Full wwPDB X-ray Structure Validation Report ⓘ

May 22, 2020 – 12:20 pm BST

PDB ID	:	5I6H
Title	:	Crystal structure of CD-CT domains of Chaetomium thermophilum acetyl-CoA carboxylase
Authors	:	Hunkeler, M.; Stuttfeld, E.; Hagmann, A.; Imseng, S.; Maier, T.
Deposited on	:	2016-02-16
Resolution	:	7.20 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:

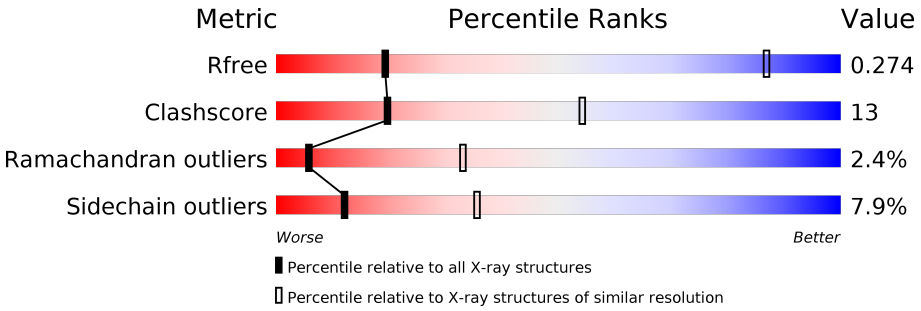
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 7.20 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	1004 (10.00-3.90)
Clashscore	141614	1069 (10.00-3.90)
Ramachandran outliers	138981	1002 (10.00-3.90)
Sidechain outliers	138945	1002 (10.00-3.86)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Mol	Chain	Length	Quality of chain
1	A	1487	63% 28% • 6%
1	B	1487	64% 27% • 5%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 22543 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 Acetyl-CoA carboxylase-like protein.

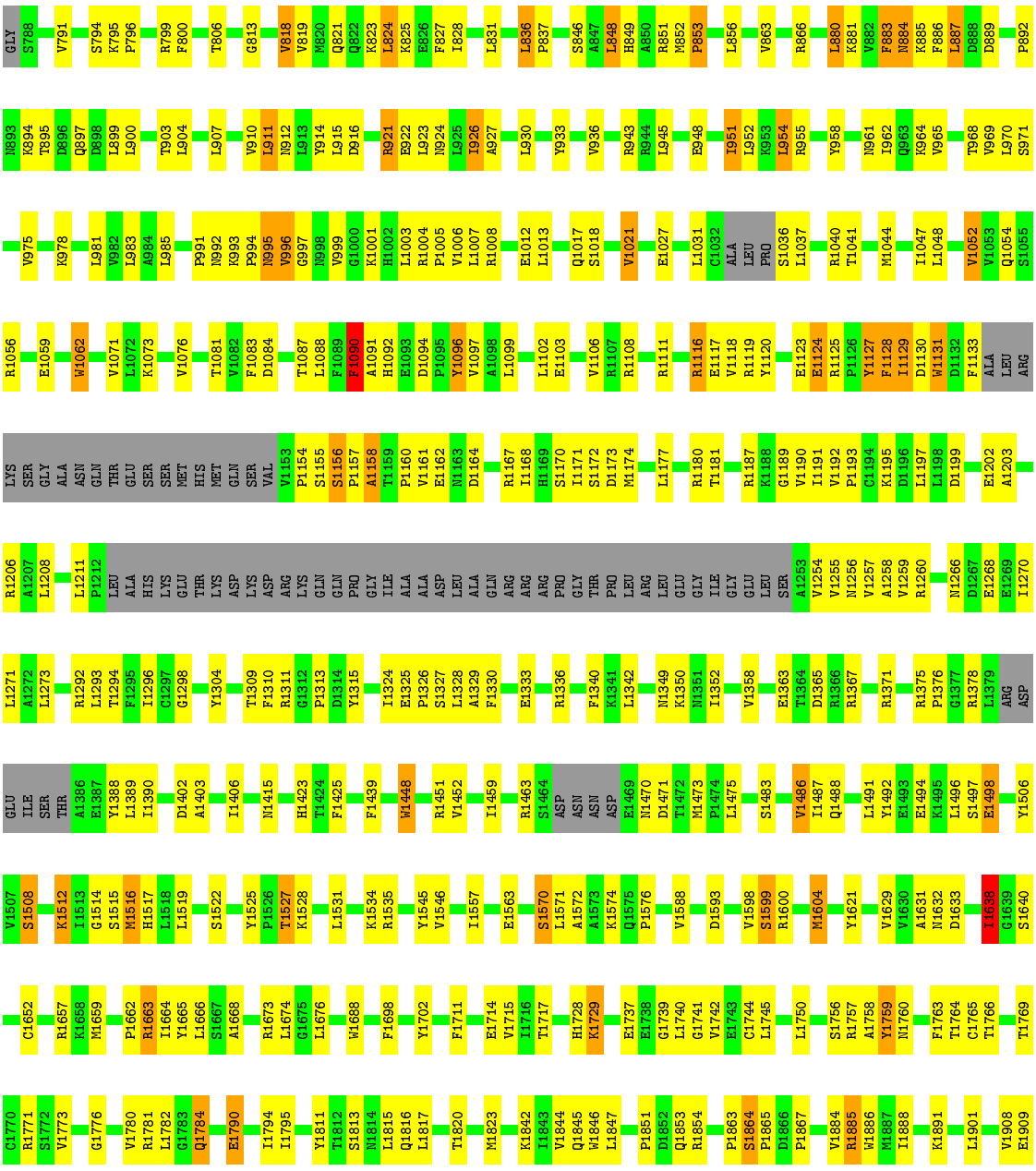
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1404	Total	C	N	O	S	0	0	0
			11262	7144	1983	2096	39			
1	B	1406	Total	C	N	O	S	0	0	0
			11281	7156	1988	2098	39			

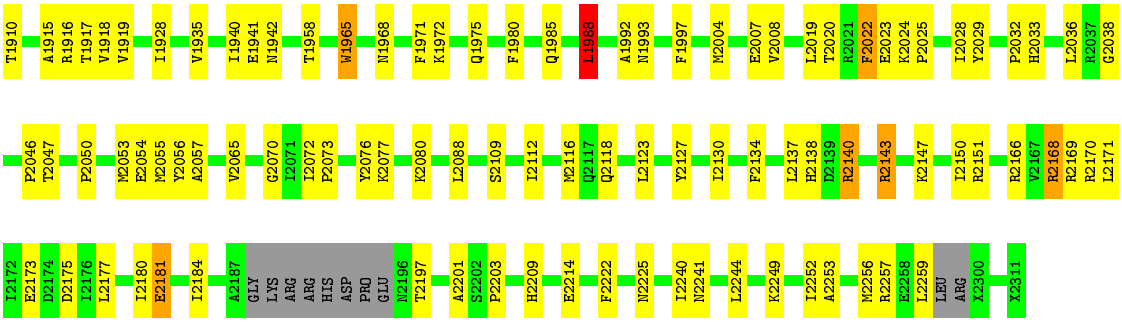
3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. 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. 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: Acetyl-CoA carboxylase-like protein

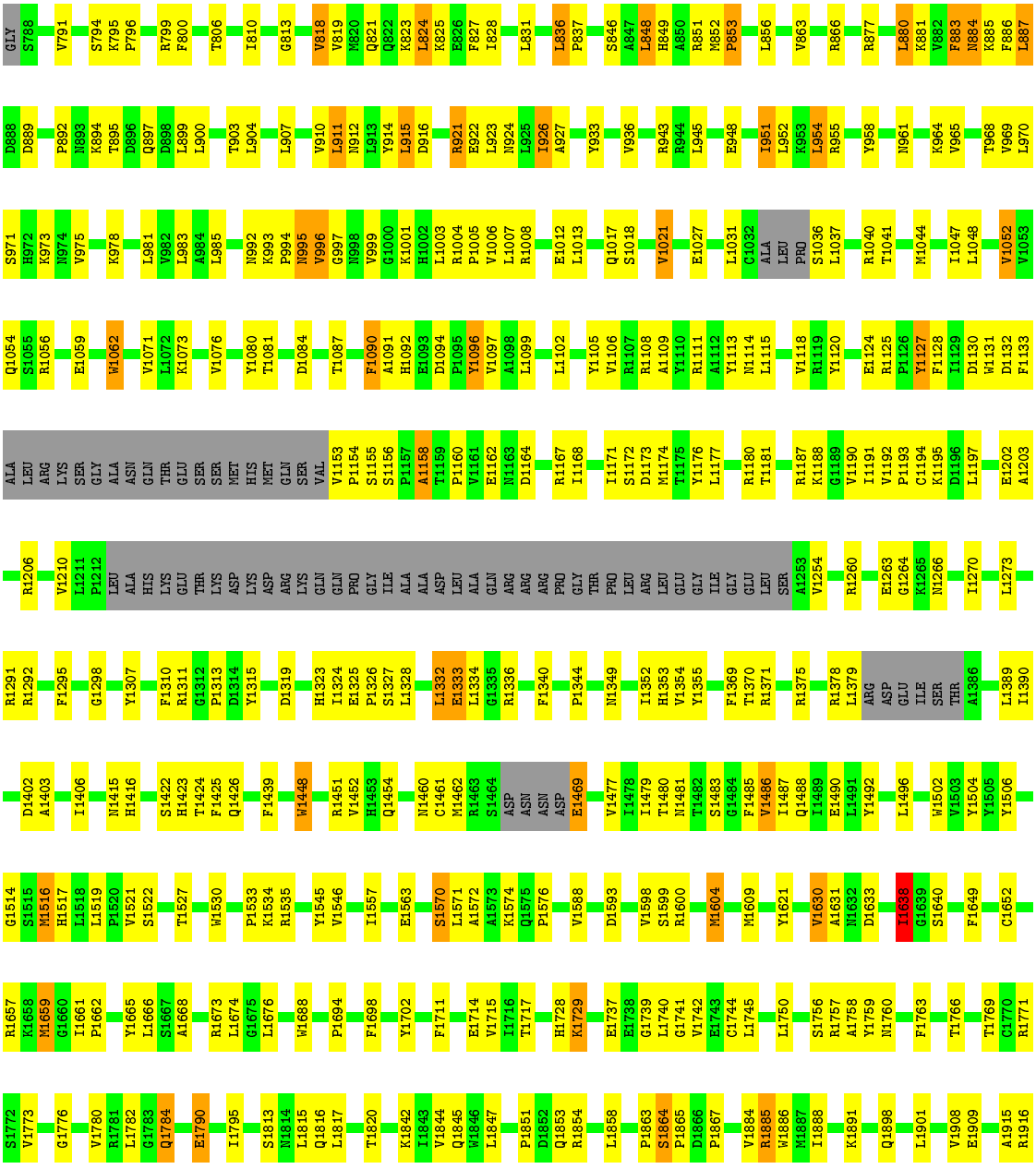
Chain A:

