



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 23, 2021 – 04:12 PM EST

PDB ID : 1YWK
Title : Crystal structure of 4-deoxy-1-threo-5-hexosulose-uronate ketol-isomerase from *Enterococcus faecalis*
Authors : Fedorov, A.A.; Fedorov, E.V.; Almo, S.C.; Burley, S.K.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on : 2005-02-18
Resolution : 2.95 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

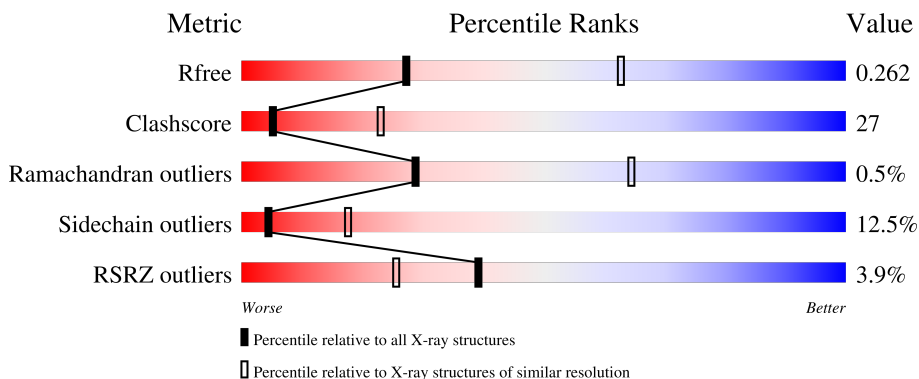
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.95 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	3104 (3.00-2.92)
Clashscore	141614	3462 (3.00-2.92)
Ramachandran outliers	138981	3340 (3.00-2.92)
Sidechain outliers	138945	3343 (3.00-2.92)
RSRZ outliers	127900	2986 (3.00-2.92)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	289	 4% 51% 31% 6% 12%
1	B	289	 3% 48% 33% 7% 12%
1	C	289	 3% 49% 33% 6% 12%
1	D	289	 % 49% 32% 7% 12%
1	E	289	 4% 48% 34% 6% 12%

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Mol	Chain	Length	Quality of chain
1	F	289	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into five segments: a small red segment (4%), a large green segment (46%), a large yellow segment (35%), a small orange segment (7%), and a small grey segment (12%).</p>

2 Entry composition i

There is only 1 type of molecule in this entry. The entry contains 12252 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 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	255	Total 2053	C 1302	N 340	O 396	S 15	0	0	0
1	B	254	Total 2042	C 1296	N 336	O 395	S 15	0	0	0
1	C	253	Total 2036	C 1291	N 338	O 392	S 15	0	0	0
1	D	254	Total 2045	C 1296	N 339	O 395	S 15	0	0	0
1	E	254	Total 2042	C 1296	N 336	O 395	S 15	0	0	0
1	F	253	Total 2034	C 1290	N 335	O 394	S 15	0	0	0

There are 78 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	996	MET	-	cloning artifact	UNP Q838L9
A	997	SER	-	cloning artifact	UNP Q838L9
A	998	LEU	-	cloning artifact	UNP Q838L9
A	999	GLN	-	cloning artifact	UNP Q838L9
A	1000	ASN	-	cloning artifact	UNP Q838L9
A	1277	GLU	-	cloning artifact	UNP Q838L9
A	1278	GLY	-	cloning artifact	UNP Q838L9
A	1279	HIS	-	cloning artifact	UNP Q838L9
A	1280	HIS	-	cloning artifact	UNP Q838L9
A	1281	HIS	-	cloning artifact	UNP Q838L9
A	1282	HIS	-	cloning artifact	UNP Q838L9
A	1283	HIS	-	cloning artifact	UNP Q838L9
A	1284	HIS	-	cloning artifact	UNP Q838L9
B	996	MET	-	cloning artifact	UNP Q838L9
B	997	SER	-	cloning artifact	UNP Q838L9
B	998	LEU	-	cloning artifact	UNP Q838L9
B	999	GLN	-	cloning artifact	UNP Q838L9

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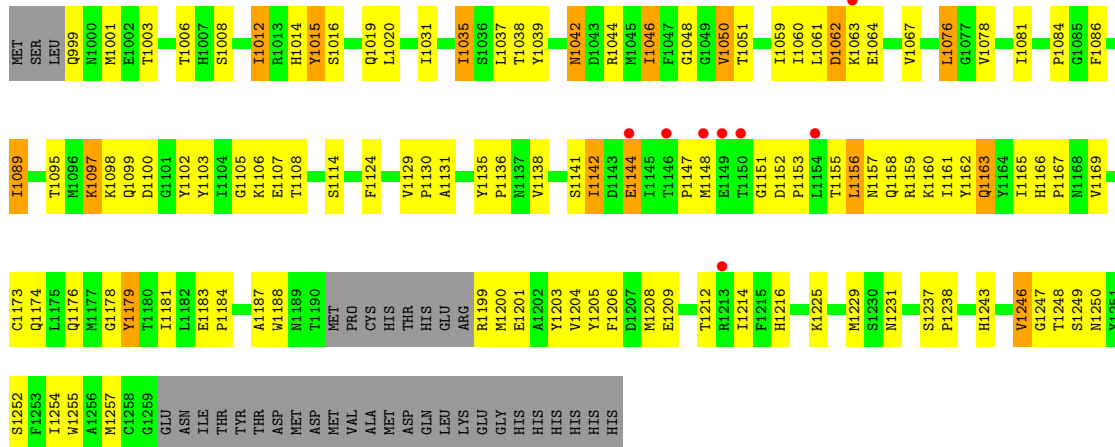
Chain	Residue	Modelled	Actual	Comment	Reference
B	1000	ASN	-	cloning artifact	UNP Q838L9
B	1277	GLU	-	cloning artifact	UNP Q838L9
B	1278	GLY	-	cloning artifact	UNP Q838L9
B	1279	HIS	-	cloning artifact	UNP Q838L9
B	1280	HIS	-	cloning artifact	UNP Q838L9
B	1281	HIS	-	cloning artifact	UNP Q838L9
B	1282	HIS	-	cloning artifact	UNP Q838L9
B	1283	HIS	-	cloning artifact	UNP Q838L9
B	1284	HIS	-	cloning artifact	UNP Q838L9
C	996	MET	-	cloning artifact	UNP Q838L9
C	997	SER	-	cloning artifact	UNP Q838L9
C	998	LEU	-	cloning artifact	UNP Q838L9
C	999	GLN	-	cloning artifact	UNP Q838L9
C	1000	ASN	-	cloning artifact	UNP Q838L9
C	1277	GLU	-	cloning artifact	UNP Q838L9
C	1278	GLY	-	cloning artifact	UNP Q838L9
C	1279	HIS	-	cloning artifact	UNP Q838L9
C	1280	HIS	-	cloning artifact	UNP Q838L9
C	1281	HIS	-	cloning artifact	UNP Q838L9
C	1282	HIS	-	cloning artifact	UNP Q838L9
C	1283	HIS	-	cloning artifact	UNP Q838L9
C	1284	HIS	-	cloning artifact	UNP Q838L9
D	996	MET	-	cloning artifact	UNP Q838L9
D	997	SER	-	cloning artifact	UNP Q838L9
D	998	LEU	-	cloning artifact	UNP Q838L9
D	999	GLN	-	cloning artifact	UNP Q838L9
D	1000	ASN	-	cloning artifact	UNP Q838L9
D	1277	GLU	-	cloning artifact	UNP Q838L9
D	1278	GLY	-	cloning artifact	UNP Q838L9
D	1279	HIS	-	cloning artifact	UNP Q838L9
D	1280	HIS	-	cloning artifact	UNP Q838L9
D	1281	HIS	-	cloning artifact	UNP Q838L9
D	1282	HIS	-	cloning artifact	UNP Q838L9
D	1283	HIS	-	cloning artifact	UNP Q838L9
D	1284	HIS	-	cloning artifact	UNP Q838L9
E	996	MET	-	cloning artifact	UNP Q838L9
E	997	SER	-	cloning artifact	UNP Q838L9
E	998	LEU	-	cloning artifact	UNP Q838L9
E	999	GLN	-	cloning artifact	UNP Q838L9
E	1000	ASN	-	cloning artifact	UNP Q838L9
E	1277	GLU	-	cloning artifact	UNP Q838L9
E	1278	GLY	-	cloning artifact	UNP Q838L9

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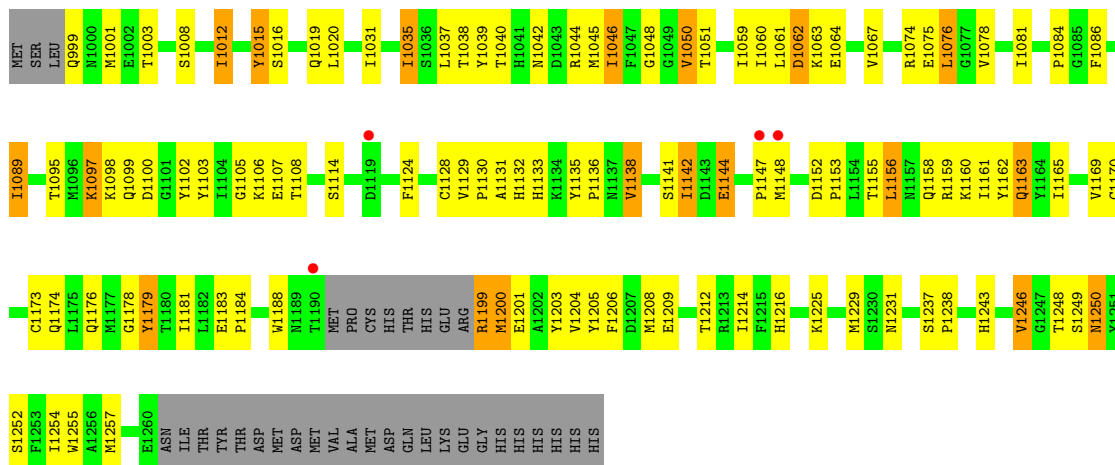
Chain	Residue	Modelled	Actual	Comment	Reference
E	1279	HIS	-	cloning artifact	UNP Q838L9
E	1280	HIS	-	cloning artifact	UNP Q838L9
E	1281	HIS	-	cloning artifact	UNP Q838L9
E	1282	HIS	-	cloning artifact	UNP Q838L9
E	1283	HIS	-	cloning artifact	UNP Q838L9
E	1284	HIS	-	cloning artifact	UNP Q838L9
F	996	MET	-	cloning artifact	UNP Q838L9
F	997	SER	-	cloning artifact	UNP Q838L9
F	998	LEU	-	cloning artifact	UNP Q838L9
F	999	GLN	-	cloning artifact	UNP Q838L9
F	1000	ASN	-	cloning artifact	UNP Q838L9
F	1277	GLU	-	cloning artifact	UNP Q838L9
F	1278	GLY	-	cloning artifact	UNP Q838L9
F	1279	HIS	-	cloning artifact	UNP Q838L9
F	1280	HIS	-	cloning artifact	UNP Q838L9
F	1281	HIS	-	cloning artifact	UNP Q838L9
F	1282	HIS	-	cloning artifact	UNP Q838L9
F	1283	HIS	-	cloning artifact	UNP Q838L9
F	1284	HIS	-	cloning artifact	UNP Q838L9

