Full wwPDB X-ray Structure Validation Report ⓘ

Apr 27, 2024 – 01:20 pm BST

PDB ID	:	1WC6
Title	:	Soluble adenylyl cyclase CyaC from S. platensis in complex with Rp- ATPalphaS in presence of bicarbonate
Authors	:	Steegborn, C.; Litvin, T.N.; Levin, L.R.; Buck, J.; Wu, H.
Deposited on	:	2004-11-08
Resolution	:	2.51 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 types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

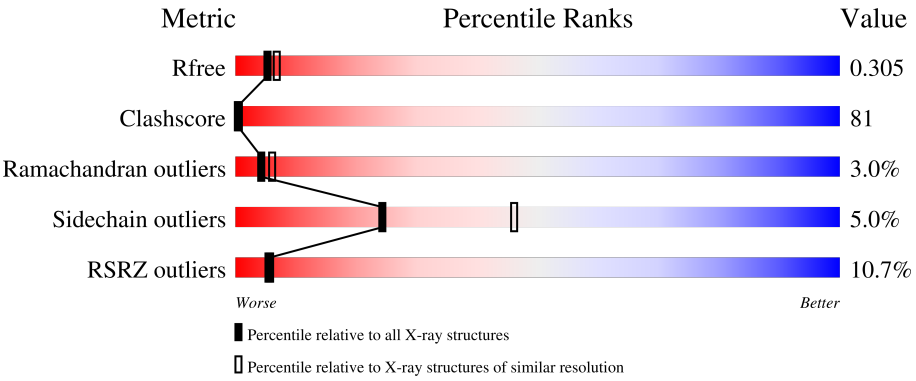
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

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 2.51 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	226	5% 19% 62% 5% 14%
1	B	226	6% 23% 57% 6% 15%
1	C	226	16% 20% 61% 5% 14%

2 Entry composition (i)

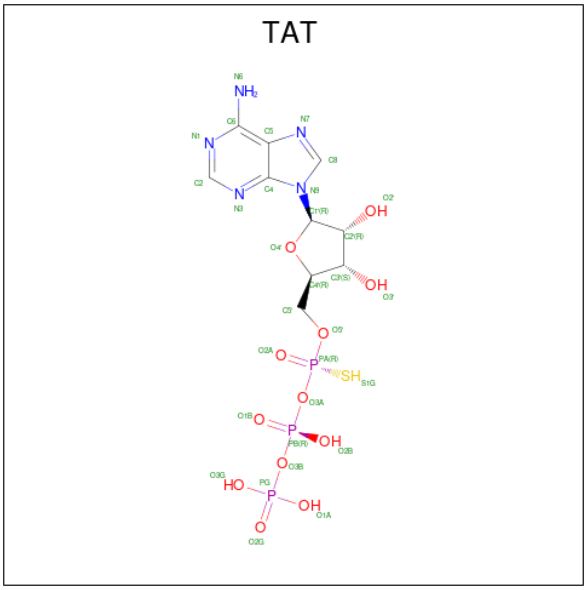
There are 4 unique types of molecules in this entry. The entry contains 4631 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 ADENYLATE CYCLASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	194	Total	C	N	O	S	3	0	1
			1485	935	259	279	12			
1	B	193	Total	C	N	O	S	0	0	1
			1477	930	258	278	11			
1	C	194	Total	C	N	O	S	15	0	1
			1485	935	259	279	12			

- Molecule 2 is ADENOSINE-5'-RP-ALPHA-THIO-TRIPHOSPHATE (three-letter code: TAT) (formula: $C_{10}H_{16}N_5O_{12}P_3S$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	B	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	C	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	2	Total Mg 2 2	0	0
3	B	2	Total Mg 2 2	0	0
3	C	2	Total Mg 2 2	0	0

- Molecule 4 is water.

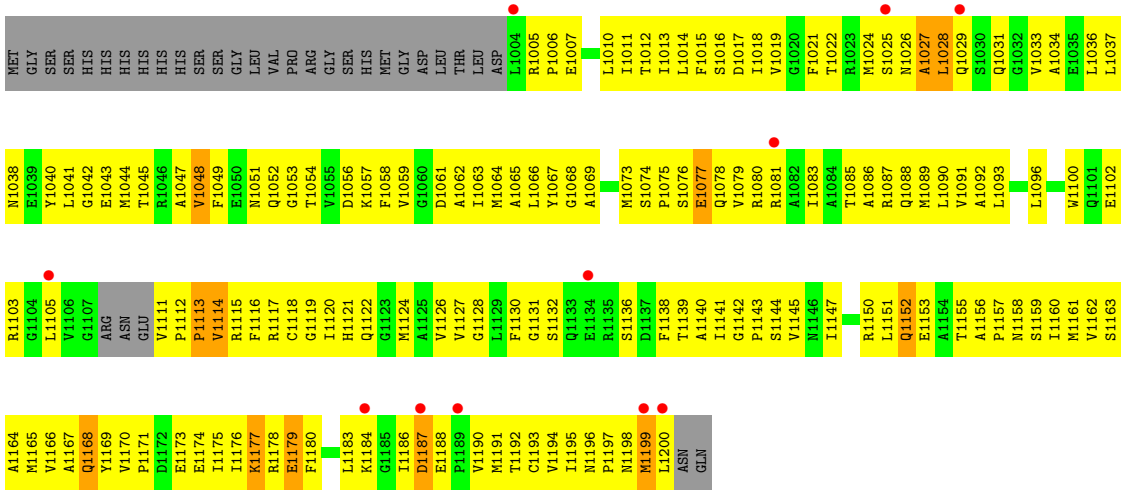
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	23	Total O 23 23	0	0
4	B	35	Total O 35 35	0	0
4	C	27	Total O 27 27	0	0

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.

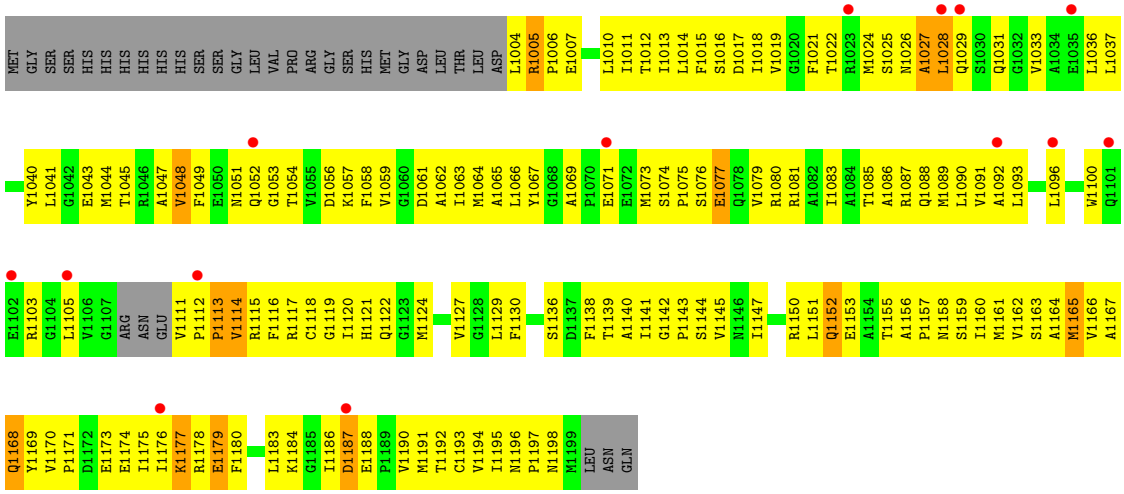
• Molecule 1: ADENYLATE CYCLASE

Chain A:



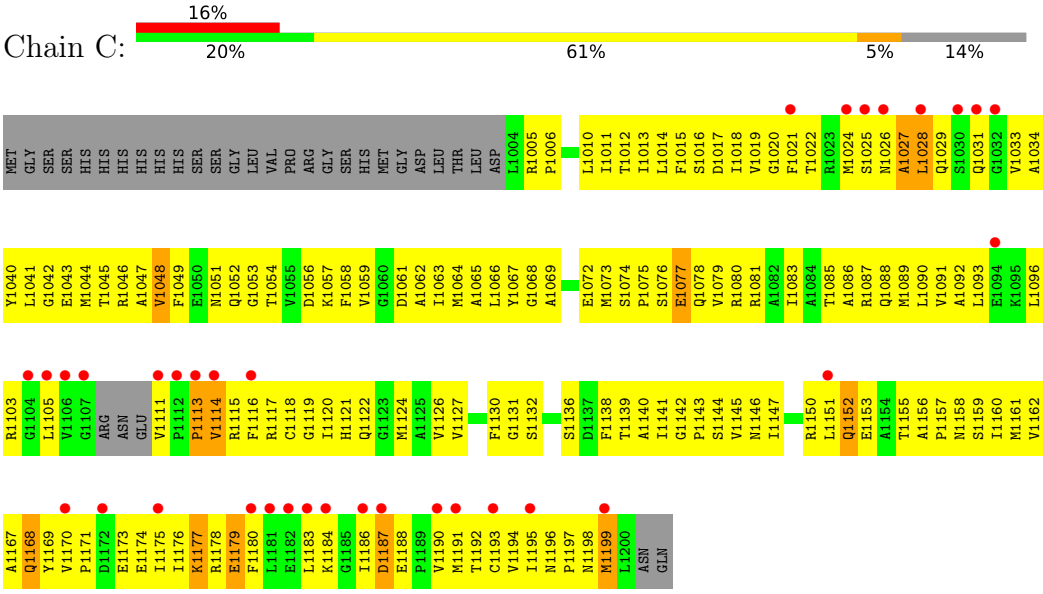
• Molecule 1: ADENYLATE CYCLASE

Chain B:



• Molecule 1: ADENYLATE CYCLASE

Chain C:


16%
20%
61%
5%
14%
MET GLY SER SER HIS HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET GLY ASP LEU THR LEU ASP L1004 R1005 P1006 L1010 I1011 T1012 I1013 L1014 F1015 S1016 D1017 I1018 V1019 G1020 F1021 T1022 R1023 M1024 S1025 N1026 A1027 L1028 Q1029 S1030 Q1031 G1032 V1033 A1034 L1037 N1038 E1039
Y1040 L1041 G1042 E1043 M1044 T1045 R1046 A1047 V1048 F1049 E1050 N1051 Q1052 G1053 T1054 V1055 D1056 K1057 F1058 V1059 G1060 D1061 A1062 I1063 M1064 A1065 L1066 Y1067 G1068 A1069 E1072 M1073 S1074 P1075 S1076 E1077 Q1078 V1079 R1080 R1081 A1082 I1083 A1084 T1085 A1086 R1087 Q1088 M1089 L1090 V1091 A1092 L1093 E1094 K1095 L1096 N1097 W1100
R1103 G1104 L1105 V1106 G1107 ARG ASN GLU V1111 P1112 P1113 V1114 R1115 F1116 R1117 C1118 G1119 I1120 H1121 Q1122 G1123 M1124 A1125 V1126 V1127 F1130 G1131 S1132 S1136 D1137 F1138 T1139 A1140 A1141 I1141 G1142 P1143 S1144 V1145 N1146 I1147 R1150 L1151 Q1152 E1153 A1154 T1155 A1156 P1157 N1158 S1159 I1160 M1161 V1162 S1163 A1164 M1165 V1166
A1167 Q1168 Y1169 V1170 P1171 D1172 E1173 E1174 I1175 I1176 K1177 R1178 E1179 F1180 L1181 E1182 L1183 K1184 G1185 I1186 D1187 E1188 P1189 V1190 M1191 T1192 C1193 V1194 I1195 N1196 P1197 N1198 M1199 L1200 ASN GLN

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	51.15Å 73.97Å 266.86Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	14.99 – 2.51 38.03 – 2.51	Depositor EDS
% Data completeness (in resolution range)	66.0 (14.99-2.51) 73.6 (38.03-2.51)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.31 (at 2.51Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.241 , 0.291 0.257 , 0.305	Depositor DCC
R_{free} test set	997 reflections (7.03%)	wwPDB-VP
Wilson B-factor (Å^2)	22.9	Xtriage
Anisotropy	0.321	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 37.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.86	EDS
Total number of atoms	4631	wwPDB-VP
Average B, all atoms (Å^2)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.28% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

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	0.51	0/1508	0.68	0/2040
1	B	0.50	0/1500	0.67	0/2030
1	C	0.49	0/1508	0.67	0/2040
All	All	0.50	0/4516	0.67	0/6110

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	1485	0	1496	279	0
1	B	1477	0	1487	250	0
1	C	1485	0	1496	254	1
2	A	31	0	14	2	0
2	B	31	0	14	1	0
2	C	31	0	14	4	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
4	A	23	0	0	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	B	35	0	0	5	0
4	C	27	0	0	8	0
All	All	4631	0	4521	730	1

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 81.