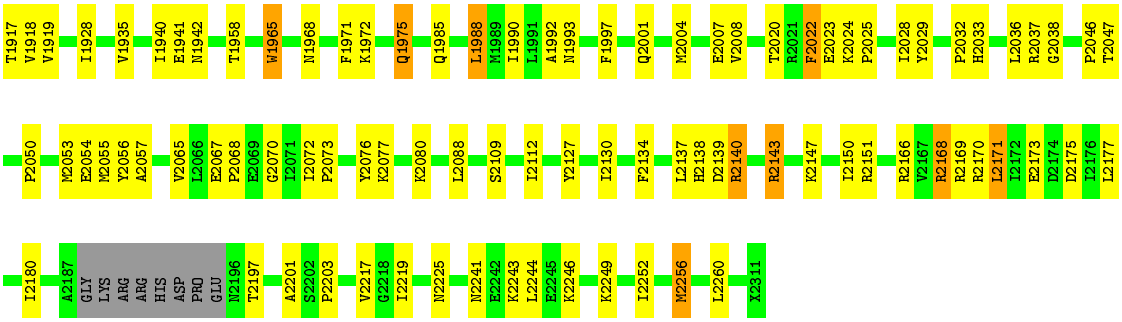




• Molecule 1: Acetyl-CoA carboxylase-like protein

Chain B:




T1917 V1918 V1919 I1928 V1935 I1940 E1941 N1942 T1958 W1965 N1968 F1971 K1972 Q1975 Q1985 L1988 M1989 I1990 L1991 A1992 N1993 F1997 Q2001 M2004 E2007 V2008 T2020 R2021 F2022 E2023 K2024 P2025 I2028 Y2029 P2032 H2033 L2036 R2037 G2038 P2046 T2047
P2050 M2053 E2054 M2055 Y2056 A2057 V2065 L2066 E2067 P2068 E2069 G2070 I2071 I2072 P2073 Y2076 K2077 K2080 L2088 S2109 I2112 Y2127 I2130 F2134 L2137 H2138 D2139 R2140 R2143 K2147 I2150 R2151 R2166 V2167 R2168 R2169 R2170 L2171 I2172 E2173 D2174 D2175 I2176 L2177
I2180 A2187 GLY LYS ARG ARG HIS ASP PRO GLU N2196 T2197 A2201 S2202 P2203 V2217 G2218 I2219 N2225 N2241 E2242 K2243 L2244 E2245 K2246 K2249 I2252 M2256 L2260 X2311

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	295.02Å 295.02Å 189.52Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	49.85 – 7.20 49.85 – 7.20	Depositor EDS
% Data completeness (in resolution range)	99.9 (49.85-7.20) 100.0 (49.85-7.20)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.72 (at 7.37Å)	Xtriage
Refinement program	BUSTER 2.10.2	Depositor
R, R_{free}	0.232 , 0.248 0.263 , 0.274	Depositor DCC
R_{free} test set	696 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å^2)	662.8	Xtriage
Anisotropy	0.048	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.23 , 410.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.46$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	0.021 for -h,-k,l	Xtriage
F_o,F_c correlation	0.87	EDS
Total number of atoms	22543	wwPDB-VP
Average B, all atoms (Å^2)	271.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.82% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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	0.49	0/11439	0.72	3/15486 (0.0%)
1	B	0.50	0/11458	0.71	0/15511
All	All	0.49	0/22897	0.72	3/30997 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1988	LEU	CB-CG-CD2	5.41	120.20	111.00
1	A	1988	LEU	CB-CG-CD1	5.17	119.78	111.00
1	A	1090	PHE	C-N-CA	5.09	134.41	121.70

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	11262	0	11181	289	0
1	B	11281	0	11205	295	0
All	All	22543	0	22386	571	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

