HB3	1:D:4186:LEU:CD2	2.26	0.44
1:A:1193:ASN:H	1:A:1193:ASN:ND2	2.15	0.44
1:E:5003:LEU:HD11	1:E:5039:MET:HG2	2.00	0.44
1:F:6091:ILE:HG21	1:F:6106:LEU:HD22	1.99	0.44
1:A:1091:ILE:HG22	1:A:1100:ILE:CG1	2.46	0.44
1:C:3047:ILE:CD1	1:C:3133:ALA:HB2	2.48	0.44
1:E:5161:ASN:N	1:E:5161:ASN:HD22	2.14	0.44
1:F:6152:VAL:HB	1:F:6165:ILE:HG13	2.00	0.44
1:D:4161:ASN:ND2	1:D:4161:ASN:N	2.65	0.44
1:B:2003:LEU:HD11	1:B:2039:MET:HG2	2.00	0.44
1:B:2038:THR:HB	1:B:2051:GLY:H	1.83	0.44
1:B:2120:ILE:O	1:B:2120:ILE:HG13	2.18	0.44
1:C:3003:LEU:HD11	1:C:3039:MET:HG2	2.00	0.44
1:D:4052:ILE:HD13	1:D:4117:PHE:CD2	2.53	0.44
1:D:4032:PHE:CE1	1:D:4127:LYS:HB3	2.53	0.44
1:D:4161:ASN:HB2	1:D:4162:ARG:H	1.59	0.44
1:F:6161:ASN:HD22	1:F:6161:ASN:N	2.15	0.44
1:A:1170:VAL:HG23	1:A:1173:VAL:HG12	2.00	0.43
1:B:2032:PHE:CE1	1:B:2127:LYS:HB3	2.53	0.43
1:C:3032:PHE:CE1	1:C:3127:LYS:HB3	2.53	0.43
1:C:3161:ASN:HB2	1:C:3162:ARG:H	1.62	0.43
1:E:5057:LYS:CG	1:E:5058:THR:H	2.30	0.43
1:E:5220:HIS:O	1:E:5230:HIS:HA	2.18	0.43
1:A:1110:LYS:O	1:A:1138:THR:HB	2.18	0.43
1:B:2041:TYR:OH	1:B:2046:ARG:HG2	2.17	0.43
1:D:4162:ARG:NH1	1:D:4162:ARG:CG	2.80	0.43
1:E:5032:PHE:CE1	1:E:5127:LYS:HB3	2.54	0.43
1:D:4193:ASN:ND2	1:D:4193:ASN:H	2.14	0.43
1:F:6186:LEU:HD12	1:F:6255:TYR:CE1	2.53	0.43
1:A:1008:SER:HG	1:C:3008:SER:HB2	1.83	0.43
1:A:1010:HIS:HB2	1:C:3009:ILE:HG22	2.00	0.43
1:C:3091:ILE:HD12	1:C:3117:PHE:HE1	1.82	0.43
1:D:4152:VAL:HB	1:D:4165:ILE:HG13	1.99	0.43
1:D:4204:MET:SD	1:D:4204:MET:C	2.97	0.43
1:F:6091:ILE:HD12	1:F:6117:PHE:HE1	1.83	0.43
1:A:1015:LYS:HE3	1:A:1227:GLU:CD	2.38	0.43
1:B:2161:ASN:N	1:B:2161:ASN:HD22	2.16	0.43
1:B:2186:LEU:HD12	1:B:2255:TYR:CE1	2.53	0.43
1:D:4041:TYR:OH	1:D:4046:ARG:HG2	2.19	0.43
1:F:6210:PHE:HE1	1:F:6258:ILE:HG12	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2110:LYS:HB3	1:B:2138:THR:HG22	2.01	0.43
1:B:2152:VAL:HB	1:B:2165:ILE:HG13	2.00	0.43
1:C:3193:ASN:ND2	1:C:3249:GLY:H	2.16	0.43
1:C:3210:PHE:CE1	1:C:3258:ILE:HG12	2.53	0.43
1:E:5161:ASN:HB2	1:E:5162:ARG:H	1.59	0.43
1:E:5193:ASN:ND2	1:E:5193:ASN:H	2.17	0.43
1:A:1032:PHE:CE1	1:A:1127:LYS:HB3	2.53	0.43
1:C:3027:LEU:HD22	1:C:3028:VAL:N	2.34	0.43
1:D:4153:THR:O	1:D:4154:LEU:HD12	2.19	0.43
1:F:6182:GLY:HA3	1:F:6259:TRP:CE2	2.54	0.43
1:E:5047:ILE:CD1	1:E:5133:ALA:HB2	2.49	0.43
1:E:5091:ILE:HD12	1:E:5117:PHE:HE1	1.78	0.43
1:F:6027:LEU:HD22	1:F:6028:VAL:N	2.33	0.43
1:F:6161:ASN:ND2	1:F:6161:ASN:N	2.67	0.43
1:B:2131:ASN:HB2	1:B:2181:MET:SD	2.59	0.43