All (730) 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:A:1164:ALA:HA	1:B:1168:GLN:HE22	1.01	1.10
1:A:1164:ALA:CA	1:B:1168:GLN:HE22	1.69	1.05
1:A:1168:GLN:CD	1:B:1165:MET:HG2	1.77	1.05
1:A:1164:ALA:HB1	1:B:1168:GLN:OE1	1.60	1.01
1:C:1155:THR:HB	1:C:1161:MET:HB2	1.44	0.98
1:A:1164:ALA:HA	1:B:1168:GLN:NE2	1.81	0.96
1:B:1155:THR:HB	1:B:1161:MET:HB2	1.42	0.96
1:A:1155:THR:HB	1:A:1161:MET:HB2	1.46	0.95
1:A:1168:GLN:NE2	1:B:1165:MET:HG2	1.81	0.94
1:A:1180:PHE:HE2	1:B:1076:SER:HB3	1.31	0.92
1:A:1057:LYS:HE2	1:C:1058:PHE:O	1.74	0.88
1:A:1141:ILE:HG12	1:C:1037:LEU:CD2	2.05	0.86
1:A:1120:ILE:HB	1:A:1162:VAL:HG12	1.57	0.86
1:C:1079:VAL:HG13	1:C:1166:VAL:HG13	1.56	0.85
1:A:1058:PHE:O	1:C:1057:LYS:HE2	1.76	0.85
1:A:1079:VAL:HG13	1:A:1166:VAL:HG13	1.56	0.85
1:B:1156:ALA:O	1:B:1159:SER:HB3	1.77	0.84
1:B:1079:VAL:HG13	1:B:1166:VAL:HG13	1.59	0.83
1:C:1120:ILE:HB	1:C:1162:VAL:HG12	1.59	0.83
1:A:1028:LEU:HD23	1:A:1028:LEU:H	1.45	0.82
1:C:1156:ALA:O	1:C:1159:SER:HB3	1.80	0.82
1:A:1156:ALA:O	1:A:1159:SER:HB3	1.79	0.82
1:A:1042:GLY:HA2	1:C:1132:SER:HB3	1.62	0.81
1:A:1130:PHE:CD2	1:C:1037:LEU:HD23	2.16	0.81
1:C:1028:LEU:HD23	1:C:1028:LEU:H	1.46	0.81
1:A:1130:PHE:HA	1:C:1038:ASN:OD1	1.81	0.80
1:B:1028:LEU:HD23	1:B:1028:LEU:H	1.46	0.79
1:A:1080:ARG:NH2	1:A:1081:ARG:HE	1.80	0.79
1:A:1164:ALA:HB1	1:B:1168:GLN:CD	2.02	0.79
1:A:1132:SER:HB3	1:C:1042:GLY:HA2	1.63	0.78
1:A:1143:PRO:O	1:A:1147:ILE:HG12	1.83	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1080:ARG:HG2	1:B:1080:ARG:HH11	1.48	0.78
1:A:1090:LEU:HD21	1:A:1158:ASN:HA	1.66	0.78
1:B:1120:ILE:HB	1:B:1162:VAL:HG12	1.64	0.78
1:C:1056:ASP:HB2	1:C:1066:LEU:HG	1.64	0.78
1:B:1077:GLU:OE2	1:B:1080:ARG:NE	2.16	0.77
1:C:1086:ALA:HB2	1:C:1120:ILE:HD11	1.65	0.77
1:B:1080:ARG:NH2	1:B:1081:ARG:HE	1.82	0.76
1:C:1080:ARG:HH11	1:C:1080:ARG:HG2	1.49	0.76
1:C:1143:PRO:O	1:C:1147:ILE:HG12	1.85	0.76
1:A:1180:PHE:CE2	1:B:1076:SER:HB3	2.18	0.76
1:C:1080:ARG:NH2	1:C:1081:ARG:HE	1.84	0.76
1:A:1005:ARG:HG2	1:A:1006:PRO:HD2	1.67	0.76
1:B:1069:ALA:HB1	1:B:1138:PHE:HZ	1.50	0.76
1:B:1075:PRO:HB3	1:B:1122:GLN:NE2	2.00	0.76
1:B:1090:LEU:HD21	1:B:1158:ASN:HA	1.65	0.76
1:C:1090:LEU:HD21	1:C:1158:ASN:HA	1.68	0.76
1:B:1075:PRO:HB3	1:B:1122:GLN:HE22	1.51	0.75
1:C:1117:ARG:HB3	1:C:1152:GLN:O	1.86	0.75
1:A:1164:ALA:CB	1:B:1168:GLN:HE22	1.98	0.75
1:A:1056:ASP:HB2	1:A:1066:LEU:HG	1.66	0.75
1:B:1056:ASP:HB2	1:B:1066:LEU:HG	1.68	0.75
1:A:1077:GLU:OE2	1:A:1080:ARG:NE	2.16	0.75
1:B:1024:MET:HB3	1:B:1028:LEU:HD21	1.68	0.75
1:C:1075:PRO:HB3	1:C:1122:GLN:NE2	2.02	0.74
1:C:1077:GLU:OE2	1:C:1080:ARG:NE	2.18	0.74
1:A:1024:MET:HB3	1:A:1028:LEU:HD21	1.69	0.74
1:B:1143:PRO:O	1:B:1147:ILE:HG12	1.87	0.74
1:A:1124:MET:HG2	1:B:1124:MET:CE	2.18	0.74
1:A:1124:MET:HG2	1:B:1124:MET:HE2	1.70	0.74
1:B:1130:PHE:CE1	1:B:1141:ILE:HD13	2.22	0.74
1:A:1075:PRO:HB3	1:A:1122:GLN:NE2	2.03	0.73
1:C:1024:MET:HB3	1:C:1028:LEU:HD21	1.69	0.73
1:A:1040:TYR:CE2	1:A:1063:ILE:HD11	2.22	0.73
1:A:1086:ALA:HB2	1:A:1120:ILE:HD11	1.70	0.73
1:B:1155:THR:HB	1:B:1161:MET:CB	2.18	0.73
1:A:1124:MET:CG	1:B:1124:MET:HE2	2.18	0.73
1:B:1086:ALA:HB2	1:B:1120:ILE:HD11	1.70	0.73
1:B:1117:ARG:HB3	1:B:1152:GLN:O	1.89	0.73
1:A:1117:ARG:HB3	1:A:1152:GLN:O	1.89	0.73
1:A:1080:ARG:HH11	1:A:1080:ARG:HG2	1.54	0.73
1:C:1122:GLN:HG2	1:C:1165:MET:HE3	1.71	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1037:LEU:CD2	1:C:1141:ILE:HG12	2.19	0.72
1:A:1150:ARG:NH1	1:A:1184:LYS:HD2	2.03	0.72
1:B:1040:TYR:CE2	1:B:1063:ILE:HD11	2.25	0.72
1:C:1040:TYR:CE2	1:C:1063:ILE:HD11	2.25	0.72
1:C:1155:THR:HB	1:C:1161:MET:CB	2.20	0.71
1:C:1130:PHE:CE1	1:C:1141:ILE:HD13	2.25	0.71
1:C:1150:ARG:NH1	1:C:1184:LYS:HD2	2.04	0.71
1:A:1130:PHE:CE1	1:A:1141:ILE:HD13	2.25	0.71
1:B:1147:ILE:O	1:B:1151:LEU:HG	1.91	0.71
1:A:1069:ALA:HB1	1:A:1138:PHE:HZ	1.56	0.70
1:C:1069:ALA:HB1	1:C:1138:PHE:HZ	1.54	0.70
1:A:1037:LEU:HD23	1:C:1130:PHE:CD2	2.26	0.70
1:A:1155:THR:HB	1:A:1161:MET:CB	2.20	0.70
1:A:1142:GLY:HA2	1:C:1025:SER:HB3	1.74	0.70
1:A:1038:ASN:OD1	1:C:1130:PHE:HA	1.92	0.70
1:C:1052:GLN:HG3	1:C:1081:ARG:CZ	2.21	0.70
1:A:1116:PHE:HE1	1:A:1118:CYS:HB2	1.57	0.69
1:B:1005:ARG:HG3	1:B:1005:ARG:HH11	1.56	0.69
1:A:1147:ILE:O	1:A:1151:LEU:HG	1.92	0.69
1:A:1176:ILE:HB	1:A:1194:VAL:HG22	1.74	0.69
1:C:1075:PRO:HB3	1:C:1122:GLN:HE22	1.57	0.69
1:A:1075:PRO:HB3	1:A:1122:GLN:HE22	1.57	0.69
1:A:1122:GLN:HG2	1:A:1165:MET:HE3	1.74	0.69
1:A:1164:ALA:CA	1:B:1168:GLN:NE2	2.49	0.69
1:C:1147:ILE:O	1:C:1151:LEU:HG	1.93	0.69
1:A:1019:VAL:HG21	1:A:1157:PRO:HG3	1.75	0.69
1:A:1141:ILE:HG12	1:C:1037:LEU:HD22	1.76	0.68
1:B:1052:GLN:HG3	1:B:1081:ARG:CZ	2.24	0.68
1:A:1167:ALA:HA	1:A:1170:VAL:HG12	1.77	0.67
1:C:1176:ILE:HB	1:C:1194:VAL:HG22	1.76	0.67
1:A:1164:ALA:CB	1:B:1168:GLN:NE2	2.57	0.67
1:C:1093:LEU:HD22	1:C:1116:PHE:HD2	1.59	0.67
1:A:1052:GLN:HG3	1:A:1081:ARG:CZ	2.24	0.67
1:B:1093:LEU:HD22	1:B:1116:PHE:HD2	1.57	0.67
1:B:1122:GLN:HG2	1:B:1165:MET:HE3	1.76	0.67
1:A:1164:ALA:HB2	1:A:1191:MET:HB3	1.77	0.67
1:C:1116:PHE:HE1	1:C:1118:CYS:HB2	1.58	0.67
1:C:1140:ALA:C	1:C:1141:ILE:HD12	2.15	0.67
1:A:1186:ILE:HG21	1:A:1190:VAL:CG2	2.25	0.67
1:A:1126:VAL:HG11	1:C:1034:ALA:HB2	1.77	0.67
1:C:1167:ALA:HA	1:C:1170:VAL:HG12	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1079:VAL:HG11	1:B:1169:TYR:HB2	1.75	0.66
1:C:1019:VAL:HG21	1:C:1157:PRO:HG3	1.77	0.66
1:C:1174:GLU:O	1:C:1196:ASN:N	2.27	0.66
1:B:1176:ILE:HB	1:B:1194:VAL:HG22	1.76	0.66
1:B:1116:PHE:HE1	1:B:1118:CYS:HB2	1.60	0.66
1:C:1186:ILE:HG21	1:C:1190:VAL:CG2	2.25	0.66
1:A:1120:ILE:O	1:A:1162:VAL:HA	1.95	0.66
1:B:1085:THR:O	1:B:1089:MET:HG3	1.95	0.66
1:C:1079:VAL:HG11	1:C:1169:TYR:HB2	1.76	0.66
1:C:1116:PHE:H	1:C:1158:ASN:ND2	1.94	0.66
1:B:1120:ILE:O	1:B:1162:VAL:HA	1.96	0.66
1:B:1171:PRO:HB2	1:B:1173:GLU:HG2	1.78	0.66
1:A:1093:LEU:HD22	1:A:1116:PHE:HD2	1.61	0.66
1:C:1080:ARG:HG2	1:C:1080:ARG:NH1	2.12	0.65
1:B:1019:VAL:HG21	1:B:1157:PRO:HG3	1.78	0.65
1:C:1120:ILE:O	1:C:1162:VAL:HA	1.96	0.65
1:C:1074:SER:OG	1:C:1077:GLU:HB2	1.96	0.65
1:B:1074:SER:OG	1:B:1077:GLU:HB2	1.95	0.65
1:B:1080:ARG:HG2	1:B:1080:ARG:NH1	2.11	0.65
1:B:1186:ILE:HG21	1:B:1190:VAL:CG2	2.26	0.65
1:A:1116:PHE:H	1:A:1158:ASN:ND2	1.95	0.65
1:A:1162:VAL:HB	1:A:1166:VAL:HB	1.78	0.65
1:C:1085:THR:O	1:C:1089:MET:HG3	1.96	0.65
1:A:1079:VAL:HG11	1:A:1169:TYR:HB2	1.79	0.65
1:B:1167:ALA:HA	1:B:1170:VAL:HG12	1.78	0.65
1:C:1052:GLN:HG3	1:C:1081:ARG:NH1	2.11	0.64
1:B:1116:PHE:H	1:B:1158:ASN:ND2	1.95	0.64
1:B:1052:GLN:HG3	1:B:1081:ARG:NH1	2.12	0.64
1:B:1164:ALA:HB2	1:B:1191:MET:HB3	1.78	0.64
1:A:1074:SER:OG	1:A:1077:GLU:HB2	1.96	0.64
1:A:1140:ALA:C	1:A:1141:ILE:HD12	2.18	0.64
1:C:1164:ALA:HB2	1:C:1191:MET:HB3	1.79	0.64
1:B:1093:LEU:HD22	1:B:1116:PHE:CD2	2.33	0.64
1:C:1024:MET:HG2	1:C:1111:VAL:HG13	1.79	0.64
1:C:1073:MET:HG2	1:C:1077:GLU:HB3	1.80	0.64
1:A:1132:SER:OG	1:C:1045:THR:HG21	1.97	0.64
1:B:1011:ILE:HG21	1:B:1127:VAL:HG11	1.80	0.64
1:B:1013:ILE:HD12	1:B:1013:ILE:N	2.12	0.64
1:B:1140:ALA:C	1:B:1141:ILE:HD12	2.18	0.64
1:C:1162:VAL:HB	1:C:1166:VAL:HB	1.78	0.63
1:C:1020:GLY:HA2	4:C:2027:HOH:O	1.98	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1162:VAL:HB	1:B:1166:VAL:HB	1.81	0.63
1:C:1064:MET:HE2	1:C:1066:LEU:HD21	1.80	0.63
1:A:1168:GLN:HB3	1:B:1165:MET:HA	1.81	0.62
1:A:1174:GLU:O	1:A:1196:ASN:N	2.27	0.62
1:B:1140:ALA:O	1:B:1145:VAL:HG21	1.99	0.62
1:C:1093:LEU:HD22	1:C:1116:PHE:CD2	2.34	0.62
1:C:1018:ILE:HD11	1:C:1040:TYR:CD2	2.34	0.62
1:B:1122:GLN:HE21	1:B:1165:MET:HE3	1.64	0.62
1:B:1063:ILE:HD12	1:B:1063:ILE:N	2.15	0.62
1:C:1171:PRO:HB2	1:C:1173:GLU:HG2	1.79	0.62
1:A:1093:LEU:HD22	1:A:1116:PHE:CD2	2.35	0.62
1:A:1011:ILE:HG21	1:A:1127:VAL:HG11	1.82	0.61
1:A:1040:TYR:HE2	1:A:1063:ILE:HD11	1.62	0.61
1:B:1087:ARG:O	1:B:1091:VAL:HG23	1.99	0.61
1:C:1178:ARG:HG3	1:C:1178:ARG:HH11	1.66	0.61
1:A:1122:GLN:HE21	1:A:1165:MET:CE	2.13	0.61
1:B:1024:MET:HG2	1:B:1111:VAL:HG13	1.82	0.61
1:B:1174:GLU:O	1:B:1196:ASN:N	2.27	0.61
1:C:1013:ILE:N	1:C:1013:ILE:HD12	2.16	0.61
1:A:1063:ILE:N	1:A:1063:ILE:HD12	2.15	0.61
1:C:1046:ARG:HA	4:C:2008:HOH:O	2.00	0.61
1:A:1052:GLN:HG3	1:A:1081:ARG:NH1	2.15	0.61
1:A:1081:ARG:HH11	1:A:1081:ARG:HG3	1.64	0.61
1:A:1174:GLU:HG2	1:A:1200:LEU:N	2.16	0.61
1:A:1085:THR:O	1:A:1089:MET:HG3	2.01	0.60
1:A:1024:MET:HG2	1:A:1111:VAL:HG13	1.83	0.60
1:A:1171:PRO:HB2	1:A:1173:GLU:HG2	1.82	0.60