All (571) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1389:LEU:HD11	1:B:1425:PHE:HB3	1.33	1.08
1:A:994:PRO:HA	1:A:1037:LEU:HB3	1.35	1.07
1:B:994:PRO:HA	1:B:1037:LEU:HB3	1.40	1.01
1:A:1090:PHE:HB2	1:A:1193:PRO:HB3	1.39	0.99
1:B:1176:TYR:HE2	1:B:1291:ARG:HD3	1.23	0.98
1:B:1546:VAL:HG21	1:B:1633:ASP:HA	1.49	0.93
1:A:1125:ARG:HH11	1:A:1203:ALA:HB2	1.31	0.92
1:B:1168:ILE:HB	1:B:1181:THR:HG21	1.51	0.92
1:A:827:PHE:O	1:A:831:LEU:HD23	1.70	0.91
1:A:1546:VAL:HG21	1:A:1633:ASP:HA	1.51	0.91
1:B:827:PHE:O	1:B:831:LEU:HD23	1.70	0.91
1:A:1192:VAL:HG21	1:A:1203:ALA:HB1	1.53	0.89
1:A:848:LEU:HD23	1:A:851:ARG:HG3	1.55	0.88
1:A:1168:ILE:HB	1:A:1181:THR:HG21	1.57	0.86
1:B:1131:TRP:O	1:B:1188:LYS:HA	1.75	0.85
1:B:848:LEU:HD23	1:B:851:ARG:HG3	1.54	0.85
1:A:852:MET:HB3	1:A:853:PRO:HD2	1.59	0.84
1:A:1376:PRO:HG2	1:A:1423:HIS:HB2	1.57	0.84
1:B:926:ILE:HD12	1:B:985:LEU:HD11	1.59	0.84
1:B:1059:GLU:HB3	1:B:1062:TRP:HZ3	1.43	0.84
1:B:1176:TYR:CE2	1:B:1291:ARG:HD3	2.11	0.84
1:A:926:ILE:HD12	1:A:985:LEU:HD11	1.60	0.83
1:B:852:MET:HB3	1:B:853:PRO:HD2	1.59	0.83
1:B:1192:VAL:HG11	1:B:1203:ALA:HB1	1.61	0.83
1:A:1980:PHE:HD2	1:A:1988:LEU:HD11	1.43	0.82
1:A:1415:ASN:HB2	1:A:1452:VAL:HA	1.62	0.81
1:B:1192:VAL:CG1	1:B:1203:ALA:HB1	2.10	0.81
1:A:1059:GLU:HB3	1:A:1062:TRP:HZ3	1.47	0.80
1:B:1127:TYR:HB2	1:B:1193:PRO:HD2	1.64	0.80
1:B:1415:ASN:HB2	1:B:1452:VAL:HA	1.61	0.80
1:B:2054:GLU:HG3	1:B:2203:PRO:HG2	1.64	0.80
1:B:1324:ILE:HG23	1:B:1353:HIS:HE1	1.46	0.79
1:A:1125:ARG:NH1	1:A:1203:ALA:HB2	1.97	0.79
1:A:2054:GLU:HG3	1:A:2203:PRO:HG2	1.63	0.79
1:B:1125:ARG:HD2	1:B:1203:ALA:HB2	1.64	0.79
1:B:1091:ALA:HB2	1:B:1260:ARG:HG2	1.64	0.78
1:B:994:PRO:CA	1:B:1037:LEU:HB3	2.15	0.77
1:B:2249:LYS:HA	1:B:2252:ILE:HD12	1.68	0.76
1:A:1389:LEU:HD13	1:A:1459:ILE:HD11	1.68	0.74
1:A:895:THR:HB	1:A:900:LEU:HD12	1.70	0.74
1:B:1108:ARG:HH21	1:B:1375:ARG:NH2	1.85	0.74
1:A:1083:PHE:HE2	1:A:1375:ARG:HH12	1.33	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:895:THR:HB	1:B:900:LEU:HD12	1.70	0.74
1:B:961:ASN:O	1:B:965:VAL:HG23	1.87	0.74
1:A:961:ASN:O	1:A:965:VAL:HG23	1.88	0.72
1:B:2037:ARG:HE	1:B:2067:GLU:HA	1.54	0.72
1:B:1516:MET:HG3	1:B:1519:LEU:HD12	1.69	0.72
1:A:1133:PHE:CZ	1:A:1187:ARG:HB2	2.24	0.72
1:B:1090:PHE:HB2	1:B:1193:PRO:HB3	1.72	0.72
1:A:1056:ARG:HD2	1:A:1062:TRP:CZ2	2.25	0.71
1:B:1106:VAL:HG22	1:B:1191:ILE:HD11	1.71	0.70
1:B:1056:ARG:HD2	1:B:1062:TRP:CZ2	2.27	0.70
1:B:1059:GLU:HB3	1:B:1062:TRP:CZ3	2.27	0.70
1:A:1254:VAL:HG11	1:A:1292:ARG:NH2	2.07	0.70
1:B:1266:ASN:HB2	1:B:1270:ILE:HB	1.72	0.69
1:A:2065:VAL:HG23	1:B:1741:GLY:HA2	1.73	0.69
1:A:1081:THR:HA	1:A:1375:ARG:HH21	1.56	0.68
1:B:1517:HIS:HB3	1:B:1598:VAL:HG23	1.75	0.68
1:B:1336:ARG:HB2	1:B:1371:ARG:NH2	2.07	0.68
1:A:2123:LEU:HD21	1:B:1694:PRO:HG2	1.76	0.68
1:B:1105:TYR:HD2	1:B:1191:ILE:HD13	1.58	0.68
1:A:1127:TYR:HE2	1:A:1190:VAL:HG13	1.59	0.68
1:A:806:THR:HB	1:A:818:VAL:HG11	1.76	0.68
1:B:1336:ARG:HB2	1:B:1371:ARG:HH22	1.59	0.68
1:B:1040:ARG:HH11	1:B:1378:ARG:HG3	1.59	0.67
1:A:1173:ASP:OD1	1:A:1311:ARG:HD3	1.95	0.67
1:B:1609:MET:CE	1:B:1630:VAL:HG13	2.25	0.67
1:B:2241:ASN:HA	1:B:2244:LEU:HD12	1.77	0.67
1:A:1059:GLU:HB3	1:A:1062:TRP:CZ3	2.29	0.66
1:A:1985:GLN:HB3	1:A:2024:LYS:HE3	1.76	0.66
1:A:1515:SER:HA	1:A:1599:SER:O	1.95	0.66
1:A:2123:LEU:CD2	1:B:1694:PRO:HG2	2.25	0.66
1:A:1448:TRP:CE3	1:A:1448:TRP:HA	2.30	0.66
1:B:1310:PHE:HB3	1:B:1315:TYR:HB3	1.78	0.66
1:B:958:TYR:HB2	1:B:961:ASN:HB2	1.77	0.66
1:B:1173:ASP:OD1	1:B:1311:ARG:HD3	1.97	0.65
1:B:1325:GLU:HB2	1:B:1328:LEU:HB2	1.78	0.65
1:A:2072:ILE:HG23	1:A:2073:PRO:HD3	1.77	0.65
1:B:2072:ILE:HG23	1:B:2073:PRO:HD3	1.77	0.65
1:B:994:PRO:HA	1:B:1037:LEU:CB	2.21	0.65
1:B:1448:TRP:CE3	1:B:1448:TRP:HA	2.32	0.65
1:B:1490:GLU:OE2	1:B:1514:GLY:HA3	1.96	0.65
1:B:1263:GLU:HG3	1:B:1264:GLY:H	1.62	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1324:ILE:HG23	1:B:1353:HIS:CE1	2.31	0.64
1:B:806:THR:HB	1:B:818:VAL:HG11	1.79	0.64
1:A:958:TYR:HB2	1:A:961:ASN:HB2	1.79	0.64
1:B:1080:TYR:CB	1:B:1378:ARG:HG2	2.28	0.64
1:A:1090:PHE:CB	1:A:1193:PRO:HB3	2.22	0.63
1:A:1711:PHE:HB3	1:A:1714:GLU:HB2	1.81	0.63
1:A:1259:VAL:HG12	1:A:1260:ARG:N	2.14	0.63
1:B:1711:PHE:HB3	1:B:1714:GLU:HB2	1.81	0.63
1:A:1310:PHE:HB3	1:A:1315:TYR:HB3	1.81	0.63
1:A:1492:TYR:HA	1:A:1506:TYR:HA	1.81	0.63
1:A:936:VAL:HG23	1:A:968:THR:HG23	1.79	0.63
1:A:853:PRO:HB2	1:A:894:LYS:HD2	1.81	0.63
1:B:856:LEU:HB2	1:B:894:LYS:HE2	1.81	0.63
1:B:853:PRO:HB2	1:B:894:LYS:HD2	1.81	0.62
1:A:936:VAL:HG21	1:A:971:SER:HB3	1.81	0.62
1:A:1254:VAL:HG12	1:A:1292:ARG:HB2	1.80	0.62
1:B:1985:GLN:HB3	1:B:2024:LYS:HE3	1.79	0.62
1:B:936:VAL:HG23	1:B:968:THR:HG23	1.81	0.62
1:A:1258:ALA:HA	1:A:1296:ILE:HG23	1.81	0.62
1:A:1486:VAL:C	1:A:1488:GLN:H	2.02	0.62
1:A:1054:GLN:HB3	1:A:1062:TRP:CD1	2.35	0.61
1:A:1127:TYR:HB2	1:A:1193:PRO:HD3	1.81	0.61
1:A:1514:GLY:O	1:A:1599:SER:HB3	1.99	0.61
1:B:2025:PRO:HB3	1:B:2170:ARG:HD3	1.82	0.61
1:A:1001:LYS:HA	1:A:1004:ARG:HG3	1.83	0.61
1:A:1739:GLY:HA2	1:A:1744:CYS:SG	2.40	0.61
1:B:1254:VAL:HG12	1:B:1292:ARG:HB2	1.82	0.61
1:A:856:LEU:HB2	1:A:894:LYS:HE2	1.82	0.61
1:A:927:ALA:HA	1:A:1006:VAL:HG21	1.83	0.61
1:A:1091:ALA:CB	1:A:1260:ARG:HG2	2.31	0.61
1:A:1885:ARG:HA	1:A:1888:ILE:HD12	1.83	0.61
1:A:993:LYS:HB2	1:A:994:PRO:HD3	1.82	0.61
1:B:936:VAL:HG21	1:B:971:SER:HB3	1.83	0.61
1:B:1001:LYS:HA	1:B:1004:ARG:HG3	1.82	0.61
1:B:1195:LYS:HA	1:B:1260:ARG:HD2	1.83	0.61
1:B:1739:GLY:HA2	1:B:1744:CYS:SG	2.40	0.61
1:B:961:ASN:HA	1:B:964:LYS:HB2	1.83	0.60
1:A:1853:GLN:HG2	1:A:1854:ARG:H	1.65	0.60
1:A:1367:ARG:HH21	1:A:1528:LYS:HG3	1.66	0.60
1:B:975:VAL:HG11	1:B:1017:GLN:HG2	1.82	0.60
1:B:1210:VAL:HG12	1:B:1210:VAL:O	2.02	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:927:ALA:HA	1:B:1006:VAL:HG21	1.84	0.60
1:B:1530:TRP:O	1:B:1533:PRO:HD2	2.00	0.60
1:A:1099:LEU:HG	1:A:1120:TYR:CD1	2.37	0.60
1:A:1918:VAL:HG13	1:A:1972:LYS:HD3	1.83	0.60
1:A:961:ASN:HA	1:A:964:LYS:HB2	1.83	0.60
1:A:975:VAL:HG11	1:A:1017:GLN:HG2	1.83	0.60
1:A:1741:GLY:HA2	1:B:2065:VAL:HG23	1.83	0.59
1:B:1054:GLN:HB3	1:B:1062:TRP:CD1	2.37	0.59
1:B:1187:ARG:HG2	1:B:1291:ARG:HH12	1.66	0.59
1:B:1853:GLN:HG2	1:B:1854:ARG:H	1.66	0.59
1:B:1918:VAL:HG13	1:B:1972:LYS:HD3	1.84	0.59
1:A:1325:GLU:CD	1:A:1326:PRO:HD2	2.22	0.59
1:B:1059:GLU:CB	1:B:1062:TRP:HZ3	2.13	0.59
1:B:1389:LEU:HD11	1:B:1425:PHE:CB	2.21	0.59
1:B:1657:ARG:HD3	1:B:1758:ALA:HA	1.85	0.59
1:A:1127:TYR:CE2	1:A:1190:VAL:HG13	2.36	0.59
1:A:1980:PHE:CD2	1:A:1988:LEU:HD11	2.31	0.59
1:B:1132:ASP:HA	1:B:1187:ARG:O	2.02	0.59