1:F:6085:ILE:HG13	1:F:6210:PHE:CE2	2.54	0.43
1:A:1027:LEU:HD22	1:A:1028:VAL:N	2.34	0.43
1:C:3091:ILE:HG21	1:C:3106:LEU:HD22	2.00	0.43
1:E:5176:THR:OG1	1:E:5266:GLN:NE2	2.51	0.43
1:F:6102:HIS:CE1	1:F:6103:ARG:HD3	2.54	0.43
1:B:2090:THR:HG22	1:B:2118:ALA:HB3	2.00	0.42
1:C:3170:VAL:HG23	1:C:3173:VAL:HG12	2.01	0.42
1:C:3265:ASN:ND2	1:C:3267:VAL:HB	2.34	0.42
1:A:1220:HIS:O	1:A:1230:HIS:HA	2.18	0.42
1:F:6167:LYS:HE3	1:F:6268:PHE:HD2	1.84	0.42
1:A:1161:ASN:ND2	1:A:1161:ASN:N	2.67	0.42
1:C:3162:ARG:CG	1:C:3162:ARG:NH1	2.83	0.42
1:E:5151:PRO:HB3	1:E:5166:ASN:ND2	2.34	0.42
1:A:1038:THR:HB	1:A:1051:GLY:H	1.84	0.42
1:A:1192:TRP:CE2	1:A:1250:VAL:CG1	3.02	0.42
1:B:2102:HIS:CE1	1:B:2103:ARG:HD3	2.54	0.42
1:B:2265:ASN:ND2	1:B:2267:VAL:HB	2.35	0.42
1:C:3167:LYS:HE3	1:C:3268:PHE:HD2	1.84	0.42
1:D:4091:ILE:HG22	1:D:4100:ILE:CG1	2.48	0.42
1:D:4265:ASN:ND2	1:D:4267:VAL:HB	2.35	0.42
1:A:1091:ILE:HD12	1:A:1117:PHE:HE1	1.84	0.42
1:A:1266:GLN:HG3	1:C:3077:ARG:NH2	2.34	0.42
1:F:6170:VAL:HG23	1:F:6173:VAL:HG12	2.02	0.42
1:A:1057:LYS:HE3	1:A:1057:LYS:HB2	1.85	0.42
1:C:3057:LYS:CG	1:C:3058:THR:H	2.31	0.42
1:E:5162:ARG:CG	1:E:5162:ARG:NH1	2.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:6153:THR:O	1:F:6154:LEU:HD12	2.20	0.42
1:F:6162:ARG:NH1	1:F:6162:ARG:CG	2.83	0.42
1:A:1100:ILE:HD13	1:A:1128:PHE:CE1	2.54	0.42
1:A:1265:ASN:ND2	1:A:1267:VAL:HB	2.34	0.42
1:E:5038:THR:HB	1:E:5051:GLY:H	1.85	0.42
1:E:5187:ALA:O	1:E:5188:PRO:C	2.57	0.42
1:F:6003:LEU:HD11	1:F:6039:MET:HG2	2.02	0.42
1:F:6091:ILE:HG22	1:F:6100:ILE:CG1	2.49	0.42
1:F:6265:ASN:ND2	1:F:6267:VAL:HB	2.34	0.42
1:A:1102:HIS:CE1	1:A:1103:ARG:HD3	2.55	0.42
1:A:1151:PRO:HB3	1:A:1166:ASN:ND2	2.34	0.42
1:D:4057:LYS:CG	1:D:4058:THR:H	2.32	0.42
1:D:4151:PRO:HB3	1:D:4166:ASN:ND2	2.35	0.42
1:E:5161:ASN:N	1:E:5161:ASN:ND2	2.68	0.42
1:A:1209:TYR:O	1:A:1236:GLU:N	2.51	0.42
1:B:2192:TRP:CE2	1:B:2250:VAL:HG13	2.54	0.42
1:C:3102:HIS:CE1	1:C:3103:ARG:HG2	2.55	0.42
1:B:2100:ILE:HD13	1:B:2128:PHE:CE1	2.55	0.41
1:C:3203:ARG:HD3	1:C:3203:ARG:HA	1.89	0.41
1:C:3131:ASN:ND2	1:C:3260:GLY:HA3	2.35	0.41
1:A:1048:ILE:HD11	1:A:1130:TYR:OH	2.20	0.41
1:B:2091:ILE:HG22	1:B:2100:ILE:CG1	2.50	0.41
1:B:2161:ASN:ND2	1:B:2161:ASN:N	2.68	0.41
1:B:2220:HIS:O	1:B:2230:HIS:HA	2.20	0.41
1:C:3161:ASN:HD22	1:C:3161:ASN:N	2.17	0.41
1:C:3161:ASN:ND2	1:C:3161:ASN:N	2.68	0.41
1:E:5075:LEU:HD12	1:E:5112:ALA:HB3	2.00	0.41
1:E:5152:VAL:HB	1:E:5165:ILE:HG13	2.01	0.41
1:F:6038:THR:HB	1:F:6051:GLY:H	1.85	0.41