Chain C: 



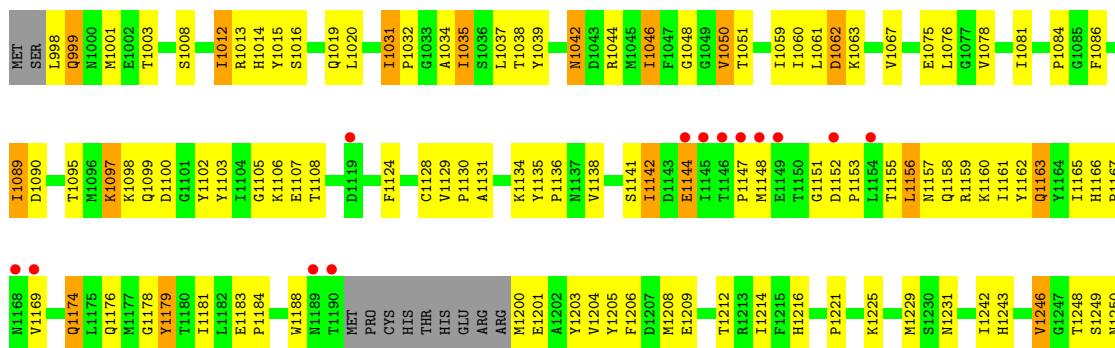
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase 1

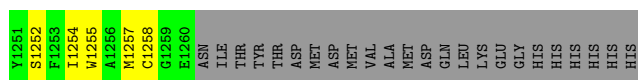
Chain D: 



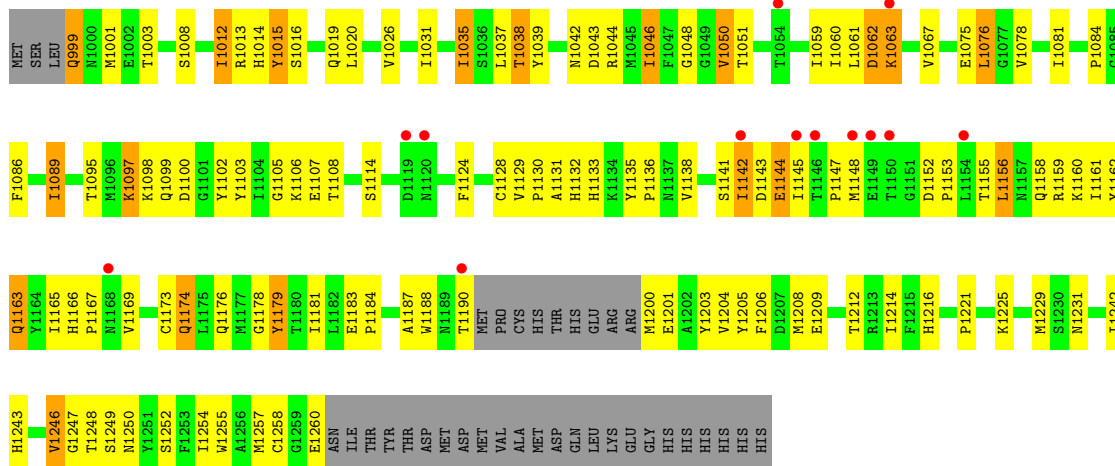
• Molecule 1: 4-deoxy-L-threo-5-hexosulose-uronate ketol-isomerase 1

Chain E: 





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



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	81.01Å 107.69Å 191.02Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	24.90 – 2.95 29.69 – 2.95	Depositor EDS
% Data completeness (in resolution range)	96.9 (24.90-2.95) 96.8 (29.69-2.95)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.37 (at 2.95Å)	Xtrriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.241 , 0.265 0.240 , 0.262	Depositor DCC
R_{free} test set	1760 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å ²)	46.8	Xtrriage
Anisotropy	0.351	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 43.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	12252	wwPDB-VP
Average B, all atoms (Å ²)	40.0	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 37.88 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.0135e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality

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	0/2105	0.65	0/2850
1	B	0.42	0/2094	0.66	0/2836
1	C	0.41	0/2088	0.65	0/2827
1	D	0.41	0/2097	0.66	0/2839
1	E	0.40	0/2094	0.65	0/2836
1	F	0.41	0/2086	0.65	0/2825
All	All	0.41	0/12564	0.65	0/17013

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	2053	0	1970	100	0
1	B	2042	0	1957	100	0
1	C	2036	0	1953	111	0
1	D	2045	0	1959	121	0
1	E	2042	0	1957	111	0
1	F	2034	0	1946	123	0
All	All	12252	0	11742	640	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 27.