1:A:1657:ARG:HD3	1:A:1758:ALA:HA	1.84	0.59
1:A:994:PRO:CA	1:A:1037:LEU:HB3	2.22	0.59
1:A:1846:TRP:HZ2	1:A:1910:THR:HG21	1.68	0.59
1:B:856:LEU:CB	1:B:894:LYS:HE2	2.33	0.59
1:A:994:PRO:HA	1:A:1037:LEU:CB	2.24	0.59
1:B:1080:TYR:HB3	1:B:1378:ARG:HG2	1.84	0.58
1:A:1123:GLU:HB2	1:A:1128:PHE:CE1	2.38	0.58
1:B:1885:ARG:HA	1:B:1888:ILE:HD12	1.84	0.58
1:B:993:LYS:HB2	1:B:994:PRO:HD3	1.85	0.58
1:A:1759:TYR:HB2	1:A:1764:THR:HG21	1.84	0.58
1:A:1195:LYS:HA	1:A:1260:ARG:HD2	1.85	0.58
1:A:1040:ARG:HH22	1:A:1084:ASP:HB3	1.69	0.58
1:B:1292:ARG:NH1	1:B:1326:PRO:HB3	2.19	0.58
1:B:1426:GLN:HG2	1:B:1462:MET:HB3	1.85	0.58
1:A:2020:THR:HG21	1:B:1757:ARG:HG2	1.85	0.58
1:A:1266:ASN:HB3	1:A:1270:ILE:HB	1.86	0.58
1:A:856:LEU:CB	1:A:894:LYS:HE2	2.34	0.58
1:B:1108:ARG:HH21	1:B:1375:ARG:HH22	1.50	0.58
1:A:2025:PRO:HB3	1:A:2170:ARG:HD3	1.86	0.57
1:A:1059:GLU:CB	1:A:1062:TRP:HZ3	2.15	0.57
1:A:836:LEU:HD12	1:A:914:TYR:OH	2.04	0.57
1:A:1091:ALA:HB1	1:A:1260:ARG:HD3	1.87	0.57
1:A:1980:PHE:HD2	1:A:1988:LEU:CD1	2.16	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2243:LYS:HA	1:B:2246:LYS:HD2	1.87	0.57
1:A:1171:ILE:HD13	1:A:1327:SER:O	2.05	0.57
1:B:852:MET:SD	1:B:903:THR:HG21	2.45	0.57
1:A:1496:LEU:HD12	1:A:1498:GLU:H	1.70	0.56
1:B:877:ARG:HE	1:B:915:LEU:HG	1.69	0.56
1:A:813:GLY:HA3	1:A:971:SER:HA	1.86	0.56
1:A:2253:ALA:HB1	1:A:2257:ARG:HH21	1.70	0.56
1:B:2177:LEU:HA	1:B:2180:ILE:HD12	1.85	0.56
1:A:1340:PHE:CZ	1:A:1527:THR:HG22	2.41	0.56
1:B:1295:PHE:O	1:B:1307:TYR:HA	2.05	0.56
1:A:1497:SER:O	1:A:1498:GLU:HB3	2.05	0.56
1:A:852:MET:SD	1:A:903:THR:HG21	2.46	0.56
1:A:883:PHE:CE2	1:A:911:LEU:HD21	2.41	0.56
1:B:1073:LYS:HA	1:B:1076:VAL:HG22	1.88	0.56
1:B:1844:VAL:HA	1:B:1847:LEU:HD12	1.87	0.56
1:A:948:GLU:O	1:A:952:LEU:HD12	2.06	0.56
1:B:836:LEU:HD12	1:B:914:TYR:OH	2.05	0.55
1:B:1087:THR:HG21	1:B:1298:GLY:HA3	1.88	0.55
1:A:2181:GLU:OE1	1:A:2181:GLU:HA	2.07	0.55
1:A:1259:VAL:HG12	1:A:1260:ARG:H	1.71	0.55
1:A:1448:TRP:HE3	1:A:1448:TRP:HA	1.70	0.55
1:A:1506:TYR:HE2	1:A:1512:LYS:HA	1.71	0.55
1:A:1781:ARG:HH12	1:A:1975:GLN:HE22	1.53	0.55
1:B:1630:VAL:HG11	1:B:1649:PHE:CD2	2.42	0.55
1:B:1448:TRP:HA	1:B:1448:TRP:HE3	1.71	0.55
1:B:883:PHE:CE2	1:B:911:LEU:HD21	2.41	0.55
1:A:1844:VAL:HA	1:A:1847:LEU:HD12	1.89	0.55
1:A:795:LYS:HB2	1:A:796:PRO:HD3	1.88	0.55
1:A:1087:THR:HA	1:A:1090:PHE:CE2	2.42	0.54
1:B:1813:SER:HB3	1:B:1816:GLN:HB2	1.88	0.54
1:B:1195:LYS:CA	1:B:1260:ARG:HD2	2.37	0.54
1:B:880:LEU:HD13	1:B:915:LEU:HD12	1.90	0.54
1:B:948:GLU:O	1:B:952:LEU:HD12	2.06	0.54
1:A:1073:LYS:HA	1:A:1076:VAL:HG22	1.89	0.54
1:A:1168:ILE:HB	1:A:1181:THR:CG2	2.35	0.54
1:B:1291:ARG:HG3	1:B:1292:ARG:N	2.23	0.54
1:B:795:LYS:HB2	1:B:796:PRO:HD3	1.88	0.54
1:B:1001:LYS:HG3	1:B:1004:ARG:HH21	1.73	0.54
1:A:1127:TYR:CD2	1:A:1192:VAL:HB	2.43	0.53
1:A:1191:ILE:HG12	1:A:1256:ASN:HB2	1.90	0.53
1:A:1202:GLU:HB3	1:A:1206:ARG:HH12	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1846:TRP:CZ2	1:A:1910:THR:HG21	2.43	0.53
1:B:1609:MET:HE1	1:B:1630:VAL:HG13	1.89	0.53
1:B:1087:THR:HA	1:B:1090:PHE:CE2	2.43	0.53
1:B:1504:TYR:HE1	1:B:1521:VAL:HA	1.74	0.53
1:A:1517:HIS:HB3	1:A:1598:VAL:HG23	1.91	0.53
1:A:1813:SER:HB3	1:A:1816:GLN:HB2	1.90	0.53
1:B:887:LEU:HD21	1:B:904:LEU:HD12	1.91	0.53
1:B:1099:LEU:HG	1:B:1120:TYR:CD1	2.44	0.52
1:B:945:LEU:HD11	1:B:954:LEU:HD13	1.92	0.52
1:B:1609:MET:HE3	1:B:1630:VAL:HG13	1.90	0.52
1:B:1534:LYS:NZ	1:B:1604:MET:H	2.08	0.52
1:A:1040:ARG:NH2	1:A:1084:ASP:HB3	2.23	0.52
1:A:1091:ALA:HB1	1:A:1260:ARG:CD	2.40	0.52
1:A:1886:TRP:HB3	1:A:1891:LYS:HB2	1.92	0.52
1:A:895:THR:O	1:A:895:THR:HG23	2.09	0.52
1:B:1307:TYR:H	1:B:1323:HIS:HA	1.75	0.52
1:A:1190:VAL:HG12	1:A:1255:VAL:HG23	1.91	0.52
1:A:1001:LYS:HG3	1:A:1004:ARG:HH21	1.75	0.52
1:A:1192:VAL:HG13	1:A:1257:VAL:HG13	1.92	0.52
1:A:1750:LEU:HD13	1:B:2047:THR:HB	1.91	0.52
1:B:1018:SER:O	1:B:1021:VAL:HG12	2.10	0.52
1:B:1106:VAL:CG2	1:B:1191:ILE:CD1	2.88	0.52
1:A:1885:ARG:HD2	1:A:1919:VAL:HG11	1.90	0.51
1:B:1333:GLU:HG2	1:B:1336:ARG:HG3	1.92	0.51
1:A:1018:SER:O	1:A:1021:VAL:HG12	2.10	0.51
1:A:1088:LEU:O	1:A:1091:ALA:HB3	2.10	0.51
1:A:948:GLU:OE1	1:A:969:VAL:HG13	2.11	0.51
1:B:1886:TRP:HB3	1:B:1891:LYS:HB2	1.92	0.51
1:B:813:GLY:HA3	1:B:971:SER:HA	1.90	0.51
1:B:1109:ALA:O	1:B:1327:SER:HB2	2.10	0.51
1:B:852:MET:HB2	1:B:900:LEU:HD21	1.92	0.51
1:B:1609:MET:HE1	1:B:1649:PHE:HD2	1.75	0.51
1:B:2004:MET:HA	1:B:2008:VAL:HG12	1.92	0.51
1:A:1638:ILE:HD12	1:A:1640:SER:HB3	1.91	0.51
1:B:1106:VAL:CG2	1:B:1191:ILE:HD11	2.37	0.51
1:B:831:LEU:HD12	1:B:922:GLU:HA	1.92	0.51
1:A:1756:SER:HB2	1:A:1782:LEU:HD22	1.90	0.51
1:A:887:LEU:HD21	1:A:904:LEU:HD12	1.92	0.51
1:B:1125:ARG:HH21	1:B:1202:GLU:HB2	1.76	0.51
1:B:895:THR:O	1:B:895:THR:HG23	2.10	0.51
1:B:948:GLU:OE1	1:B:969:VAL:HG13	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:996:VAL:HG22	1:B:1036:SER:N	2.25	0.51
1:B:1662:PRO:HB3	1:B:1763:PHE:HB3	1.93	0.51
1:A:1048:LEU:O	1:A:1052:VAL:HG23	2.11	0.51
1:A:1127:TYR:HB2	1:A:1193:PRO:CD	2.40	0.51
1:B:1168:ILE:HD12	1:B:1181:THR:OG1	2.10	0.51
1:A:1928:ILE:HD11	1:A:2168:ARG:HG3	1.93	0.51
1:A:831:LEU:HD12	1:A:922:GLU:HA	1.93	0.51
1:B:1154:PRO:HB2	1:B:1158:ALA:HB2	1.92	0.51
1:B:2037:ARG:HH11	1:B:2068:PRO:HD3	1.75	0.51
1:B:1202:GLU:HB3	1:B:1206:ARG:HH12	1.76	0.51
1:B:1916:ARG:HB2	1:B:1940:ILE:HD13	1.93	0.51
1:A:1811:TYR:CE1	1:B:2001:GLN:HB2	2.46	0.51
1:B:2022:PHE:HE2	1:B:2024:LYS:HB2	1.75	0.51
1:B:2143:ARG:HH12	1:B:2147:LYS:HE2	1.74	0.51
1:B:1047:ILE:HG23	1:B:1071:VAL:HG12	1.93	0.50
1:A:1403:ALA:O	1:A:1406:ILE:HG13	2.12	0.50
1:B:1332:LEU:HG	1:B:1371:ARG:HB3	1.92	0.50
1:A:1389:LEU:HD13	1:A:1459:ILE:CD1	2.40	0.50
1:A:852:MET:HB2	1:A:900:LEU:HD21	1.93	0.50
1:B:1048:LEU:O	1:B:1052:VAL:HG23	2.11	0.50
1:B:1187:ARG:HG2	1:B:1291:ARG:HH22	1.77	0.50
1:A:1091:ALA:HB1	1:A:1260:ARG:HG2	1.94	0.50
1:A:1102:LEU:O	1:A:1106:VAL:HG23	2.12	0.50
1:B:1027:GLU:O	1:B:1031:LEU:HG	2.12	0.50
1:A:1304:TYR:HB3	1:A:1350:LYS:HB2	1.94	0.50
1:A:2137:LEU:HA	1:A:2140:ARG:HD3	1.94	0.50
1:B:1081:THR:HG23	1:B:1375:ARG:HE	1.77	0.50
1:B:886:PHE:HB3	1:B:894:LYS:HG2	1.94	0.50
1:A:2022:PHE:HE2	1:A:2024:LYS:HB2	1.75	0.50
1:B:1340:PHE:CZ	1:B:1527:THR:HG22	2.47	0.50
1:A:1103:GLU:OE1	1:A:1118:VAL:HG21	2.12	0.50
1:B:1415:ASN:HD22	1:B:1451:ARG:C	2.16	0.50
1:B:1885:ARG:HD2	1:B:1919:VAL:HG11	1.93	0.50
1:A:1534:LYS:NZ	1:A:1604:MET:H	2.09	0.49
1:B:1756:SER:HB2	1:B:1782:LEU:HD22	1.94	0.49
1:A:1047:ILE:HG23	1:A:1071:VAL:HG12	1.95	0.49
1:A:1378:ARG:HB2	1:A:1388:TYR:CZ	2.46	0.49
1:B:1702:TYR:HA	1:B:1729:LYS:HA	1.94	0.49
1:B:907:LEU:O	1:B:911:LEU:HD13	2.12	0.49