1:A:1192:TRP:CH2	1:A:1250:VAL:HG21	2.55	0.41
1:C:3009:ILE:HD11	1:C:3026:PHE:HZ	1.85	0.41
1:C:3100:ILE:HD13	1:C:3128:PHE:CE1	2.55	0.41
1:C:3192:TRP:CH2	1:C:3250:VAL:HG22	2.55	0.41
1:B:2057:LYS:HB2	1:B:2057:LYS:HE3	1.85	0.41
1:C:3161:ASN:O	1:C:3162:ARG:C	2.59	0.41
1:C:3220:HIS:O	1:C:3230:HIS:HA	2.21	0.41
1:E:5009:ILE:HD11	1:E:5026:PHE:HZ	1.85	0.41
1:E:5210:PHE:HA	1:E:5235:ASN:OD1	2.20	0.41
1:F:6120:ILE:HG13	1:F:6120:ILE:O	2.21	0.41
1:F:6187:ALA:O	1:F:6188:PRO:C	2.59	0.41
1:C:3075:LEU:HD12	1:C:3112:ALA:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:3182:GLY:HA3	1:C:3259:TRP:CE2	2.55	0.41
1:D:4161:ASN:O	1:D:4162:ARG:C	2.58	0.41
1:D:4215:ASP:N	1:D:4215:ASP:OD2	2.50	0.41
1:E:5192:TRP:CE2	1:E:5250:VAL:CG1	3.03	0.41
1:F:6148:GLU:HG2	1:F:6148:GLU:H	1.51	0.41
1:B:2031:VAL:HG21	1:B:2208:PHE:HE2	1.86	0.41
1:B:2045:ASP:OD2	1:B:2204:MET:HG2	2.21	0.41
1:C:3190:ASN:O	1:C:3191:LEU:HD23	2.21	0.41
1:D:4152:VAL:CG1	1:D:4154:LEU:HD13	2.50	0.41
1:A:1162:ARG:NH1	1:A:1162:ARG:CG	2.84	0.41
1:A:1131:ASN:HB2	1:A:1181:MET:SD	2.61	0.41
1:A:1187:ALA:O	1:A:1188:PRO:C	2.58	0.41
1:C:3057:LYS:HB2	1:C:3057:LYS:HE3	1.84	0.41
1:C:3205:GLU:HG2	1:C:3261:MET:HB3	2.02	0.41
1:E:5087:GLY:HA3	1:E:5124:THR:O	2.21	0.41
1:F:6180:SER:O	1:F:6260:GLY:HA2	2.21	0.41
1:D:4250:VAL:HG11	1:F:6250:VAL:HG11	2.02	0.41
1:D:4148:GLU:H	1:D:4148:GLU:HG2	1.52	0.40
1:A:1120:ILE:O	1:A:1120:ILE:HG13	2.21	0.40
1:B:2102:HIS:CE1	1:B:2103:ARG:HG2	2.56	0.40
1:D:4120:ILE:HG13	1:D:4120:ILE:O	2.19	0.40
1:E:5100:ILE:HD13	1:E:5128:PHE:CE1	2.57	0.40
1:E:5211:ASN:CB	1:E:5256:THR:HG23	2.39	0.40
1:A:1007:GLN:HE22	1:C:3011:SER:H	1.70	0.40
1:A:1104:ASP:OD2	1:A:1145:THR:HG22	2.21	0.40
1:B:2057:LYS:HG2	1:B:2058:THR:O	2.21	0.40
1:D:4162:ARG:HD2	1:D:4162:ARG:HA	1.88	0.40
1:B:2078:ARG:HD3	1:B:2132:CYS:SG	2.61	0.40
1:D:4100:ILE:HD12	1:D:4100:ILE:N	2.31	0.40
1:F:6057:LYS:HB2	1:F:6057:LYS:HE3	1.85	0.40
1:F:6185:GLU:HG3	1:F:6256:THR:HB	2.04	0.40
1:A:1192:TRP:CD2	1:A:1250:VAL:HG13	2.57	0.40
1:B:2167:LYS:HE3	1:B:2268:PHE:CD2	2.53	0.40
1:B:2187:ALA:O	1:B:2188:PRO:C	2.60	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	255/288 (88%)	236 (92%)	16 (6%)	3 (1%)	13	27
1	B	255/288 (88%)	236 (92%)	17 (7%)	2 (1%)	19	39
1	C	255/288 (88%)	236 (92%)	16 (6%)	3 (1%)	13	27
1	D	255/288 (88%)	235 (92%)	16 (6%)	4 (2%)	9	19
1	E	255/288 (88%)	234 (92%)	17 (7%)	4 (2%)	9	19
1	F	255/288 (88%)	236 (92%)	16 (6%)	3 (1%)	13	27
All	All	1530/1728 (88%)	1413 (92%)	98 (6%)	19 (1%)	13	27