All (640) 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:999:GLN:HB2	1:E:1035:ILE:HG12	1.33	1.10
1:D:1199:ARG:HH11	1:D:1199:ARG:HB2	1.29	0.96
1:A:1016:SER:H	1:A:1019:GLN:HE21	1.20	0.90
1:C:1016:SER:H	1:C:1019:GLN:HE21	1.16	0.90
1:E:1016:SER:H	1:E:1019:GLN:HE21	1.19	0.88
1:B:1016:SER:H	1:B:1019:GLN:HE21	1.19	0.88
1:D:1016:SER:H	1:D:1019:GLN:HE21	1.23	0.86
1:F:1016:SER:H	1:F:1019:GLN:HE21	1.16	0.86
1:F:999:GLN:HA	1:F:1035:ILE:HG12	1.62	0.82
1:C:1209:GLU:HB2	1:C:1212:THR:HG23	1.62	0.81
1:D:1199:ARG:HB2	1:D:1199:ARG:NH1	1.96	0.81
1:A:1016:SER:OG	1:A:1019:GLN:HG3	1.81	0.81
1:F:1209:GLU:HB2	1:F:1212:THR:HG23	1.63	0.80
1:D:1209:GLU:HB2	1:D:1212:THR:HG23	1.63	0.80
1:E:1209:GLU:HB2	1:E:1212:THR:HG23	1.64	0.79
1:A:1209:GLU:HB2	1:A:1212:THR:HG23	1.63	0.79
1:C:1206:PHE:HE2	1:C:1254:ILE:HG12	1.47	0.79
1:A:1206:PHE:HE2	1:A:1254:ILE:HG12	1.47	0.79
1:E:1016:SER:OG	1:E:1019:GLN:HG3	1.82	0.78
1:A:1178:GLY:HA3	1:A:1255:TRP:CE2	2.20	0.77
1:F:1016:SER:N	1:F:1019:GLN:HE21	1.81	0.77
1:F:1206:PHE:HE2	1:F:1254:ILE:HG12	1.49	0.77
1:D:1132:HIS:H	1:F:1132:HIS:HD2	1.33	0.77
1:E:1016:SER:N	1:E:1019:GLN:HE21	1.83	0.77
1:B:1209:GLU:HB2	1:B:1212:THR:HG23	1.65	0.76
1:A:1016:SER:N	1:A:1019:GLN:HE21	1.83	0.76
1:D:1084:PRO:HD3	1:E:1134:LYS:HE2	1.66	0.76
1:B:1016:SER:N	1:B:1019:GLN:HE21	1.82	0.76
1:D:999:GLN:HE22	1:D:1060:ILE:H	1.31	0.76
1:E:999:GLN:HB2	1:E:1035:ILE:CG1	2.15	0.76
1:B:1206:PHE:HE2	1:B:1254:ILE:HG12	1.48	0.76
1:E:1206:PHE:HE2	1:E:1254:ILE:HG12	1.50	0.76
1:D:1206:PHE:HE2	1:D:1254:ILE:HG12	1.50	0.76
1:C:1016:SER:N	1:C:1019:GLN:HE21	1.83	0.75
1:C:1142:ILE:HD12	1:C:1142:ILE:N	2.02	0.75
1:A:1142:ILE:HD12	1:A:1142:ILE:N	2.02	0.75
1:F:1016:SER:OG	1:F:1019:GLN:HG3	1.87	0.75
1:C:1016:SER:OG	1:C:1019:GLN:HG3	1.87	0.74
1:D:1199:ARG:CB	1:D:1199:ARG:HH11	2.01	0.74
1:D:1016:SER:N	1:D:1019:GLN:HE21	1.85	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1142:ILE:N	1:E:1142:ILE:HD12	2.03	0.73
1:F:1084:PRO:HB3	1:F:1097:LYS:HE3	1.71	0.72
1:E:1188:TRP:CZ3	1:E:1246:VAL:HG22	2.23	0.72
1:C:1181:ILE:HG22	1:C:1252:SER:OG	1.90	0.72
1:D:1016:SER:OG	1:D:1019:GLN:HG3	1.89	0.72
1:C:999:GLN:HE22	1:C:1060:ILE:H	1.37	0.71
1:D:1152:ASP:OD1	1:D:1153:PRO:HD2	1.91	0.71
1:A:1188:TRP:CZ3	1:A:1246:VAL:HG22	2.25	0.71
1:D:1084:PRO:HG3	1:E:1134:LYS:HD3	1.72	0.71
1:D:1132:HIS:HD2	1:F:1132:HIS:H	1.38	0.71
1:B:1016:SER:OG	1:B:1019:GLN:HG3	1.91	0.71
1:F:1142:ILE:HD12	1:F:1142:ILE:N	2.06	0.70
1:A:1084:PRO:HB3	1:A:1097:LYS:HE3	1.74	0.70
1:C:1016:SER:H	1:C:1019:GLN:NE2	1.90	0.70
1:E:1156:LEU:N	1:E:1156:LEU:HD23	2.06	0.70
1:C:1084:PRO:HB3	1:C:1097:LYS:HE3	1.73	0.70
1:F:1181:ILE:HG22	1:F:1252:SER:OG	1.92	0.70
1:A:1160:LYS:HE3	1:A:1181:ILE:HD11	1.74	0.69
1:D:1160:LYS:HE3	1:D:1181:ILE:HD11	1.74	0.69
1:C:1160:LYS:HE3	1:C:1181:ILE:HD11	1.75	0.69
1:E:1016:SER:H	1:E:1019:GLN:NE2	1.90	0.69
1:B:1084:PRO:HB3	1:B:1097:LYS:HE3	1.75	0.69
1:E:1160:LYS:HE3	1:E:1181:ILE:HD11	1.75	0.69
1:F:1016:SER:H	1:F:1019:GLN:NE2	1.90	0.68
1:B:1035:ILE:HD12	1:B:1059:ILE:HG12	1.76	0.68
1:B:1160:LYS:HE3	1:B:1181:ILE:HD11	1.74	0.68
1:C:1156:LEU:HD23	1:C:1156:LEU:N	2.08	0.68
1:D:1097:LYS:HA	1:D:1097:LYS:HE2	1.76	0.68
1:F:1035:ILE:HD12	1:F:1059:ILE:HG12	1.76	0.68
1:D:1156:LEU:N	1:D:1156:LEU:HD23	2.08	0.68
1:F:1097:LYS:HE2	1:F:1097:LYS:HA	1.76	0.68
1:C:1035:ILE:HD12	1:C:1059:ILE:HG12	1.76	0.68
1:B:1142:ILE:HD12	1:B:1142:ILE:N	2.09	0.68
1:B:1152:ASP:OD1	1:B:1153:PRO:HD2	1.93	0.67
1:E:1152:ASP:OD1	1:E:1153:PRO:HD2	1.94	0.67
1:A:1178:GLY:HA3	1:A:1255:TRP:CZ2	2.30	0.67
1:E:1084:PRO:HB3	1:E:1097:LYS:HE3	1.75	0.67
1:F:1160:LYS:HE3	1:F:1181:ILE:HD11	1.76	0.67
1:A:1156:LEU:HD23	1:A:1156:LEU:N	2.08	0.67
1:E:1181:ILE:HG22	1:E:1252:SER:OG	1.94	0.67
1:B:1181:ILE:HG22	1:B:1252:SER:OG	1.94	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1152:ASP:OD1	1:C:1153:PRO:HD2	1.95	0.67
1:F:1001:MET:HE2	1:F:1046:ILE:HB	1.76	0.67
1:C:1206:PHE:CE2	1:C:1254:ILE:HG12	2.30	0.66
1:D:1132:HIS:H	1:F:1132:HIS:CD2	2.13	0.66
1:A:1152:ASP:OD1	1:A:1153:PRO:HD2	1.95	0.66
1:F:1206:PHE:CE2	1:F:1254:ILE:HG12	2.31	0.66
1:A:1001:MET:HE2	1:A:1046:ILE:HB	1.76	0.66
1:B:1206:PHE:CE2	1:B:1254:ILE:HG12	2.31	0.66
1:A:1206:PHE:CE2	1:A:1254:ILE:HG12	2.30	0.66
1:B:1097:LYS:HE2	1:B:1097:LYS:HA	1.76	0.66
1:C:1158:GLN:HG2	1:C:1183:GLU:OE1	1.97	0.65
1:D:1205:TYR:OH	1:D:1216:HIS:HD2	1.79	0.65
1:A:1097:LYS:HA	1:A:1097:LYS:HE2	1.77	0.65
1:B:1163:GLN:HA	1:B:1163:GLN:HE21	1.60	0.65
1:A:1016:SER:H	1:A:1019:GLN:NE2	1.90	0.65
1:D:1035:ILE:HD12	1:D:1059:ILE:HG12	1.78	0.65
1:B:1156:LEU:HD23	1:B:1156:LEU:N	2.11	0.65
1:C:1148:MET:O	1:C:1161:ILE:HG12	1.97	0.65
1:D:1084:PRO:HB3	1:D:1097:LYS:HE3	1.77	0.65
1:F:1163:GLN:HA	1:F:1163:GLN:HE21	1.62	0.65
1:D:1132:HIS:CD2	1:F:1132:HIS:H	2.14	0.65
1:F:1156:LEU:HD23	1:F:1156:LEU:N	2.11	0.65
1:A:1035:ILE:HD12	1:A:1059:ILE:HG12	1.76	0.65
1:B:1016:SER:H	1:B:1019:GLN:NE2	1.91	0.65
1:F:1159:ARG:HG2	1:F:1159:ARG:HH11	1.62	0.65
1:E:1035:ILE:HD12	1:E:1059:ILE:HG12	1.78	0.64
1:A:1176:GLN:HB2	1:A:1257:MET:HG3	1.78	0.64
1:C:1163:GLN:HE21	1:C:1163:GLN:HA	1.62	0.64
1:D:1206:PHE:CE2	1:D:1254:ILE:HG12	2.32	0.64
1:E:1148:MET:O	1:E:1161:ILE:HG12	1.97	0.64
1:E:1105:GLY:O	1:E:1108:THR:HG23	1.96	0.64
1:E:1158:GLN:HG2	1:E:1183:GLU:OE1	1.98	0.64
1:E:999:GLN:HE22	1:E:1060:ILE:H	1.45	0.64
1:E:1163:GLN:HE21	1:E:1163:GLN:HA	1.61	0.64
1:A:1163:GLN:HA	1:A:1163:GLN:HE21	1.62	0.64
1:C:1039:TYR:OH	1:C:1044:ARG:HG2	1.96	0.64
1:E:1097:LYS:HE2	1:E:1097:LYS:HA	1.78	0.63
1:C:1159:ARG:HH11	1:C:1159:ARG:HG2	1.64	0.63
1:C:1097:LYS:HA	1:C:1097:LYS:HE2	1.80	0.63
1:D:1001:MET:HE2	1:D:1046:ILE:HB	1.79	0.63
1:D:1158:GLN:HG2	1:D:1183:GLU:OE1	1.98	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1158:GLN:HG2	1:F:1183:GLU:OE1	1.97	0.63
1:B:1020:LEU:HD11	1:B:1225:LYS:HD3	1.79	0.63
1:D:1076:LEU:HD21	1:D:1078:VAL:CG2	2.29	0.63
1:A:1158:GLN:HG2	1:A:1183:GLU:OE1	1.97	0.63
1:F:1076:LEU:HD21	1:F:1078:VAL:CG2	2.29	0.63
1:D:1132:HIS:CG	1:F:1173:CYS:HB3	2.33	0.63
1:D:1142:ILE:N	1:D:1142:ILE:HD12	2.13	0.63
1:F:1020:LEU:HD11	1:F:1225:LYS:HD3	1.79	0.63
1:A:1097:LYS:O	1:A:1100:ASP:HB2	1.99	0.63
1:A:1039:TYR:OH	1:A:1044:ARG:HG2	1.99	0.62
1:B:1158:GLN:HG2	1:B:1183:GLU:OE1	1.97	0.62
1:E:1001:MET:HE2	1:E:1046:ILE:HB	1.80	0.62
1:E:1178:GLY:HA3	1:E:1255:TRP:CE2	2.35	0.62
1:D:1163:GLN:HE21	1:D:1163:GLN:HA	1.63	0.62
1:C:1076:LEU:HD21	1:C:1078:VAL:CG2	2.30	0.62
1:E:1159:ARG:HG2	1:E:1159:ARG:HH11	1.63	0.62
1:A:1148:MET:O	1:A:1161:ILE:HG12	1.98	0.62
1:C:1188:TRP:CZ3	1:C:1246:VAL:HG22	2.35	0.62
1:C:1001:MET:HA	1:C:1037:LEU:O	2.00	0.62
1:D:1039:TYR:OH	1:D:1044:ARG:HG2	1.98	0.62
1:E:1206:PHE:CE2	1:E:1254:ILE:HG12	2.33	0.62
1:F:1097:LYS:NZ	1:F:1098:LYS:H	1.98	0.62
1:D:1173:CYS:HB3	1:F:1132:HIS:CG	2.35	0.62
1:F:1178:GLY:HA3	1:F:1255:TRP:CE2	2.35	0.62
1:B:1148:MET:O	1:B:1161:ILE:HG12	1.99	0.62
1:C:1001:MET:HE2	1:C:1046:ILE:HB	1.82	0.62
1:D:1178:GLY:HA3	1:D:1255:TRP:CE2	2.34	0.62
1:D:1097:LYS:NZ	1:D:1098:LYS:H	1.98	0.62
1:F:1148:MET:O	1:F:1161:ILE:HG12	2.00	0.62
1:F:1152:ASP:OD1	1:F:1153:PRO:HD2	1.99	0.62
1:B:1039:TYR:OH	1:B:1044:ARG:HG2	2.00	0.61
1:C:1178:GLY:HA3	1:C:1255:TRP:CE2	2.34	0.61
1:F:1039:TYR:OH	1:F:1044:ARG:HG2	2.00	0.61
1:D:1148:MET:O	1:D:1161:ILE:HG12	2.00	0.61
1:E:1076:LEU:HD21	1:E:1078:VAL:CG2	2.30	0.61
1:F:1205:TYR:OH	1:F:1216:HIS:HD2	1.84	0.61
1:E:1020:LEU:HD11	1:E:1225:LYS:HD3	1.82	0.61
1:C:1020:LEU:HD11	1:C:1225:LYS:HD3	1.82	0.61
1:A:1097:LYS:NZ	1:A:1098:LYS:H	1.99	0.61