1:A:1759:TYR:CE2	1:A:1784:GLN:HG3	2.47	0.49
1:A:852:MET:HB3	1:A:853:PRO:CD	2.38	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2047:THR:HB	1:B:1750:LEU:HD13	1.93	0.49
1:B:823:LYS:NZ	1:B:981:LEU:HD11	2.27	0.49
1:A:1197:LEU:HD13	1:A:1273:LEU:HD23	1.94	0.49
1:B:1403:ALA:O	1:B:1406:ILE:HG13	2.11	0.49
1:B:897:GLN:HB3	1:B:899:LEU:CD2	2.42	0.49
1:A:1027:GLU:O	1:A:1031:LEU:HG	2.12	0.49
1:A:995:ASN:HB2	1:A:999:VAL:HG22	1.94	0.49
1:B:824:LEU:O	1:B:828:ILE:HG12	2.12	0.49
1:B:994:PRO:HB3	1:B:1037:LEU:HD22	1.94	0.49
1:A:1702:TYR:HA	1:A:1729:LYS:HA	1.95	0.49
1:A:824:LEU:O	1:A:828:ILE:HG12	2.12	0.49
1:B:1609:MET:HE1	1:B:1630:VAL:CG1	2.42	0.49
1:A:1259:VAL:CG1	1:A:1260:ARG:H	2.25	0.49
1:A:1171:ILE:HG22	1:A:1329:ALA:HB3	1.95	0.49
1:A:1757:ARG:HG2	1:B:2020:THR:HG21	1.94	0.49
1:A:1916:ARG:HB2	1:A:1940:ILE:HD13	1.94	0.49
1:A:2143:ARG:HH12	1:A:2147:LYS:HE2	1.78	0.49
1:A:886:PHE:HB3	1:A:894:LYS:HG2	1.94	0.49
1:A:897:GLN:HB3	1:A:899:LEU:CD2	2.43	0.49
1:B:995:ASN:HB2	1:B:999:VAL:HG22	1.95	0.49
1:A:1259:VAL:CG1	1:A:1260:ARG:N	2.76	0.49
1:A:1171:ILE:HG23	1:A:1330:PHE:N	2.27	0.49
1:A:1349:ASN:HB3	1:A:1352:ILE:HG12	1.95	0.49
1:A:2169:ARG:O	1:A:2173:GLU:HB2	2.13	0.49
1:A:923:LEU:HD21	1:A:999:VAL:HG12	1.94	0.49
1:B:1127:TYR:HE2	1:B:1190:VAL:CG1	2.26	0.49
1:B:880:LEU:HG	1:B:911:LEU:HD23	1.95	0.49
1:A:1119:ARG:HB2	1:A:1130:ASP:HB3	1.94	0.49
1:B:1527:THR:O	1:B:1530:TRP:HD1	1.96	0.49
1:B:2169:ARG:O	1:B:2173:GLU:HB2	2.13	0.49
1:A:2004:MET:HA	1:A:2008:VAL:HG12	1.94	0.48
1:A:2028:ILE:HB	1:A:2055:MET:HG3	1.94	0.48
1:A:907:LEU:O	1:A:911:LEU:HD13	2.13	0.48
1:B:2137:LEU:HA	1:B:2140:ARG:HD3	1.94	0.48
1:A:1056:ARG:HD2	1:A:1062:TRP:HZ2	1.76	0.48
1:B:2072:ILE:CG2	1:B:2073:PRO:HD3	2.42	0.48
1:A:1164:ASP:H	1:A:1167:ARG:NE	2.11	0.48
1:A:1662:PRO:HB3	1:A:1763:PHE:HB3	1.95	0.48
1:A:1154:PRO:HB2	1:A:1158:ALA:HB2	1.94	0.48
1:A:1491:LEU:HB3	1:A:1508:SER:HA	1.96	0.48
1:B:1164:ASP:H	1:B:1167:ARG:NE	2.11	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2028:ILE:HB	1:B:2055:MET:HG3	1.94	0.48
1:B:887:LEU:HD22	1:B:900:LEU:HB3	1.96	0.48
1:B:881:LYS:HA	1:B:884:ASN:OD1	2.14	0.48
1:A:887:LEU:HD22	1:A:900:LEU:HB3	1.95	0.48
1:B:1424:THR:HA	1:B:1460:ASN:HB2	1.95	0.48
1:B:933:TYR:HD1	1:B:978:LYS:HG2	1.79	0.48
1:B:2143:ARG:NH1	1:B:2147:LYS:HE2	2.27	0.48
1:A:837:PRO:HB3	1:A:914:TYR:CD1	2.49	0.48
1:B:1127:TYR:HE2	1:B:1190:VAL:HG13	1.76	0.48
1:B:1193:PRO:HB2	1:B:1260:ARG:HH21	1.79	0.48
1:B:1479:ILE:HA	1:B:1488:GLN:O	2.14	0.48
1:B:1638:ILE:HD12	1:B:1640:SER:HB3	1.95	0.48
1:A:1358:VAL:HA	1:A:1365:ASP:O	2.13	0.48
1:A:994:PRO:HB3	1:A:1037:LEU:HD22	1.96	0.48
1:B:1462:MET:SD	1:B:1469:GLU:HB3	2.54	0.48
1:A:823:LYS:NZ	1:A:981:LEU:HD11	2.29	0.47
1:B:1333:GLU:O	1:B:1334:LEU:HB2	2.14	0.47
1:B:1688:TRP:HA	1:B:1698:PHE:HA	1.96	0.47
1:A:1091:ALA:HB2	1:A:1260:ARG:HG2	1.95	0.47
1:B:1307:TYR:CZ	1:B:1325:GLU:HG3	2.49	0.47
1:A:800:PHE:HB2	1:A:836:LEU:HD21	1.97	0.47
1:B:887:LEU:HD22	1:B:900:LEU:HD13	1.96	0.47
1:A:881:LYS:HA	1:A:884:ASN:OD1	2.13	0.47
1:A:933:TYR:HD1	1:A:978:LYS:HG2	1.79	0.47
1:B:1091:ALA:CB	1:B:1260:ARG:HG2	2.39	0.47
1:B:1481:ASN:HA	1:B:1486:VAL:HA	1.95	0.47
1:A:1665:TYR:HB3	1:A:1766:THR:HG22	1.97	0.47
1:A:2177:LEU:HA	1:A:2180:ILE:HD12	1.96	0.47
1:A:880:LEU:HG	1:A:911:LEU:HD23	1.95	0.47
1:B:1054:GLN:HB3	1:B:1062:TRP:NE1	2.30	0.47
1:B:1162:GLU:HG3	1:B:1522:SER:OG	2.14	0.47
1:B:1864:SER:HB2	1:B:1865:PRO:HD3	1.97	0.47
1:A:1096:TYR:C	1:A:1096:TYR:CD1	2.88	0.47
1:A:2127:TYR:HA	1:A:2130:ILE:HD12	1.97	0.47
1:B:1349:ASN:HB3	1:B:1352:ILE:HG12	1.95	0.47
1:B:1477:VAL:HG23	1:B:1490:GLU:O	2.13	0.47
1:B:837:PRO:HB3	1:B:914:TYR:CD1	2.49	0.47
1:B:1928:ILE:HD11	1:B:2168:ARG:HG3	1.95	0.47
1:A:1621:TYR:OH	1:A:1851:PRO:HA	2.15	0.47
1:A:952:LEU:HD11	1:A:969:VAL:HG21	1.96	0.47
1:B:952:LEU:HD11	1:B:969:VAL:HG21	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1129:ILE:HD11	1:A:1191:ILE:HB	1.97	0.47
1:A:887:LEU:HD22	1:A:900:LEU:HD13	1.97	0.47
1:A:936:VAL:HG23	1:A:968:THR:CG2	2.44	0.47
1:B:1492:TYR:HA	1:B:1506:TYR:HA	1.97	0.47
1:A:1336:ARG:HB3	1:A:1525:TYR:CE2	2.49	0.47
1:B:1292:ARG:CZ	1:B:1326:PRO:HB3	2.45	0.47
1:B:1790:GLU:HA	1:B:1820:THR:HG21	1.96	0.47
1:B:895:THR:CB	1:B:900:LEU:HD12	2.43	0.47
1:B:1114:ASN:O	1:B:1133:PHE:HD1	1.98	0.46
1:B:885:LYS:O	1:B:889:ASP:HB3	2.15	0.46
1:A:1688:TRP:HA	1:A:1698:PHE:HA	1.96	0.46
1:B:1102:LEU:O	1:B:1106:VAL:HG23	2.15	0.46
1:B:1344:PRO:HA	1:B:1355:TYR:HA	1.96	0.46
1:A:996:VAL:HG22	1:A:1036:SER:N	2.31	0.46
1:A:1054:GLN:HB3	1:A:1062:TRP:NE1	2.30	0.46
1:A:1160:PRO:HG2	1:A:1494:GLU:OE2	2.16	0.46
1:A:945:LEU:HD11	1:A:954:LEU:HD13	1.97	0.46
1:B:948:GLU:O	1:B:951:ILE:HG22	2.16	0.46
1:A:2143:ARG:NH1	1:A:2147:LYS:HE2	2.30	0.46
1:A:885:LYS:O	1:A:889:ASP:HB3	2.15	0.46
1:A:955:ARG:HH22	1:A:968:THR:HG21	1.81	0.46
1:B:2070:GLY:O	1:B:2073:PRO:HD2	2.15	0.46
1:A:1864:SER:HB2	1:A:1865:PRO:HD3	1.97	0.46
1:A:2241:ASN:HA	1:A:2244:LEU:HD12	1.96	0.46
1:B:1040:ARG:NH2	1:B:1084:ASP:HB3	2.30	0.46
1:B:1091:ALA:HB1	1:B:1260:ARG:HD3	1.98	0.46
1:B:1096:TYR:CD1	1:B:1096:TYR:C	2.89	0.46
1:A:2249:LYS:HA	1:A:2252:ILE:HD12	1.97	0.46
1:A:863:VAL:O	1:A:866:ARG:HG2	2.16	0.46
1:B:1773:VAL:HG13	1:B:1795:ILE:HG23	1.97	0.46
1:B:2057:ALA:HB3	1:B:2150:ILE:HD13	1.98	0.46
1:A:1125:ARG:HD2	1:A:1203:ALA:HB2	1.98	0.46
1:B:1621:TYR:OH	1:B:1851:PRO:HA	2.16	0.46
1:A:1915:ALA:HB2	1:A:1968:ASN:HB2	1.98	0.45
1:A:1935:VAL:HB	1:A:1993:ASN:HB3	1.98	0.45
1:B:1863:PRO:HB2	1:B:1867:PRO:HA	1.98	0.45
1:B:863:VAL:O	1:B:866:ARG:HG2	2.16	0.45
1:A:1631:ALA:HB2	1:A:1666:LEU:HB2	1.99	0.45
1:A:948:GLU:O	1:A:951:ILE:HG22	2.16	0.45
1:B:1125:ARG:CD	1:B:1203:ALA:HB2	2.41	0.45
1:B:1668:ALA:HB2	1:B:1769:THR:HG23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1992:ALA:HB1	1:B:2036:LEU:HD13	1.98	0.45
1:B:836:LEU:HG	1:B:921:ARG:HH12	1.81	0.45
1:A:1415:ASN:HD22	1:A:1451:ARG:C	2.18	0.45
1:B:1884:VAL:HG21	1:B:1935:VAL:O	2.16	0.45
1:B:2127:TYR:HA	1:B:2130:ILE:HD12	1.97	0.45
1:B:910:VAL:O	1:B:914:TYR:HD2	1.99	0.45
1:A:1131:TRP:CE3	1:A:1189:GLY:HA3	2.51	0.45
1:A:1293:LEU:O	1:A:1309:THR:HA	2.15	0.45
1:B:1354:VAL:HG22	1:B:1370:THR:HG23	1.99	0.45
1:A:1367:ARG:NH2	1:A:1528:LYS:HG3	2.29	0.45
1:A:2057:ALA:HB3	1:A:2150:ILE:HD13	1.99	0.45
1:A:2256:MET:HA	1:A:2259:LEU:HD12	1.98	0.45
1:B:1935:VAL:HB	1:B:1993:ASN:HB3	1.98	0.45
1:A:2070:GLY:O	1:A:2073:PRO:HD2	2.16	0.45
1:B:923:LEU:HD21	1:B:999:VAL:HG12	1.98	0.45
1:A:1773:VAL:HG13	1:A:1795:ILE:HG23	1.98	0.45
1:A:1790:GLU:HA	1:A:1820:THR:HG21	1.98	0.45
1:B:800:PHE:HB2	1:B:836:LEU:HD21	1.98	0.45
1:B:1480:THR:H	1:B:1488:GLN:HB3	1.82	0.45
1:B:1631:ALA:HB2	1:B:1666:LEU:HB2	1.99	0.45