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1121	ASP
1	A	1162	ARG
1	B	2121	ASP
1	B	2162	ARG
1	C	3121	ASP
1	C	3162	ARG
1	D	4121	ASP
1	D	4162	ARG
1	E	5121	ASP
1	E	5162	ARG
1	F	6121	ASP
1	F	6162	ARG
1	F	6213	ASP
1	A	1213	ASP
1	D	4213	ASP
1	E	5216	ALA
1	C	3213	ASP
1	E	5188	PRO
1	D	4188	PRO

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	221/248 (89%)	203 (92%)	18 (8%)	11 23
1	B	221/248 (89%)	201 (91%)	20 (9%)	9 18
1	C	221/248 (89%)	203 (92%)	18 (8%)	11 23
1	D	221/248 (89%)	202 (91%)	19 (9%)	10 20
1	E	221/248 (89%)	201 (91%)	20 (9%)	9 18
1	F	221/248 (89%)	203 (92%)	18 (8%)	11 23
All	All	1326/1488 (89%)	1213 (92%)	113 (8%)	10 21

All (113) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1027	LEU
1	A	1048	ILE
1	A	1058	THR
1	A	1085	ILE
1	A	1090	THR
1	A	1100	ILE
1	A	1137	THR
1	A	1148	GLU
1	A	1157	ASN
1	A	1162	ARG
1	A	1173	VAL
1	A	1193	ASN
1	A	1194	THR
1	A	1213	ASP
1	A	1239	VAL
1	A	1247	HIS
1	A	1250	VAL
1	A	1256	THR
1	B	2027	LEU
1	B	2048	ILE
1	B	2058	THR
1	B	2085	ILE