1:B:1097:LYS:NZ	1:B:1098:LYS:H	1.99	0.60
1:E:1097:LYS:NZ	1:E:1098:LYS:H	1.99	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1159:ARG:HG2	1:A:1159:ARG:HH11	1.65	0.60
1:B:1153:PRO:HD3	1:B:1158:GLN:OE1	2.01	0.60
1:C:1205:TYR:OH	1:C:1216:HIS:HD2	1.84	0.60
1:F:1097:LYS:O	1:F:1100:ASP:HB2	2.01	0.60
1:E:1039:TYR:OH	1:E:1044:ARG:HG2	2.02	0.60
1:B:1178:GLY:HA3	1:B:1255:TRP:CE2	2.37	0.60
1:E:1208:MET:HG2	1:E:1231:ASN:OD1	2.01	0.60
1:A:1208:MET:HG2	1:A:1231:ASN:OD1	2.02	0.60
1:B:1205:TYR:OH	1:B:1216:HIS:HD2	1.85	0.60
1:C:1097:LYS:O	1:C:1100:ASP:HB2	2.02	0.60
1:B:1097:LYS:O	1:B:1100:ASP:HB2	2.01	0.60
1:D:1016:SER:H	1:D:1019:GLN:NE2	1.94	0.60
1:D:1105:GLY:O	1:D:1108:THR:HG23	2.01	0.60
1:C:1097:LYS:NZ	1:C:1098:LYS:H	2.00	0.59
1:E:1201:GLU:HG2	1:E:1257:MET:HB3	1.85	0.59
1:B:1001:MET:HE2	1:B:1046:ILE:HB	1.85	0.59
1:A:999:GLN:HE22	1:A:1060:ILE:H	1.50	0.59
1:A:1076:LEU:HD21	1:A:1078:VAL:CG2	2.32	0.59
1:D:1133:HIS:HD2	1:F:1133:HIS:HD2	1.49	0.59
1:E:1097:LYS:O	1:E:1100:ASP:HB2	2.02	0.59
1:A:1105:GLY:O	1:A:1108:THR:HG23	2.03	0.59
1:C:1153:PRO:HD3	1:C:1158:GLN:OE1	2.03	0.59
1:E:1188:TRP:CH2	1:E:1246:VAL:HG22	2.37	0.59
1:F:1200:MET:C	1:F:1200:MET:SD	2.81	0.59
1:D:1097:LYS:O	1:D:1100:ASP:HB2	2.01	0.59
1:B:1076:LEU:HD21	1:B:1078:VAL:CG2	2.33	0.59
1:B:1105:GLY:O	1:B:1108:THR:HG23	2.02	0.59
1:B:999:GLN:HG2	1:B:1035:ILE:HG12	1.85	0.59
1:F:1008:SER:O	1:F:1012:ILE:HG22	2.03	0.58
1:C:1105:GLY:O	1:C:1108:THR:HG23	2.02	0.58
1:D:1201:GLU:HG2	1:D:1257:MET:HB3	1.85	0.58
1:D:1208:MET:HG2	1:D:1231:ASN:OD1	2.04	0.58
1:F:1153:PRO:HD3	1:F:1158:GLN:OE1	2.03	0.58
1:D:1008:SER:O	1:D:1012:ILE:HG22	2.04	0.58
1:D:1132:HIS:HD2	1:F:1132:HIS:N	2.01	0.58
1:D:1153:PRO:HD3	1:D:1158:GLN:OE1	2.04	0.58
1:B:1188:TRP:CZ3	1:B:1246:VAL:HG22	2.39	0.58
1:C:1106:LYS:HG2	1:C:1107:GLU:HG3	1.85	0.58
1:F:1214:ILE:HD11	1:F:1229:MET:SD	2.43	0.58
1:A:1153:PRO:HD3	1:A:1158:GLN:OE1	2.04	0.58
1:F:1106:LYS:HG2	1:F:1107:GLU:HG3	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1008:SER:O	1:B:1012:ILE:HG22	2.04	0.57
1:E:1001:MET:HA	1:E:1037:LEU:O	2.03	0.57
1:E:1153:PRO:HD3	1:E:1158:GLN:OE1	2.04	0.57
1:D:1001:MET:HA	1:D:1037:LEU:O	2.04	0.57
1:F:1129:VAL:HG13	1:F:1130:PRO:HD2	1.86	0.57
1:D:1129:VAL:HG13	1:D:1130:PRO:HD2	1.85	0.57
1:E:1214:ILE:HD11	1:E:1229:MET:SD	2.44	0.57
1:A:1214:ILE:HD11	1:A:1229:MET:SD	2.44	0.57
1:B:1201:GLU:HG2	1:B:1257:MET:HB3	1.86	0.57
1:C:1042:ASN:HB3	1:C:1200:MET:HG2	1.86	0.57
1:C:1208:MET:HG2	1:C:1231:ASN:OD1	2.05	0.57
1:B:1208:MET:HG2	1:B:1231:ASN:OD1	2.04	0.57
1:B:1046:ILE:HG13	1:B:1046:ILE:O	2.04	0.56
1:F:1201:GLU:HG2	1:F:1257:MET:HB3	1.86	0.56
1:E:1188:TRP:CE2	1:E:1246:VAL:HG13	2.39	0.56
1:B:1103:TYR:HB2	1:B:1165:ILE:HD12	1.88	0.56
1:E:1205:TYR:OH	1:E:1216:HIS:HD2	1.86	0.56
1:E:1046:ILE:O	1:E:1046:ILE:HG13	2.04	0.56
1:F:1188:TRP:CZ3	1:F:1246:VAL:HG22	2.40	0.56
1:B:1106:LYS:HG2	1:B:1107:GLU:HG3	1.86	0.56
1:A:1001:MET:HA	1:A:1037:LEU:O	2.05	0.56
1:C:1008:SER:O	1:C:1012:ILE:HG22	2.05	0.56
1:F:1001:MET:HA	1:F:1037:LEU:O	2.06	0.56
1:D:1132:HIS:HB2	1:F:1132:HIS:HB2	1.87	0.56
1:F:1103:TYR:HB2	1:F:1165:ILE:HD12	1.88	0.56
1:F:1208:MET:HG2	1:F:1231:ASN:OD1	2.06	0.56
1:D:1103:TYR:HB2	1:D:1165:ILE:HD12	1.88	0.56
1:E:1156:LEU:H	1:E:1156:LEU:HD23	1.69	0.56
1:C:1129:VAL:HG13	1:C:1130:PRO:HD2	1.87	0.55
1:D:1159:ARG:HH11	1:D:1159:ARG:HG2	1.71	0.55
1:E:999:GLN:CB	1:E:1035:ILE:HG12	2.22	0.55
1:A:1205:TYR:OH	1:A:1216:HIS:HD2	1.88	0.55
1:C:1199:ARG:NH1	1:C:1257:MET:HE1	2.21	0.55
1:D:1045:MET:SD	1:D:1200:MET:HE1	2.46	0.55
1:A:1188:TRP:CH2	1:A:1246:VAL:HG22	2.41	0.55
1:D:1132:HIS:N	1:F:1132:HIS:HD2	2.01	0.55
1:C:1188:TRP:CH2	1:C:1246:VAL:HG22	2.42	0.55
1:D:1156:LEU:H	1:D:1156:LEU:HD23	1.70	0.55
1:A:1008:SER:O	1:A:1012:ILE:HG22	2.05	0.55
1:A:1081:ILE:HD12	1:A:1206:PHE:CZ	2.41	0.55
1:D:1178:GLY:HA3	1:D:1255:TRP:CZ2	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1156:LEU:HD23	1:B:1156:LEU:H	1.71	0.55
1:F:1046:ILE:HG13	1:F:1046:ILE:O	2.05	0.55
1:A:1201:GLU:HG2	1:A:1257:MET:HB3	1.88	0.55
1:D:1181:ILE:HG22	1:D:1252:SER:OG	2.07	0.55
1:D:1099:GLN:NE2	1:E:1090:ASP:O	2.40	0.55
1:E:1106:LYS:HG2	1:E:1107:GLU:HG3	1.89	0.55
1:E:1129:VAL:HG13	1:E:1130:PRO:HD2	1.89	0.55
1:A:1046:ILE:O	1:A:1046:ILE:HG13	2.07	0.54
1:A:1188:TRP:CE2	1:A:1246:VAL:HG13	2.41	0.54
1:C:1046:ILE:HG13	1:C:1046:ILE:O	2.06	0.54
1:D:1084:PRO:HG3	1:E:1134:LYS:CD	2.37	0.54
1:F:1105:GLY:O	1:F:1108:THR:HG23	2.06	0.54
1:A:1203:TYR:OH	1:A:1243:HIS:HB3	2.07	0.54
1:C:1156:LEU:H	1:C:1156:LEU:HD23	1.71	0.54
1:D:1204:VAL:HG13	1:D:1204:VAL:O	2.08	0.54
1:F:1147:PRO:HB3	1:F:1162:TYR:CZ	2.43	0.54
1:A:1147:PRO:HB3	1:A:1162:TYR:CZ	2.43	0.54
1:A:1250:ASN:N	1:A:1250:ASN:HD22	2.05	0.54
1:A:1089:ILE:O	1:A:1089:ILE:HG13	2.07	0.54
1:A:1106:LYS:HG2	1:A:1107:GLU:HG3	1.88	0.54
1:D:1147:PRO:HB3	1:D:1162:TYR:CZ	2.42	0.54
1:D:1046:ILE:O	1:D:1046:ILE:HG13	2.07	0.54
1:D:1106:LYS:HG2	1:D:1107:GLU:HG3	1.90	0.54
1:E:1250:ASN:N	1:E:1250:ASN:HD22	2.06	0.54
1:D:1081:ILE:HD12	1:D:1206:PHE:CZ	2.43	0.54
1:A:1129:VAL:HG13	1:A:1130:PRO:HD2	1.88	0.54
1:B:1147:PRO:HB3	1:B:1162:TYR:CZ	2.43	0.54
1:C:1214:ILE:HD12	1:C:1214:ILE:C	2.28	0.54
1:A:1246:VAL:HG11	1:C:1246:VAL:HG11	1.90	0.54
1:E:1008:SER:O	1:E:1012:ILE:HG22	2.07	0.54
1:E:1176:GLN:HB2	1:E:1257:MET:HG3	1.90	0.54
1:B:1204:VAL:CG1	1:B:1254:ILE:HB	2.38	0.53
1:B:1250:ASN:HD22	1:B:1250:ASN:N	2.06	0.53
1:C:1201:GLU:HG2	1:C:1257:MET:HB3	1.88	0.53
1:D:1060:ILE:HG13	1:D:1060:ILE:O	2.08	0.53
1:E:1214:ILE:C	1:E:1214:ILE:HD12	2.28	0.53
1:A:1020:LEU:HD11	1:A:1225:LYS:HD3	1.90	0.53
1:B:1037:LEU:HD13	1:B:1046:ILE:CD1	2.38	0.53
1:C:1103:TYR:HB2	1:C:1165:ILE:HD12	1.91	0.53
1:E:1103:TYR:HB2	1:E:1165:ILE:HD12	1.89	0.53
1:E:1203:TYR:OH	1:E:1243:HIS:HB3	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1084:PRO:HB3	1:F:1097:LYS:CE	2.37	0.53
1:A:1214:ILE:C	1:A:1214:ILE:HD12	2.29	0.53
1:D:1020:LEU:HD11	1:D:1225:LYS:HD3	1.91	0.53
1:D:1188:TRP:CZ3	1:D:1246:VAL:HG22	2.43	0.53
1:D:1250:ASN:N	1:D:1250:ASN:HD22	2.06	0.53
1:A:1156:LEU:HD23	1:A:1156:LEU:H	1.73	0.53
1:B:1214:ILE:HD12	1:B:1214:ILE:C	2.30	0.53
1:C:1250:ASN:HD22	1:C:1250:ASN:N	2.07	0.53
1:D:1089:ILE:HG13	1:D:1089:ILE:O	2.09	0.53
1:D:1084:PRO:CD	1:E:1134:LYS:HE2	2.38	0.53
1:D:1074:ARG:NH2	1:F:1260:GLU:OE2	2.40	0.53
1:B:1214:ILE:HD11	1:B:1229:MET:SD	2.49	0.53
1:D:1200:MET:HE3	1:D:1201:GLU:CA	2.38	0.53
1:E:1188:TRP:CD2	1:E:1246:VAL:HG13	2.44	0.53
1:A:1060:ILE:O	1:A:1060:ILE:HG13	2.09	0.52
1:C:1147:PRO:HB3	1:C:1162:TYR:CZ	2.44	0.52
1:B:1129:VAL:HG13	1:B:1130:PRO:HD2	1.91	0.52
1:B:1159:ARG:HH11	1:B:1159:ARG:HG2	1.73	0.52
1:A:1142:ILE:N	1:A:1142:ILE:CD1	2.69	0.52
1:B:1001:MET:HA	1:B:1037:LEU:O	2.09	0.52
1:D:1214:ILE:HD11	1:D:1229:MET:SD	2.48	0.52
1:E:1050:VAL:HG13	1:E:1124:PHE:HB2	1.91	0.52
1:B:1250:ASN:N	1:B:1250:ASN:ND2	2.57	0.52
1:D:1214:ILE:HD12	1:D:1214:ILE:C	2.30	0.52
1:B:1089:ILE:O	1:B:1089:ILE:HG13	2.09	0.52
1:C:1060:ILE:HG13	1:C:1060:ILE:O	2.08	0.52
1:C:1142:ILE:HD12	1:C:1142:ILE:H	1.73	0.52
1:E:1147:PRO:HB3	1:E:1162:TYR:CZ	2.45	0.52
1:A:1204:VAL:CG1	1:A:1254:ILE:HB	2.39	0.52
1:B:1050:VAL:HG13	1:B:1124:PHE:HB2	1.91	0.52
1:C:1214:ILE:HG13	1:C:1229:MET:HB2	1.92	0.52
1:F:1204:VAL:CG1	1:F:1254:ILE:HB	2.40	0.52
1:A:1037:LEU:HD13	1:A:1046:ILE:HD11	1.91	0.52
1:A:1181:ILE:HG22	1:A:1252:SER:OG	2.09	0.52
1:B:1037:LEU:HD13	1:B:1046:ILE:HD11	1.91	0.51
1:A:1142:ILE:HD12	1:A:1142:ILE:H	1.76	0.51
1:A:1250:ASN:N	1:A:1250:ASN:ND2	2.57	0.51
1:C:1037:LEU:HD13	1:C:1046:ILE:HD11	1.93	0.51