1:B:1965:TRP:HB3	1:B:1997:PHE:CE2	2.52	0.45
1:B:955:ARG:HH22	1:B:968:THR:HG21	1.82	0.45
1:A:1516:MET:HG3	1:A:1519:LEU:HD22	1.98	0.45
1:A:1162:GLU:HG3	1:A:1522:SER:HB3	1.98	0.45
1:B:1080:TYR:HB2	1:B:1378:ARG:HG2	1.99	0.45
1:A:846:SER:HA	1:A:849:HIS:ND1	2.32	0.44
1:A:1161:VAL:HG22	1:A:1162:GLU:H	1.82	0.44
1:A:910:VAL:O	1:A:914:TYR:HD2	2.00	0.44
1:B:1630:VAL:HG12	1:B:1665:TYR:HD1	1.83	0.44
1:B:846:SER:HA	1:B:849:HIS:ND1	2.32	0.44
1:B:1094:ASP:HB3	1:B:1097:VAL:HG23	1.99	0.44
1:B:1108:ARG:O	1:B:1111:ARG:HG3	2.17	0.44
1:B:1640:SER:OG	1:B:1673:ARG:HG2	2.17	0.44
1:A:2072:ILE:CG2	1:A:2073:PRO:HD3	2.43	0.44
1:B:1665:TYR:HB3	1:B:1766:THR:HG22	1.99	0.44
1:A:1161:VAL:HG22	1:A:1162:GLU:N	2.33	0.44
1:A:1191:ILE:HA	1:A:1256:ASN:O	2.18	0.44
1:A:836:LEU:HG	1:A:921:ARG:HH12	1.82	0.44
1:B:1477:VAL:HG22	1:B:1479:ILE:HD11	1.99	0.44
1:A:1908:VAL:HG23	1:A:1908:VAL:O	2.17	0.44
1:A:1096:TYR:O	1:A:1099:LEU:HB3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1108:ARG:O	1:A:1111:ARG:HG3	2.17	0.44
1:B:1194:CYS:SG	1:B:1203:ALA:CB	3.06	0.44
1:A:1676:LEU:HG	1:B:2138:HIS:CE1	2.53	0.44
1:A:1052:VAL:HG22	1:A:1096:TYR:CE1	2.53	0.44
1:A:1992:ALA:HB1	1:A:2036:LEU:HD13	2.00	0.44
1:B:1333:GLU:HB2	1:B:1371:ARG:NH1	2.33	0.44
1:A:1005:PRO:HA	1:A:1008:ARG:HG2	2.00	0.43
1:A:1195:LYS:HA	1:A:1260:ARG:CD	2.48	0.43
1:A:1965:TRP:HB3	1:A:1997:PHE:CE2	2.53	0.43
1:B:1416:HIS:HD2	1:B:1454:GLN:HG3	1.83	0.43
1:A:1390:ILE:HB	1:A:1439:PHE:HE2	1.83	0.43
1:A:1884:VAL:HG21	1:A:1935:VAL:O	2.17	0.43
1:A:951:ILE:O	1:A:955:ARG:HG3	2.18	0.43
1:B:1423:HIS:HE1	1:B:1425:PHE:HD1	1.66	0.43
1:B:2047:THR:HA	1:B:2050:PRO:HG3	2.00	0.43
1:A:1268:GLU:HA	1:A:1271:LEU:HD12	2.01	0.43
1:A:2046:PRO:HA	1:A:2053:MET:SD	2.59	0.43
1:B:1915:ALA:HB2	1:B:1968:ASN:HB2	1.99	0.43
1:B:1324:ILE:CG2	1:B:1353:HIS:HE1	2.24	0.43
1:B:1369:PHE:CD2	1:B:1416:HIS:HB3	2.54	0.43
1:A:1668:ALA:HB2	1:A:1769:THR:HG23	2.00	0.43
1:B:1527:THR:O	1:B:1530:TRP:CD1	2.72	0.43
1:A:1741:GLY:CA	1:B:2065:VAL:HG23	2.47	0.43
1:A:1640:SER:OG	1:A:1673:ARG:HG2	2.18	0.43
1:B:1742:VAL:HA	1:B:1745:LEU:HD12	2.01	0.43
1:A:1094:ASP:HB3	1:A:1097:VAL:HG23	2.00	0.43
1:A:1371:ARG:HH22	1:A:1525:TYR:HE2	1.65	0.43
1:A:895:THR:CB	1:A:900:LEU:HD12	2.43	0.43
1:B:1005:PRO:HA	1:B:1008:ARG:HG2	2.00	0.43
1:A:1325:GLU:C	1:A:1327:SER:H	2.22	0.43
1:B:1737:GLU:HG2	1:B:1740:LEU:HD21	2.00	0.43
1:A:1170:SER:HB2	1:A:1173:ASP:HB2	2.01	0.43
1:B:1588:VAL:HG21	1:B:1600:ARG:NH1	2.34	0.43
1:A:1336:ARG:HB3	1:A:1525:TYR:CD2	2.54	0.43
1:A:1663:ARG:HH21	1:A:1765:CYS:H	1.66	0.43
1:A:883:PHE:HE2	1:A:911:LEU:HD21	1.83	0.43
1:B:969:VAL:HG12	1:B:973:LYS:HE3	2.01	0.43
1:A:1863:PRO:HB2	1:A:1867:PRO:HA	2.01	0.42
1:B:2077:LYS:H	1:B:2080:LYS:HD2	1.84	0.42
1:B:1052:VAL:HG22	1:B:1096:TYR:CE1	2.54	0.42
1:B:936:VAL:HG23	1:B:968:THR:CG2	2.45	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2047:THR:HA	1:A:2050:PRO:HG3	2.00	0.42
1:A:2065:VAL:HG23	1:B:1741:GLY:CA	2.44	0.42
1:B:1106:VAL:HG11	1:B:1131:TRP:CD1	2.53	0.42
1:A:1776:GLY:O	1:A:1780:VAL:HG23	2.19	0.42
1:A:1781:ARG:NH1	1:A:1975:GLN:HE22	2.15	0.42
1:A:2134:PHE:HA	1:A:2137:LEU:HD12	2.02	0.42
1:B:1506:TYR:CE1	1:B:1517:HIS:HB2	2.54	0.42
1:A:2029:TYR:HA	1:A:2056:TYR:O	2.20	0.42
1:A:2032:PRO:O	1:A:2033:HIS:HB3	2.19	0.42
1:B:1461:CYS:O	1:B:1461:CYS:SG	2.78	0.42
1:B:1480:THR:O	1:B:1486:VAL:HG13	2.18	0.42
1:A:991:PRO:C	1:A:994:PRO:HD2	2.40	0.42
1:B:1096:TYR:O	1:B:1099:LEU:HB3	2.19	0.42
1:B:1106:VAL:HG23	1:B:1191:ILE:HD12	2.02	0.42
1:B:2032:PRO:O	1:B:2033:HIS:HB3	2.19	0.42
1:B:883:PHE:HE2	1:B:911:LEU:HD21	1.83	0.42
1:B:951:ILE:O	1:B:955:ARG:HG3	2.19	0.42
1:B:810:ILE:HG21	1:B:981:LEU:HD23	2.01	0.42
1:A:1389:LEU:HD11	1:A:1425:PHE:CB	2.50	0.42
1:A:791:VAL:HB	1:A:794:SER:HB3	2.01	0.42
1:B:837:PRO:HB3	1:B:914:TYR:CE1	2.55	0.42
1:B:994:PRO:HA	1:B:1037:LEU:H	1.83	0.42
1:A:1123:GLU:HB3	1:A:1124:GLU:H	1.73	0.42
1:A:1358:VAL:CG1	1:A:1363:GLU:HA	2.50	0.42
1:A:1717:THR:HB	1:A:1728:HIS:HB3	2.02	0.42
1:A:1742:VAL:HA	1:A:1745:LEU:HD12	2.01	0.42
1:B:1319:ASP:O	1:B:1344:PRO:HG2	2.20	0.42
1:A:852:MET:CB	1:A:853:PRO:HD2	2.42	0.41
1:A:1909:GLU:HG2	1:A:1910:THR:N	2.34	0.41
1:A:837:PRO:HB3	1:A:914:TYR:CE1	2.55	0.41
1:B:1390:ILE:HB	1:B:1439:PHE:HE2	1.84	0.41
1:B:1842:LYS:O	1:B:1845:GLN:HB3	2.20	0.41
1:B:2134:PHE:HA	1:B:2137:LEU:HD12	2.01	0.41
1:B:1099:LEU:O	1:B:1099:LEU:HD23	2.20	0.41
1:B:1776:GLY:O	1:B:1780:VAL:HG23	2.19	0.41
1:A:2116:MET:C	1:A:2118:GLN:H	2.24	0.41
1:A:1087:THR:CB	1:A:1298:GLY:HA3	2.50	0.41
1:B:1113:TYR:HA	1:B:1153:VAL:HG22	2.02	0.41
1:A:1087:THR:HB	1:A:1298:GLY:HA3	2.02	0.41
1:A:1535:ARG:HA	1:A:1545:TYR:HB2	2.03	0.41
1:A:2214:GLU:HG2	1:A:2222:PHE:CD1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1784:GLN:HE22	1:B:1975:GLN:NE2	2.19	0.41
1:B:2046:PRO:HA	1:B:2053:MET:SD	2.60	0.41
1:B:1106:VAL:HG22	1:B:1191:ILE:CD1	2.43	0.41
1:B:1535:ARG:HA	1:B:1545:TYR:HB2	2.03	0.41
1:B:821:GLN:O	1:B:825:LYS:HG2	2.20	0.41
1:A:821:GLN:O	1:A:825:LYS:HG2	2.21	0.41
1:B:1659:MET:HB2	1:B:1661:ILE:HG12	2.03	0.41
1:A:1125:ARG:HD2	1:A:1203:ALA:HA	2.02	0.41
1:A:2077:LYS:H	1:A:2080:LYS:HD2	1.84	0.41
1:B:2256:MET:HE2	1:B:2256:MET:HB3	2.00	0.41
1:A:2138:HIS:CE1	1:B:1676:LEU:HG	2.57	0.40
1:B:1717:THR:HB	1:B:1728:HIS:HB3	2.02	0.40
1:B:2029:TYR:HA	1:B:2056:TYR:O	2.20	0.40
1:B:1858:LEU:HD12	1:B:2171:LEU:HD21	2.03	0.40
1:A:1208:LEU:HD23	1:A:1211:LEU:HD12	2.02	0.40
1:A:1588:VAL:HG21	1:A:1600:ARG:NH1	2.36	0.40
1:A:1842:LYS:O	1:A:1845:GLN:HB3	2.21	0.40
1:A:2019:LEU:HB3	1:A:2053:MET:CE	2.52	0.40
1:A:2109:SER:HA	1:A:2112:ILE:HD12	2.03	0.40
1:A:800:PHE:CB	1:A:836:LEU:HD21	2.51	0.40
1:B:1988:LEU:HD22	1:B:1990:ILE:CD1	2.50	0.40
1:B:791:VAL:HB	1:B:794:SER:HB3	2.02	0.40
1:A:1629:VAL:HG22	1:A:1664:ILE:HB	2.04	0.40
1:A:1737:GLU:HG2	1:A:1740:LEU:HD21	2.03	0.40
1:A:2184:ILE:HD12	1:A:2209:HIS:CE1	2.56	0.40
1:B:1056:ARG:HD2	1:B:1062:TRP:HZ2	1.78	0.40
1:B:1197:LEU:HD13	1:B:1273:LEU:HD23	2.03	0.40
1:B:1908:VAL:O	1:B:1908:VAL:HG23	2.20	0.40
1:B:2109:SER:HA	1:B:2112:ILE:HD12	2.02	0.40
1:B:2217:VAL:HG12	1:B:2219:ILE:H	1.87	0.40
1:A:1156:SER:HB2	1:A:1157:PRO:HD3	2.03	0.40
1:A:1294:THR:OG1	1:A:1326:PRO:HG3	2.21	0.40
1:A:930:LEU:HD13	1:A:985:LEU:HD23	2.03	0.40
1:B:1160:PRO:HA	1:B:1502:TRP:CD1	2.57	0.40
1:B:1898:GLN:HG2	1:B:1898:GLN:H	1.80	0.40
1:A:1794:ILE:HD12	1:A:1823:MET:HG3	2.04	0.40
1:B:921:ARG:HE	1:B:921:ARG:HB3	1.78	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	1378/1487 (93%)	1221 (89%)	121 (9%)	36 (3%)	5	31
1	B	1380/1487 (93%)	1221 (88%)	130 (9%)	29 (2%)	7	36
All	All	2758/2974 (93%)	2442 (88%)	251 (9%)	65 (2%)	6	33