1:A:1045:THR:HG23	1:A:1049:PHE:CE2	2.36	0.60
1:A:1019:VAL:HG21	1:A:1157:PRO:CB	2.31	0.60
1:A:1080:ARG:HG2	1:A:1080:ARG:NH1	2.17	0.60
1:B:1073:MET:HG2	1:B:1077:GLU:HB3	1.82	0.60
1:A:1073:MET:HG2	1:A:1077:GLU:HB3	1.84	0.60
1:C:1011:ILE:HG21	1:C:1127:VAL:HG11	1.83	0.60
1:B:1045:THR:HG23	1:B:1049:PHE:CE2	2.37	0.60
1:B:1117:ARG:NH2	2:B:2199:TAT:O3G	2.35	0.60
1:C:1115:ARG:HA	1:C:1158:ASN:HD21	1.66	0.60
1:A:1116:PHE:CE1	1:A:1118:CYS:HB2	2.35	0.59
1:A:1140:ALA:O	1:A:1145:VAL:HG21	2.01	0.59
1:B:1040:TYR:HA	1:B:1096:LEU:HD13	1.85	0.59
1:A:1087:ARG:O	1:A:1091:VAL:HG23	2.02	0.59
1:B:1122:GLN:HE21	1:B:1165:MET:CE	2.15	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1063:ILE:N	1:C:1063:ILE:HD12	2.18	0.59
1:B:1040:TYR:HE2	1:B:1063:ILE:HD11	1.67	0.59
1:B:1115:ARG:HA	1:B:1158:ASN:HD21	1.68	0.59
1:C:1021:PHE:HD1	1:C:1024:MET:HE3	1.67	0.59
1:C:1019:VAL:HG21	1:C:1157:PRO:CB	2.33	0.59
1:B:1178:ARG:HG3	1:B:1178:ARG:HH11	1.67	0.59
1:C:1064:MET:HE3	1:C:1145:VAL:HG13	1.85	0.59
1:A:1024:MET:C	1:A:1026:ASN:H	2.05	0.58
1:B:1013:ILE:HD12	1:B:1013:ILE:H	1.68	0.58
1:B:1016:SER:OG	1:B:1063:ILE:HD13	2.03	0.58
1:B:1024:MET:C	1:B:1026:ASN:H	2.07	0.58
1:B:1043:GLU:HB2	1:B:1096:LEU:HD11	1.84	0.58
1:B:1069:ALA:HB1	1:B:1138:PHE:CZ	2.34	0.58
1:A:1164:ALA:HB1	1:B:1168:GLN:NE2	2.17	0.58
1:B:1116:PHE:CE1	1:B:1118:CYS:HB2	2.39	0.58
1:C:1116:PHE:CE1	1:C:1118:CYS:HB2	2.37	0.58
1:A:1019:VAL:HG21	1:A:1157:PRO:CG	2.34	0.58
1:A:1013:ILE:HD12	1:A:1013:ILE:N	2.18	0.58
1:A:1018:ILE:HD11	1:A:1040:TYR:CD2	2.38	0.58
1:A:1018:ILE:HG23	1:A:1114:VAL:HG13	1.86	0.58
1:A:1041:LEU:HD22	1:A:1058:PHE:CD2	2.39	0.58
1:C:1122:GLN:HE21	1:C:1165:MET:CE	2.17	0.58
1:A:1115:ARG:HA	1:A:1158:ASN:HD21	1.68	0.58
1:B:1018:ILE:HD11	1:B:1040:TYR:CD2	2.38	0.58
1:B:1117:ARG:CZ	1:B:1152:GLN:OE1	2.52	0.58
1:C:1069:ALA:HB1	1:C:1138:PHE:CZ	2.38	0.58
1:A:1014:LEU:HD23	1:A:1014:LEU:C	2.25	0.57
1:C:1041:LEU:HD22	1:C:1058:PHE:CD2	2.38	0.57
1:B:1041:LEU:HD22	1:B:1058:PHE:CD2	2.40	0.57
1:B:1079:VAL:HG21	1:B:1169:TYR:CD1	2.38	0.57
1:C:1087:ARG:O	1:C:1091:VAL:HG23	2.04	0.57
1:A:1041:LEU:O	1:A:1045:THR:HB	2.04	0.57
1:A:1043:GLU:HB2	1:A:1096:LEU:HD11	1.85	0.57
1:A:1173:GLU:CD	1:A:1173:GLU:H	2.06	0.57
1:B:1019:VAL:HG21	1:B:1157:PRO:CB	2.34	0.57
1:B:1041:LEU:O	1:B:1045:THR:HB	2.03	0.57
1:C:1139:THR:HG23	1:C:1141:ILE:HD11	1.86	0.57
1:B:1151:LEU:CD2	1:B:1192:THR:HG22	2.35	0.57
1:C:1049:PHE:HB2	4:C:2008:HOH:O	2.04	0.57
1:A:1025:SER:HB3	1:C:1142:GLY:HA2	1.87	0.57
1:B:1005:ARG:HG3	1:B:1005:ARG:NH1	2.16	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1117:ARG:CZ	1:C:1152:GLN:OE1	2.52	0.57
1:B:1081:ARG:HG3	1:B:1081:ARG:HH11	1.69	0.57
1:A:1016:SER:OG	1:A:1063:ILE:HD13	2.05	0.57
1:A:1024:MET:CB	1:A:1028:LEU:HD21	2.35	0.56
1:A:1040:TYR:CZ	1:A:1044:MET:HG3	2.40	0.56
1:B:1161:MET:HA	1:B:1194:VAL:HA	1.87	0.56
1:B:1170:VAL:HG22	1:B:1174:GLU:HB2	1.87	0.56
1:C:1043:GLU:HB2	1:C:1096:LEU:HD11	1.86	0.56
1:C:1161:MET:HA	1:C:1194:VAL:HA	1.87	0.56
1:A:1086:ALA:HB1	1:A:1160:ILE:HG12	1.87	0.56
1:B:1018:ILE:HG23	1:B:1114:VAL:HG13	1.86	0.56
1:B:1024:MET:CB	1:B:1028:LEU:HD21	2.34	0.56
1:B:1121:HIS:HD2	1:B:1144:SER:O	1.88	0.56
1:B:1173:GLU:H	1:B:1173:GLU:CD	2.08	0.56
1:C:1018:ILE:HG23	1:C:1114:VAL:HG13	1.87	0.56
1:C:1139:THR:HG23	1:C:1141:ILE:CD1	2.35	0.56
1:A:1040:TYR:HA	1:A:1096:LEU:HD13	1.87	0.56
1:B:1022:THR:C	1:B:1024:MET:H	2.07	0.56
1:C:1041:LEU:O	1:C:1045:THR:HB	2.06	0.56
1:A:1022:THR:C	1:A:1024:MET:H	2.07	0.56
1:A:1079:VAL:HG21	1:A:1169:TYR:CD1	2.41	0.56
1:C:1024:MET:C	1:C:1026:ASN:H	2.07	0.56
1:C:1151:LEU:CD2	1:C:1192:THR:HG22	2.36	0.56
1:A:1047:ALA:HA	1:A:1088:GLN:NE2	2.21	0.56
1:B:1064:MET:HE2	1:B:1066:LEU:HD21	1.88	0.56
1:C:1012:THR:HB	1:C:1067:TYR:HB2	1.88	0.56
1:C:1024:MET:CB	1:C:1028:LEU:HD21	2.34	0.56
1:B:1014:LEU:C	1:B:1014:LEU:HD23	2.26	0.56
1:C:1079:VAL:HG21	1:C:1169:TYR:CD1	2.41	0.56
1:A:1019:VAL:CG2	1:A:1117:ARG:HG3	2.36	0.56
1:C:1045:THR:HG23	1:C:1049:PHE:CE2	2.41	0.55
1:A:1047:ALA:O	1:A:1051:ASN:ND2	2.32	0.55
1:C:1090:LEU:HG	1:C:1116:PHE:CZ	2.41	0.55
1:A:1186:ILE:C	1:A:1188:GLU:H	2.09	0.55
1:B:1021:PHE:HD1	1:B:1024:MET:HE3	1.71	0.55
1:B:1093:LEU:HD11	1:B:1114:VAL:HG12	1.87	0.55
1:C:1019:VAL:HG21	1:C:1157:PRO:CG	2.36	0.55
1:C:1019:VAL:CG2	1:C:1117:ARG:HG3	2.36	0.55
1:C:1087:ARG:HD2	4:C:2014:HOH:O	2.06	0.55
1:C:1173:GLU:CD	1:C:1173:GLU:H	2.08	0.55
1:B:1040:TYR:CZ	1:B:1044:MET:HG3	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1170:VAL:HG22	1:A:1174:GLU:HB2	1.88	0.55
1:A:1180:PHE:CE2	1:B:1076:SER:CB	2.89	0.55
1:B:1005:ARG:HG2	1:B:1006:PRO:HD2	1.89	0.55
1:A:1139:THR:HG23	1:A:1141:ILE:HD11	1.88	0.55
1:C:1014:LEU:C	1:C:1014:LEU:HD23	2.27	0.55
1:A:1161:MET:HA	1:A:1194:VAL:HA	1.88	0.55
1:C:1093:LEU:HD11	1:C:1114:VAL:HG12	1.89	0.55
1:A:1165:MET:SD	1:B:1165:MET:HE2	2.47	0.55
1:A:1178:ARG:HH11	1:A:1178:ARG:HG3	1.71	0.55
1:B:1139:THR:HG23	1:B:1141:ILE:HD11	1.89	0.55
1:C:1081:ARG:HG3	1:C:1081:ARG:HH11	1.71	0.55
1:C:1140:ALA:O	1:C:1145:VAL:HG21	2.06	0.55
1:A:1139:THR:HG23	1:A:1141:ILE:CD1	2.37	0.55
1:C:1005:ARG:HG2	1:C:1006:PRO:HD2	1.90	0.55
1:B:1162:VAL:HG22	1:B:1193:CYS:O	2.07	0.54
1:C:1022:THR:C	1:C:1024:MET:H	2.08	0.54
1:C:1169:TYR:HB3	4:C:2013:HOH:O	2.07	0.54
1:A:1012:THR:HB	1:A:1067:TYR:HB2	1.90	0.54
1:B:1167:ALA:O	1:B:1170:VAL:HG12	2.07	0.54
1:C:1013:ILE:HD12	1:C:1013:ILE:H	1.71	0.54
1:C:1037:LEU:HD11	1:C:1061:ASP:HA	1.88	0.54
1:C:1186:ILE:C	1:C:1188:GLU:H	2.11	0.54
1:C:1081:ARG:HD3	4:C:2009:HOH:O	2.08	0.54
1:C:1177:LYS:HE3	1:C:1179:GLU:OE1	2.07	0.54
1:A:1011:ILE:HD13	1:A:1127:VAL:HG11	1.90	0.54
1:A:1013:ILE:HD12	1:A:1013:ILE:H	1.73	0.54
1:A:1175:ILE:HD12	1:A:1178:ARG:NH2	2.23	0.54
1:B:1019:VAL:HG22	1:B:1117:ARG:HG3	1.90	0.54
1:C:1167:ALA:O	1:C:1170:VAL:HG12	2.07	0.54
1:B:1043:GLU:HB3	1:B:1092:ALA:HB1	1.90	0.54
1:C:1040:TYR:CZ	1:C:1044:MET:HG3	2.42	0.54
1:A:1057:LYS:HD2	2:C:2200:TAT:H1	1.90	0.54
1:B:1037:LEU:HD11	1:B:1061:ASP:HA	1.90	0.54
1:C:1019:VAL:HG22	1:C:1117:ARG:HG3	1.89	0.54
1:C:1090:LEU:HD13	1:C:1197:PRO:HB2	1.90	0.54
1:A:1045:THR:HG23	1:A:1049:PHE:CD2	2.43	0.54
1:C:1040:TYR:HA	1:C:1096:LEU:HD13	1.90	0.54
1:C:1080:ARG:HH22	1:C:1081:ARG:HE	1.56	0.53
1:A:1117:ARG:CZ	1:A:1152:GLN:OE1	2.55	0.53
1:B:1019:VAL:CG2	1:B:1117:ARG:HG3	2.38	0.53
1:A:1019:VAL:HG22	1:A:1117:ARG:HG3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1177:LYS:HE3	1:B:1179:GLU:OE1	2.07	0.53
1:A:1037:LEU:HD11	1:A:1061:ASP:HA	1.90	0.53
1:A:1090:LEU:HG	1:A:1116:PHE:CZ	2.44	0.53
1:B:1019:VAL:HG21	1:B:1157:PRO:CG	2.38	0.53
1:C:1056:ASP:N	1:C:1064:MET:O	2.41	0.53
1:A:1151:LEU:CD2	1:A:1192:THR:HG22	2.38	0.53
1:A:1167:ALA:O	1:A:1170:VAL:HG12	2.09	0.53
1:B:1047:ALA:HA	1:B:1088:GLN:NE2	2.24	0.53
1:B:1139:THR:HG23	1:B:1141:ILE:CD1	2.38	0.53
1:B:1183:LEU:HD12	1:B:1190:VAL:HG21	1.91	0.53
1:C:1121:HIS:HD2	1:C:1144:SER:O	1.92	0.53
1:A:1122:GLN:HE21	1:A:1165:MET:HE3	1.73	0.53
1:C:1183:LEU:HD12	1:C:1190:VAL:HG21	1.90	0.53
1:A:1064:MET:HE2	1:A:1066:LEU:HD21	1.90	0.53
1:B:1080:ARG:HH22	1:B:1081:ARG:HE	1.56	0.53
1:C:1016:SER:OG	1:C:1063:ILE:HD13	2.09	0.53
1:C:1086:ALA:HB1	1:C:1160:ILE:HG12	1.91	0.53
1:A:1124:MET:CG	1:B:1124:MET:CE	2.83	0.53
1:C:1162:VAL:HG22	1:C:1193:CYS:O	2.09	0.52
1:B:1011:ILE:HD13	1:B:1127:VAL:HG11	1.91	0.52
1:C:1040:TYR:HE2	1:C:1063:ILE:HD11	1.70	0.52
1:B:1090:LEU:HG	1:B:1116:PHE:CZ	2.44	0.52
1:A:1080:ARG:HH22	1:A:1081:ARG:HE	1.55	0.52
1:B:1186:ILE:C	1:B:1188:GLU:H	2.12	0.52
1:C:1047:ALA:HA	1:C:1088:GLN:NE2	2.25	0.52
1:B:1052:GLN:HB2	1:B:1073:MET:HE1	1.92	0.52
1:B:1086:ALA:HB1	1:B:1160:ILE:HG12	1.90	0.52
1:A:1093:LEU:HD11	1:A:1114:VAL:HG12	1.91	0.52
1:A:1121:HIS:HD2	1:A:1144:SER:O	1.93	0.52
1:A:1168:GLN:OE1	1:B:1165:MET:HG2	2.09	0.52
1:A:1010:LEU:HD13	1:B:1124:MET:HG3	1.91	0.52
1:B:1121:HIS:CD2	1:B:1147:ILE:HB	2.45	0.52
1:C:1165:MET:O	1:C:1168:GLN:HG2	2.09	0.52
1:C:1121:HIS:CD2	1:C:1147:ILE:HB	2.44	0.52
1:A:1162:VAL:HG22	1:A:1193:CYS:O	2.09	0.52
1:B:1005:ARG:O	1:B:1007:GLU:HG2	2.10	0.52
1:A:1021:PHE:HD1	1:A:1024:MET:HE3	1.75	0.52
1:A:1017:ASP:HA	1:A:1062:ALA:HA	1.92	0.51
1:A:1037:LEU:HD22	1:C:1141:ILE:HG12	1.92	0.51
1:A:1059:VAL:HG12	2:A:2200:TAT:H8	1.92	0.51
1:B:1083:ILE:HG23	1:B:1195:ILE:HD13	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1087:ARG:NE	1:B:1196:ASN:O	2.38	0.51
1:C:1043:GLU:HB3	1:C:1092:ALA:HB1	1.91	0.51
1:C:1083:ILE:HG23	1:C:1195:ILE:HD13	1.92	0.51
1:A:1043:GLU:HB3	1:A:1092:ALA:HB1	1.91	0.51