1:E:1204:VAL:CG1	1:E:1254:ILE:HB	2.40	0.51
1:A:1084:PRO:HB3	1:A:1097:LYS:CE	2.38	0.51
1:C:1050:VAL:HG13	1:C:1124:PHE:HB2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1103:TYR:HB2	1:A:1165:ILE:HD12	1.93	0.51
1:C:1089:ILE:O	1:C:1089:ILE:HG13	2.09	0.51
1:A:1050:VAL:HG13	1:A:1124:PHE:HB2	1.92	0.51
1:B:1203:TYR:OH	1:B:1243:HIS:HB3	2.11	0.51
1:E:1250:ASN:N	1:E:1250:ASN:ND2	2.58	0.51
1:F:1050:VAL:HG13	1:F:1124:PHE:HB2	1.93	0.51
1:F:1250:ASN:HD22	1:F:1250:ASN:N	2.09	0.51
1:B:1060:ILE:O	1:B:1060:ILE:HG13	2.10	0.51
1:B:1188:TRP:CH2	1:B:1246:VAL:HG22	2.46	0.51
1:C:1250:ASN:ND2	1:C:1250:ASN:N	2.58	0.51
1:E:1141:SER:O	1:E:1144:GLU:HG2	2.11	0.51
1:F:1081:ILE:HD12	1:F:1206:PHE:CZ	2.46	0.51
1:B:999:GLN:HE21	1:B:1060:ILE:H	1.59	0.51
1:C:1084:PRO:HB3	1:C:1097:LYS:CE	2.38	0.51
1:F:1214:ILE:HG13	1:F:1229:MET:HB2	1.93	0.51
1:F:1212:THR:HG21	1:F:1249:SER:HB3	1.92	0.51
1:C:1188:TRP:CE2	1:C:1246:VAL:HG13	2.45	0.51
1:D:1203:TYR:OH	1:D:1243:HIS:HB3	2.10	0.51
1:E:1142:ILE:HD12	1:E:1142:ILE:H	1.75	0.51
1:E:1089:ILE:O	1:E:1089:ILE:HG13	2.11	0.51
1:E:1081:ILE:HD12	1:E:1206:PHE:CZ	2.46	0.50
1:C:1037:LEU:HD13	1:C:1046:ILE:CD1	2.42	0.50
1:D:1037:LEU:HD13	1:D:1046:ILE:HD11	1.93	0.50
1:F:1214:ILE:HD12	1:F:1214:ILE:C	2.31	0.50
1:A:1037:LEU:HD13	1:A:1046:ILE:CD1	2.41	0.50
1:A:1212:THR:HG21	1:A:1249:SER:HB3	1.92	0.50
1:C:1204:VAL:CG1	1:C:1254:ILE:HB	2.42	0.50
1:E:1060:ILE:O	1:E:1060:ILE:HG13	2.10	0.50
1:F:1046:ILE:C	1:F:1046:ILE:HD12	2.32	0.50
1:D:1204:VAL:CG1	1:D:1254:ILE:HB	2.41	0.50
1:F:1141:SER:O	1:F:1144:GLU:HG2	2.12	0.50
1:C:1178:GLY:HA3	1:C:1255:TRP:CZ2	2.47	0.50
1:D:1212:THR:HG21	1:D:1249:SER:HB3	1.94	0.50
1:D:1250:ASN:N	1:D:1250:ASN:ND2	2.59	0.50
1:F:1037:LEU:HD13	1:F:1046:ILE:HD11	1.93	0.50
1:C:1199:ARG:HD2	1:C:1257:MET:HE3	1.94	0.50
1:E:1084:PRO:HB3	1:E:1097:LYS:CE	2.39	0.50
1:E:1178:GLY:HA3	1:E:1255:TRP:CZ2	2.47	0.50
1:B:1212:THR:HG21	1:B:1249:SER:HB3	1.93	0.50
1:F:1203:TYR:OH	1:F:1243:HIS:HB3	2.11	0.50
1:E:1212:THR:HG21	1:E:1249:SER:HB3	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1204:VAL:HG13	1:F:1204:VAL:O	2.11	0.49
1:B:1204:VAL:O	1:B:1204:VAL:HG13	2.11	0.49
1:E:1037:LEU:HD13	1:E:1046:ILE:HD11	1.94	0.49
1:F:1156:LEU:HD23	1:F:1156:LEU:H	1.75	0.49
1:B:1035:ILE:CD1	1:B:1059:ILE:HG12	2.42	0.49
1:A:1014:HIS:CD2	1:C:1019:GLN:NE2	2.80	0.49
1:C:1081:ILE:HD12	1:C:1206:PHE:CZ	2.48	0.49
1:F:1037:LEU:HD13	1:F:1046:ILE:CD1	2.41	0.49
1:F:1178:GLY:HA3	1:F:1255:TRP:CZ2	2.47	0.49
1:A:1188:TRP:CD2	1:A:1246:VAL:HG13	2.47	0.49
1:E:1046:ILE:HD12	1:E:1046:ILE:C	2.33	0.49
1:A:1214:ILE:HG13	1:A:1229:MET:HB2	1.93	0.49
1:C:1214:ILE:HD11	1:C:1229:MET:SD	2.53	0.49
1:D:1050:VAL:HG13	1:D:1124:PHE:HB2	1.94	0.49
1:F:1098:LYS:HG2	1:F:1099:GLN:HG2	1.94	0.49
1:E:1214:ILE:HG13	1:E:1229:MET:HB2	1.95	0.49
1:D:1098:LYS:HG2	1:D:1099:GLN:HG2	1.95	0.49
1:E:1174:GLN:NE2	1:E:1258:CYS:HB2	2.28	0.49
1:B:1214:ILE:HG13	1:B:1229:MET:HB2	1.94	0.49
1:C:1200:MET:SD	1:C:1200:MET:C	2.91	0.49
1:C:1141:SER:O	1:C:1144:GLU:HG2	2.12	0.48
1:D:1037:LEU:HD13	1:D:1046:ILE:CD1	2.43	0.48
1:B:1084:PRO:HB3	1:B:1097:LYS:CE	2.42	0.48
1:C:1012:ILE:HG12	1:C:1012:ILE:O	2.14	0.48
1:C:1046:ILE:C	1:C:1046:ILE:HD12	2.33	0.48
1:A:1098:LYS:HG2	1:A:1099:GLN:HG2	1.94	0.48
1:F:1012:ILE:O	1:F:1012:ILE:HG12	2.13	0.48
1:F:1060:ILE:O	1:F:1060:ILE:HG13	2.13	0.48
1:F:1142:ILE:HD12	1:F:1142:ILE:H	1.77	0.48
1:A:1014:HIS:HB3	1:C:1014:HIS:O	2.14	0.48
1:B:1141:SER:O	1:B:1144:GLU:HG2	2.14	0.48
1:D:1046:ILE:HD12	1:D:1046:ILE:C	2.33	0.48
1:D:1141:SER:O	1:D:1144:GLU:HG2	2.13	0.48
1:E:1086:PHE:CE1	1:E:1095:THR:HG22	2.48	0.48
1:C:1098:LYS:HG2	1:C:1099:GLN:HG2	1.96	0.48
1:A:1141:SER:O	1:A:1144:GLU:HG2	2.13	0.48
1:F:1250:ASN:N	1:F:1250:ASN:ND2	2.61	0.48
1:F:1089:ILE:O	1:F:1089:ILE:HG13	2.13	0.48
1:C:1142:ILE:CD1	1:C:1142:ILE:N	2.69	0.48
1:D:1035:ILE:CD1	1:D:1059:ILE:HG12	2.43	0.48
1:D:1086:PHE:CE1	1:D:1095:THR:HG22	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1106:LYS:O	1:D:1107:GLU:HB2	2.14	0.48
1:D:999:GLN:HA	1:D:1035:ILE:HG12	1.96	0.48
1:C:999:GLN:HG3	1:C:1035:ILE:HD11	1.95	0.47
1:C:1212:THR:HG21	1:C:1249:SER:HB3	1.95	0.47
1:D:1084:PRO:HB3	1:D:1097:LYS:CE	2.43	0.47
1:E:1098:LYS:HG2	1:E:1099:GLN:HG2	1.96	0.47
1:C:1204:VAL:O	1:C:1204:VAL:HG13	2.14	0.47
1:D:1176:GLN:HB2	1:D:1257:MET:HG3	1.96	0.47
1:E:1037:LEU:HD13	1:E:1046:ILE:CD1	2.44	0.47
1:A:1035:ILE:CD1	1:A:1059:ILE:HG12	2.43	0.47
1:A:1086:PHE:CE1	1:A:1095:THR:HG22	2.50	0.47
1:D:1183:GLU:HG2	1:D:1184:PRO:HD2	1.96	0.47
1:D:1200:MET:HE3	1:D:1201:GLU:HA	1.97	0.47
1:E:1106:LYS:O	1:E:1107:GLU:HB2	2.15	0.47
1:E:1204:VAL:O	1:E:1204:VAL:HG13	2.15	0.47
1:C:1176:GLN:HB2	1:C:1257:MET:HG3	1.95	0.47
1:E:1183:GLU:HG2	1:E:1184:PRO:HD2	1.97	0.47
1:F:1081:ILE:HD12	1:F:1206:PHE:CE1	2.49	0.47
1:C:1203:TYR:OH	1:C:1243:HIS:HB3	2.14	0.47
1:D:1097:LYS:CE	1:D:1098:LYS:H	2.28	0.47
1:D:1214:ILE:HG13	1:D:1229:MET:HB2	1.96	0.47
1:F:1035:ILE:CD1	1:F:1059:ILE:HG12	2.42	0.47
1:D:1188:TRP:CH2	1:D:1246:VAL:HG22	2.49	0.47
1:A:1204:VAL:O	1:A:1204:VAL:HG13	2.15	0.47
1:B:1046:ILE:C	1:B:1046:ILE:HD12	2.35	0.47
1:D:1086:PHE:HE1	1:D:1095:THR:HG22	1.80	0.47
1:B:1178:GLY:HA3	1:B:1255:TRP:CZ2	2.50	0.47
1:C:1106:LYS:O	1:C:1107:GLU:HB2	2.15	0.47
1:C:1035:ILE:CD1	1:C:1059:ILE:HG12	2.43	0.47
1:D:1200:MET:HG3	1:D:1200:MET:O	2.14	0.47
1:F:1179:TYR:HE2	1:F:1181:ILE:HG23	1.79	0.47
1:A:998:LEU:O	1:A:1034:ALA:HB1	2.15	0.46
1:B:1086:PHE:CE1	1:B:1095:THR:HG22	2.51	0.46
1:B:1103:TYR:HB2	1:B:1165:ILE:CD1	2.45	0.46
1:B:1081:ILE:HD12	1:B:1206:PHE:CZ	2.49	0.46
1:C:1103:TYR:HB2	1:C:1165:ILE:CD1	2.45	0.46
1:F:1020:LEU:HD11	1:F:1225:LYS:CD	2.45	0.46
1:A:1086:PHE:HE1	1:A:1095:THR:HG22	1.81	0.46
1:B:1151:GLY:HA2	1:B:1157:ASN:ND2	2.30	0.46
1:B:1188:TRP:CE2	1:B:1246:VAL:HG13	2.50	0.46
1:D:1133:HIS:CD2	1:F:1133:HIS:HD2	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1135:TYR:HB3	1:C:1136:PRO:HD2	1.97	0.46
1:E:1086:PHE:HE1	1:E:1095:THR:HG22	1.80	0.46
1:F:1097:LYS:CE	1:F:1098:LYS:H	2.28	0.46
1:F:1075:GLU:HG2	1:F:1131:ALA:HB2	1.96	0.46
1:F:1142:ILE:N	1:F:1142:ILE:CD1	2.72	0.46
1:C:1179:TYR:HE2	1:C:1181:ILE:HG23	1.80	0.46
1:A:1106:LYS:O	1:A:1107:GLU:HB2	2.15	0.46
1:C:1086:PHE:CE1	1:C:1095:THR:HG22	2.51	0.46
1:B:1012:ILE:HG12	1:B:1012:ILE:O	2.15	0.46
1:B:1098:LYS:HG2	1:B:1099:GLN:HG2	1.96	0.46
1:B:1204:VAL:HG12	1:B:1254:ILE:HB	1.98	0.46
1:B:1183:GLU:HG2	1:B:1184:PRO:HD2	1.96	0.46
1:D:1135:TYR:HB3	1:D:1136:PRO:HD2	1.98	0.46
1:E:1042:ASN:HB3	1:E:1200:MET:HG3	1.98	0.46
1:C:1183:GLU:HG2	1:C:1184:PRO:HD2	1.98	0.46
1:E:1166:HIS:ND1	1:E:1167:PRO:HD2	2.31	0.46
1:E:1184:PRO:HA	1:E:1250:ASN:OD1	2.14	0.46
1:F:1188:TRP:CH2	1:F:1246:VAL:HG22	2.50	0.46
1:A:1183:GLU:HG2	1:A:1184:PRO:HD2	1.98	0.46
1:E:1179:TYR:HE2	1:E:1181:ILE:HG23	1.80	0.46
1:F:1086:PHE:CE1	1:F:1095:THR:HG22	2.51	0.46
1:B:1097:LYS:CE	1:B:1098:LYS:H	2.30	0.45
1:F:1179:TYR:CE2	1:F:1181:ILE:HG23	2.51	0.45
1:B:1166:HIS:ND1	1:B:1167:PRO:HD2	2.31	0.45
1:C:1184:PRO:HA	1:C:1250:ASN:OD1	2.16	0.45
1:F:1187:ALA:HB1	1:F:1247:GLY:H	1.81	0.45
1:C:1184:PRO:HA	1:C:1250:ASN:CG	2.36	0.45
1:E:1046:ILE:HG13	1:E:1128:CYS:HB3	1.98	0.45
1:F:1103:TYR:HB2	1:F:1165:ILE:CD1	2.46	0.45
1:A:1179:TYR:HE2	1:A:1181:ILE:HG23	1.82	0.45
1:B:1179:TYR:HE2	1:B:1181:ILE:HG23	1.82	0.45
1:E:1142:ILE:N	1:E:1142:ILE:CD1	2.70	0.45
1:E:1159:ARG:HG2	1:E:1159:ARG:NH1	2.31	0.45
1:D:1173:CYS:HB3	1:F:1132:HIS:CD2	2.51	0.45
1:F:1176:GLN:HB2	1:F:1257:MET:HG3	1.98	0.45
1:A:1046:ILE:C	1:A:1046:ILE:HD12	2.37	0.45