All (65) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	819	VAL
1	A	943	ARG
1	A	1092	HIS
1	A	1117	GLU
1	A	1128	PHE
1	A	1156	SER
1	A	1487	ILE
1	A	1784	GLN
1	A	1864	SER
1	B	819	VAL
1	B	943	ARG
1	B	1128	PHE
1	B	1156	SER
1	B	1864	SER
1	A	853	PRO
1	A	1486	VAL
1	A	2038	GLY
1	A	2201	ALA
1	A	2225	ASN
1	B	853	PRO
1	B	997	GLY
1	B	1486	VAL
1	B	2038	GLY
1	B	2201	ALA
1	B	2225	ASN

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Mol	Chain	Res	Type
1	A	892	PRO
1	A	997	GLY
1	A	1158	ALA
1	A	1572	ALA
1	B	892	PRO
1	B	1092	HIS
1	B	1155	SER
1	B	1180	ARG
1	A	887	LEU
1	A	1116	ARG
1	A	1155	SER
1	A	1180	ARG
1	A	1333	GLU
1	A	1516	MET
1	A	1570	SER
1	A	1638	ILE
1	B	887	LEU
1	B	1570	SER
1	B	1572	ALA
1	B	1638	ILE
1	B	1784	GLN
1	B	1790	GLU
1	A	1313	PRO
1	A	1498	GLU
1	A	1508	SER
1	A	1512	LYS
1	A	1527	THR
1	A	1576	PRO
1	A	1790	GLU
1	B	1158	ALA
1	B	1313	PRO
1	B	1487	ILE
1	B	1576	PRO
1	B	1516	MET
1	A	1052	VAL
1	B	1052	VAL
1	A	926	ILE
1	B	926	ILE
1	B	996	VAL
1	A	996	VAL