1:C:1122:GLN:HE21	1:C:1165:MET:HE3	1.74	0.51
1:B:1045:THR:HG23	1:B:1049:PHE:CD2	2.45	0.51
1:B:1119:GLY:HA2	1:B:1161:MET:O	2.11	0.51
1:A:1069:ALA:HB1	1:A:1138:PHE:CZ	2.40	0.51
1:A:1177:LYS:HE3	1:A:1179:GLU:OE1	2.11	0.51
1:B:1170:VAL:HG13	1:B:1175:ILE:HD11	1.93	0.51
1:A:1083:ILE:HG23	1:A:1195:ILE:HD13	1.92	0.51
1:A:1011:ILE:HD12	1:A:1066:LEU:HD22	1.93	0.51
1:C:1021:PHE:HA	1:C:1024:MET:CE	2.41	0.51
1:C:1170:VAL:HG22	1:C:1174:GLU:HB2	1.92	0.51
1:A:1079:VAL:CG1	1:A:1166:VAL:HG13	2.34	0.51
1:B:1015:PHE:O	1:B:1118:CYS:HA	2.11	0.51
1:A:1183:LEU:HD12	1:A:1190:VAL:HG21	1.92	0.50
1:B:1116:PHE:H	1:B:1158:ASN:HD22	1.59	0.50
1:C:1079:VAL:CG1	1:C:1166:VAL:HG13	2.34	0.50
1:A:1142:GLY:HA2	1:C:1025:SER:CB	2.40	0.50
1:A:1188:GLU:OE1	1:B:1074:SER:HA	2.10	0.50
1:B:1155:THR:CB	1:B:1161:MET:HB2	2.30	0.50
1:C:1120:ILE:HG22	1:C:1166:VAL:HG21	1.92	0.50
1:A:1080:ARG:NH2	1:A:1081:ARG:NE	2.56	0.50
1:B:1079:VAL:CG1	1:B:1166:VAL:HG13	2.38	0.50
1:C:1045:THR:HG23	1:C:1049:PHE:CD2	2.47	0.50
1:B:1175:ILE:HG23	1:B:1193:CYS:HB3	1.93	0.50
1:A:1056:ASP:N	1:A:1064:MET:O	2.40	0.50
1:A:1130:PHE:CZ	1:A:1141:ILE:HD13	2.47	0.50
1:B:1040:TYR:HB2	1:B:1100:TRP:HH2	1.76	0.50
1:C:1017:ASP:HA	1:C:1062:ALA:HA	1.93	0.50
1:A:1175:ILE:HG23	1:A:1193:CYS:HB3	1.94	0.49
1:B:1047:ALA:O	1:B:1051:ASN:ND2	2.33	0.49
1:B:1090:LEU:HD13	1:B:1197:PRO:HB2	1.93	0.49
1:B:1175:ILE:HD12	1:B:1178:ARG:NH2	2.27	0.49
1:C:1116:PHE:H	1:C:1158:ASN:HD22	1.58	0.49
1:C:1175:ILE:HG23	1:C:1193:CYS:HB3	1.94	0.49
1:A:1187:ASP:O	1:A:1188:GLU:HG3	2.12	0.49
1:B:1011:ILE:HD12	1:B:1066:LEU:HD22	1.94	0.49
1:B:1048:VAL:CG2	1:B:1049:PHE:N	2.74	0.49
1:C:1113:PRO:O	1:C:1114:VAL:C	2.51	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1040:TYR:HB2	1:B:1100:TRP:CH2	2.47	0.49
1:A:1083:ILE:HG23	1:A:1195:ILE:CD1	2.43	0.49
2:A:2200:TAT:H1	1:C:1057:LYS:HD2	1.95	0.49
1:B:1080:ARG:NH2	1:B:1081:ARG:NE	2.58	0.49
1:A:1024:MET:C	1:A:1026:ASN:N	2.66	0.49
1:A:1034:ALA:HB2	1:C:1126:VAL:HG11	1.93	0.49
1:A:1044:MET:SD	1:A:1089:MET:HB3	2.52	0.49
1:B:1012:THR:HB	1:B:1067:TYR:HB2	1.94	0.49
1:C:1040:TYR:HB2	1:C:1100:TRP:CH2	2.48	0.49
1:C:1047:ALA:O	1:C:1051:ASN:ND2	2.34	0.49
1:C:1079:VAL:HG13	1:C:1166:VAL:CG1	2.37	0.49
1:A:1076:SER:HA	1:A:1169:TYR:CD2	2.47	0.49
1:A:1121:HIS:ND1	1:A:1163:SER:CB	2.76	0.49
1:C:1150:ARG:HA	1:C:1153:GLU:HG2	1.95	0.49
1:B:1017:ASP:HA	1:B:1062:ALA:HA	1.93	0.49
1:A:1119:GLY:HA2	1:A:1161:MET:O	2.13	0.49
1:C:1016:SER:O	1:C:1062:ALA:HA	2.12	0.49
1:C:1017:ASP:CG	1:C:1117:ARG:HH21	2.16	0.49
1:A:1016:SER:O	1:A:1062:ALA:HA	2.13	0.49
1:A:1121:HIS:CD2	1:A:1147:ILE:HB	2.47	0.49
1:B:1083:ILE:HG23	1:B:1195:ILE:CD1	2.43	0.49
1:C:1048:VAL:CG2	1:C:1049:PHE:N	2.76	0.49
1:C:1175:ILE:HD12	1:C:1178:ARG:NH2	2.28	0.49
1:C:1178:ARG:HG3	1:C:1178:ARG:NH1	2.28	0.49
1:B:1076:SER:HA	1:B:1169:TYR:CD2	2.47	0.48
1:C:1087:ARG:NE	1:C:1196:ASN:O	2.41	0.48
1:C:1011:ILE:HD13	1:C:1127:VAL:HG11	1.95	0.48
1:C:1187:ASP:O	1:C:1188:GLU:HG3	2.13	0.48
1:A:1040:TYR:HB2	1:A:1100:TRP:CH2	2.48	0.48
1:A:1150:ARG:HA	1:A:1153:GLU:HG2	1.95	0.48
1:B:1130:PHE:CZ	1:B:1141:ILE:HD13	2.49	0.48
1:B:1150:ARG:HA	1:B:1153:GLU:HG2	1.95	0.48
1:C:1040:TYR:HB2	1:C:1100:TRP:HH2	1.78	0.48
1:A:1019:VAL:HG21	1:A:1157:PRO:HB3	1.94	0.48
1:A:1025:SER:HA	1:A:1033:VAL:HG21	1.96	0.48
1:A:1141:ILE:CG2	1:C:1021:PHE:HE2	2.26	0.48
1:A:1040:TYR:HB2	1:A:1100:TRP:HH2	1.78	0.48
1:A:1011:ILE:HD13	1:A:1127:VAL:CG1	2.44	0.48
1:A:1005:ARG:O	1:A:1007:GLU:HG2	2.13	0.48
1:B:1016:SER:O	1:B:1062:ALA:HA	2.13	0.48
1:C:1083:ILE:HG23	1:C:1195:ILE:CD1	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1164:ALA:CB	1:B:1168:GLN:OE1	2.49	0.48
1:B:1088:GLN:HB2	4:B:2012:HOH:O	2.14	0.48
1:C:1021:PHE:HA	1:C:1024:MET:HE3	1.96	0.48
1:B:1044:MET:SD	1:B:1089:MET:HB3	2.53	0.48
1:B:1056:ASP:N	1:B:1064:MET:O	2.40	0.48
1:B:1103:ARG:NH2	1:B:1105:LEU:HD11	2.29	0.47
1:C:1015:PHE:O	1:C:1118:CYS:HA	2.14	0.47
1:C:1076:SER:HA	1:C:1169:TYR:CD2	2.48	0.47
1:C:1121:HIS:ND1	1:C:1163:SER:CB	2.77	0.47
1:A:1113:PRO:O	1:A:1114:VAL:C	2.52	0.47
1:A:1171:PRO:HB2	1:A:1173:GLU:OE2	2.14	0.47
1:C:1024:MET:C	1:C:1026:ASN:N	2.68	0.47
1:A:1015:PHE:O	1:A:1118:CYS:HA	2.14	0.47
1:A:1017:ASP:CG	1:A:1117:ARG:HH21	2.17	0.47
1:A:1052:GLN:HB2	1:A:1073:MET:HE1	1.95	0.47
1:A:1064:MET:HE3	1:A:1145:VAL:HG13	1.95	0.47
1:A:1117:ARG:NH1	1:A:1153:GLU:HA	2.29	0.47
1:A:1120:ILE:HG22	1:A:1166:VAL:HG21	1.95	0.47
1:A:1122:GLN:HE21	1:A:1165:MET:HE1	1.79	0.47
1:B:1117:ARG:NH1	1:B:1153:GLU:HA	2.29	0.47
1:C:1018:ILE:CG2	1:C:1114:VAL:HG13	2.44	0.47
1:C:1067:TYR:OH	1:C:1085:THR:HG21	2.15	0.47
1:A:1056:ASP:HB3	1:A:1064:MET:O	2.15	0.47
1:A:1096:LEU:HB3	1:A:1100:TRP:CH2	2.50	0.47
1:B:1017:ASP:CG	1:B:1117:ARG:HH21	2.18	0.47
1:B:1064:MET:HE3	1:B:1145:VAL:HG13	1.95	0.47
1:B:1160:ILE:HD12	1:B:1197:PRO:HA	1.96	0.47
1:A:1031:GLN:NE2	4:A:2002:HOH:O	2.47	0.47
1:A:1051:ASN:C	1:A:1053:GLY:H	2.18	0.47
1:A:1079:VAL:HG13	1:A:1166:VAL:CG1	2.37	0.47
1:A:1116:PHE:H	1:A:1158:ASN:HD22	1.61	0.47
1:A:1170:VAL:HG13	1:A:1175:ILE:HD11	1.96	0.47
1:B:1021:PHE:HA	1:B:1024:MET:CE	2.44	0.47
1:B:1024:MET:C	1:B:1026:ASN:N	2.67	0.47
1:C:1130:PHE:CZ	1:C:1141:ILE:HD13	2.49	0.47
1:A:1018:ILE:HB	1:A:1061:ASP:HB2	1.97	0.47
1:A:1164:ALA:CB	1:B:1169:TYR:OH	2.63	0.47
1:B:1071:GLU:HA	4:B:2010:HOH:O	2.15	0.47
1:B:1165:MET:O	1:B:1168:GLN:HG2	2.15	0.47
1:A:1093:LEU:HD21	1:A:1114:VAL:O	2.15	0.47
1:A:1165:MET:O	1:A:1168:GLN:HG2	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1113:PRO:O	1:B:1115:ARG:HG3	2.15	0.47
1:C:1019:VAL:HG21	1:C:1157:PRO:HB3	1.97	0.47
1:C:1021:PHE:CD1	1:C:1024:MET:HE3	2.49	0.47
1:C:1103:ARG:NH2	1:C:1105:LEU:HD11	2.30	0.47
1:B:1011:ILE:HD13	1:B:1127:VAL:CG1	2.45	0.46
1:B:1048:VAL:HG22	1:B:1049:PHE:N	2.30	0.46
1:C:1170:VAL:HG13	1:C:1175:ILE:HD11	1.96	0.46
1:A:1180:PHE:HE2	1:B:1076:SER:CB	2.14	0.46
1:C:1073:MET:CG	1:C:1077:GLU:HB3	2.45	0.46
1:C:1117:ARG:NH1	1:C:1153:GLU:HA	2.30	0.46
1:A:1048:VAL:HG12	1:A:1089:MET:HE3	1.98	0.46
1:A:1067:TYR:OH	1:A:1085:THR:HG21	2.16	0.46
1:A:1103:ARG:NH2	1:A:1105:LEU:HD11	2.30	0.46
1:B:1025:SER:HA	1:B:1033:VAL:HG21	1.97	0.46
1:C:1119:GLY:HA2	1:C:1161:MET:O	2.15	0.46
1:A:1087:ARG:NE	1:A:1196:ASN:O	2.41	0.46
1:A:1139:THR:OG1	1:A:1140:ALA:N	2.49	0.46
1:A:1162:VAL:HB	1:A:1166:VAL:CB	2.45	0.46
1:B:1004:LEU:HB3	4:B:2001:HOH:O	2.15	0.46
1:A:1026:ASN:OD1	1:A:1027:ALA:N	2.48	0.46
1:A:1048:VAL:CG2	1:A:1049:PHE:N	2.79	0.46
1:B:1051:ASN:C	1:B:1053:GLY:H	2.18	0.46
1:B:1161:MET:CG	1:B:1192:THR:HB	2.46	0.46
1:B:1018:ILE:CG2	1:B:1114:VAL:HG13	2.45	0.46
1:B:1021:PHE:HA	1:B:1024:MET:HE3	1.97	0.46
1:B:1113:PRO:O	1:B:1114:VAL:C	2.54	0.46
1:C:1026:ASN:OD1	1:C:1027:ALA:N	2.49	0.46
1:C:1121:HIS:CD2	1:C:1144:SER:HA	2.50	0.46
1:C:1124:MET:O	1:C:1144:SER:OG	2.30	0.46
1:C:1141:ILE:HD12	1:C:1141:ILE:N	2.31	0.46
1:A:1018:ILE:CG2	1:A:1114:VAL:HG13	2.45	0.46
1:B:1130:PHE:CD1	1:B:1141:ILE:HD13	2.51	0.46
1:B:1178:ARG:HG3	1:B:1178:ARG:NH1	2.29	0.46
1:C:1044:MET:SD	1:C:1089:MET:HB3	2.56	0.46
1:C:1080:ARG:NH2	1:C:1081:ARG:NE	2.60	0.46
1:C:1051:ASN:C	1:C:1053:GLY:H	2.19	0.46
1:A:1155:THR:CB	1:A:1161:MET:HB2	2.32	0.46
1:B:1019:VAL:HG21	1:B:1157:PRO:HB3	1.97	0.46
1:C:1161:MET:CG	1:C:1192:THR:HB	2.46	0.46
1:A:1087:ARG:HG2	1:A:1197:PRO:O	2.16	0.45
1:A:1191:MET:HB3	4:A:2021:HOH:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1022:THR:C	1:B:1024:MET:N	2.69	0.45
1:B:1067:TYR:OH	1:B:1085:THR:HG21	2.16	0.45
1:B:1121:HIS:ND1	1:B:1163:SER:CB	2.79	0.45
1:B:1171:PRO:HB2	1:B:1173:GLU:CG	2.45	0.45
1:C:1010:LEU:HD23	1:C:1075:PRO:HG3	1.98	0.45
1:A:1006:PRO:HG3	1:C:1038:ASN:HD21	1.81	0.45
1:A:1081:ARG:HG3	1:A:1081:ARG:NH1	2.31	0.45
1:B:1056:ASP:HB3	1:B:1064:MET:O	2.15	0.45
1:B:1120:ILE:HG22	1:B:1166:VAL:HG21	1.97	0.45
1:B:1141:ILE:HD12	1:B:1141:ILE:N	2.30	0.45
1:C:1025:SER:HA	1:C:1033:VAL:HG21	1.98	0.45
1:C:1093:LEU:HD21	1:C:1114:VAL:O	2.17	0.45
1:A:1021:PHE:HA	1:A:1024:MET:CE	2.47	0.45
1:A:1168:GLN:NE2	1:B:1165:MET:CG	2.67	0.45
1:B:1079:VAL:HG23	1:B:1122:GLN:OE1	2.16	0.45
1:B:1093:LEU:HD11	1:B:1114:VAL:CG1	2.46	0.45
1:C:1018:ILE:HB	1:C:1061:ASP:HB2	1.98	0.45
1:C:1113:PRO:O	1:C:1115:ARG:HG3	2.16	0.45
1:A:1021:PHE:HA	1:A:1024:MET:HE2	1.97	0.45
1:A:1150:ARG:HH12	1:A:1184:LYS:HD2	1.77	0.45
1:B:1044:MET:O	1:B:1047:ALA:HB3	2.17	0.45
1:B:1171:PRO:HB2	1:B:1173:GLU:OE2	2.16	0.45
1:C:1079:VAL:HG23	1:C:1122:GLN:OE1	2.17	0.45
1:C:1130:PHE:O	1:C:1136:SER:HA	2.17	0.45