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Mol	Chain	Res	Type
1	B	2090	THR
1	B	2100	ILE
1	B	2137	THR
1	B	2148	GLU
1	B	2154	LEU
1	B	2157	ASN
1	B	2162	ARG
1	B	2173	VAL
1	B	2193	ASN
1	B	2194	THR
1	B	2211	ASN
1	B	2213	ASP
1	B	2239	VAL
1	B	2247	HIS
1	B	2250	VAL
1	B	2256	THR
1	C	3027	LEU
1	C	3048	ILE
1	C	3058	THR
1	C	3085	ILE
1	C	3090	THR
1	C	3100	ILE
1	C	3137	THR
1	C	3148	GLU
1	C	3157	ASN
1	C	3162	ARG
1	C	3173	VAL
1	C	3193	ASN
1	C	3194	THR
1	C	3203	ARG
1	C	3239	VAL
1	C	3247	HIS
1	C	3250	VAL
1	C	3256	THR
1	D	4027	LEU
1	D	4048	ILE
1	D	4058	THR
1	D	4085	ILE
1	D	4090	THR
1	D	4100	ILE
1	D	4137	THR
1	D	4148	GLU

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Mol	Chain	Res	Type
1	D	4154	LEU
1	D	4157	ASN
1	D	4162	ARG
1	D	4173	VAL
1	D	4193	ASN
1	D	4194	THR
1	D	4203	ARG
1	D	4239	VAL
1	D	4247	HIS
1	D	4250	VAL
1	D	4256	THR
1	E	5027	LEU
1	E	5048	ILE
1	E	5058	THR
1	E	5085	ILE
1	E	5090	THR
1	E	5100	ILE
1	E	5137	THR
1	E	5148	GLU
1	E	5157	ASN
1	E	5162	ARG
1	E	5173	VAL
1	E	5193	ASN
1	E	5194	THR
1	E	5203	ARG
1	E	5215	ASP
1	E	5217	CYS
1	E	5239	VAL
1	E	5247	HIS
1	E	5250	VAL
1	E	5256	THR
1	F	6027	LEU
1	F	6048	ILE
1	F	6058	THR
1	F	6085	ILE
1	F	6090	THR
1	F	6100	ILE
1	F	6137	THR
1	F	6148	GLU
1	F	6157	ASN
1	F	6162	ARG
1	F	6173	VAL

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Mol	Chain	Res	Type
1	F	6193	ASN
1	F	6194	THR
1	F	6205	GLU
1	F	6239	VAL
1	F	6247	HIS
1	F	6250	VAL
1	F	6256	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (69) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1007	GLN
1	A	1024	ASN
1	A	1096	GLN
1	A	1102	HIS
1	A	1136	HIS
1	A	1157	ASN
1	A	1161	ASN
1	A	1166	ASN
1	A	1193	ASN
1	A	1211	ASN
1	A	1220	HIS
1	B	2007	GLN
1	B	2024	ASN
1	B	2096	GLN
1	B	2102	HIS
1	B	2157	ASN
1	B	2161	ASN
1	B	2166	ASN
1	B	2193	ASN
1	B	2220	HIS
1	B	2266	GLN
1	C	3007	GLN
1	C	3024	ASN
1	C	3096	GLN
1	C	3102	HIS
1	C	3136	HIS
1	C	3157	ASN
1	C	3161	ASN
1	C	3166	ASN
1	C	3193	ASN
1	C	3211	ASN

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Mol	Chain	Res	Type
1	C	3220	HIS
1	C	3265	ASN
1	C	3266	GLN
1	D	4007	GLN
1	D	4024	ASN
1	D	4096	GLN
1	D	4102	HIS
1	D	4131	ASN
1	D	4157	ASN
1	D	4161	ASN
1	D	4166	ASN
1	D	4193	ASN
1	D	4211	ASN
1	D	4220	HIS
1	D	4230	HIS
1	D	4266	GLN
1	E	5007	GLN
1	E	5024	ASN
1	E	5096	GLN
1	E	5102	HIS
1	E	5157	ASN
1	E	5161	ASN
1	E	5166	ASN
1	E	5193	ASN
1	E	5211	ASN
1	E	5220	HIS
1	E	5266	GLN
1	F	6007	GLN
1	F	6024	ASN
1	F	6096	GLN
1	F	6102	HIS
1	F	6157	ASN
1	F	6161	ASN
1	F	6166	ASN
1	F	6193	ASN
1	F	6211	ASN
1	F	6220	HIS
1	F	6230	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