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	1213/1282 (95%)	1116 (92%)	97 (8%)	12 35
1	B	1215/1282 (95%)	1119 (92%)	96 (8%)	12 35
All	All	2428/2564 (95%)	2235 (92%)	193 (8%)	12 35

All (193) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	799	ARG
1	A	818	VAL
1	A	824	LEU
1	A	836	LEU
1	A	848	LEU
1	A	880	LEU
1	A	883	PHE
1	A	884	ASN
1	A	911	LEU
1	A	912	ASN
1	A	915	LEU
1	A	916	ASP
1	A	921	ARG
1	A	924	ASN
1	A	951	ILE
1	A	954	LEU
1	A	962	ILE
1	A	970	LEU
1	A	983	LEU
1	A	992	ASN
1	A	995	ASN
1	A	1003	LEU
1	A	1007	LEU
1	A	1012	GLU
1	A	1013	LEU
1	A	1021	VAL
1	A	1041	THR

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Mol	Chain	Res	Type
1	A	1044	MET
1	A	1062	TRP
1	A	1090	PHE
1	A	1096	TYR
1	A	1116	ARG
1	A	1124	GLU
1	A	1127	TYR
1	A	1129	ILE
1	A	1131	TRP
1	A	1172	SER
1	A	1174	MET
1	A	1177	LEU
1	A	1199	ASP
1	A	1324	ILE
1	A	1328	LEU
1	A	1342	LEU
1	A	1402	ASP
1	A	1448	TRP
1	A	1463	ARG
1	A	1470	ASN
1	A	1471	ASP
1	A	1473	MET
1	A	1475	LEU
1	A	1483	SER
1	A	1531	LEU
1	A	1557	ILE
1	A	1563	GLU
1	A	1570	SER
1	A	1571	LEU
1	A	1574	LYS
1	A	1593	ASP
1	A	1599	SER
1	A	1604	MET
1	A	1632	ASN
1	A	1638	ILE
1	A	1652	CYS
1	A	1659	MET
1	A	1663	ARG
1	A	1674	LEU
1	A	1715	VAL
1	A	1729	LYS
1	A	1759	TYR

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Mol	Chain	Res	Type
1	A	1760	ASN
1	A	1771	ARG
1	A	1815	LEU
1	A	1817	LEU
1	A	1885	ARG
1	A	1901	LEU
1	A	1917	THR
1	A	1941	GLU
1	A	1942	ASN
1	A	1958	THR
1	A	1965	TRP
1	A	1971	PHE
1	A	1988	LEU
1	A	2007	GLU
1	A	2022	PHE
1	A	2023	GLU
1	A	2076	TYR
1	A	2088	LEU
1	A	2140	ARG
1	A	2143	ARG
1	A	2151	ARG
1	A	2166	ARG
1	A	2168	ARG
1	A	2171	LEU
1	A	2175	ASP
1	A	2181	GLU
1	A	2197	THR
1	A	2240	ILE
1	B	799	ARG
1	B	818	VAL
1	B	824	LEU
1	B	836	LEU
1	B	848	LEU
1	B	880	LEU
1	B	883	PHE
1	B	884	ASN
1	B	911	LEU
1	B	912	ASN
1	B	915	LEU
1	B	916	ASP
1	B	921	ARG
1	B	924	ASN

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Mol	Chain	Res	Type
1	B	951	ILE
1	B	954	LEU
1	B	970	LEU
1	B	983	LEU
1	B	992	ASN
1	B	995	ASN
1	B	1003	LEU
1	B	1007	LEU
1	B	1012	GLU
1	B	1013	LEU
1	B	1021	VAL
1	B	1041	THR
1	B	1044	MET
1	B	1062	TRP
1	B	1090	PHE
1	B	1096	TYR
1	B	1115	LEU
1	B	1118	VAL
1	B	1124	GLU
1	B	1127	TYR
1	B	1130	ASP
1	B	1171	ILE
1	B	1172	SER
1	B	1174	MET
1	B	1177	LEU
1	B	1332	LEU
1	B	1333	GLU
1	B	1379	LEU
1	B	1402	ASP
1	B	1422	SER
1	B	1448	TRP
1	B	1469	GLU
1	B	1483	SER
1	B	1485	PHE
1	B	1496	LEU
1	B	1557	ILE
1	B	1563	GLU
1	B	1570	SER
1	B	1571	LEU
1	B	1574	LYS
1	B	1593	ASP
1	B	1599	SER

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Mol	Chain	Res	Type
1	B	1604	MET
1	B	1630	VAL
1	B	1638	ILE
1	B	1652	CYS
1	B	1659	MET
1	B	1674	LEU
1	B	1715	VAL
1	B	1729	LYS
1	B	1759	TYR
1	B	1760	ASN
1	B	1771	ARG
1	B	1815	LEU
1	B	1817	LEU
1	B	1885	ARG
1	B	1901	LEU
1	B	1909	GLU
1	B	1917	THR
1	B	1941	GLU
1	B	1942	ASN
1	B	1958	THR
1	B	1965	TRP
1	B	1971	PHE
1	B	1975	GLN
1	B	1988	LEU
1	B	2007	GLU
1	B	2022	PHE
1	B	2023	GLU
1	B	2076	TYR
1	B	2088	LEU
1	B	2139	ASP
1	B	2140	ARG
1	B	2143	ARG
1	B	2151	ARG
1	B	2166	ARG
1	B	2168	ARG
1	B	2171	LEU
1	B	2175	ASP
1	B	2197	THR
1	B	2256	MET
1	B	2260	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	995	ASN
1	B	1043	GLN
1	B	1460	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no carbohydrates in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	2261:ARG	C	2300:UNK	N	9.73

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.