1:A:1022:THR:C	1:A:1024:MET:N	2.70	0.45
1:B:1121:HIS:CD2	1:B:1144:SER:HA	2.51	0.45
1:B:1122:GLN:O	1:B:1165:MET:HG3	2.16	0.45
1:A:1131:GLY:HA2	1:C:1041:LEU:CB	2.47	0.45
1:A:1178:ARG:HG3	1:A:1178:ARG:NH1	2.31	0.45
1:B:1018:ILE:CG1	1:B:1061:ASP:HB2	2.47	0.45
1:B:1170:VAL:CG2	1:B:1174:GLU:HB2	2.46	0.45
1:A:1186:ILE:O	1:A:1188:GLU:N	2.50	0.45
1:B:1142:GLY:HA3	4:B:2016:HOH:O	2.16	0.45
1:B:1040:TYR:HA	1:B:1096:LEU:CD1	2.47	0.45
1:B:1054:THR:O	1:B:1065:ALA:HA	2.17	0.45
1:C:1150:ARG:NH1	1:C:1153:GLU:OE2	2.47	0.45
1:C:1155:THR:CB	1:C:1161:MET:HB2	2.32	0.45
1:A:1038:ASN:OD1	1:C:1131:GLY:N	2.50	0.45
1:C:1146:ASN:HB2	4:C:2017:HOH:O	2.17	0.45
1:C:1150:ARG:HH12	1:C:1184:LYS:HD2	1.78	0.45
1:B:1051:ASN:O	1:B:1081:ARG:HB3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1093:LEU:HA	1:C:1096:LEU:HB2	1.99	0.44
1:C:1116:PHE:CD1	1:C:1116:PHE:C	2.91	0.44
1:A:1051:ASN:C	1:A:1053:GLY:N	2.70	0.44
1:C:1051:ASN:O	1:C:1081:ARG:HB3	2.17	0.44
1:C:1056:ASP:HB3	1:C:1064:MET:O	2.17	0.44
1:C:1096:LEU:HB3	1:C:1100:TRP:CH2	2.51	0.44
1:A:1113:PRO:O	1:A:1115:ARG:HG3	2.17	0.44
1:A:1171:PRO:HB2	1:A:1173:GLU:CG	2.48	0.44
1:B:1194:VAL:HG22	1:B:1194:VAL:O	2.17	0.44
1:C:1052:GLN:HB2	1:C:1073:MET:HE1	1.98	0.44
1:C:1087:ARG:HD3	1:C:1198:ASN:O	2.18	0.44
1:A:1012:THR:HA	1:A:1122:GLN:HA	2.00	0.44
1:A:1100:TRP:HZ3	1:A:1114:VAL:HB	1.83	0.44
1:A:1178:ARG:O	1:A:1179:GLU:HB2	2.18	0.44
1:B:1056:ASP:OD2	1:B:1064:MET:HE2	2.17	0.44
1:B:1196:ASN:OD1	1:B:1198:ASN:HB2	2.18	0.44
1:C:1048:VAL:HG22	1:C:1049:PHE:N	2.32	0.44
1:A:1116:PHE:CD1	1:A:1116:PHE:C	2.90	0.44
1:A:1198:ASN:O	1:A:1199:MET:HB2	2.17	0.44
1:B:1018:ILE:HB	1:B:1061:ASP:HB2	1.99	0.44
1:C:1044:MET:O	1:C:1047:ALA:HB3	2.17	0.44
1:C:1171:PRO:HB2	1:C:1173:GLU:OE2	2.17	0.44
1:A:1141:ILE:HD12	1:A:1141:ILE:N	2.32	0.44
1:B:1051:ASN:C	1:B:1053:GLY:N	2.70	0.44
1:B:1093:LEU:HD21	1:B:1114:VAL:O	2.17	0.44
1:C:1017:ASP:HB3	1:C:1117:ARG:HH21	1.83	0.44
1:C:1018:ILE:HD11	1:C:1040:TYR:CG	2.53	0.44
1:C:1119:GLY:HA3	1:C:1152:GLN:N	2.33	0.44
1:C:1171:PRO:HB2	1:C:1173:GLU:CG	2.46	0.44
1:C:1178:ARG:O	1:C:1179:GLU:CB	2.66	0.44
1:C:1178:ARG:O	1:C:1179:GLU:HB2	2.17	0.44
1:A:1056:ASP:OD1	1:A:1057:LYS:HG2	2.17	0.44
1:B:1096:LEU:HB3	1:B:1100:TRP:CH2	2.53	0.44
1:B:1160:ILE:O	1:B:1194:VAL:HA	2.18	0.44
1:C:1117:ARG:CB	1:C:1152:GLN:O	2.63	0.44
1:C:1198:ASN:O	1:C:1199:MET:HB2	2.18	0.44
1:B:1056:ASP:OD1	1:B:1057:LYS:HG2	2.18	0.43
1:C:1024:MET:SD	1:C:1114:VAL:HG22	2.58	0.43
1:A:1019:VAL:CG2	1:A:1157:PRO:HG3	2.45	0.43
1:A:1051:ASN:O	1:A:1081:ARG:HB3	2.19	0.43
1:A:1068:GLY:HA2	1:A:1073:MET:HB3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1161:MET:CG	1:A:1192:THR:HB	2.48	0.43
1:B:1130:PHE:O	1:B:1136:SER:HA	2.18	0.43
1:C:1011:ILE:HD13	1:C:1127:VAL:CG1	2.48	0.43
1:C:1051:ASN:C	1:C:1053:GLY:N	2.71	0.43
1:C:1041:LEU:HD23	1:C:1063:ILE:HD11	2.00	0.43
1:C:1093:LEU:HD11	1:C:1114:VAL:CG1	2.48	0.43
1:C:1122:GLN:O	1:C:1165:MET:HG3	2.17	0.43
1:B:1026:ASN:OD1	1:B:1027:ALA:N	2.51	0.43
1:C:1011:ILE:HD12	1:C:1066:LEU:HD22	2.00	0.43
1:A:1130:PHE:O	1:A:1136:SER:HA	2.17	0.43
1:A:1170:VAL:CG2	1:A:1174:GLU:HB2	2.48	0.43
1:B:1071:GLU:HG3	4:B:2010:HOH:O	2.17	0.43
1:B:1119:GLY:HA3	1:B:1152:GLN:N	2.33	0.43
1:C:1056:ASP:OD1	1:C:1057:LYS:HG2	2.19	0.43
1:C:1100:TRP:HZ3	1:C:1114:VAL:HB	1.84	0.43
1:C:1150:ARG:HA	1:C:1150:ARG:HD3	1.81	0.43
1:A:1195:ILE:HD12	1:A:1196:ASN:O	2.19	0.43
1:B:1100:TRP:HZ3	1:B:1114:VAL:HB	1.84	0.43
1:B:1195:ILE:HD12	1:B:1196:ASN:O	2.18	0.43
1:C:1168:GLN:HE21	1:C:1168:GLN:HB2	1.62	0.43
1:B:1013:ILE:HG12	1:B:1145:VAL:HG22	2.00	0.43
1:B:1021:PHE:O	1:B:1024:MET:HB2	2.19	0.43
1:B:1093:LEU:HD21	1:B:1115:ARG:HA	2.01	0.43
1:B:1187:ASP:O	1:B:1188:GLU:HG3	2.18	0.43
1:C:1077:GLU:O	1:C:1081:ARG:HG2	2.17	0.43
1:C:1195:ILE:HD12	1:C:1196:ASN:O	2.19	0.43
1:A:1121:HIS:CD2	1:A:1144:SER:HA	2.52	0.43
1:A:1178:ARG:O	1:A:1179:GLU:CB	2.67	0.43
1:C:1022:THR:C	1:C:1024:MET:N	2.71	0.43
1:A:1044:MET:O	1:A:1047:ALA:HB3	2.18	0.43
1:A:1093:LEU:HD21	1:A:1115:ARG:HA	2.01	0.43
1:B:1162:VAL:HB	1:B:1166:VAL:CB	2.47	0.43
1:C:1018:ILE:HB	1:C:1061:ASP:OD2	2.19	0.43
1:C:1139:THR:OG1	1:C:1140:ALA:N	2.52	0.43
1:A:1006:PRO:HG3	1:C:1038:ASN:ND2	2.34	0.43
1:A:1040:TYR:HA	1:A:1096:LEU:CD1	2.49	0.43
1:A:1128:GLY:HA2	1:A:1138:PHE:CE1	2.53	0.43
1:B:1178:ARG:O	1:B:1179:GLU:CB	2.66	0.43
1:A:1056:ASP:OD1	1:A:1056:ASP:C	2.57	0.42
1:A:1079:VAL:HG23	1:A:1122:GLN:OE1	2.19	0.42
1:B:1077:GLU:O	1:B:1081:ARG:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1178:ARG:O	1:B:1179:GLU:HB2	2.19	0.42
1:C:1170:VAL:CG2	1:C:1174:GLU:HB2	2.48	0.42
1:B:1093:LEU:HA	1:B:1096:LEU:HB2	2.01	0.42
1:C:1162:VAL:HB	1:C:1166:VAL:CB	2.45	0.42
1:A:1017:ASP:HB3	1:A:1117:ARG:HH21	1.84	0.42
1:A:1051:ASN:O	1:A:1053:GLY:N	2.52	0.42
1:B:1116:PHE:CD1	1:B:1116:PHE:C	2.93	0.42
1:C:1021:PHE:O	1:C:1024:MET:HB2	2.19	0.42
1:A:1018:ILE:CG1	1:A:1061:ASP:HB2	2.50	0.42
1:A:1194:VAL:HG22	1:A:1194:VAL:O	2.19	0.42
1:B:1059:VAL:N	1:B:1062:ALA:O	2.48	0.42
1:C:1054:THR:O	1:C:1065:ALA:HA	2.18	0.42
1:A:1139:THR:OG1	2:C:2200:TAT:N6	2.51	0.42
1:B:1012:THR:HA	1:B:1122:GLN:HA	2.01	0.42
1:B:1017:ASP:HB3	1:B:1117:ARG:HH21	1.84	0.42
1:B:1024:MET:SD	1:B:1114:VAL:HG22	2.59	0.42
1:B:1112:PRO:HA	1:B:1113:PRO:HD3	1.96	0.42
1:B:1010:LEU:HD23	1:B:1075:PRO:HG3	2.01	0.42
1:C:1160:ILE:HD12	1:C:1197:PRO:HA	2.00	0.42
1:A:1054:THR:O	1:A:1065:ALA:HA	2.19	0.42
1:A:1130:PHE:CD1	1:A:1141:ILE:HD13	2.54	0.42
1:A:1150:ARG:HA	1:A:1150:ARG:HD3	1.80	0.42
1:A:1188:GLU:OE1	1:B:1074:SER:HB3	2.20	0.42
1:C:1122:GLN:HE21	1:C:1165:MET:HE1	1.85	0.42
1:A:1093:LEU:HA	1:A:1096:LEU:HB2	2.01	0.42
1:A:1073:MET:SD	1:A:1078:GLN:HA	2.60	0.42
1:B:1021:PHE:CD1	1:B:1024:MET:HE3	2.52	0.42
1:A:1048:VAL:HG22	1:A:1049:PHE:N	2.34	0.42
1:A:1087:ARG:NH2	1:A:1174:GLU:OE1	2.48	0.42
1:B:1056:ASP:OD1	1:B:1056:ASP:C	2.58	0.42
1:C:1165:MET:O	1:C:1168:GLN:CG	2.68	0.41
1:C:1194:VAL:HG22	1:C:1194:VAL:O	2.20	0.41
1:A:1160:ILE:HD12	1:A:1197:PRO:HA	2.02	0.41
1:B:1180:PHE:HA	1:B:1190:VAL:O	2.20	0.41
1:A:1063:ILE:N	1:A:1063:ILE:CD1	2.84	0.41
1:B:1081:ARG:NH1	1:B:1081:ARG:HG3	2.35	0.41
1:B:1162:VAL:HG22	1:B:1195:ILE:HG23	2.03	0.41
1:C:1068:GLY:HA3	1:C:1078:GLN:NE2	2.35	0.41
1:A:1150:ARG:NH1	1:A:1153:GLU:OE2	2.50	0.41
1:C:1130:PHE:CD1	1:C:1141:ILE:HD13	2.55	0.41
1:A:1010:LEU:HD23	1:A:1075:PRO:HG3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1021:PHE:O	1:A:1024:MET:HB2	2.20	0.41
1:A:1045:THR:HG21	1:C:1132:SER:OG	2.19	0.41
1:A:1176:ILE:HD11	1:A:1196:ASN:HA	2.02	0.41
1:B:1139:THR:OG1	1:B:1140:ALA:N	2.54	0.41
1:C:1093:LEU:HD21	1:C:1115:ARG:HA	2.03	0.41
1:C:1105:LEU:HD23	4:C:2003:HOH:O	2.21	0.41
1:C:1161:MET:SD	1:C:1192:THR:HB	2.61	0.41
1:A:1112:PRO:HA	1:A:1113:PRO:HD3	1.94	0.41
1:B:1019:VAL:CG2	1:B:1157:PRO:HG3	2.48	0.41
1:A:1064:MET:SD	2:C:2200:TAT:C2	3.09	0.41
1:A:1152:GLN:CD	1:A:1152:GLN:C	2.80	0.41
1:A:1162:VAL:HB	1:A:1166:VAL:CG1	2.50	0.41
1:B:1031:GLN:OE1	1:B:1031:GLN:HA	2.21	0.41
1:B:1036:LEU:C	1:B:1036:LEU:HD23	2.41	0.41
1:B:1079:VAL:HG13	1:B:1166:VAL:CG1	2.40	0.41
1:B:1162:VAL:HB	1:B:1166:VAL:CG1	2.50	0.41
1:C:1044:MET:O	1:C:1048:VAL:HG13	2.21	0.41
1:C:1170:VAL:HG11	1:C:1195:ILE:HG21	2.01	0.41
1:A:1036:LEU:C	1:A:1036:LEU:HD23	2.41	0.41
1:A:1093:LEU:HD11	1:A:1114:VAL:CG1	2.49	0.41
1:A:1117:ARG:NH1	4:A:2012:HOH:O	2.54	0.41
1:C:1013:ILE:HG12	1:C:1145:VAL:HG22	2.02	0.41
1:C:1019:VAL:CG2	1:C:1157:PRO:HG3	2.46	0.41
1:C:1059:VAL:HG12	2:C:2200:TAT:H8	2.02	0.41
1:C:1162:VAL:HB	1:C:1166:VAL:CG1	2.51	0.41
1:A:1013:ILE:HG12	1:A:1145:VAL:HG22	2.03	0.40
1:B:1165:MET:O	1:B:1168:GLN:CG	2.69	0.40
1:C:1031:GLN:OE1	1:C:1031:GLN:HA	2.21	0.40
1:B:1051:ASN:C	1:B:1052:GLN:HG2	2.41	0.40
1:A:1096:LEU:HD23	1:A:1096:LEU:HA	1.96	0.40
1:A:1096:LEU:HD22	1:A:1100:TRP:CZ2	2.56	0.40
1:B:1010:LEU:HD11	1:B:1122:GLN:HG2	2.04	0.40
1:A:1130:PHE:CA	1:C:1038:ASN:OD1	2.61	0.40
1:B:1017:ASP:OD1	1:B:1117:ARG:NH2	2.55	0.40
1:C:1028:LEU:HD22	1:C:1111:VAL:HG21	2.04	0.40
1:C:1186:ILE:O	1:C:1188:GLU:N	2.51	0.40
1:A:1056:ASP:OD2	1:A:1064:MET:HE2	2.22	0.40
1:A:1102:GLU:HG3	1:A:1102:GLU:O	2.22	0.40
1:A:1177:LYS:HG3	1:A:1194:VAL:HG13	2.03	0.40
1:B:1129:LEU:HD23	1:B:1138:PHE:CA	2.52	0.40
1:C:1018:ILE:O	1:C:1061:ASP:OD2	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1087:ARG:NH1	1:C:1174:GLU:OE1	2.54	0.40
1:C:1180:PHE:HA	1:C:1190:VAL:O	2.21	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1072:GLU:OE1	1:C:1072:GLU:OE1[3_555]	1.90	0.30