1:B:1176:GLN:HB2	1:B:1257:MET:HG3	1.99	0.45
1:E:1097:LYS:CE	1:E:1098:LYS:H	2.29	0.45
1:F:1086:PHE:HE1	1:F:1095:THR:HG22	1.80	0.45
1:B:1106:LYS:O	1:B:1107:GLU:HB2	2.17	0.45
1:C:1166:HIS:ND1	1:C:1167:PRO:HD2	2.30	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1131:ALA:HB1	1:C:1173:CYS:SG	2.57	0.45
1:C:1187:ALA:HB1	1:C:1247:GLY:H	1.82	0.45
1:E:1103:TYR:HB2	1:E:1165:ILE:CD1	2.47	0.45
1:A:1204:VAL:HG12	1:A:1254:ILE:HB	1.97	0.45
1:D:1075:GLU:HG2	1:D:1131:ALA:HB2	1.99	0.45
1:E:1037:LEU:HD23	1:E:1048:GLY:HA3	1.98	0.45
1:A:1015:TYR:HA	1:A:1019:GLN:NE2	2.32	0.44
1:C:1179:TYR:CE2	1:C:1181:ILE:HG23	2.52	0.44
1:E:1035:ILE:CD1	1:E:1059:ILE:HG12	2.45	0.44
1:F:1046:ILE:HG13	1:F:1128:CYS:HB3	1.98	0.44
1:F:1183:GLU:HG2	1:F:1184:PRO:HD2	1.99	0.44
1:B:1086:PHE:HE1	1:B:1095:THR:HG22	1.82	0.44
1:B:1212:THR:CG2	1:B:1249:SER:HB3	2.48	0.44
1:C:1086:PHE:HE1	1:C:1095:THR:HG22	1.83	0.44
1:C:1097:LYS:CE	1:C:1098:LYS:H	2.30	0.44
1:E:1042:ASN:HB3	1:E:1200:MET:CG	2.46	0.44
1:A:1046:ILE:HG13	1:A:1128:CYS:HB3	1.98	0.44
1:B:1015:TYR:HA	1:B:1019:GLN:NE2	2.33	0.44
1:E:1031:ILE:HA	1:E:1032:PRO:HD2	1.82	0.44
1:A:1166:HIS:ND1	1:A:1167:PRO:HD2	2.33	0.44
1:A:1174:GLN:NE2	1:A:1258:CYS:HB2	2.33	0.44
1:F:1106:LYS:O	1:F:1107:GLU:HB2	2.17	0.44
1:F:1166:HIS:ND1	1:F:1167:PRO:HD2	2.31	0.44
1:A:1179:TYR:CE2	1:A:1181:ILE:HG23	2.53	0.44
1:D:1103:TYR:HB2	1:D:1165:ILE:CD1	2.47	0.44
1:E:1012:ILE:O	1:E:1012:ILE:HG12	2.17	0.44
1:E:1081:ILE:HD12	1:E:1206:PHE:CE1	2.53	0.44
1:F:1131:ALA:HB1	1:F:1173:CYS:SG	2.58	0.44
1:F:1212:THR:CG2	1:F:1249:SER:HB3	2.48	0.44
1:F:1204:VAL:HG12	1:F:1254:ILE:HB	1.99	0.44
1:B:1179:TYR:CE2	1:B:1181:ILE:HG23	2.52	0.44
1:A:1178:GLY:HA3	1:A:1255:TRP:NE1	2.31	0.43
1:E:1135:TYR:HB3	1:E:1136:PRO:HD2	2.00	0.43
1:E:1221:PRO:HB3	1:E:1242:ILE:HD11	2.00	0.43
1:A:1097:LYS:CE	1:A:1098:LYS:H	2.31	0.43
1:D:1212:THR:CG2	1:D:1249:SER:HB3	2.47	0.43
1:E:1179:TYR:HE2	1:E:1181:ILE:CG2	2.31	0.43
1:F:1147:PRO:HB3	1:F:1162:TYR:CE1	2.53	0.43
1:D:1046:ILE:HG13	1:D:1128:CYS:HB3	2.00	0.43
1:F:1179:TYR:HE2	1:F:1181:ILE:CG2	2.31	0.43
1:B:1187:ALA:HB1	1:B:1247:GLY:H	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1204:VAL:HG12	1:C:1254:ILE:HB	2.00	0.43
1:D:1138:VAL:HG11	1:D:1170:CYS:HB2	2.01	0.43
1:E:1179:TYR:CE2	1:E:1181:ILE:HG23	2.53	0.43
1:A:1135:TYR:HB3	1:A:1136:PRO:HD2	2.00	0.43
1:B:1046:ILE:HG13	1:B:1128:CYS:HB3	2.01	0.43
1:B:1179:TYR:HE2	1:B:1181:ILE:CG2	2.31	0.43
1:C:999:GLN:HA	1:C:1035:ILE:HG12	2.00	0.43
1:E:1188:TRP:CH2	1:E:1246:VAL:CG2	3.01	0.43
1:A:1212:THR:CG2	1:A:1249:SER:HB3	2.48	0.43
1:E:1204:VAL:HG12	1:E:1254:ILE:HB	2.00	0.43
1:E:1212:THR:CG2	1:E:1249:SER:HB3	2.48	0.43
1:F:1159:ARG:HG2	1:F:1159:ARG:NH1	2.30	0.43
1:C:1147:PRO:HB3	1:C:1162:TYR:CE1	2.54	0.43
1:E:1075:GLU:HG2	1:E:1131:ALA:HB2	2.01	0.43
1:C:1209:GLU:HB2	1:C:1212:THR:CG2	2.42	0.43
1:D:1015:TYR:HA	1:D:1019:GLN:NE2	2.34	0.43
1:D:1129:VAL:HG13	1:D:1130:PRO:CD	2.48	0.43
1:A:1081:ILE:HD12	1:A:1206:PHE:CE1	2.54	0.43
1:A:1131:ALA:HB1	1:A:1173:CYS:SG	2.59	0.43
1:A:1179:TYR:HE2	1:A:1181:ILE:CG2	2.32	0.43
1:C:1179:TYR:HE2	1:C:1181:ILE:CG2	2.31	0.43
1:D:1133:HIS:HD2	1:F:1133:HIS:CD2	2.32	0.43
1:D:1204:VAL:HG12	1:D:1254:ILE:HB	2.00	0.43
1:D:1132:HIS:CD2	1:F:1131:ALA:HA	2.54	0.43
1:A:1159:ARG:HG2	1:A:1159:ARG:NH1	2.33	0.42
1:A:1147:PRO:HB3	1:A:1162:TYR:CE1	2.54	0.42
1:D:1086:PHE:HB2	1:D:1114:SER:OG	2.19	0.42
1:F:1037:LEU:HD23	1:F:1048:GLY:HA3	2.00	0.42
1:F:1187:ALA:O	1:F:1246:VAL:HA	2.19	0.42
1:C:1015:TYR:HA	1:C:1019:GLN:NE2	2.34	0.42
1:B:1013:ARG:HG2	1:B:1014:HIS:CE1	2.53	0.42
1:D:1179:TYR:HE2	1:D:1181:ILE:HG23	1.84	0.42
1:B:1062:ASP:HB2	1:B:1067:VAL:O	2.19	0.42
1:B:1142:ILE:HD12	1:B:1142:ILE:H	1.82	0.42
1:B:1184:PRO:HA	1:B:1250:ASN:CG	2.40	0.42
1:D:1179:TYR:CE2	1:D:1181:ILE:HG23	2.54	0.42
1:F:1063:LYS:NZ	1:F:1063:LYS:HB2	2.35	0.42
1:F:1062:ASP:HB2	1:F:1067:VAL:O	2.20	0.42
1:C:1178:GLY:O	1:C:1254:ILE:HA	2.20	0.42
1:E:1184:PRO:HA	1:E:1250:ASN:CG	2.40	0.42
1:F:1188:TRP:HB3	1:F:1190:THR:HG22	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1147:PRO:HB3	1:E:1162:TYR:CE1	2.55	0.42
1:E:1151:GLY:HA2	1:E:1157:ASN:ND2	2.34	0.42
1:A:1012:ILE:O	1:A:1012:ILE:HG12	2.20	0.42
1:C:1086:PHE:HB2	1:C:1114:SER:OG	2.20	0.42
1:C:1214:ILE:CD1	1:C:1216:HIS:HB2	2.50	0.42
1:D:1012:ILE:O	1:D:1012:ILE:HG12	2.19	0.42
1:F:1015:TYR:HA	1:F:1019:GLN:NE2	2.35	0.42
1:F:1086:PHE:HB2	1:F:1114:SER:OG	2.20	0.42
1:D:1132:HIS:CD2	1:F:1132:HIS:CD2	3.08	0.42
1:F:1188:TRP:CE2	1:F:1246:VAL:HG13	2.54	0.42
1:B:1031:ILE:HA	1:B:1032:PRO:HD2	1.82	0.42
1:C:1151:GLY:HA2	1:C:1157:ASN:ND2	2.35	0.42
1:C:1214:ILE:HD12	1:C:1214:ILE:O	2.20	0.42
1:B:1214:ILE:CD1	1:B:1216:HIS:HB2	2.50	0.42
1:D:1188:TRP:CE2	1:D:1246:VAL:HG13	2.55	0.42
1:A:1013:ARG:HG2	1:A:1014:HIS:CE1	2.55	0.41
1:A:1096:MET:CE	1:A:1139:LYS:HE3	2.50	0.41
1:C:1081:ILE:HD12	1:C:1206:PHE:CE1	2.55	0.41
1:D:1044:ARG:HD2	1:F:1043:ASP:OD1	2.20	0.41
1:F:1026:VAL:HG21	1:F:1038:THR:HG21	2.02	0.41
1:A:1042:ASN:HB3	1:A:1200:MET:HG2	2.01	0.41
1:C:1062:ASP:HB2	1:C:1067:VAL:O	2.19	0.41
1:D:1037:LEU:HD23	1:D:1048:GLY:HA3	2.01	0.41
1:A:1037:LEU:HD23	1:A:1048:GLY:HA3	2.03	0.41
1:B:1078:VAL:O	1:B:1101:GLY:HA2	2.20	0.41
1:C:1159:ARG:HG2	1:C:1159:ARG:NH1	2.31	0.41
1:D:1081:ILE:HD12	1:D:1206:PHE:CE1	2.54	0.41
1:A:1188:TRP:CH2	1:A:1246:VAL:CG2	3.04	0.41
1:B:1174:GLN:NE2	1:B:1258:CYS:HB2	2.35	0.41
1:C:1212:THR:CG2	1:C:1249:SER:HB3	2.50	0.41
1:D:1062:ASP:HB2	1:D:1067:VAL:O	2.19	0.41
1:D:1179:TYR:HE2	1:D:1181:ILE:CG2	2.34	0.41
1:E:1062:ASP:HB2	1:E:1067:VAL:O	2.21	0.41
1:E:999:GLN:HB2	1:E:1035:ILE:CD1	2.50	0.41
1:B:1147:PRO:HB3	1:B:1162:TYR:CE1	2.56	0.41
1:C:1037:LEU:HD23	1:C:1048:GLY:HA3	2.02	0.41
1:C:1129:VAL:HG13	1:C:1130:PRO:CD	2.51	0.41
1:E:998:LEU:HG	1:E:1034:ALA:HB2	2.03	0.41
1:B:1017:THR:O	1:B:1021:ARG:HG3	2.21	0.41
1:B:1135:TYR:HB3	1:B:1136:PRO:HD2	2.02	0.41
1:E:1178:GLY:O	1:E:1254:ILE:HA	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1221:PRO:HB3	1:F:1242:ILE:HD11	2.03	0.41
1:E:1013:ARG:HG2	1:E:1014:HIS:CE1	2.56	0.41
1:E:1214:ILE:CD1	1:E:1216:HIS:HB2	2.50	0.41
1:B:1020:LEU:HD11	1:B:1225:LYS:CD	2.49	0.41
1:B:1178:GLY:O	1:B:1254:ILE:HA	2.21	0.41
1:D:1040:THR:HG23	1:D:1040:THR:O	2.21	0.41
1:F:1098:LYS:O	1:F:1099:GLN:HB2	2.21	0.41
1:F:1184:PRO:HA	1:F:1250:ASN:ND2	2.36	0.41
1:B:999:GLN:HG2	1:B:1035:ILE:CD1	2.51	0.40
1:B:1086:PHE:HB2	1:B:1114:SER:OG	2.21	0.40
1:A:1014:HIS:HB3	1:C:1014:HIS:HB3	2.04	0.40
1:C:1006:THR:HG22	1:C:1042:ASN:OD1	2.21	0.40
1:D:1214:ILE:CD1	1:D:1216:HIS:HB2	2.51	0.40
1:F:1013:ARG:HG2	1:F:1014:HIS:CE1	2.56	0.40
1:F:1135:TYR:HB3	1:F:1136:PRO:HD2	2.03	0.40
1:F:1143:ASP:O	1:F:1145:ILE:N	2.54	0.40
1:C:1237:SER:HA	1:C:1238:PRO:HD2	1.95	0.40
1:F:1097:LYS:CA	1:F:1097:LYS:HE2	2.50	0.40
1:C:1064:GLU:H	1:C:1064:GLU:CD	2.25	0.40
1:D:1064:GLU:CD	1:D:1064:GLU:H	2.25	0.40
1:F:1084:PRO:CB	1:F:1097:LYS:HE3	2.46	0.40
1:F:1174:GLN:NE2	1:F:1258:CYS:HB2	2.36	0.40
1:A:1064:GLU:CD	1:A:1064:GLU:H	2.24	0.40
1:B:1037:LEU:HD23	1:B:1048:GLY:HA3	2.02	0.40
1:B:1131:ALA:HB1	1:B:1173:CYS:SG	2.62	0.40
1:D:1237:SER:HA	1:D:1238:PRO:HD2	1.96	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	251/289 (87%)	232 (92%)	17 (7%)	2 (1%)	19	53
1	B	250/289 (86%)	229 (92%)	19 (8%)	2 (1%)	19	53
1	C	249/289 (86%)	233 (94%)	15 (6%)	1 (0%)	34	69
1	D	250/289 (86%)	230 (92%)	19 (8%)	1 (0%)	34	69
1	E	250/289 (86%)	232 (93%)	17 (7%)	1 (0%)	34	69
1	F	249/289 (86%)	229 (92%)	19 (8%)	1 (0%)	34	69
All	All	1499/1734 (86%)	1385 (92%)	106 (7%)	8 (0%)	29	64