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	259/288 (89%)	0.06	12 (4%)	32	26	13, 36, 75, 125	0
1	B	259/288 (89%)	0.04	14 (5%)	25	20	7, 32, 76, 124	0
1	C	259/288 (89%)	0.11	13 (5%)	28	23	10, 38, 83, 130	0
1	D	259/288 (89%)	0.09	14 (5%)	25	20	9, 38, 82, 129	0
1	E	259/288 (89%)	0.54	23 (8%)	9	6	16, 52, 87, 132	0
1	F	259/288 (89%)	0.33	17 (6%)	18	13	19, 45, 85, 129	0
All	All	1554/1728 (89%)	0.19	93 (5%)	21	16	7, 41, 83, 132	0

All (93) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	3267	VAL	8.4
1	C	3264	GLU	7.5
1	C	3265	ASN	6.6
1	F	6268	PHE	6.1
1	E	5267	VAL	6.1
1	E	5268	PHE	6.1
1	E	5265	ASN	5.8
1	E	5264	GLU	5.8
1	F	6267	VAL	5.8
1	B	2158	LEU	5.5
1	D	4264	GLU	5.2
1	A	1268	PHE	5.0
1	F	6158	LEU	4.8
1	B	2267	VAL	4.8
1	D	4266	GLN	4.7
1	C	3268	PHE	4.5
1	E	5266	GLN	4.5
1	B	2268	PHE	4.3
1	E	5123	GLY	4.2

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Mol	Chain	Res	Type	RSRZ
1	A	1067	LYS	4.2
1	A	1002	SER	4.2
1	E	5124	THR	4.1
1	B	2159	THR	4.0
1	D	4226	GLN	4.0
1	D	4265	ASN	3.9
1	C	3155	GLY	3.9
1	F	6155	GLY	3.8
1	D	4268	PHE	3.8
1	C	3266	GLN	3.8
1	D	4267	VAL	3.8
1	A	1158	LEU	3.6
1	B	2156	ASP	3.6
1	D	4158	LEU	3.5
1	C	3152	VAL	3.5
1	F	6156	ASP	3.5
1	F	6188	PRO	3.4
1	C	3156	ASP	3.4
1	E	5155	GLY	3.3
1	A	1265	ASN	3.3
1	B	2002	SER	3.2
1	F	6071	VAL	3.2
1	F	6067	LYS	3.1
1	E	5189	GLY	3.0
1	E	5226	GLN	2.9
1	F	6066	GLY	2.9
1	B	2193	ASN	2.9
1	D	4188	PRO	2.8
1	B	2189	GLY	2.8
1	F	6088	ALA	2.8
1	D	4263	GLY	2.7
1	D	4002	SER	2.7
1	E	5056	THR	2.7
1	E	5147	ASP	2.7
1	B	2070	GLY	2.7
1	C	3147	ASP	2.7
1	D	4157	ASN	2.6
1	C	3226	GLN	2.6
1	F	6254	ALA	2.5
1	E	5158	LEU	2.5
1	F	6263	GLY	2.5
1	B	2067	LYS	2.5

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Mol	Chain	Res	Type	RSRZ
1	F	6159	THR	2.4
1	F	6265	ASN	2.4
1	A	1088	ALA	2.4
1	E	5162	ARG	2.4
1	E	5203	ARG	2.4
1	D	4224	GLN	2.4
1	C	3158	LEU	2.4
1	F	6072	SER	2.4
1	E	5055	ILE	2.4
1	E	5215	ASP	2.4
1	B	2215	ASP	2.3
1	A	1267	VAL	2.3
1	E	5172	ASP	2.3
1	D	4124	THR	2.3
1	A	1070	GLY	2.3
1	A	1247	HIS	2.2
1	C	3193	ASN	2.2
1	F	6002	SER	2.2
1	B	2247	HIS	2.2
1	D	4203	ARG	2.2
1	E	5187	ALA	2.2
1	A	1123	GLY	2.2
1	E	5064	GLU	2.2
1	B	2265	ASN	2.2
1	E	5263	GLY	2.2
1	E	5148	GLU	2.1
1	B	2056	THR	2.1
1	A	1156	ASP	2.1
1	A	1034	ALA	2.1
1	C	3154	LEU	2.1
1	E	5188	PRO	2.1
1	F	6123	GLY	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

There are no ligands in this entry.

6.5 Other polymers

There are no such residues in this entry.