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	190/226 (84%)	170 (90%)	14 (7%)	6 (3%)	4	5
1	B	189/226 (84%)	170 (90%)	14 (7%)	5 (3%)	5	8
1	C	190/226 (84%)	169 (89%)	15 (8%)	6 (3%)	4	5
All	All	569/678 (84%)	509 (90%)	43 (8%)	17 (3%)	4	6

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1199	MET
1	C	1199	MET
1	A	1114	VAL
1	A	1179	GLU
1	A	1187	ASP
1	B	1114	VAL
1	B	1179	GLU
1	B	1187	ASP
1	C	1114	VAL
1	C	1179	GLU

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Mol	Chain	Res	Type
1	C	1187	ASP
1	A	1027	ALA
1	B	1027	ALA
1	C	1027	ALA
1	C	1113	PRO
1	A	1113	PRO
1	B	1113	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	160/189 (85%)	153 (96%)	7 (4%)	28	52
1	B	159/189 (84%)	149 (94%)	10 (6%)	18	34
1	C	160/189 (85%)	153 (96%)	7 (4%)	28	52
All	All	479/567 (84%)	455 (95%)	24 (5%)	24	46

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1028	LEU
1	A	1029	GLN
1	A	1048	VAL
1	A	1077	GLU
1	A	1152	GLN
1	A	1168	GLN
1	A	1177	LYS
1	B	1005	ARG
1	B	1028	LEU
1	B	1029	GLN
1	B	1048	VAL
1	B	1077	GLU
1	B	1152	GLN
1	B	1165	MET
1	B	1168	GLN