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1144	GLU
1	B	1144	GLU
1	C	1144	GLU
1	E	1144	GLU
1	F	1144	GLU
1	D	1144	GLU
1	B	1070	PHE
1	A	1142	ILE

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	227/259 (88%)	198 (87%)	29 (13%)	4	17
1	B	226/259 (87%)	197 (87%)	29 (13%)	4	17
1	C	225/259 (87%)	198 (88%)	27 (12%)	5	19
1	D	226/259 (87%)	196 (87%)	30 (13%)	4	15
1	E	226/259 (87%)	199 (88%)	27 (12%)	5	20
1	F	225/259 (87%)	197 (88%)	28 (12%)	4	18
All	All	1355/1554 (87%)	1185 (88%)	170 (12%)	4	17

All (170) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	999	GLN
1	A	1003	THR
1	A	1012	ILE
1	A	1015	TYR
1	A	1031	ILE
1	A	1035	ILE
1	A	1038	THR
1	A	1042	ASN
1	A	1046	ILE
1	A	1050	VAL
1	A	1051	THR
1	A	1061	LEU
1	A	1062	ASP
1	A	1063	LYS
1	A	1076	LEU
1	A	1089	ILE
1	A	1097	LYS
1	A	1102	TYR
1	A	1138	VAL
1	A	1142	ILE
1	A	1155	THR
1	A	1156	LEU
1	A	1163	GLN
1	A	1169	VAL
1	A	1174	GLN
1	A	1179	TYR
1	A	1200	MET
1	A	1246	VAL
1	A	1248	THR
1	B	999	GLN
1	B	1003	THR
1	B	1012	ILE
1	B	1015	TYR
1	B	1031	ILE
1	B	1035	ILE
1	B	1038	THR
1	B	1042	ASN
1	B	1046	ILE
1	B	1050	VAL
1	B	1051	THR
1	B	1061	LEU
1	B	1062	ASP

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Mol	Chain	Res	Type
1	B	1063	LYS
1	B	1076	LEU
1	B	1089	ILE
1	B	1097	LYS
1	B	1102	TYR
1	B	1138	VAL
1	B	1142	ILE
1	B	1155	THR
1	B	1156	LEU
1	B	1163	GLN
1	B	1169	VAL
1	B	1174	GLN
1	B	1179	TYR
1	B	1246	VAL
1	B	1248	THR
1	B	1250	ASN
1	C	1003	THR
1	C	1012	ILE
1	C	1015	TYR
1	C	1031	ILE
1	C	1035	ILE
1	C	1038	THR
1	C	1042	ASN
1	C	1046	ILE
1	C	1050	VAL
1	C	1051	THR
1	C	1061	LEU
1	C	1062	ASP
1	C	1063	LYS
1	C	1076	LEU
1	C	1089	ILE
1	C	1097	LYS
1	C	1102	TYR
1	C	1138	VAL
1	C	1142	ILE
1	C	1155	THR
1	C	1156	LEU
1	C	1163	GLN
1	C	1169	VAL
1	C	1174	GLN
1	C	1179	TYR
1	C	1246	VAL

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Mol	Chain	Res	Type
1	C	1248	THR
1	D	1003	THR
1	D	1012	ILE
1	D	1015	TYR
1	D	1031	ILE
1	D	1035	ILE
1	D	1038	THR
1	D	1042	ASN
1	D	1046	ILE
1	D	1050	VAL
1	D	1051	THR
1	D	1061	LEU
1	D	1062	ASP
1	D	1063	LYS
1	D	1076	LEU
1	D	1089	ILE
1	D	1097	LYS
1	D	1102	TYR
1	D	1138	VAL
1	D	1142	ILE
1	D	1155	THR
1	D	1156	LEU
1	D	1163	GLN
1	D	1169	VAL
1	D	1174	GLN
1	D	1179	TYR
1	D	1199	ARG
1	D	1200	MET
1	D	1246	VAL
1	D	1248	THR
1	D	1250	ASN
1	E	999	GLN
1	E	1003	THR
1	E	1012	ILE
1	E	1015	TYR
1	E	1031	ILE
1	E	1035	ILE
1	E	1038	THR
1	E	1042	ASN
1	E	1046	ILE
1	E	1050	VAL
1	E	1051	THR

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Mol	Chain	Res	Type
1	E	1061	LEU
1	E	1062	ASP
1	E	1063	LYS
1	E	1089	ILE
1	E	1097	LYS
1	E	1102	TYR
1	E	1138	VAL
1	E	1142	ILE
1	E	1155	THR
1	E	1156	LEU
1	E	1163	GLN
1	E	1169	VAL
1	E	1174	GLN
1	E	1179	TYR
1	E	1246	VAL
1	E	1248	THR
1	F	999	GLN
1	F	1003	THR
1	F	1012	ILE
1	F	1015	TYR
1	F	1031	ILE
1	F	1035	ILE
1	F	1038	THR
1	F	1042	ASN
1	F	1046	ILE
1	F	1050	VAL
1	F	1051	THR
1	F	1061	LEU
1	F	1062	ASP
1	F	1063	LYS
1	F	1076	LEU
1	F	1089	ILE
1	F	1097	LYS
1	F	1102	TYR
1	F	1138	VAL
1	F	1142	ILE
1	F	1155	THR
1	F	1156	LEU
1	F	1163	GLN
1	F	1169	VAL
1	F	1174	GLN
1	F	1179	TYR

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Mol	Chain	Res	Type
1	F	1246	VAL
1	F	1248	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (64) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	999	GLN
1	A	1014	HIS
1	A	1019	GLN
1	A	1041	HIS
1	A	1163	GLN
1	A	1168	ASN
1	A	1174	GLN
1	A	1216	HIS
1	A	1243	HIS
1	A	1250	ASN
1	B	999	GLN
1	B	1019	GLN
1	B	1041	HIS
1	B	1099	GLN
1	B	1163	GLN
1	B	1168	ASN
1	B	1174	GLN
1	B	1216	HIS
1	B	1226	HIS
1	B	1243	HIS
1	B	1250	ASN
1	C	999	GLN
1	C	1014	HIS
1	C	1019	GLN
1	C	1041	HIS
1	C	1163	GLN
1	C	1168	ASN
1	C	1174	GLN
1	C	1216	HIS
1	C	1243	HIS
1	C	1250	ASN
1	D	999	GLN
1	D	1019	GLN
1	D	1041	HIS
1	D	1099	GLN
1	D	1132	HIS

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Mol	Chain	Res	Type
1	D	1133	HIS
1	D	1163	GLN
1	D	1168	ASN
1	D	1174	GLN
1	D	1216	HIS
1	D	1226	HIS
1	D	1243	HIS
1	D	1250	ASN
1	E	999	GLN
1	E	1019	GLN
1	E	1041	HIS
1	E	1163	GLN
1	E	1168	ASN
1	E	1174	GLN
1	E	1216	HIS
1	E	1243	HIS
1	E	1250	ASN
1	F	1019	GLN
1	F	1041	HIS
1	F	1132	HIS
1	F	1133	HIS
1	F	1163	GLN
1	F	1168	ASN
1	F	1174	GLN
1	F	1216	HIS
1	F	1226	HIS
1	F	1243	HIS
1	F	1250	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	255/289 (88%)	0.18	13 (5%) 28 17	13, 37, 69, 99	0
1	B	254/289 (87%)	0.12	8 (3%) 49 32	15, 36, 64, 98	0
1	C	253/289 (87%)	0.10	8 (3%) 47 31	19, 41, 67, 98	0
1	D	254/289 (87%)	0.12	4 (1%) 72 55	13, 39, 64, 95	0
1	E	254/289 (87%)	0.07	13 (5%) 28 17	11, 36, 73, 95	0
1	F	253/289 (87%)	0.22	13 (5%) 28 17	19, 42, 70, 96	0
All	All	1523/1734 (87%)	0.14	59 (3%) 39 25	11, 39, 68, 99	0

All (59) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	1148	MET	7.2
1	A	1146	THR	6.3
1	C	1148	MET	6.2
1	A	1144	GLU	6.0
1	E	1146	THR	6.0
1	A	1148	MET	5.3
1	F	1149	GLU	4.9
1	A	1151	GLY	4.6
1	F	1148	MET	4.6
1	A	1154	LEU	4.5
1	A	1145	ILE	4.4
1	C	1146	THR	4.4
1	A	1152	ASP	4.4
1	F	1154	LEU	4.3
1	A	1150	THR	4.2
1	F	1119	ASP	3.8
1	E	1154	LEU	3.8
1	E	1119	ASP	3.6
1	D	1148	MET	3.5

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Mol	Chain	Res	Type	RSRZ
1	F	1150	THR	3.4
1	F	1145	ILE	3.4
1	F	1146	THR	3.3
1	E	1149	GLU	3.2
1	E	1144	GLU	3.2
1	F	1168	ASN	3.1
1	B	1149	GLU	3.1
1	B	1119	ASP	2.9
1	C	1144	GLU	2.9
1	A	1168	ASN	2.9
1	E	1168	ASN	2.8
1	B	1190	THR	2.7
1	B	1148	MET	2.6
1	C	1063	LYS	2.6
1	B	1054	THR	2.5
1	A	1161	ILE	2.5
1	B	1147	PRO	2.5
1	D	1147	PRO	2.5
1	F	1063	LYS	2.5
1	D	1190	THR	2.4
1	E	1169	VAL	2.4
1	C	1149	GLU	2.4
1	D	1119	ASP	2.4
1	E	1152	ASP	2.4
1	F	1120	ASN	2.3
1	F	1054	THR	2.2
1	F	1190	THR	2.2
1	A	1117	ASN	2.2
1	E	1190	THR	2.2
1	A	1189	ASN	2.2
1	C	1154	LEU	2.2
1	E	1189	ASN	2.2
1	F	1142	ILE	2.2
1	B	1168	ASN	2.1
1	C	1213	ARG	2.0
1	E	1145	ILE	2.0
1	E	1147	PRO	2.0
1	A	1190	THR	2.0
1	B	1136	PRO	2.0
1	C	1150	THR	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.