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Mol	Chain	Res	Type
1	B	1177	LYS
1	B	1184	LYS
1	C	1028	LEU
1	C	1029	GLN
1	C	1048	VAL
1	C	1077	GLU
1	C	1152	GLN
1	C	1168	GLN
1	C	1177	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1029	GLN
1	A	1122	GLN
1	A	1133	GLN
1	A	1158	ASN
1	A	1168	GLN
1	B	1029	GLN
1	B	1098	GLN
1	B	1122	GLN
1	B	1133	GLN
1	B	1158	ASN
1	B	1168	GLN
1	C	1029	GLN
1	C	1122	GLN
1	C	1133	GLN
1	C	1158	ASN
1	C	1168	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 9 ligands modelled in this entry, 6 are monoatomic - leaving 3 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	TAT	A	2200	3	24,33,33	1.36	2 (8%)	29,52,52	1.14	3 (10%)
2	TAT	C	2200	3	24,33,33	1.39	2 (8%)	29,52,52	1.20	4 (13%)
2	TAT	B	2199	3	24,33,33	1.60	2 (8%)	29,52,52	1.21	3 (10%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	TAT	A	2200	3	-	4/14/38/38	0/3/3/3
2	TAT	C	2200	3	-	2/14/38/38	0/3/3/3
2	TAT	B	2199	3	-	1/14/38/38	0/3/3/3

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	2199	TAT	O4'-C1'	4.61	1.47	1.41
2	B	2199	TAT	C2-N1	4.35	1.42	1.33
2	A	2200	TAT	O4'-C1'	3.83	1.46	1.41
2	C	2200	TAT	O4'-C1'	3.82	1.46	1.41
2	A	2200	TAT	C2-N1	3.65	1.40	1.33
2	C	2200	TAT	C2-N1	3.62	1.40	1.33

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	2199	TAT	PB-O3B-PG	-3.69	120.18	132.83
2	C	2200	TAT	PB-O3B-PG	-3.35	121.33	132.83
2	A	2200	TAT	PB-O3B-PG	-2.85	123.05	132.83
2	C	2200	TAT	C4-C5-N7	2.48	111.98	109.40
2	B	2199	TAT	O5'-PA-O3A	2.46	110.18	101.37
2	C	2200	TAT	C3'-C2'-C1'	2.31	104.45	100.98
2	A	2200	TAT	C4-C5-N7	2.28	111.77	109.40
2	B	2199	TAT	C3'-C2'-C1'	2.26	104.37	100.98
2	C	2200	TAT	O5'-PA-O3A	2.26	109.44	101.37
2	A	2200	TAT	C3'-C2'-C1'	2.00	103.99	100.98

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	2200	TAT	O4'-C4'-C5'-O5'
2	A	2200	TAT	PG-O3B-PB-O2B
2	A	2200	TAT	O4'-C4'-C5'-O5'
2	C	2200	TAT	C3'-C4'-C5'-O5'
2	B	2199	TAT	O4'-C4'-C5'-O5'
2	A	2200	TAT	PG-O3B-PB-O1B
2	A	2200	TAT	PB-O3B-PG-O2G

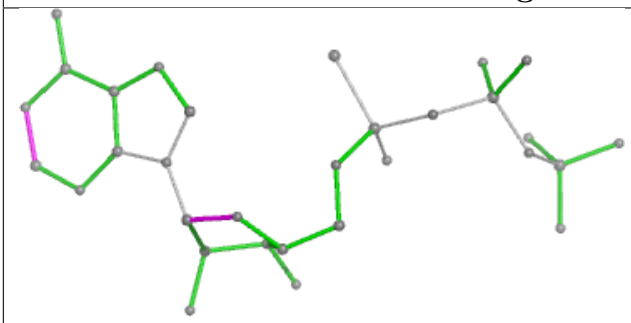
There are no ring outliers.

3 monomers are involved in 7 short contacts:

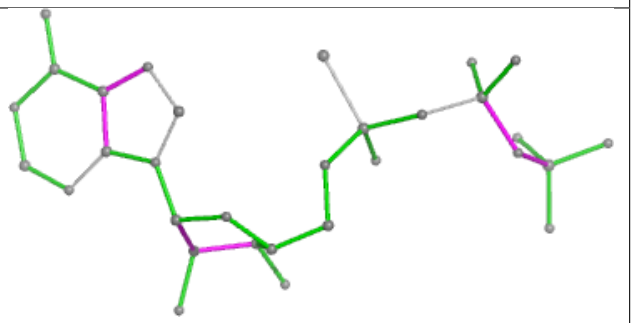
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	2200	TAT	2	0
2	C	2200	TAT	4	0
2	B	2199	TAT	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

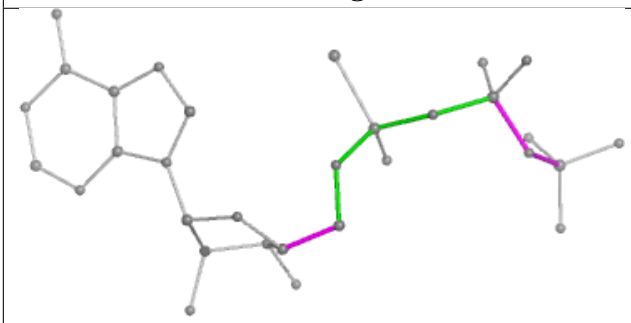
Ligand TAT A 2200



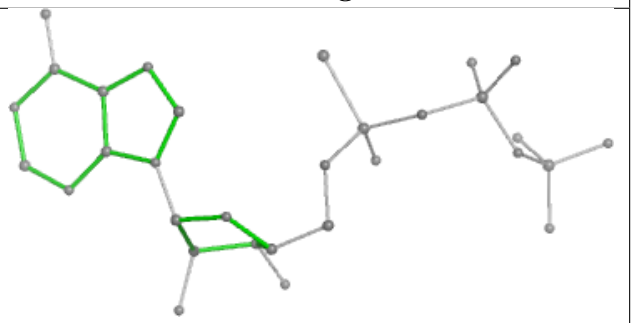
Bond lengths



Bond angles

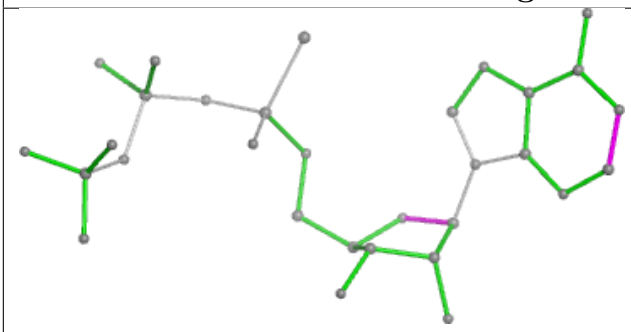


Torsions

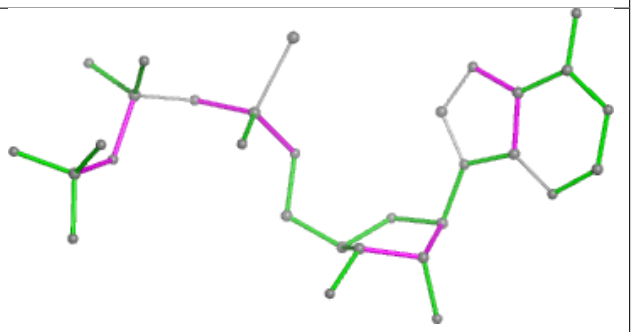


Rings

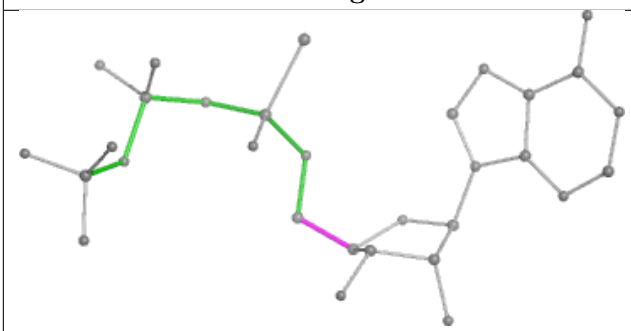
Ligand TAT C 2200



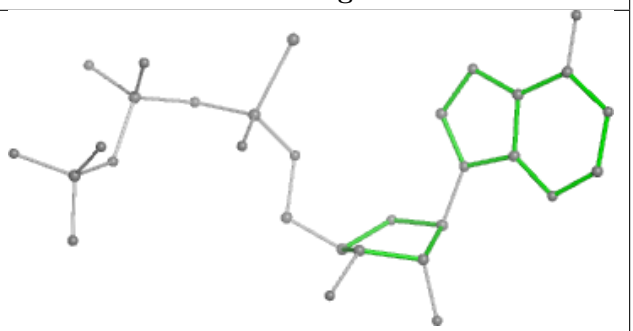
Bond lengths



Bond angles

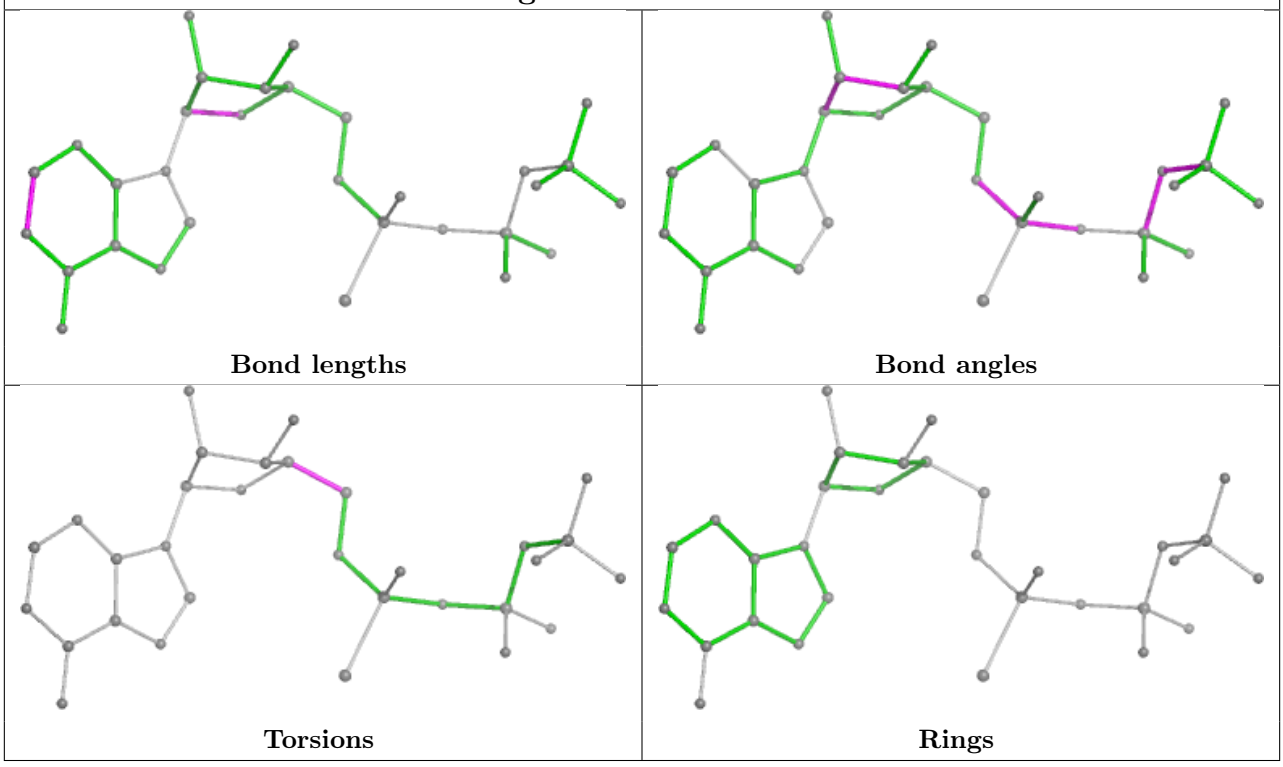


Torsions



Rings

Ligand TAT B 2199



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	194/226 (85%)	0.64	11 (5%)	23	25	11, 25, 50, 57	1 (0%)
1	B	193/226 (85%)	0.63	14 (7%)	15	15	5, 24, 48, 64	0
1	C	194/226 (85%)	1.21	37 (19%)	1	1	11, 28, 58, 63	4 (2%)
All	All	581/678 (85%)	0.83	62 (10%)	6	5	5, 25, 53, 64	5 (0%)

All (62) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	1106	VAL	12.6
1	C	1105	LEU	9.7
1	C	1104	GLY	8.1
1	C	1107	GLY	7.0
1	C	1112	PRO	6.9
1	C	1025	SER	6.7
1	C	1111	VAL	5.8
1	C	1026	ASN	4.7
1	A	1200	LEU	4.6
1	C	1175	ILE	4.5
1	C	1031	GLN	4.4
1	C	1181	LEU	4.1
1	B	1112	PRO	4.1
1	C	1028	LEU	3.8
1	C	1187	ASP	3.8
1	C	1190	VAL	3.7
1	C	1116	PHE	3.6
1	B	1187	ASP	3.6
1	C	1191	MET	3.4
1	A	1187	ASP	3.4
1	B	1028	LEU	3.2
1	C	1114	VAL	3.2
1	C	1024	MET	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	1105	LEU	3.2
1	A	1184	LYS	3.2
1	A	1029	GLN	3.0
1	B	1029	GLN	3.0
1	A	1004	LEU	3.0
1	C	1182	GLU	2.9
1	B	1101	GLN	2.9
1	C	1030	SER	2.8
1	A	1199	MET	2.8
1	C	1172	ASP	2.8
1	C	1186	ILE	2.8
1	C	1183	LEU	2.8
1	B	1092	ALA	2.6
1	C	1170	VAL	2.6
1	B	1052	GLN	2.5
1	C	1164	ALA	2.5
1	C	1021	PHE	2.4
1	A	1025	SER	2.4
1	C	1195	ILE	2.4
1	A	1134	GLU	2.4
1	B	1071	GLU	2.3
1	C	1094	GLU	2.3
1	B	1105	LEU	2.3
1	C	1113	PRO	2.3
1	B	1102	GLU	2.3
1	B	1176	ILE	2.2
1	C	1180	PHE	2.2
1	B	1096	LEU	2.2
1	C	1199	MET	2.1
1	C	1184	LYS	2.1
1	A	1081	ARG	2.1
1	C	1032	GLY	2.1
1	C	1151	LEU	2.1
1	A	1189	PRO	2.1
1	C	1166	VAL	2.0
1	B	1035	GLU	2.0
1	C	1193	CYS	2.0
1	C	1097	ASN	2.0
1	B	1023	ARG	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)

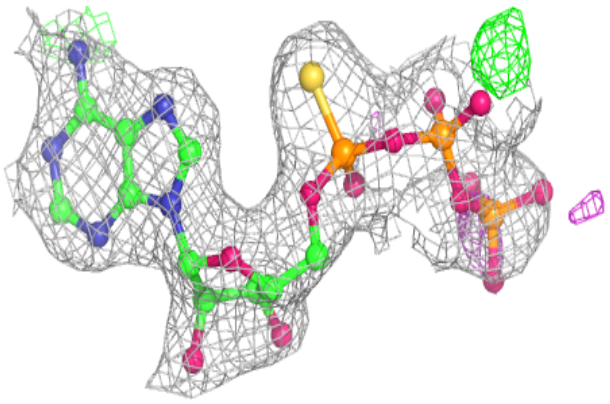
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

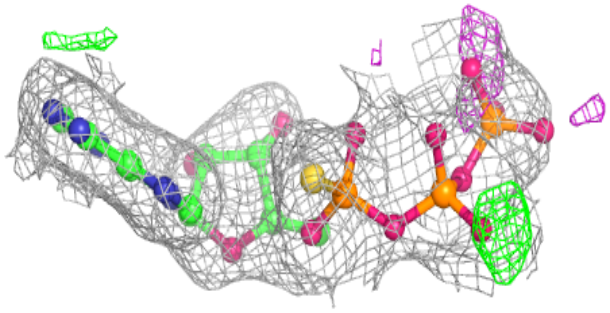
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	MG	B	2200	1/1	0.54	0.30	43,43,43,43	0
3	MG	C	2201	1/1	0.80	0.17	36,36,36,36	0
2	TAT	C	2200	31/31	0.88	0.16	17,29,57,58	0
3	MG	A	2201	1/1	0.92	0.16	17,17,17,17	0
2	TAT	A	2200	31/31	0.94	0.15	22,30,41,42	0
2	TAT	B	2199	31/31	0.94	0.17	22,31,46,46	0
3	MG	B	2201	1/1	0.95	0.08	8,8,8,8	0
3	MG	A	2202	1/1	0.95	0.08	7,7,7,7	0
3	MG	C	2202	1/1	0.95	0.20	21,21,21,21	0

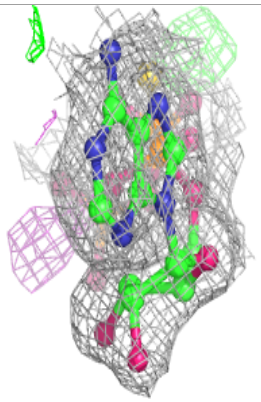
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around TAT C 2200:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

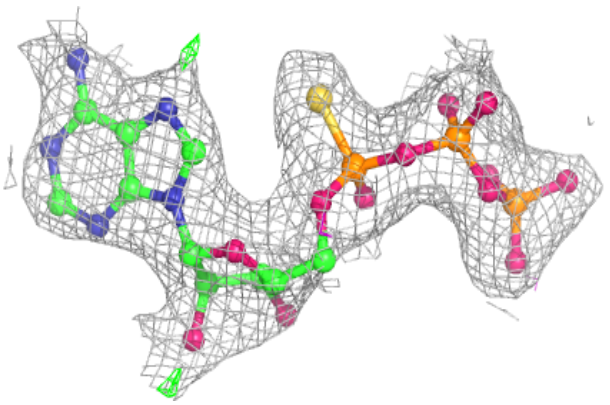


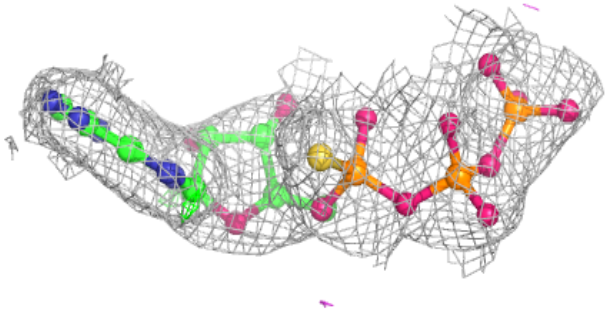


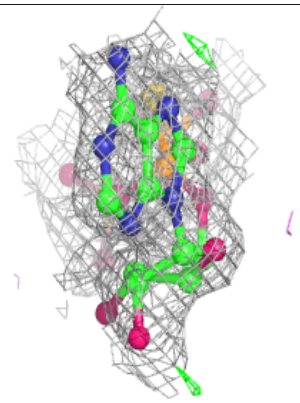


Electron density around TAT A 2200:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

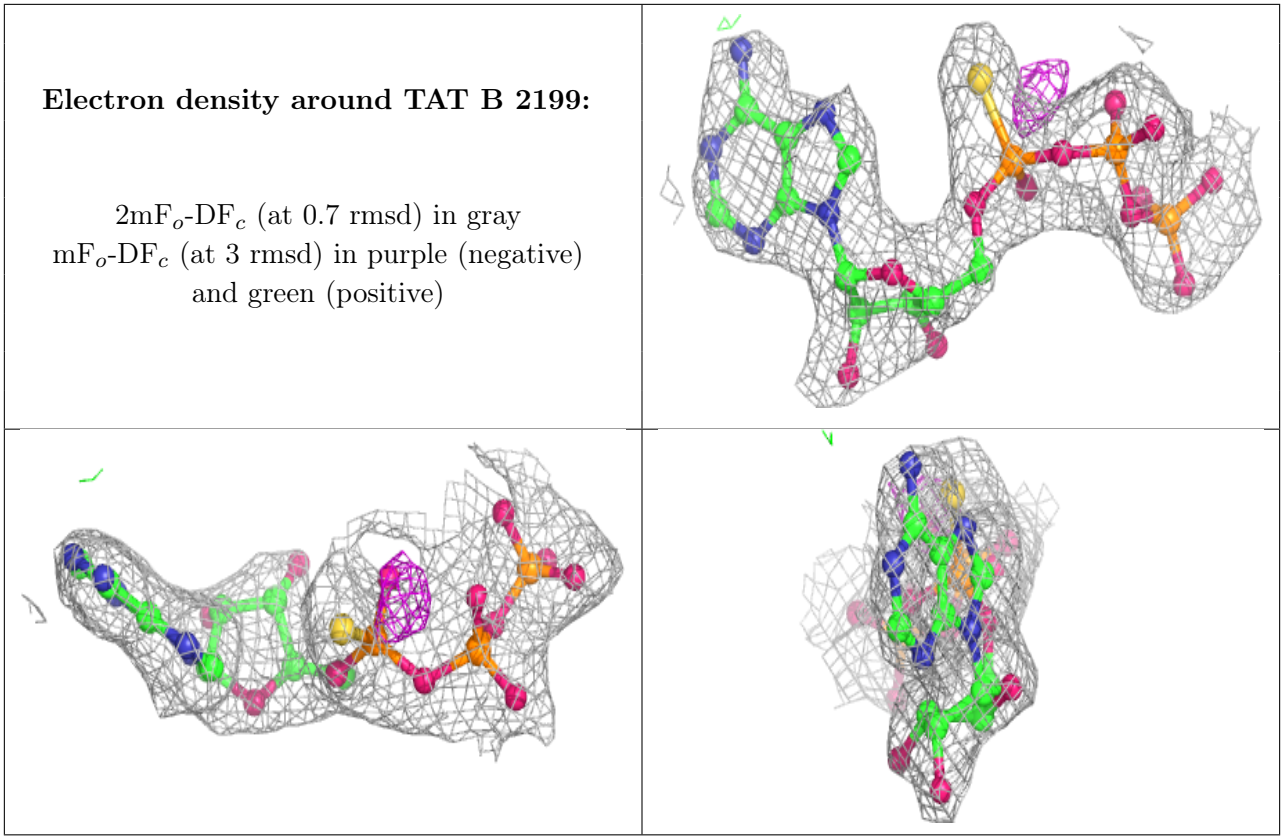






Electron density around TAT B 2199:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers (i)

There are no such residues in this entry.